POLIOMYELITIS

(INFANTILE PARALYSIS)

MILLARD

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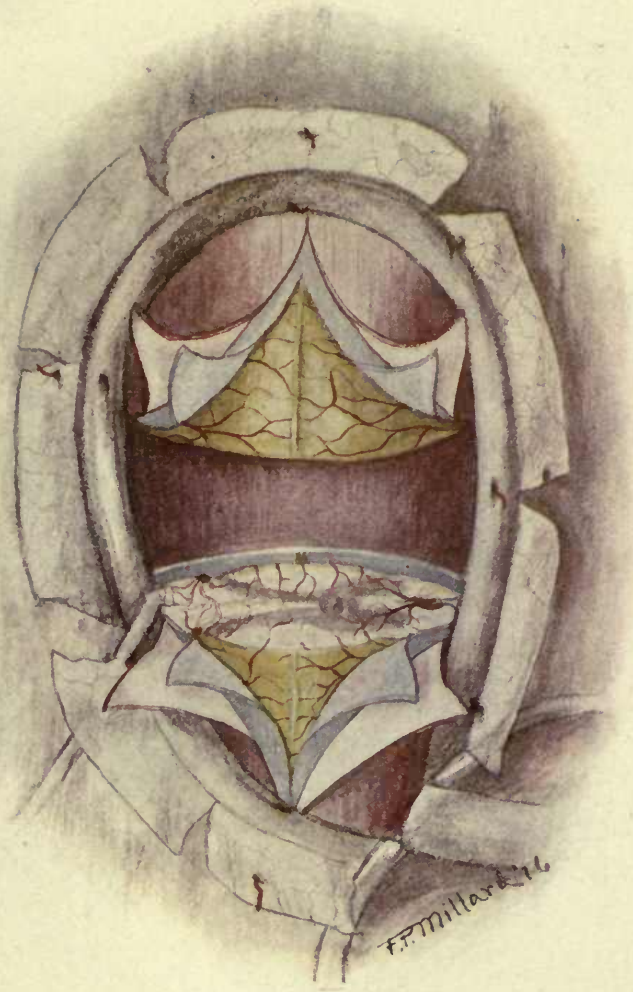

PLATE A.—Intervertebral foramen with the periosteal lining extending into the vertebral canal peeled back. The membranes are also rolled back to expose the cord. A cord segment is removed to show the vascularization of the white and grey matter. (SCHEMATIC.)

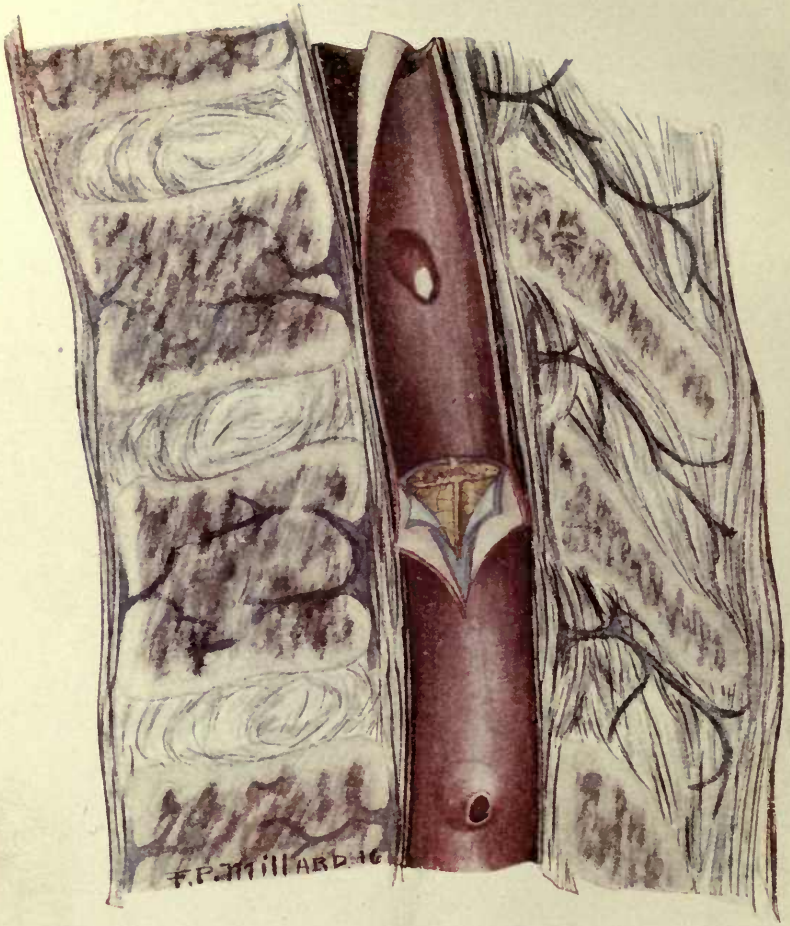

PLATE B.—Vertical section of the vertebral canal with the periosteal lining shown in the upper portion. The dura has been drawn away slightly. The vertebral ligaments and venous arrangement may be seen.

In the lower portion the membranes are drawn aside to expose a section of the cord. Still lower spinal nerve with the sheath of the dura.

POLIOMYELITIS

(INFANTILE PARALYSIS)

EDITED BY

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Originator of the Water-marked Spine in Stationery for Osteopaths.

Conductor of Tri-Weekly Clinics for Chronic Cases of Infantile Paralysis.

97 ILLUSTRATIONS
14 FULL PAGE PLATES

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DEDICATED

to the memory of the late

Dr. A. T. STILL

Founder of the Science of Osteopathy

PREFACE

In undertaking to publish a book on the subject of Poliomyelitis, the author is aware that this is not the first attempt made along this line. Our medical co-workers have contributed their quota, presenting their side of the subject, and giving their viewpoint regarding causative factors and treatment. This is, however, the first attempt to produce a book on this subject from the osteopathic viewpoint.

We have as our illustrious guide the late Dr. A. T. Still, originator and founder of the science of Osteopathy. No greater philosopher ever lived, and no greater physician ever served as a benefactor to the human race. His evolution of the therapeutics of adjustment, adjustment of the skeletal tissues, which has already done much to modify medical practice, is practically new to the world.

All over this fair land multitudes of people once lame, crippled or bedridden have been restored to health and happiness. Dr. Still paved the way for this new method of treating Infantile Paralysis. His reasonings were those of a sane man, a sage, a peer. His contention that the rule of the artery is supreme, and that the moment the circulation to any part of the body is interfered with that moment a diseased or disturbed condition arises or is in the making, is genuine philosophy and will stand for all time.

Not since the discovery of the circulation of the blood by Harvey has more significant logic been deduced and substantiated. His ideas regarding the invasion of germs and their destructive tendencies thru their toxins acting upon tissues devitalized from obstructed circulation, is no less true, and will go down thru history unchallenged. The cause of Infantile Paralysis will be taken up in the first chapter, and is based upon Dr. Still's reasonings.

We are indebted to our fellow co-workers for many case reports, and data found in this small volume. To the Osteopathic Physician, we wish to give credit for case reports 7 to 36.

To Dr. A. G. Walmsley, especial thanks is due for his able collaboration in producing this work. Of assistance rendered in various ways by Dr. Walmsley, aside from the chapters contributed by him, may be mentioned reading the proofs and preparing the comprehensive index found in this volume.

We trust the reading of this little book may stimulate others to follow along the lines that Dr. Still gave to the world in the last quarter of the nineteenth century.

F. P. MILLARD, D. O.

May, 1918.

CONTENTS

ILLUSTRATIONS

INTRODUCTION

IN PRESENTING the thoughts contained in this book on the subject of infantile paralysis, it has been the desire of the author and of his collaborators that this work should not receive the criticism that so frequently is levelled at a one-man production. Having this thought in mind, every effort was directed to the end that this work should have what might be termed a cosmopolitan flavor. The chapters contributed by others than the author, along with the most excellent array of case reports herein contained, are, we believe, a fulfillment of the end aimed at. No one who is interested in the subject of poliomyelitis should fail to read this work. After reading the chapters on Etiology, Applied Anatomy, Treatment, etc., the reader should carefully study the case reports. It is surprising how, time and again, the physicians submitting the case reports—apparently, sometimes wittingly, sometimes unwittingly—drive home the truth of the statements made in the chapters on Applied Anatomy and Treatment. Among the things that are brought out by the case reports the following deserve special mention:

First.—Those who have had experience with poliomyelitis are unanimous and emphatic in their contention that the earlier the osteopath gets the case the better. A study of the case reports leaves no doubt that Osteopathy is THE treatment for poliomyelitis in the early stages. The more severe the case and the greater and more urgent the necessity for the ministrations of the osteopath.

Second.—The symposium of case reports shows beyond a doubt that Osteopathy is the only treatment that offers real hope of improvement or cure in any and all stages of the disease. Whether the case is of a few days' standing or whether years have elapsed since the attack, Osteopathy is the ONLY treatment that has accomplished anything worth while.

Third.—The average medical man seems, and actually is, almost helpless in treating infantile paralysis. His policy, for the most part, is one of watchful waiting until the acute

stage is past. Then he will make an attempt to overcome the resulting paralysis and deformity. But in this last effort his armamentarium lacks means whereby the desired end may be attained, and it is because of this fact that one is justified in pronouncing the medical treatment of poliomyelitis an abject failure. The drugs administered during the more distressing stages of the disease undoubtedly handicap rather than help nature, and fortunate are those poliomyelitis cases who escape drug treatment.

Fourth.—A reading of the case reports brings out the fact that quite a number of osteopaths who treated infantile paralysis cases were rather timid about undertaking to do so. They had not had experience with the disease and were not sure of what they could do. But they applied themselves diligently to the cases once they had taken charge of them, and in many of these cases the results obtained were vastly more satisfactory than they had expected. Such results could not help making enthusiasts of them, and it will be noted that everyone who submitted case reports, with perhaps one or two exceptions, became highly enthusiastic over the showing Osteopathy made in the treatment of poliomyelitis. Some are so enthusiastic that they unhesitatingly claim that Osteopathy is a specific treatment for the disease if the case is had soon enough.

Fifth.—Of the various means resorted to to comfort and alleviate the distress of the patient in the acute stage of the disease, we desire to call attention. Poliomyelitis is one of the acute diseases in which the best and most attentive nursing are highly necessary. The means applied and the results obtained, as outlined in the case reports, are deserving of careful reading.

Sixth.—If we may be permitted to express an opinion on one point which we feel is sufficiently evident from the case reports submitted, it is that in many of the cases reported the treatment was not continued as long as it should have been. We cannot help feeling that if, in a number of the cases reported, the treatment had been continued six months or a year longer much more would have been accomplished. A continuance of the treatment can do no harm, and it may do much good. Therefore, why give up while there is the slightest hope of further improvement?

Seventh.—It will be noted that the hospitals of the country were not open to the osteopaths to treat infantile paralysis cases in them. In fact, under the quarantine regulations now in force in the United States and Canada, it is next to impossible for an osteopath to get a case of infantile paralysis in the acute stage. The great Rockefeller Institute, the greatest research institute in the United States and perhaps in the world, is controlled by the medical machine. It, through the veto of Dr. Simon Flexner, refused to allow an osteopath to demonstrate what could be done by Osteopathy for the victims of infantile paralysis that were languishing within its walls. In the face of such prejudice in high places, the broad-mindedness of those few M. D.'s who, when they realized they could do nothing for infantile paralysis, referred their patients to osteopaths, stands out in bold relief. If the general public realized what Osteopathy has done and can do for infantile paralysis in all stages, one cannot help feeling that they would vigorously protest against the domination of the great medical octopus and demand that the victims of infantile paralysis have the right to employ an osteopathic physician if they so desired. May we hope that in the great fight for democracy that is now being waged we will achieve a democracy that will vouchsafe medical freedom to the masses?

So far as we are aware, this is the first work on infantile paralysis in which the applied anatomy of the spinal cord is discussed in all its phases. We believe that a study of the applied anatomy of the spinal cord, and of the osteopathic interpretation thereof, cannot fail in being of invaluable help to the practician who may be called upon to treat infantile paralysis or other inflammatory conditions of the spinal cord.

Scattered over the country there are thousands of cases of club foot and other deformities of the feet and limbs that have resulted from infantile paralysis. Under proper treatment most of these cases can be helped and many of them cured. The osteopathic profession has an orthopedic specialist who, we believe, is second to none, in the person of Dr. George M. Laughlin of Kirksville, Missouri, and it is with pleasure that we refer the reader to the chapter on the treatment of deformities by Dr. Laughlin.

But lest the practician be inclined to haste in advising orthopedic measures, not realizing how much may be accomplished by osteopathic procedure, we would suggest a careful reading of the chapters by Dr. E. Florence Gair. Dr. Gair admits that in many cases showing marked deformity the results obtained surpassed her fondest expectations, and some of these cases were helped in a remarkably short time. The chapters by Dr. Gair cannot fail to encourage and enthuse those whose experience with such cases has been limited and whose outlook therefore lacks the vision born of experience. The first chapter by Dr. Gair (Chapter Seven) appeared in the August issue of the Osteopathic Magazine. This was the result of a misunderstanding, as it was written especially for this book.

A. G. WALMSLEY.

CHAPTER I

POLIOMYELITIS

(INFANTILE PARALYSIS)

Causes

Practically all agree that Infantile Paralysis is a germ disease, and that the germ gains entrance thru the nasal and oral openings. Undoubtedly the germ is present in many instances within the body. In order that germs may cause destruction of tissue, there must be suitable soil for them to increase and give off their toxic products. Suitable soil will be that found in devitalized tissues when circulation has become disturbed.

Stasis is produced whenever the circulation has become impeded.

There may be a vasomotor disturbance causing a variation in the calibre of the walls of the blood vessels, or there may be direct mechanical blockage at some point along the course of the blood vessels.

Osseous lesions may cause vascular disturbance through the various nerve tracts that connect the spinal nerves with the autonomic nervous system. Later on we will discuss this phase of causative principles under the heading of applied anatomy. There is always the possibility of an hereditary diathesis producing a nervous instability that renders the tissues more liable to ataxic conditions. Thus we find an example in certain neurotic subjects and in cases of St. Vitus' dance, where there seems to be an inherent tendency for some nervous symptom to develop.

In the majority of cases we have examined and treated we have noted traumatic conditions. We have found one or more spinal or costal lesions more or less directly influencing the vascularization of the membranes of the spinal cord.

Lesion theory. No child is too young to become lesioned if the proper mechanical pressure or torsion has been applied. We have observed in our practice in many cases of instrument-delivered babies one or more cervical lesions. This is common knowledge to the osteopathic physician. We have noted various forms of nervousness develop in early

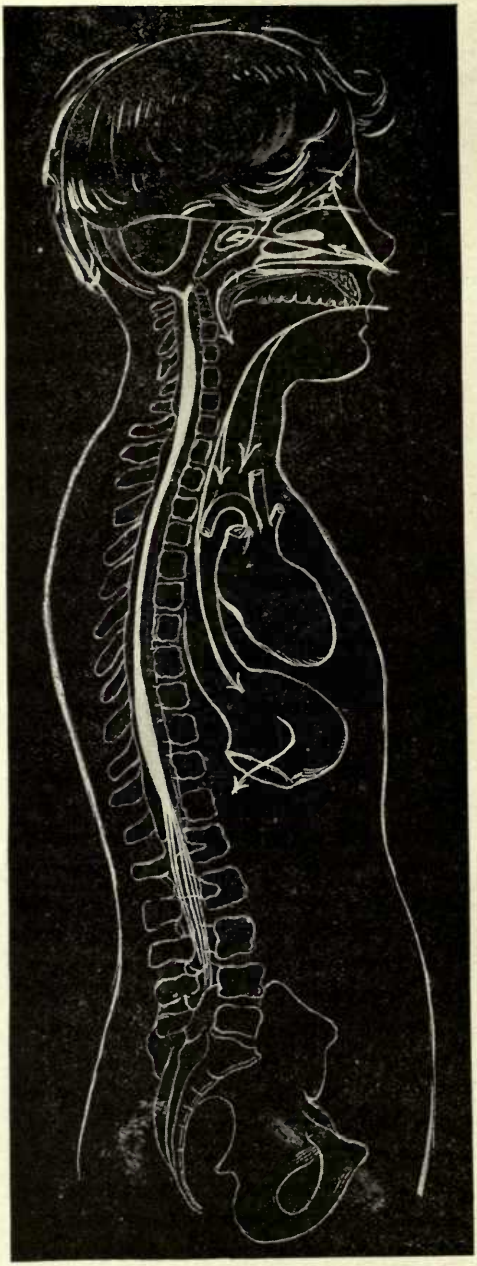


PLATE C. The arrow indicates the entrance and direction the invading germs follow in infantile paralysis.

life caused by these lesions produced when the child was born. The obstetrician did not realize that in delivering the child with the forceps the cervical tissues were injured and lesions produced. It did not occur to him that the infant's neck should have been carefully examined and if any lesion existed an adjustment made as soon as possible.

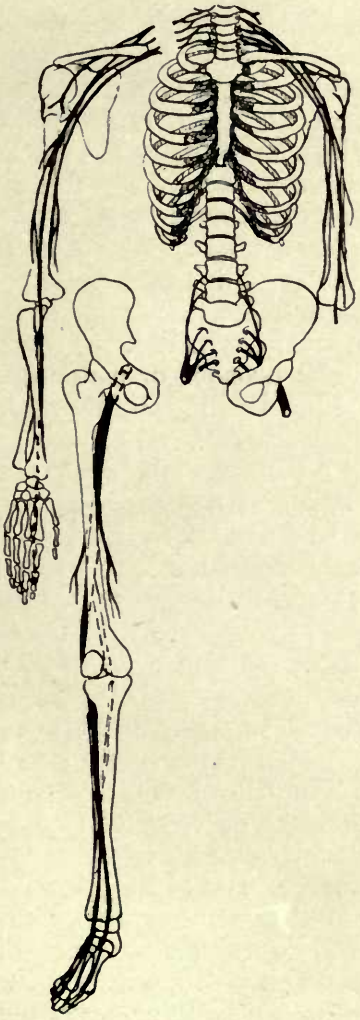


FIG. 1. The chest box or thorax containing and protecting the heart. We hear the heart-beat through the resonant walls. The nervous system is nourished indirectly from the heart.

He did not reason from cause to effect and connect the after symptoms of a nervous phase which endangered the child's life with the early injury.

The lesion produced by the torsion at delivery was the beginning of a vascular irregularity and nerve impulse disturbance that affected the tone of the membranes surrounding the spinal cord.

Another kind of lesion quite commonly found in children is one produced by a fall or twist. Sometimes a child will slip out of the nurse's arms, and while we admit that the bones are soft and not completely formed and ossified, yet we know that lesions have been made in this manner, as clincal experience has verified in our everyday practices.

A child may not be supported properly on the lap and may throw itself backward suddenly, as most babies do, and that act may lesion the spine and cause pressure upon certain nerve centres, producing such symptoms as marked gastric disturbances, mental irritation or even convulsions and epilepsy. A jealous brother or sister may give the baby a quick push on the head and lesion its neck. There are many ways to lesion the spine of a baby.

After a baby begins to walk many are the tumbles out of high chairs, cribs, or off the bed. It may even slip on the staircase and go head over heels down to the floor below.

Does it sound unreasonable to state that there is always a possibility of a child lesioning its framework under circumstances such as we have enumerated above?

One of the most marked cases of St Vitus' dance I have treated in my eighteen years of practice was caused by a tumble down stairs. Two adjustments at the fourth cervical restored the child to normal. Suppose this lesion had not been corrected. There is a possibility that nature would have in time overcome the nervous disturbance, but the lesion would still be present, and a certain amount of vascular disturbance to the membranes of the spinal cord would continue to be present. If climatic conditions were right and an epidemic of infantile paralysis was spreading over that community, would not this child, with weakened tissues around the cord, have suitable soil for invading germs to harbour and cause destructive work in the spinal cord areas?

We are now leading up to the direct cause of at least a number of cases that contract infantile paralysis.

Mode of Infection

We have already stated the most commonly accepted theory regarding the entrance of germs into the system, viz., the respiratory and the deglutitory tracts.

Food taken into the mouth while being masticated may take up the invading germs and convey them during degluti-

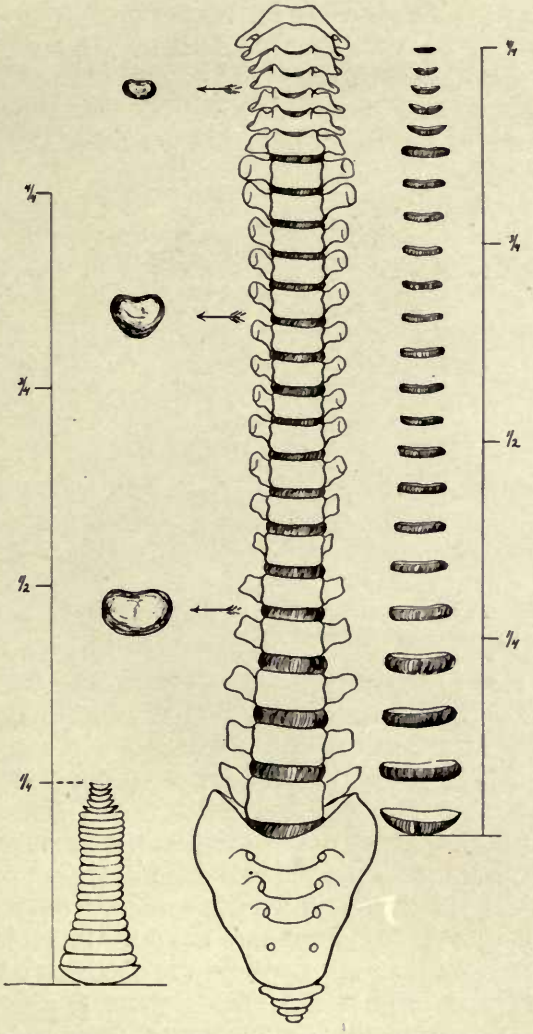


FIG. 2. Spinal pads or bumpers. When piled up as shown at the left they equal one quarter of the length of the padded part of the spine.

tion into the stomach. The absorption of food material in the form of chyle will allow the conveying of these germs into the remotest parts of the system.

If there already exists a lowered vitality condition of the spinal cord membranes thru one or more lesions, as mentioned above, these germs will find suitable soil in which they will increase in numbers and throw off their toxic products. The static blood in this area is no longer properly oxygenated, and the resistance is so lowered that it is only a matter of a few days until the typical symptoms of infantile paralysis manifest themselves, and we find the little patient with fever, nausea and all of the other symptoms so marked in a typical case.

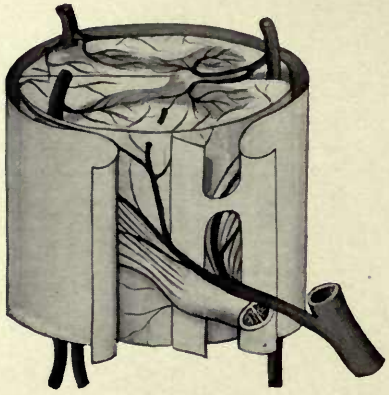


FIG. 3. Vascularization of a section of the spinal cord. Note the accessory artery assisting the three spinal arteries.

There may or may not be paralysis. The case may be of the abortive type and the circulation may clear up the membranes sufficiently that the cord segments will not be invaded to the point of causing destruction in the motor area of the cord.

There may be some destruction of the motor cells in the cervical enlargement of the cord, with paralysis of one arm, or the destruction may be so general that not only the cervical enlargement may be affected but the lumbar enlargement as well. We may find that complete paralysis has taken place, and that the invasion has traveled upward and caused bulbar paralysis. It all depends upon the resistance the tissues have against invasion and destruction.

CHAPTER 2

APPLIED ANATOMY

Lesions Affecting the Blood Supply of Spinal Cord and Membranes

The vascularization of the spine includes that of the cord and its membranes.

We find the arrangement of the vessels such that one set reinforces another thru anastomoses. The spinal arteries from the vertebral are the longest vessels of their size found in the body. The anterior spinal artery is given off by two branches, one from each of the vertebrals. They unite near the atlas to form one long slender vessel that passes downward under the linea splendis to reach the filum terminale. It is situated in front of the anterior median fissure of the cord and sends out many transverse branches, the anterior media, which divide into the commissural arteries that supply the major part of the grey matter of the cord. This central or centrifugal set is reinforced by spinal branches in the various regions of the spine. In the cervical region the lateral spinal branches of the vertebral, also the ascending cervical branches of the inferior thyroid entering the foramina accompany the anterior and posterior roots of the spinal nerves. In the thoracic region we have the spinal branches of the dorsal division of the intercostal arteries; in the lumbar region the spinal branches of the lumbar and ilio-lumbar arteries; while in the sacral region the rami spinalis are from the lateral sacral arteries.

These vessels reinforce not only the anterior but the posterior spinal arteries as well. The posterior spinal arteries are two in number, and are also branches of the vertebral arteries given off above the atlas. They follow the spinal cord just back of the posterior nerve roots, and extend down the full length of the cord. The posterior spinal arteries supply the grey matter in part also the white matter in the posterior portion of the cord. They are referred to as the centripetal set.

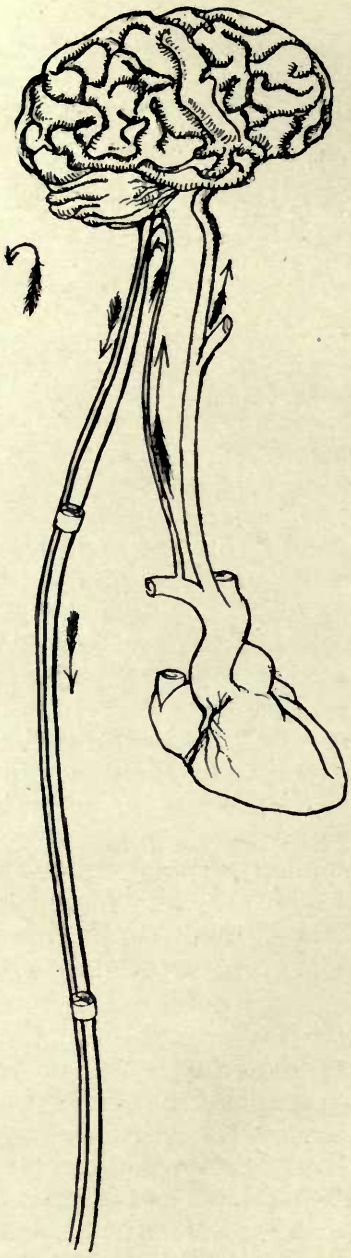


FIG. 4. Blood supply of the brain and spinal cord. Note the spinal arteries are given off from the vertebrals at the base of the brain and turn downward extending the length of the spinal cord and its membranes.

The reinforcing arterial branches that follow the nerve roots to the cord supply the dura mater and pia mater and enter the cord segments passing directly toward its centre. This arrangement of vessels makes a centripetal and centrifugal group that supply a superficial or peripheral area, also a central and intermediate area.

The vessels mentioned above not only supply the cord but the nerve roots, the membranes of the cord and the periosteum lining the spinal canal.

This indirect method of vascularizing the spinal cord and membranes is interesting to note. In the instance of the spinal arteries proper, that is the anterior and posterior spinal, we note that the blood forced from the heart upward toward the brain is turned backward and downward to follow the spinal vessels. This arrangement checks the arterial pressure, and gravity is given an opportunity to carry the blood to the filum terminale area.

The reinforcing arteries are given off from the various arteries mentioned at almost right angles, and in the thoracic region we find first the intercostal branches at almost right angles to the aorta, and then the spinal branches turning backward and inward to enter the foramina to reach the cord. Thus in each instance the visi-a-tergo is lessened and the delicate cord and its membranes are protected from any direct pressure, even though the heart action is accelerated and fever is rampant.

The drainage of these areas by the veins is somewhat similar in arrangement, altho the greatest vascular area is at the posterior surface of the cord.

The veins pass out along with the spinal nerves and empty into the larger veins just outside the vertebral column.

In the brain we find the circle of Willis checking the blood force and distributing the blood to the various areas of the brain. The membranes covering the brain are well supplied by arterial branches that are indirectly given off by the larger branches of the carotids. In congestion of the spinal and cephalic areas the greatest problem is the venous drainage. We have to contend with lesion effects in the way of vasomotor disturbances, contracted musculature, overtense tissues and enlarged glands.

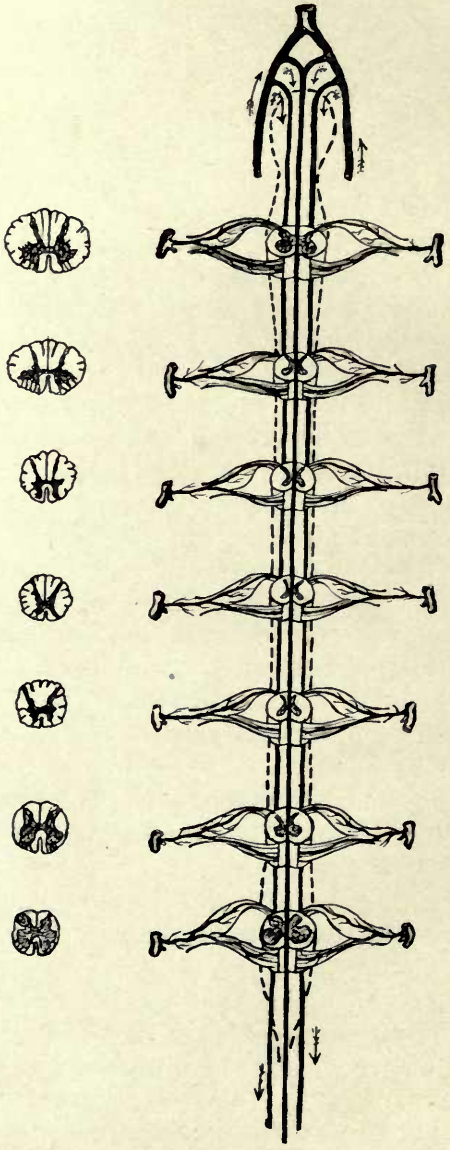


PLATE D. The vascularization of the spinal cord.

Cervical Lesions

In the cervical region the variety of lesions is numerous. The lesioned atlas may disturb the superior cervical ganglion, with its many branches going to the carotid vessels, both in the cervical region and in the cephalic. This ganglion communicates with three principal cranial nerves almost directly and with others indirectly. The vascularization of the brain and membranes covering it depends normally chiefly upon undisturbed impulses from the vasomotor centres in the upper thoracic area. If the preganglionic nerve tracts are interfered with the communication with the postganglionic in the superior ganglion of the sympathetic will be disturbed. An atlas lesion may also affect the first and second spinal nerves and likewise cause contraction of the muscles and tissues controlled and supplied by them. The vagus nerve receives a branch from the superior cervical ganglion and the distribution of the vagus is so far-reaching that a lesioned atlas may cause functional or organic effects in one or more of the distributing centres of this nerve.

The lowered tissue vitality found where there is impeded circulation to the spinal cord and membranes will allow invading germs to destroy tissues that otherwise would resist their attacks if the vascular areas were normal. The venous stasis from contractured musculature will remain as such unless the cause is removed. Any lesion found in the cervical region or other regions will lower spinal cord resistance. The spinal nerve cells, nerve roots, etc., are nourished by these spinal arteries, and they must not be compressed or their vasomotor control interfered with if we are to expect normal tone and perfect impulses.

The vertebral artery threads its way through the upper six transverse processes of the vertebrae. Any malalignment of any of these vertebrae will affect the circulation in the spinal branches of this artery on either side.

The other arteries in this region contributing spinal arterial branches will also be affected by any cervical lesion or lesions. If a lesion exists in the axis or any other cervical vertebra we find a corresponding irritation or disturbed nerve impulses to the muscles supplied by the various nerves. If the third and fourth are in lesion the diaphragm may be

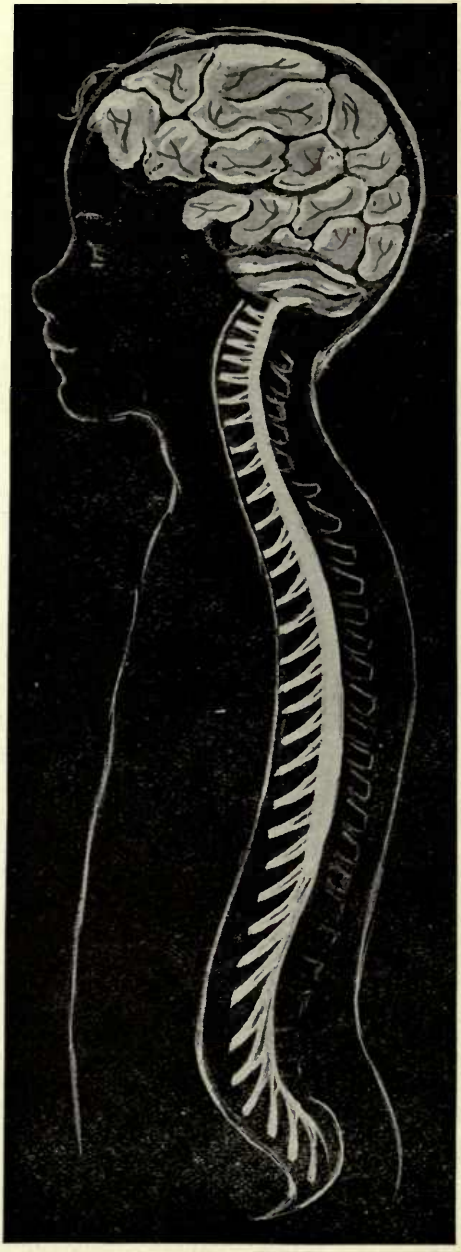


PLATE E. The central nervous system.

involved thru the phrenics. This will add to the seriousness of matters when an attack of paralysis is lowering the cord resistance during the febrile stage. The cervical enlargement of the cord is one of the most common areas attacked in infantile paralysis. The branches of the cervical nerves forming the brachial plexus may lose their motor control and the deltoid and other muscles of the shoulder and arm

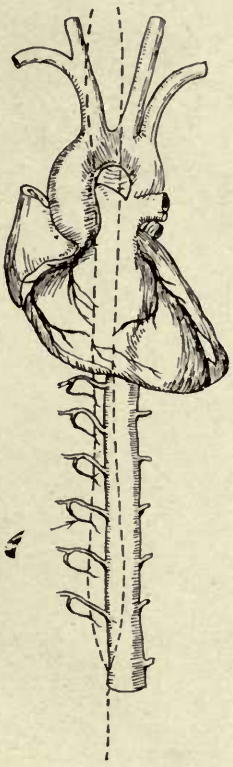


FIG. 5. The dotted line indicates the relative position of the spinal cord to the heart and aorta.

become helpless. Lesions in this region of the cord will allow a disturbed vascularization to progress more rapidly because the vasomotor tone is lowered. Nature is not able to clear up and throw off the congestion as rapidly. Congestion and stasis will fail to clear up to the same extent as in that state where no lesions exist. The greatest amount of

PLATE F. The spinal cord and nerves in situ.

congestion in the cord and membranes will be found where the most marked lesions exist. The exciting factor mentioned in Chapter One under the head of causes applies to the lesion effects we are discussing.

Cervical lesions may cause contraction of the scaleni muscles and draw upward the first and second ribs to which these muscles are attached. Over the first rib we note the subclavian vessels passing. The upward drawing of the first rib will interfere and carry up the vessels lying in close approximation. The artery may not be compressed, but the vein with its thinner walls, may be, and venous stasis in the arm will result. The vasomotors will likewise be disturbed in the brachial plexus of nerves, and we will find the arm and hand cold and lifeless. The motor, vasomotor and trophic nerves are alike affected, partially thru the lesioned areas as well as thru the pathological state of the cord cells.

We have all noted the disturbances to these various nerves in cases where cervical lesions existed aside from any poliomyelitic state. We find one or more fingers partially numb, the hand sometimes quite helpless, as in writer's cramp and wrist-drop. In a milder way there may be lowered nerve tone and vascular effects thru the vasomotors in cases free from paralytic symptoms.

Add to this condition an attack of poliomyelitis and obviously we see the lessened chance the patient has to overcome a condition that is complicated by lesion effects and cord cell destruction.

If an attack of poliomyelitis comes to one with lesions already existing and lowered tissue resistance, the chances for a more marked paralysis condition are multiplied

The child that fell or in some manner produced a lesion thru torsion is the child that is more apt to have greater destruction of the motor cells when attacked by poliomyelitis.

Dorsal Lesions

In the thoracic area, as in the cervical, we have a somewhat similar proposition. Although the spinal cord in the greater part of this region is small in size and the vertebrae likewise, yet we find in this region some of the most important vasomotor centres. It is in this region that we note the presence of grey rami. The cervical nerves have white rami only. This

double communication with the autonomic nervous system makes this region significant in the way of vasomotor impulses to the various organs of the chest and abdomen.

We have already mentioned the upper thoracic vasomotor connection with the head, neck, shoulders and arms.

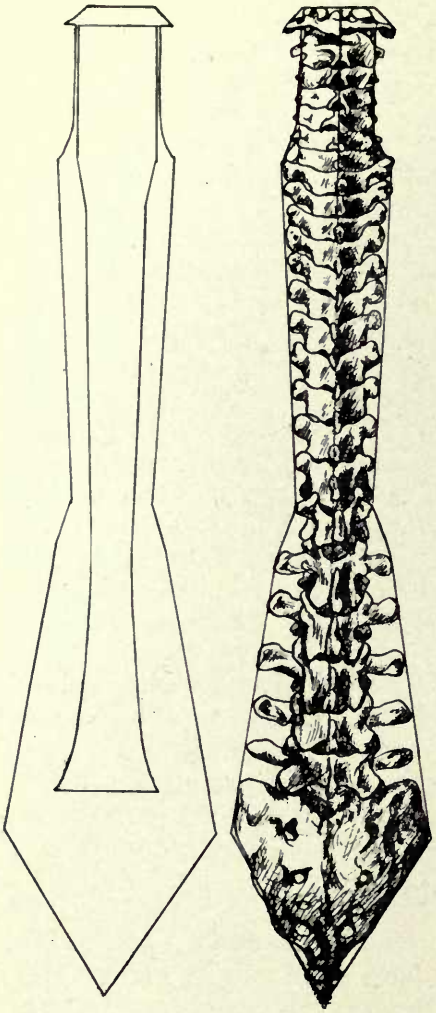


FIG. 6. Back view of the spine. Notice the outline of the outside tips, and the inner line corresponding with the articular or joint surfaces.

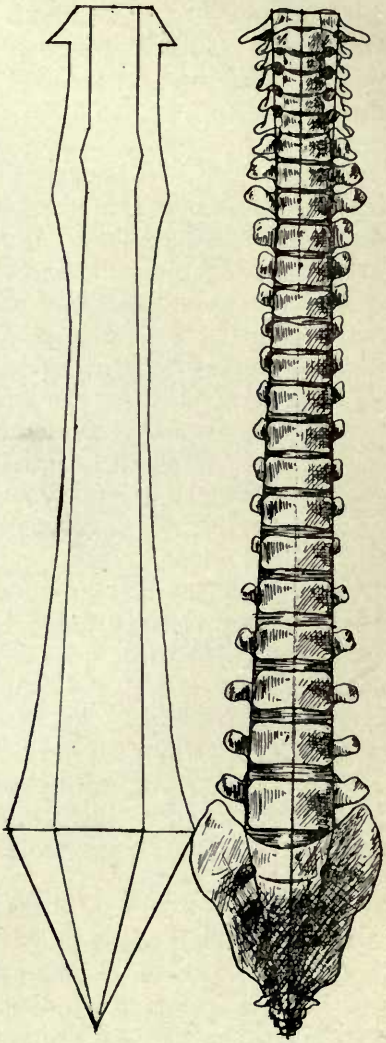


FIG. 7. Front view of the spine. The inner line follows the bodies of the sections.

We will now consider the great outflow of vasomotor impulses to the semilunar ganglia and coeliac plexus thru the splanchnics. The systemic arteries have an arrangement of vasomotors different to that found in the mesenteric vessels of the abdomen. On the one hand, we find the preganglionic fibres terminating in the sympathetic ganglia, and the postganglionic fibres carrying on the impulses to the walls of the vessels. In the mesenteric vessels we find the preganglionic fibres have passed to and thru the sympathetic ganglia, and on to the mesenteric ganglia where the postganglionic fibres convey the impulses to regulate the abdominal vessels in the bowels.

Lesions found in the thoracic vertebrae are no less important than those found in the costal area. The sympathetic ganglia from the first thoracic down are in close proximity to the heads of the ribs. The subluxation of the first

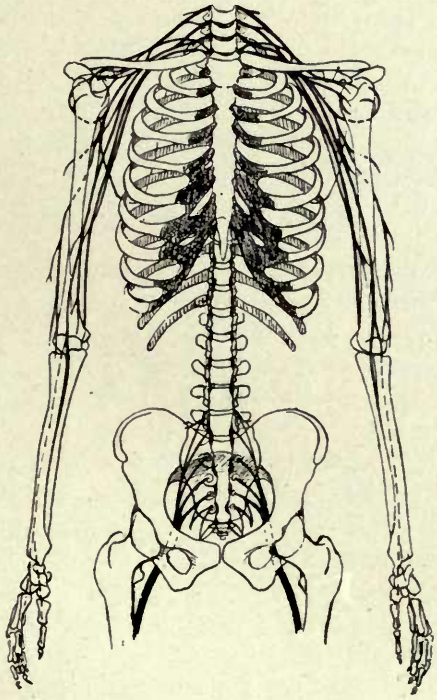


FIG. 8. Square shoulders, even hips, and a spine free from curvature insures normal freedom of circulation and of nerves.

rib may cause disturbance in the stellate ganglion and likewise cause a vasomotor effect to the blood vessel walls in that region. The lesions found in any costal subluxation in each instance will disturb the corresponding ganglia found in relation to the head of that rib. If in the splanchnic area, the disturbance will be marked, as the splanchnics convey vasomotors to the important organs in the region of the coeliac plexus.

Costal lesions not only disturb the vasomotors but affect the intercostal vessels, nerves and muscles.

Here again we will note that these lesions will interfere with the spinal vessel branches supplying that area of the spinal cord and its membranes.

Costal lesions may affect the diaphragm in the region where that dome-shaped muscle attaches itself to the inner thoracic walls.

The passing of the splanchnic nerves thru the crura of the diaphragm may be disturbed by thoracic and lumbar lesions as well as costal. The aorta may be compressed as it passes thru the opening, for it is in relation to the fibrous portion of the diaphragm. The cardiac nerves found in the cervical and upper thoracic may, if lesions exist, cause irregularity of heart action.

Lumbar Lesions

In the lumbar portion of the spinal canal we find reinforcing arteries helping to supply the nerves and their coverings that go to supply the lower extremity.

While all these nerves are given off from the lumbar enlargement of the cord above the second lumbar vertebra, yet these nerves must receive a blood supply to be properly nourished. The membranes of the cord extend below the cord and protect these nerves until they are all finally given off and pass out of the foramina in this and the sacral region.

The lumbar nerves, if interfered with by lumbar or lumbo-sacral lesions, will lose their tone, and a lowered resistance of the muscles and tissues of the limbs will result. The renal plexus will be affected by upper lumbar lesions and the pelvic organs and vessels will become congested if lesions are present in this region.

The paralysis found in the bladder and bowels may be aggravated by the presence of osseous lesions.

The additional cord segment pathology, whether congestion alone or cell deterioration or partial destruction is found, will be harder to clear up if the vasomotor tone is already impaired.

Sacral Lesions

The sacrum is wedged between the innominates, and upon it rests the spinal column. It is common to note a sacro-iliac lesion, and we find with the rotation of the innominate upon the sacrum a corresponding difference in the length of the legs. The sciatic nerve leaving thru the notch in the ischium may become irritated in a lesion of this nature. Sciatica is commonly found when the innominate is rotated. The sciatic nerve conveys a variety of impulses—vasomotor, motor, trophic, etc. This nerve is also

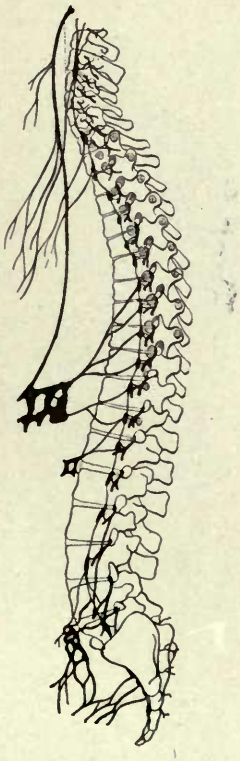


FIG. 9. The sympathetic nerves that supply the various organs are connected with the spinal nerves that pass out from the spinal cord between the vertebrae.

well vascularized. The lesion mentioned above may not only cause sciatica, but cold feet, muscular atrophy, swelling of the ankles, and many other symptoms.

Add to this condition an attack of infantile paralysis and we have a complication that will be almost impossible to clear up unless the proper adjustments are made.

Thus we see the importance of making careful examinations of children's spines, ribs, hips and every part of the framework in order that normal impulses may be maintained, and when an epidemic of infantile paralysis attacks the children they will at least have good circulation and freedom from nerve pressure to withstand the invasion of toxins that takes place. Their chance of throwing off the disease and clearing up the congestion will be far greater if nature can use all her forces to combat the disease.

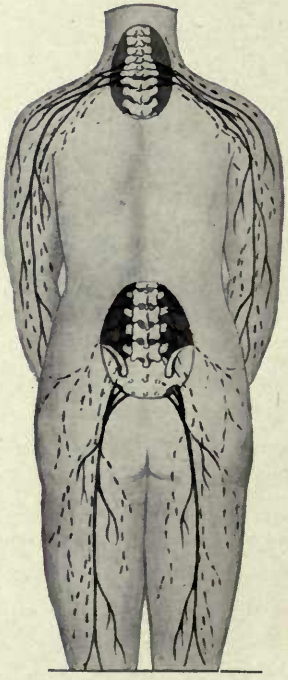


FIG. 10. Most attacks of infantile paralysis affect one or more of the extremities. The nerves involved are outlined on the figures.

CHAPTER 3

APPLIED ANATOMY—Continued

Lymphatics of the Head and Neck

We have already mentioned that the most direct area of infection in infantile paralysis is through the membranes of the nose and throat. The virus gains entrance during respiration and deglutition.

We have also referred to the mode of infection through the alimentary tract. The virus is carried along with the bolus of food and enters the stomach. During the process of digestion it is conveyed to the intestinal tract and the system takes up the virus and its poisons by way of the lacteals and blood channels.

A more direct infection of the central nervous system may take place thru the lymphatics of the head and neck. The membranes of the nose, naso-pharyngeal region and mouth are rich in lymphoid tissue. The close connection between the lymphatic tissues of these areas and those found in the head and neck allow a conveyance of the virus to the membranes of the brain and spinal cord. The openings for communication are numerous and the paths for the conveyance of infection are closely connected. The superficial and deep lymphatic vessels and nodes found in the neck and throat allow of ready communication and transmission of the micro-organisms and their toxic products. The central nervous system may be almost directly invaded by the virus found in the membranes and lymphatics of the naso-pharyngeal region. Once the virus reaches the membranes protecting the central nervous system the upward invasion to the brain from the cervical region is readily accomplished.

The cerebro-spinal fluid surrounding the cord also supplies the area around the brain. There is a communication between the cord and brain, as the same coverings that surround the cord are continuous with those covering the brain.

One of the most noticeable symptoms in an acute case of infantile paralysis is headache. There is also pain in the neck. The temperature increases in a typical case until it

reaches 103° or a trifle more. The congestion in the head and neck is marked. The neck seems swollen; the lymph nodes are enlarged and indurated. The lymphatics are involved as well as the blood vessels. The lymphatics have carried the virus to the hidden membranes of the central nervous system.

The invasion may have taken the route found in the infundibular region and the cephalic membranes first become infected. The virus in this case must needs travel

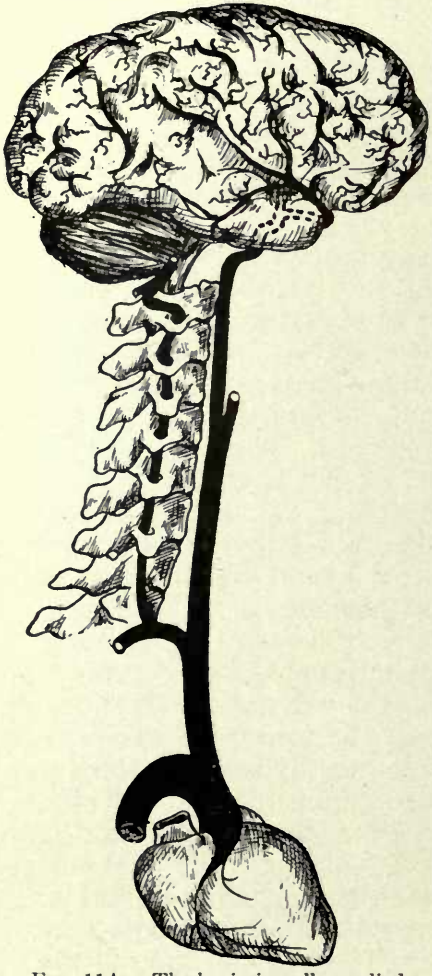


FIG. 11A. The brain is well supplied directly from the heart.

FIG. 11B. Lymphatics of the neck.

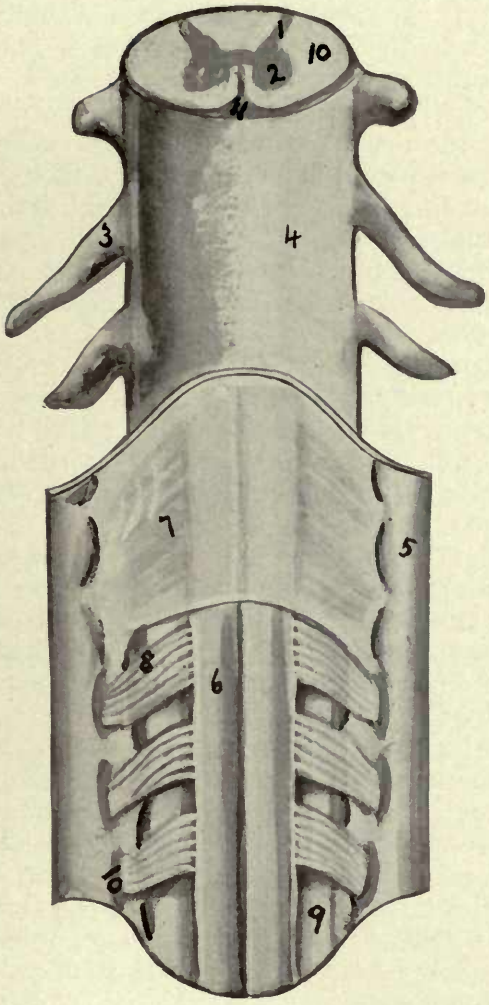


PLATE G. Anterior view of the cord and membranes. 1. Posterior horn; 2. Anterior horn; 3. Spinal nerve with covering; 4. Dura mater; 5. Turned back; 6. Spinal cord bared; 7. Arachnoid; 8. Anterior nerve roots; 9, 10, (top no.) Lat. surface of cord.

downward in the central nervous system if the case is one that is not abortive in type. General infection of the cord may or may not take place. The cephalic membrane involvement may be sufficient to cause a bulbar paralysis which will eventually affect all points below and prove fatal in nature if sufficient destruction takes place. Again, it is the amount of resistance the tissues have that will determine the extent of the destruction in the nerve cells. The lymphatic engorgement will depend upon the lack of freedom of circulation and the quality of the blood and lymph.

The nodules will indurate in proportion to the amount of blockage. The more regular the circulation the better the oxygenation of the blood will be, and good blood, well areated, is the best of germicides.

The phagocytes lose their potency in proportion to the amount of devitalized tissues they have to work in.

The extreme amount of congestion in the head and neck is due in part not to the virulence of the virus as much as to the amount of obstruction found in relation to the blood vessels and lymph channels.

The nodal induration is much more rapid when the blood circulation is impeded. The feverish condition of the head and the tendency for the head to draw backward is not so much a question of the effects of the virus and its toxins as it is the effect upon the nerve centres thru congestion by obstructed blood and lymph channels.

The involvement of the lymphatics is due in the first place to the more ready infection and conveyance of the virus by the fact that the tissues in which these vessels are found were devitalized by obstructed or impeded circulation.

The normal tissues in the pharyngeal and nasal regions of a child will not harbor nor convey to the same extent the virus as in the case of a child in which adenoid growths and diseased tonsils are found. The child with polypi and congested turbinate processes will likewise harbor germs and propagate them in a soil that is suitable for germ development thru obstructed lymph and blood channels.

The cause of this static condition in the sinuses of the head and the membranes lining these as well as lining the pharyngeal region may be due to a variety of leisons. There is always a possibility of hereditary weakening or diathesis

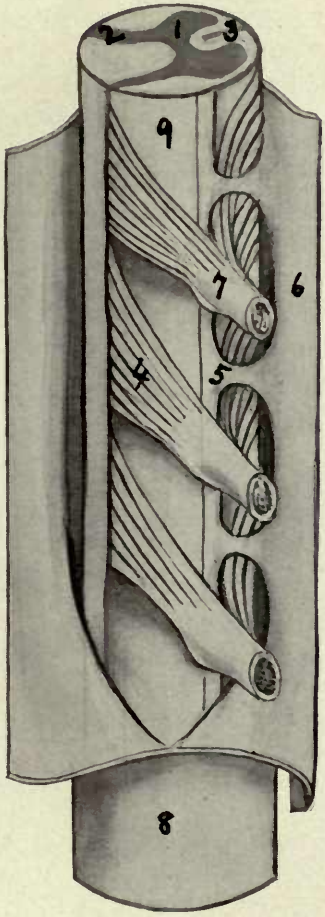


PLATE H. Right lateral view of cord, and the formation of spinal nerves. 1. Anterior horn; 2. Posterior horn; 3. Anterior median fissure; 4. Posterior spinal nerve roots; 5. Ligamentum denticulatum; 6 and 8. Dura Mater; 7. Posterior ganglion.

with nervous instability, but we will discuss here the cause in which osseous lesions play the role of primary factors.

The drainage of the lymphatics of the head and neck is quite the same in both sides. Below the neck and for the rest of the body we find a vastly different proposition. The lymphatics of both sides of the head and neck tend to pass downward to a common collecting centre to empty into the subclavian veins. The superficial communicate with the deep, and the lymphatics of one side communicate in some instances with those of the opposite side. Normally the nodes are not over-sensitive unless pressed upon. Induration is pathological if found to any extent. The same rule that governs the freedom of circulation of blood is more or less applicable to that of the lymph channels. Lesions that contract muscular tissue will obstruct lymph channels the same as they will obstruct the blood vessels. Not all lymphatics have vasomotors supplying them, it is true, but there are other ways of obstructing the flow of lymph and blood than thru the vasomotor nerves. The lesions mentioned under the heading of "cervical" in the last chapter are applicable to the lymph channels as well as to the blood vessels. The lesions that produce a congested condition of the tonsils will invariably affect the lymphatics that are so abundant in this region. The lymphatic tissues that form the outer and inner defences of the naso-pharyngeal region suffer obstruction and nodular enlargement whenever there is venous stasis.

The involvement of the membranes of the sinuses of the head are either secondarily or simultaneously affected thru a vascular disturbance in the vault of the pharynx and the region of the nose.

The congestion found in the membranes protecting the central nervous system are the effects of lymph and blood vessel obstruction thru a lesion of some nature—osseous or otherwise. Before congestion there must be obstruction, and before invasion and toxic poisoning from virus there must be a suitable soil or else the tissues would produce an abortive condition.

Thus we see first, last and always the greatest preventative measure in infection of any nature will be the maintenance of normal circulation both in the lymph channels and

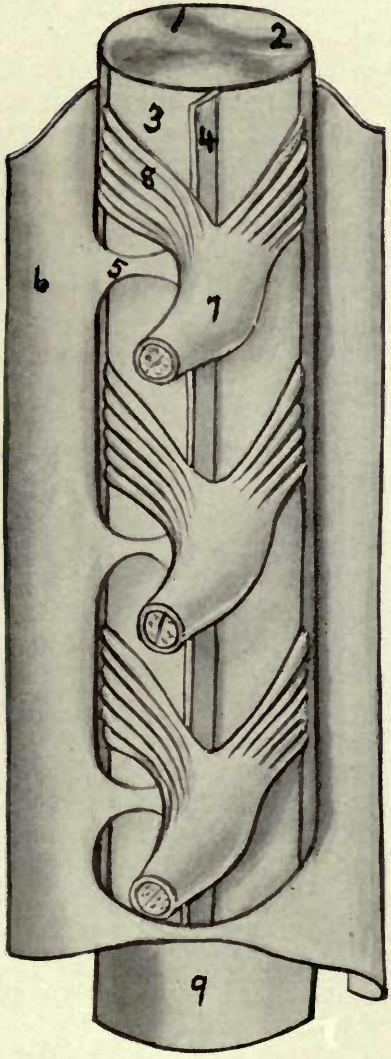


PLATE I. Left lateral view of spinal cord and membranes.

in the blood vessels. This accounts for the numerous cases of the abortive type of infantile paralysis, and also the noted fact that in many instances only one or possibly two in a family of several children contract the contagion; the others go along uninfected.

Fortunately, the microorganism of infantile paralysis does not attack children as numerically as the germs that are connected with some of the other and more common diseases. In scarlet fever, measles, whooping cough, etc., there seems to be a condition that makes the contagion spread with a more decided virulence. It is not uncommon to see these children's diseases go right thru a family.

In infantile paralysis the central nervous system is directly involved, and the child who due to lowered tissue resistance from spinal lesions and other conditions furnishes the most suitable tissue soil is the one that will be the victim. The others may have the germs in their mucous membranes, but the soil is not favorable to infection and they will have simply an abortive type or will not be affected in the least.

The obstruction of the lymphatics may be due to a secondary condition. The presence of stasis in the region of the tonsils may be somewhat chronic in nature. There may be repeated attacks of tonsilitis which may last only a day or two. The disturbance may be almost wholly vascular. Should the obstruction persist and the lymph nodes become enlarged there will be a lymphatic involvement that will tend to complicate matters. Infection will be a natural sequence. The correction of an atlas or axis lesion that will remove any disturbance to the superior cervical ganglion with its postganglionic fibres that control the vasomotors to that region where stasis has been present will re-establish normal lymph flow.

Lymphatic involvement may be secondary to a vasomotor disturbance to the blood vessels in the same region where congestion exists. The hyoid bone slightly misplaced will put tension upon one set of the muscles attached to it and cause not only venous stasis but a blocking of the lymph channels, and as a result we will note nodular enlargement in the lymphatic chains. The enlargement of the nodes in the region of the mastoid may be due to an obstruction of the lymphatic channels in the region of the clavicle. The back-

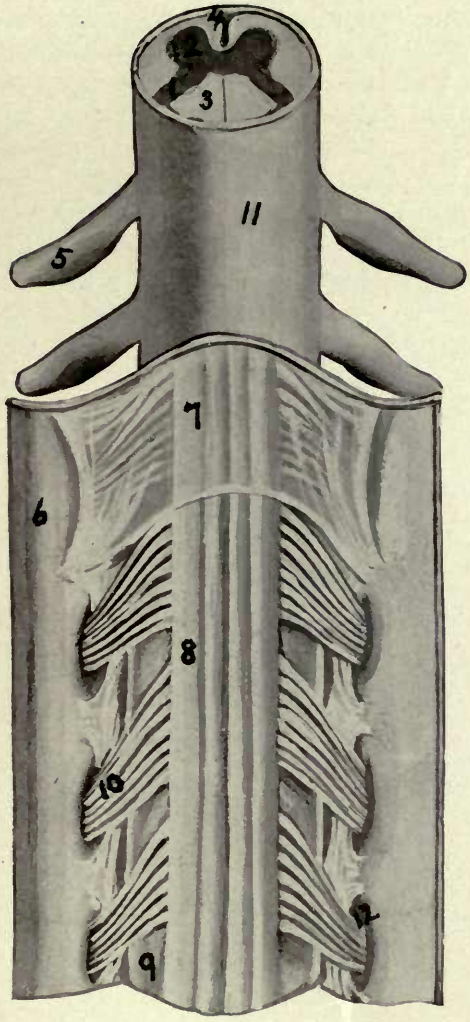


PLATE J. Posterior view of spinal cord.

ward luxation of the clavicle with a subluxated first rib may obstruct the drainage of the lymph into the subclavian veins.

The middle cervical ganglion may be involved and we may have a thyroid disturbance as well as cardiac irregularity thru a cervical lesion. This may in turn cause pressure by thyroid enlargement upon the lymph channels and produce toxic poisoning of the membranes and tissues in the throat, head and central nervous system.

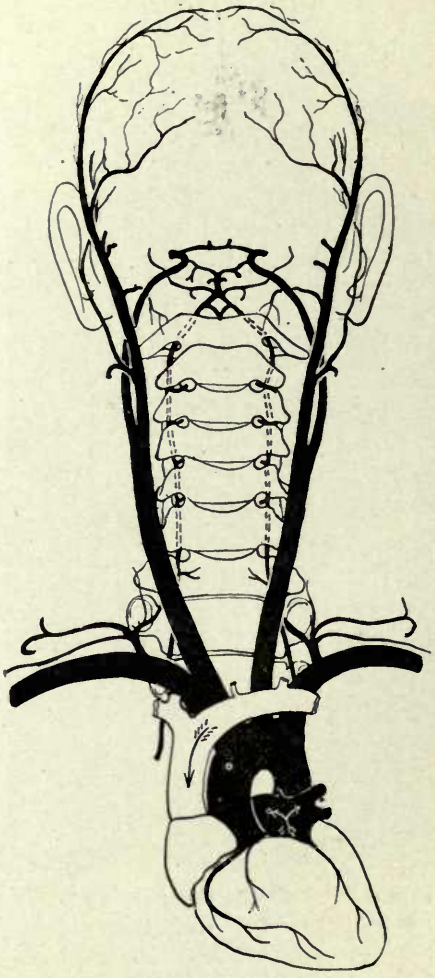


FIG. 12. The circulation to the head. The veins returning the blood are not shown, but parallel the arteries. Note the formation of the spinal artery.

The presence of an aneurysm may, thru mechanical pressure, cause a greater disturbance than any single osseous lesion. A cervical rib may cause irritation of the brachial plexus and the sympathetic system that will not be relieved until surgical measures are used. Not all disturbances are from osseous lesions in the way of vertebral rotations or subluxations, and not all disturbances are from local interferences. The lymph channels may be affected and infected through disorders in the axillary and mammary region, or even lower down. There is a communication between the lymph channels of the thorax and cervical region back of the clavicles. That is why no diagnosis is complete that does not include a complete systemic survey in each instance. The high temperature of a child or an adult may be lowered by a single adjustment in the upper thoracic, or a similar effect may be brought about through the correction of a cervical lesion. The idea is to determine the exciting cause, if from a lesion, and correct the irregularity if it is at all possible to do so.

CHAPTER 4

APPLIED ANATOMY—Continued

Lymphatics of the Thorax and Abdomen

Infection almost invariably complicates the lymphatic system. We are prone to think only of the veins conveying impure blood and producing congestion and stasis, but we must remember always that the lymph channels are the conveyors of toxic products, and blockage in a node or number of nodes will affect the elimination or retard the dissemination of toxic products.

There is a possibility of the virus found in infantile paralysis cases entering thru the bronchial tubes and infecting the tissues in relation to the roots of the lungs. Dust particles include germs, and their entrance via the bronchioles may cause infection and enlargement of the lymph nodes in that area.

There is a possibility of the virus or microorganisms of infantile paralysis lodging and becoming scattered thru the lymphatics in the thoracic region in relation to the bronchial terminations.

Around the cord the pia mater and arachnoid harbor lymph spaces. These spaces are in communication with the vessels, and it is through them infection enters the cord substance.

In the abdomen below the diaphragm the cisterni chyli is located. Into this receptum the intestinal lymphatic drainage enters and the beginning of the thoracic duct is found. This duct collects from the abdominal viscera and pierces the diaphragm in relation to the aorta.

The lacteals carry away the chyle absorbed from the small intestines and convey the substance to the thoracic duct that passes upwards to empty into the subclavian vein on the left side.

The peritoneum is a lymphatic sac in one respect. The amount of absorption that takes place in the peritoneum is great.

The food taken into the stomach containing the microorganisms of infantile paralysis are readily absorbed by the lymph channels and conveyed to the blood circulation.

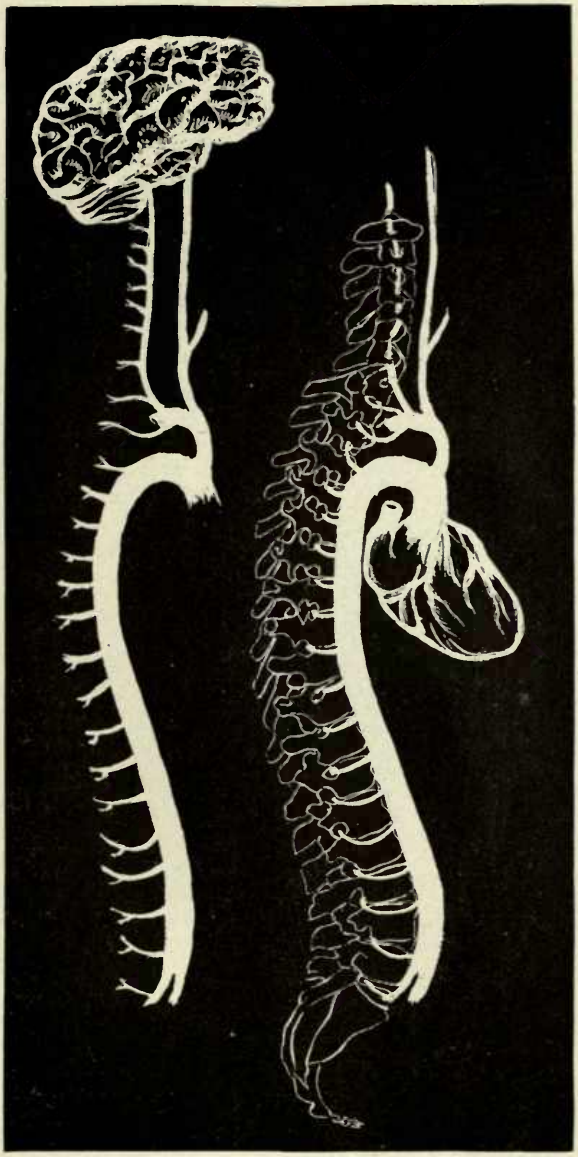


Plate K. Vascularization of the central nervous system.

The possibilities of mixed infection is worthy of consideration. If a lymph channel is already infected by other germs, it is in no condition to combat the virus of infantile paralysis should it be absorbed.

The lymphatic system is in danger of blockage and sluggishness the same as the vascular system. The normality of the nodes and channels of the lymphatic system will depend to a great extent upon the condition of the blood vessels and the tone of their walls. If we find stasis in the mesenteric

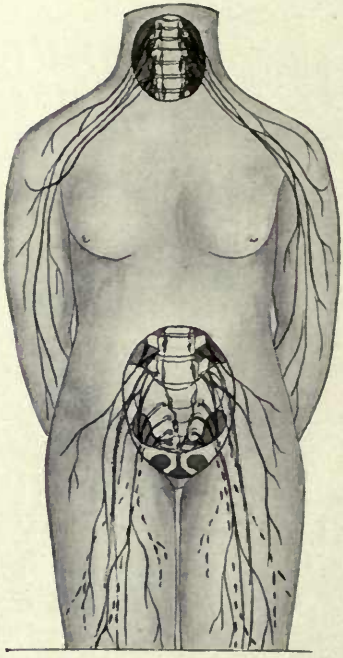


FIG. 13. Faint view of the nerves involved in infantile paralysis.

blood vessels we are likely to find nodular enlargement of the lymphatic system. The numerous nodes found in the mesentery and along the vessels of the bowels are normal only so long as the blood stream to and from the abdominal viscera is normal. A diseased organ is one that has a disturbed circulation regardless of the cause. If an organ is functioning abnormally we invariably find its vascular supply disturbed. If an organ is mechanically interfered with we also find the circulation to that organ affected. The

cause being removed, the circulation may once more be re-established.

The infection of an organ is through its vascular channels, either the blood or the lymph. The better the circulation the less chance of germ invasion.

The more perfect the assimilative mechanism the less liable the virus will be to be disseminated and propagated.

Lymph spaces are found around the cord in all regions. The vascularization of the cord is complete at every segment. The entrance of germs at any point is possible. The normality of the lymph spaces in relation to the pia mater will depend to a great extent upon the normality of the vascular system in relation to the cord and its membranes.

If there exist lesions at any point along the length of the cord we at once find a lowered tissue resistance to that area of the cord.

There may be a trophic disturbance or a vasomotor instability to the vessel walls, or we may find stasis from a contractured musculature that will block the lymph spaces. In any of these conditions the tissue vitality will be undermined and invasion is more apt to take place.

In the thoracic region we may find costal lesions as well as vertebral. The relation of the intercostal vessels to the ribs may in a costal subluxation so disturb the sympathetic ganglia that the tissues around the foramina become irritated, and this will extend into the cord thru the blood channels.

The blockage of one vessel to the cord and membranes may so lower the nerve and cell integrity that a cord segment will become readily infected by the virus.

Remember that the cord segments and their cells must be kept at a certain tone from a vascular standpoint or else the cells will not functionate normally. In the ventral portion of the grey matter of the cord the motor cells send forth their efferent impulses, and the muscular tone of the limbs will depend upon the normality of these impulses for their strength and motion. The lowered tone thru disturbed vascularization plus the invasion of the virus or its toxins even in a mild or abortive case will cause a disturbance to the efferent tracts in proportion to the degree in which the cells resist the attack.

In the more severe cases of infantile paralysis, where exudation accompanies congestion, we note a marked destruction of the motor area.

If the spinal arteries and veins are obstructed to any extent the lymph spaces are occluded, and nature's effort to clear the condition is sorely handicapped. Thus we see the prime importance of keeping a child's spinal tissues up to a normal point so that should the virus gain entrance to the body there will not be lowered tissue resistance in the region of the central nervous system.

The region of the diaphragm, with its many openings for the passing of nerves, vessels, tubes, etc., is of interest. The presence of lower rib lesions or vertebral misplacements may so affect the attachments of the diaphragm and its crura

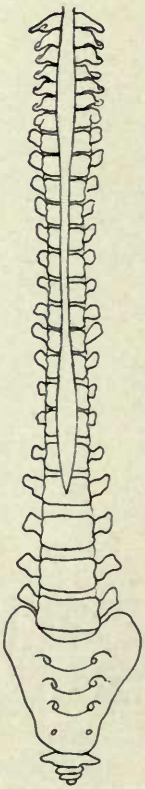


FIG. 14. A perfect spine has no lesions. Every section moves without a "hitch." Notice the spinal cord does not extend the full length of the spinal column.

that the openings found in its central tendon and in the region in relation to the vertebral column may cause undue pressure or obstruction to these various tubes, vessels and nerves.

The veins and thoracic duct are passing upward; the nerves, aorta and esophagus are going downward. All have their functions and any minor obstruction may cause a systemic disturbance.

The thoracic duct has a few valves to prevent backward flow. It is a long tube, and gravity is against it the same as in the saphenous veins. This duct has its vascular supply and nerve tone, although it has not the marked muscular tissue within its walls that is found in the blood vessel walls. The thoracic duct is a great collecting system, and the flow of lymph must be emptied into the veins as regularly as possible.

From the fact that the lymphatic system has to deal with toxic products, we must at all times determine the condition of this duct and see that no lesion exists that will in any way affect its walls or its conveying properties.

The cisterni chyli is located in front of the second and third lumbar vertebrae. Lesions that are found at this region or even higher, including lower costal, may have a marked effect upon the receptive properties of this collecting system.

The drainage of the mesenteric nodes into this cistern will depend upon the normality of the blood vessel circulation. The presence of obstipation with poor peristaltic action, the finding of adhesions or the noting of growths and thickening of the tissues, all have a bearing upon the lymphatic system. Splanchnoptosic conditions will affect drainage and obstruct the lymph channels. This will lower the general tone of the tissues. In children colic, convulsions and constipation will lower the vitality.

The tissues of the entire body in the child are not only growing, but must be sustained in the way of complete nourishment as well. In the adult the growth is complete and sustenance alone is required. The activity of a child is much greater than in the adult as a rule. The resiliency of the tissues is greater, and its bones are not as yet completely ossified. It takes up shock better than an adult, and the nerves do not seem to suffer from accidents as do those of the adult.

The common point of tissue irritability is when we find a lesion from a fall or strain. The disturbance to the vessels and nerves, unless the proper adjustment is made, will continue to lower tissue resistance thru nerve irritation. If the sympathetic chain is involved thru its connection with the spinal nerves, the vasomotors will suffer from impeded circulation, and the impulses will become irregular.

The spine of a child from the time it is born must be inspected if we wish to keep it free from lesions and scoliosis. Some children grow up with almost perfectly aligned spines, while others, thru traumatism, suffer irregularities that adjustment alone will rectify.

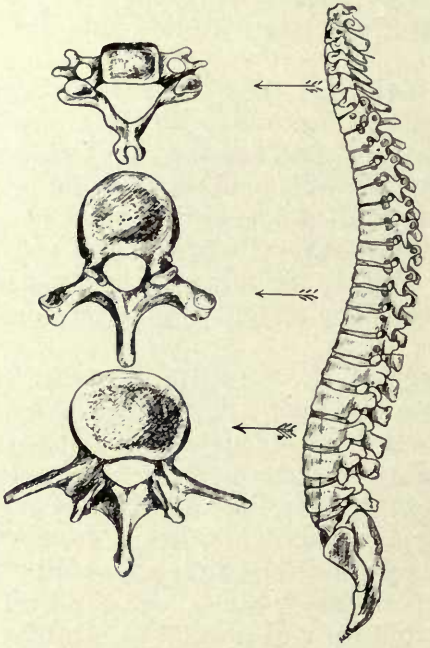


FIG. 15. The enlarged sections from the three regions of the spine, show the different shapes peculiar to each region. The spinal nerves pass through the openings back of the solid parts, or bodies, of the vertebrae.

CHAPTER 5

TREATMENT

Part I

To outline a specific course to pursue in treating Infantile Paralysis is not as easy a matter as one might presume. In the first place, we must be cognizant of the fact that no two doctors have the same viewpoint. One physician may be partial to accessories, such as hydrotherapy measures, while another may be inclined to emphasize thermostatic agencies.

Osteopathic physicians are agreed that in order to get the best results in these cases, we must stick to ten-finger Osteopathy. That measure alone will get the best results, and we must remove the vertebral lesions if one or more lesions are present. The Old Doctor's principles are true and tried, and if we deviate from them we are not going to secure the best results.

Few cases, if any, of infantile paralysis are without one or more specific spinal lesions. In practice we have yet to find a case without a specific spinal or rib lesion.

In our clinic, now well into its second year, we average fifteen a day three times a week, and one-half of these are infantile paralysis cases in the chronic stage. Dr. Gair, in

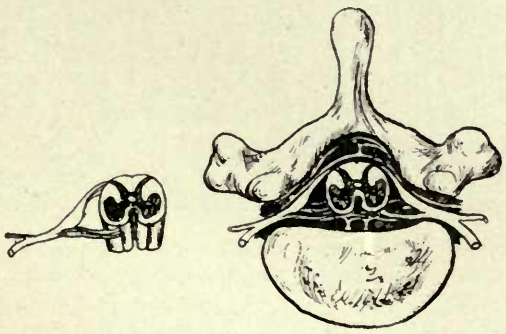


FIG. 16. Section of the spine. A vertebra with the spinal cord and its membranes. The small cut to the left is an enlarged section of the cord. Lymph spaces are found in this area.

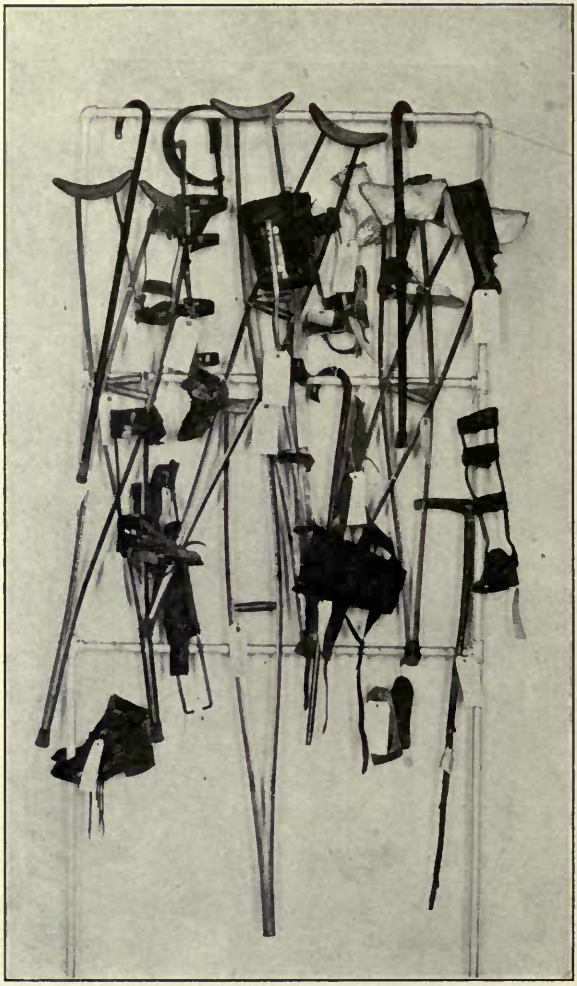


PLATE L. Braces and crutches removed by osteopathic methods (Author's cases).

her famous Brooklyn clinic, treats thirty and forty a day, and a goodly percentage of them are infantile paralysis cases.

Strange to say, some of our osteopaths have not secured good results from treating these cases. We frankly admit that until a very few years ago we did not get good results. We now know why. We did not have the proper vision. We did not grasp the principles laid down by the Old Doctor. We were not sufficiently specific. Our technique was not right. We do not and did not blame Osteopathy. We knew that we were not following along the right path. Now we love to handle these cases, and we get good results. Whether it is a recent or a chronic case, the results are in proportion to the time that has lapsed since the attack and the seriousness of the disease at that time.

There is only one royal road in handling these cases, and that is specific adjustment. Five minutes' time is sufficiently long in treating a patient, and sometimes too long. Ten or twelve of these cases an hour is a moderate record. But when you treat them don't start any massage work. That is not our work. We are too skilled to waste time in giving massage. Start in and move every spinal joint. That takes only about two minutes. Spring the sacro-iliac articulations just enough to get motion. Then give a specific cervical treatment. Do not stop to relax muscles in a child. Adjust as rapidly as possible. Make every spinal joint yield to motion. Spend only one minute, or possibly two, on the cervical vertebrae. So far, we have consumed four minutes. The last minute we loosen up the wrist or ankle, according to the extremities that are involved.

We think this general outline of treatment for chronic cases will be approved by those who have been getting the best results. Drs. Gair, De Tienne, Bernard, Green, Bush, etc., will bear me out in these statements. Regarding home treatment, the parent or guardian should be instructed in giving massage and systematic exercises. Dr. Bush has possibly given this phase more attention than any other osteopath. It is quite necessary to have our specific work followed up by these home accessories in chronic cases. Usually a mother will give her child any amount of home drill and massage.

As already stated, massage and exercise alone will seldom cure a chronic case. It is the specific work that counts.

As soon as we get away from Dr. Still's teachings we are going to fail in getting the best results.

Regarding the frequency of any specific lesion, we are unable to state what particular lesion or lesions are most often found. Sufficient is it to make a careful examination, to determine the number and nature of the lesions, and then proceed to correct them. That is genuine Osteopathy.

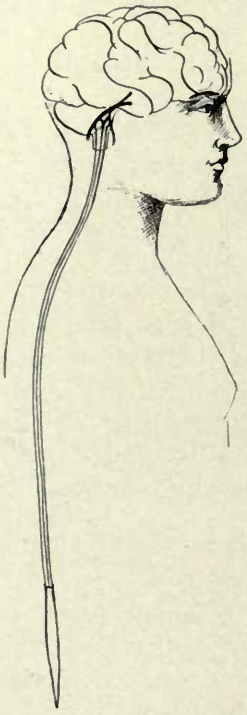


FIG. 17. The spinal cord is a continuation of the brain.

"Find it, fix it and leave it alone." Five minutes of thorough and specific spinal adjustment is worth hours of massage or even muscle manipulation.

There may be an acceleration of the blood flow after a thorough muscle relaxation, but the extremities will grow cold a few minutes after you are through. Give a good spinal adjustment from the atlas to the coccyx, and note the warmth come back to the livid muscles and the disappearance of the flaccidity and the regaining of tone in the muscles. Muscular atrophy will disappear, and the limbs will once

more round out. The bones will start to lengthen, and the short ones, if the discrepancy is not marked, will catch up in growth with those that are normal.

This can only be done by treating the nerve centres, those centres which have to do with motion and tissue development, —the motor, trophic, secretory and vaso-motor centres.

FIG. 18. Nerve impulses travel downward from the brain through the spinal cord to the feet. Paralysis may involve a part or all of a tract.

If the case is well advanced, that is, chronic in nature, and the motor cells have been destroyed to a great degree, we must bring into play the remaining cells of the cord segments that will co-ordinate and carry on the reflex arcs. The viscero-motor and viscero-sensory reflexes must be re-established as far as possible, so that normal tissue tone will again be regained and the reflex arcs work in accordance with physiological principles.

Every cord segment, especially the cervical and lumbar enlargements, must be constantly bathed with good rich

blood. We must get good vaso-motor action, as that alone will restore the circulation to all of the tissues. If the slightest subluxation, costal or spinal, exists, we cannot expect good results until adjustment is made.

It is quite unnecessary to tell fellow practitioners how to make corrections. We simply want to admonish them to be careful to trace out these lesions and to be specific in making adjustments.

The outline of treatment thus far is general, we admit, but we have earnestly sought to emphasize the keynote of Osteopathy as applied to not only these cases, but all cases treated by our own peculiar method.

Acute Cases

The treatment given in acute cases is unique. We know that the "regulars," so called, state that cases of infantile paralysis should not be treated or massaged for several weeks. Just here we leave the trail and turn to the right. True it is that we have been handicapped in securing acute cases, especially since the last great epidemic in 1916. But there have been quite a number treated osteopathically in the acute stage, as you will see in reading the case reports contained in this book, and the results have been most satisfactory. We thoroughly believe that fifty per cent. of the cases now on crutches and braces, with their withered limbs, would be in an almost perfect condition physically if they had received osteopathic treatment from the very first.

The treatment may not have necessarily taken more than a few moments, but a simple adjustment, or even inhibition, might have prevented the disastrous condition that resulted by following the medical theory that they should be left alone. When these cases are left alone the motor cells literally burn up and are destroyed.

The osteopath is fitted by training to handle spinal cases, and just such cases as these. Who should dictate just when spinal treatment should be applied in these cases: the osteopathic doctor, who is versed in this particular method, or the medical doctor, who is not familiar with spinal adjustment either from a standpoint of etiology or from a standpoint of physiological reaction? It is the work of a spinal special-

ist, who is familiar with the control of the circulation by stimulation and inhibition of the nerve centers. Case after case has been recorded where osteopathic measures had been instituted from the first in acute cases, and almost invariably the results have been all that could be expected.

The congested cord must be relieved. The circulation must be equalized, and how else could it be accomplished save through the scientific application of nerve centre treatment. We will grant that the medicos are right in saying that massage is contraindicated, but Osteopathy is not mas-

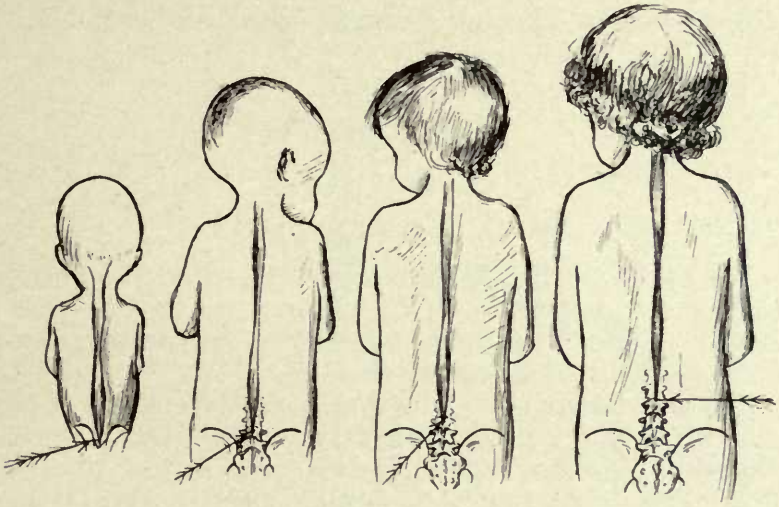


FIG. 19. At birth the spinal cord is almost the length of the spine. It gradually shortens, apparently, as the spine outgrows it until at about three the cord is at a level of the second lumbar vertebrae.

sage. Leave it to those who know how to equalize circulation, and you will get the best results.

We have given this phase particular attention and know whereof we speak. The wrecks all over the land following each epidemic are proof enough that the proper treatment was not given in the acute stage.

Thousands of children and grown-ups, following the recent and far past epidemics, are living examples of the fallacy of the old method of doing nothing.

No specific serum has been found that will cure these cases in the acute stage. Under the shadow of the best

equipped laboratories known to medicine, the last great epidemic had its sway, and yet look at the cripples—New York is full of them.

Dr. Gair and others are now restoring their withered limbs by the hundreds, even at this late stage of chronicity. The majority would never have become cripples if osteopathic methods had been instituted from the beginning.

We have tried to present this matter in the true light, and we only trust that parents will become sufficiently informed so that should another epidemic sweep this country in a few years the children will be spared from becoming helpless cripples, or going about on braces and crutches.

TREATMENT

Part II

A. G. WALMSLEY, D. O.

In Part One Dr. Millard has emphasized the vertebral lesion as a causative factor in poliomyelitis by devoting his remarks on treatment to the necessity of correcting all spinal lesions as soon as it is possible to do so.

Before passing to the discussion of other phases of treatment, we wish to express our hearty agreement with what has been said regarding spinal lesions and spinal treatment. There is no doubt that the splendid record made by osteopaths in treating poliomyelitis in the acute, subacute and chronic stages is due in large part to the application of the principles discovered by the founder of Osteopathy. Therefore, our discussions of the treatment of this disease must have as their center or touchstone the principles enunciated by Dr. A. T. Still.

But having emphasized the prime importance of the application of those measures peculiar to the science and practice of Osteopathy—namely, spinal adjustment—in the treatment of poliomyelitis, it does not follow that the treatment of the disease ends there. Indeed, we are cognizant of the fact that it does not always even begin there. In some acute cases of poliomyelitis the tissues are so exceedingly sensitive, especially the spinal tissues, that the patient

will not tolerate being touched, and will cry out if he thinks his physician or his nurse is going to touch his spine. It is at once apparent that in such cases the hypersensitive condition of the spinal tissues must be relieved before the osteopath can adjust spinal lesions.

It is fitting that we should mention at this point that parents do not—and some of them will not—see how an osteopath can manage these very sensitive cases, and most M. D.'s hold up their hands in horror at the thought of an osteopath being called to see such cases. But what does the

FIG. 20. The circulation in the feet is supplied by the far away heart, small arteries, etc. Small arteries enter the long bones through little openings, and keep them well nourished.

average M. D. do in such cases? For the most part, his policy is one of hands off. The disease is allowed to burn itself out, and in many cases it takes the patient with it; and when it does not kill the patient it very often leaves him a hopeless wreck. It is true that the M. D. resorts to internal medication and to the use of sera, but the effects of such treatment are so far from satisfactory that he cannot and (if honest with himself) does not look with any degree of hope for tangible results.

If one may judge from the host of children with withered limbs and misshapen bodies who have passed through the hands of the medical profession in recent years, one cannot but adjudge the medical treatment of poliomyelitis a failure. In the face of these failures, one may be permitted to ask: Why should the medical profession say this should not be done; that should not be done, etc., etc.?

We are unalterably opposed to this do nothing policy. We believe that so much can be done in the early stages of poliomyelitis by intelligent handling that we are encouraged to set down our views of the matter in the sincere hope that they may prove of help to others in the treatment of this disease.

Procedure in Acute Cases

For the guidance of the physician we will outline what we consider sane and logical procedure in acute poliomyelitis.

FIRST—Isolate the case. In doing this the patient should be put in the quietest, most cheerful—and if in the hot weather—in the coolest room in the house.

SECOND—Keep people out of the room; none but the nurse should be with the patient.

THIRD—Stop all food. When we say all food, we mean ALL. This, as well as some of the other things we will suggest, should be done in all acute infectious diseases. In the acute diseases the gastrointestinal tract is utterly unable to carry on the digestive functions, and the ingestion of food not only places an added handicap upon nature in her efforts to clean house, but it also prolongs the disease and makes more probable troublesome sequelae. Food should be withheld until the temperature is down to 100° F. or lower. When the temperature is down to 100° F. or lower, and if the pain and sensitiveness have practically subsided, feeding may be

commenced by giving fruit juices for a day or two; then fresh fruit such as berries, cherries, oranges, peaches, or baked apple may be given. After a day or two of this the heavier foods may gradually be introduced.

FOURTH—In acute poliomyelitis, as in all fevers, the patient should be given plenty of water to drink. It is better to give a little at a time and give it often. Water to the fevered patient is both food and drink. It literally helps to drown the fires that are raging within and it promotes elimination.

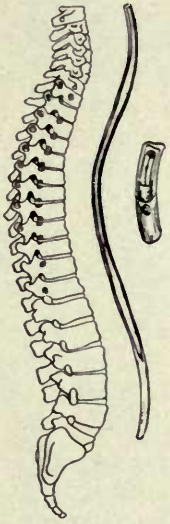


FIG. 21. "Spinal marrow" is really the spinal cord, with its three coats, as shown in the small section to the right. The cord seen from the side view is curved to conform with the shape of the spine which encloses it.

FIFTH—In many of the acute cases the spine is so sensitive that at first not much can be done in the way of handling it. When we encounter such cases, shall we throw up our hands and say that nothing can be done; that we must wait until the patient has improved and is less sensitive to the touch before attempting spinal adjustment? Not so! We should rather do all that may be done to get the patient in such condition that osteopathic measures may be applied. We believe that the best way to accomplish this is by hydrotherapeutic measures. A few osteopaths advocate placing the patient in a bath at body temperature or a little higher,

and keeping him there for fifteen or twenty minutes, this to be repeated every two or three hours until contraindicated. While we believe in the merits of this procedure, we are of the opinion that hot compresses applied to the spine and to other very sensitive parts will answer the purpose as well in most cases and better in some cases. The compresses do not require that the patient be handled as much as in putting him in the bath, and this in an important consideration.

In applying the compresses turn the patient face down upon the bed. Place one or two cushions under the abdomen. This will support the body and will slightly arch the spine. It is claimed that in the prone posture the spinal vessels drain more readily, so in placing the patient in this position to apply the compresses we are accomplishing a two-fold purpose. The compresses should be applied to the entire length of the spinal column, but special attention should be given to the more sensitive areas. Light compresses should be used at first because even the weight of a light compress may not be well borne by the patient.

The first two or three compresses should be warm in order to accustom the patient to them. After that they may be put on quite hot but not hot enough to burn the patient. They should be wrung out so that water will not drip from them. The application of the hot compresses may be continued for one-half to three-quarters of an hour. This procedure should be repeated in two or three hours if the patient becomes restless. It is claimed by some osteopaths that when the patient has a very high fever cool or cold compresses are more effective than hot compresses. In such cases it might be well to try cold compresses. The compresses help to bring about relaxation of the tense ligaments and muscles and thus promote drainage from the spinal cord. The compresses do more than this; they not only largely, sometimes entirely, overcome the painful, sensitive condition of the spinal tissues, but they also have a decidedly soothing effect on the nerves of the patient and as a result the patient is enabled to rest and conserve his energies; whereas, he had been unable to rest and his resistance was being rapidly depleted.

We are of the opinion that not many applications of the compresses will be necessary before the osteopath will be able to do gentle corrective work to the spine.

SIXTH—Irrigate the colon with copious saline enemas. This should be done as early as possible. It has been noted by most of the osteopaths who have treated acute poliomyelitis that not only is there a decided involvement of the digestive tract, but that the fecal discharges are very offensive. The sooner the colon is rid of the offending material the sooner will the fever abate and the other symptoms subside.

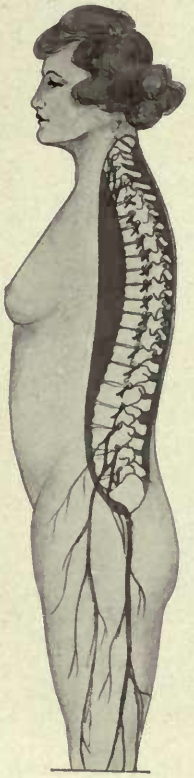


FIG. 22. A normal spine is usually found in a person with a normal poise.

At first the colon should be flushed at least twice a day. In some of the more severe cases the colon should be flushed every five or six hours for the first day or two. Later once a day will do, and this should be continued so long as the patient is bedfast. When the patient begins to take solid food the bowels should be closely watched until normal action is restored.

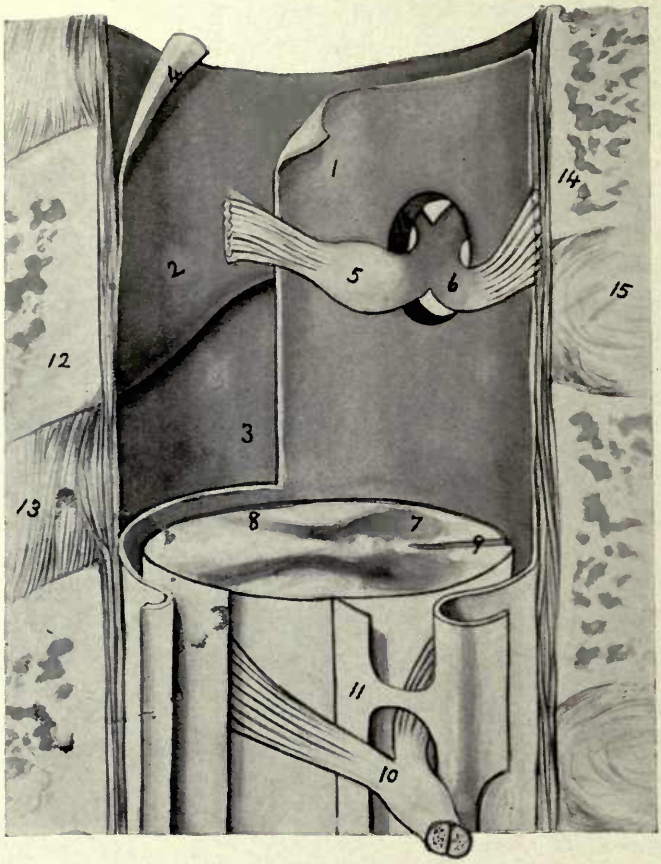


PLATE M. "Intramural" (within the walls). 1. Dura Mater; 2, 3, and 4. Periosteal lining; 5. Posterior ganglion; 6. Anterior nerve roots; 7. Anterior horn; 8. Posterior horn; 9. Anterior median fissure; 10. Union of anterior and posterior spinal nerve roots. 11. Ligamentum denticulatum; 12. Spinous process; 13. Ligament; 14. Body of vertebrae; 15. Disc between vertebrae.

SEVENTH—Close attention should be given to the nose and throat, especially where there is profuse discharge from the mucous surfaces of these parts. The nose and throat should be kept as clean as possible without undue annoyance to the patient. The excretions from these parts should be carefully sterilized.

EIGHTH—In poliomyelitis as in any of the acute diseases, it will be found that the feet are cold even though the patient is in a high fever. This is true even in the hottest weather in summer. A hot water bottle should be placed in the bed but it should not be allowed to come in contact with the feet if it is very hot lest it burn them.

Caution

If the patient makes phenomenal progress, do not cease watchful care too soon. Relapses have occurred where the patient was allowed too much exercise, too much food and too much excitement when it was thought all danger was past.

In cases that at first show only slight paralysis and that to all appearances are mild cases, it is well to be as watchful and as rigid in the regime outlined as with the more severe cases. The only safe plan to follow is to treat all cases of poliomyelitis as though they were severe cases.

When the acute stage is past and convalescence is progressing favorably, it is still imperative that great care be exercised. The osteopath may sometimes wonder why a paralyzed part is not making better progress under treatment, and may be inclined to chide himself or his science; whereas, if he would inquire into the case he would find that the patient was having too much exercise and too much excitement. This will not do. Rest and quiet are indicated if the patient is to make a satisfactory recovery—a recovery that leaves no withered limbs nor constitutional weakness.

In cases in which the paralyzed limb or limbs have not made complete recovery within a few months from the onset of the disease, the osteopath sometimes questions the advisability of continuing treatment. We believe that in most cases there should be no question whatever as to the wisdom of continuing treatment.

Cases will sometimes reach a point where it would seem that all has been done that may be done, but unless complete recovery has taken place the parents should be encouraged to continue the treatment for some months. Not infrequently when this course is pursued one, two or three months the patient's condition shows a decided improvement as compared with the condition when it was thought improvement had come to a standstill. Furthermore, the osteopath should not base his conclusions as to the wisdom of continuing treatment solely on the condition of the parts paralyzed.

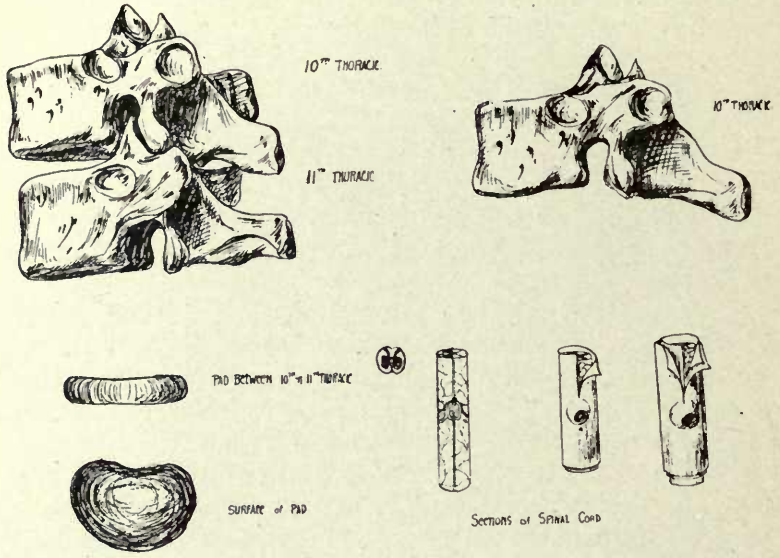


FIG. 23. The spine is made up of sections called vertebrae. Between the vertebrae pads are placed to cushion the spine. Within the spinal column the spinal cord is found. The cord has three coats. A cross section is shown with a darkened center. Part of this center is the motor area that controls the muscles and is found damaged in infantile paralysis.

In a child whose general health and constitutional condition was much below par prior to the onset of an attack of poliomyelitis, it is to be expected that nature will devote some attention to rehabilitating said constitutional condition, and in the circumstances she can not give all her energies to restoring the affected limbs.

Even though a case has apparently come to a standstill as far as progress with the affected limbs is concerned, we be-

lieve it unwise to discontinue treatment for some months later. So much more has been accomplished for many of these cases than the osteopath thought could be accomplished that it is well to give the patient and the treatment the benefit of any doubt that may exist as to the advisability of continuing treatment.

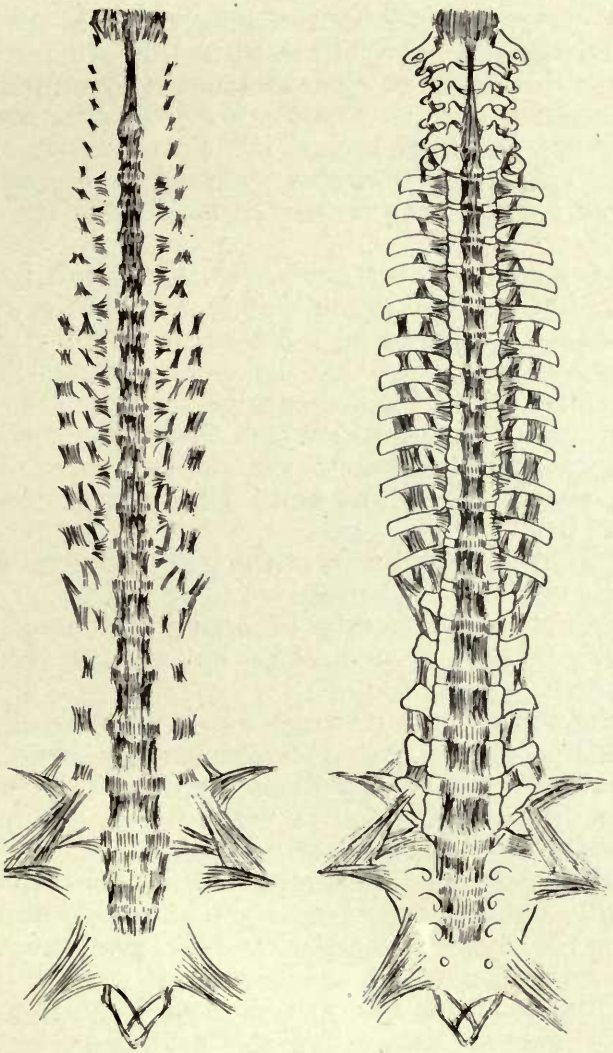


PLATE N. The ligamentous bands that hold the spine together and fasten the ribs onto the vertebrae. The drawing to the left shows them removed from the bones.

CHAPTER 6

Hints to the Public on Infantile Paralysis

A. G. Walmsley, D. O.

The epidemics of infantile paralysis that the United States and Canada have witnessed in the last decade or so have made this disease appear among the dread possibilities of each summer and early autumn season. In addition to the epidemics that have been of sufficient severity to attract attention, each year witnesses sporadic or scattered cases throughout parts of the country not included in the epidemic areas.

The general public has grasped certain facts in connection with infantile paralysis more readily than is the case with most diseases. This would seem to be due to the nature of the disease; to the fact that in so many cases it leaves one or more extremities shrunken and lacking normal usefulness. And this again emphasies the fact that perhaps no form of illness or incapacity attracts the public eye to the extent that does physical deformity and inability to use one's body or parts of it.

But from the standpoint of the public, several questions present themselves: What are we to do? Can anything be done to prevent my children becoming victims of infantile paralysis? If they should come down with the disease, what is the best thing to do?

Prevention should be the watchword of all intelligent laymen as well as of progressive physicians. But in order to prevent the development of any disease we must have some grasp of the conditions that favor or make for its development.

Infantile paralysis is classed with the infectious diseases. The invading germs, it is claimed, find entrance to the body through the mucosa of the nasal tract. Medical literature, in discussing the cause of infantile paralysis, gives practically no space to any other factors as operating to cause this disease, holding that it is due solely to germs. With this view we must take issue. Observation and experience have shown that a number of things predispose to and favor the development of infantile paralysis aside altogether from the part

germs may play. For example, in many of the children who come down with the disease there is a distinct history of a fall or injury in which the spine is affected, this dating from a few days to a few weeks prior to the onset of the trouble. On examination of such cases it has not been difficult to discover spinal irregularities that would result from such accidents as mentioned. Anything that will interfere with the normal relationship of the bones forming the spinal column will favor the development of infantile paralysis, because the blood supply to the spinal cord—and to

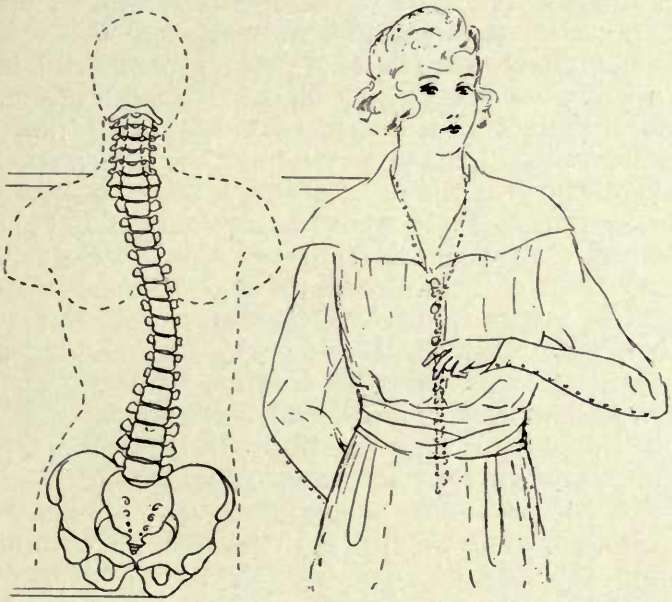


FIG. 24. When dressed up a curvature is not always noticed by the casual observer. The outline of the spine to the left, is also a front view and tells the tale. Notice the drop in the right shoulder.

certain cells of the cord, which cells are affected in infantile paralysis—is interfered with; drainage from the cord is particularly interfered with where the spine has been strained or injured, because even a slight injury causes the muscles to contract, and this through pressure on the vessels impairs drainage from the spinal cord. Where drainage from the spinal cord is impaired the poisons contained in de-oxygenated or venous blood are not removed and their presence lowers the vitality of the tissues and favors the onset of inflammatory conditions.

Those members of the osteopathic profession who have studied carefully both the acute and later stages of infantile paralysis have been impressed by the fact that almost invariably there is a derangement of the alimentary tract coincident with the disease. Not only is there a loss of desire for food, but when the colon is flushed the stools are of an exceedingly offensive nature. Is it unreasonable, then, to assume that a filthy intestinal tract lowers the resistance of the body and favors the development of the disease? We aver that it is not. And the very fact that colon flushing early in the disease lowers the temperature and conduces to the general comfort of the patient seems sufficient evidence that the contained filth played a part in causing the disease.

But why do so many children as well as adults have filthy intestinal tracts, and why are so many taken down with intestinal diseases in the summer months? Because there is no season of the year when the digestive tract is bombarded with such a quantity and such a variety of "eats" as in the summer and early autumn months. At this season we not only have the usual staples as meat, potatoes, bread and butter, milk, cream, pie, cake, puddings, etc., but we also have fresh vegetables of all kinds, and also a wide range of fresh fruits. Added to this list we have fruit, pickles, jams, etc., etc., that mother is putting up for winter. And superadded to the above we are confronted with ice cream, sodas, soft drinks and candy, candy, candy at every turn.

Weigh the fact that owing to the heat of summer the body's resistance is lowered; also weigh the fact that we do not require the same quantities of heat producing foods such as fats, sweets, etc., in the hot weather as in winter; and further, weigh the fact that pathological fermentation takes place more readily within the body, just as foods, fruits and vegetables ferment or spoil more readily in our cellars or refrigerators in the summer months than in cold weather. When these facts are duly weighed and the added fact that at no time of the year is the alimentary tract invited to sample such a wide variety of consumables, is it any wonder that nature so often rebels?

The mere recounting of these things should be sufficient hint to the wise to practice moderation. Cut down on the heavy foods in summer; eat more fresh fruits and fresh vegetables. Do not allow your children to be constantly guzzling

ice cream and soft drinks and eating candy. Never mind if some wiseacre says that "ice cream is good," or this or that is good. Many a thing the constituent parts of which are good is not in itself good, and this is true of ice cream, soft drinks and candy in hot weather; a little is all right, but none but the strongest can take these things daily without courting trouble.

It has been remarked by many in the profession that an attack of infantile paralysis was preceded by unusual activity on the part of the victim. The writer frequently has had parents call attention to this fact and cite it as proof that "Willie was unusually well just before the attack." How are we to interpret this picture of unusual activity and infantile paralysis following soon after? If we will associate a few simple facts, facts with which any layman is familiar, we should find a solution to our question.

Is it necessary to call attention to the fact that the average child wears as little clothing as possible in the summer? The child, even in hot weather, is irrepressible; he will romp and play until tired out. When tired what does he do? He lies on the cool grass or in any cool place he can find. And what, under such conditions, so often happens? The muscles of the back contract and the back feels stiff. If we have this condition plus a deranged intestinal tract as outlined above, we have ideal conditions for the development of infantile paralysis. The contracted muscles of the back interfere with circulation to the spinal cord and especially with drainage from the cord, and favor the development of infantile paralysis. The writer has seen quite a number of cases in which the picture presented tallied in every respect. When we consider that the spinal cord of the child is not fully developed and therefore has not the resistance of that of the adult, are not the conditions enumerated sufficient to overtax it and cause trouble, and to do so without the introduction into the system of germs? And if disease germs are introduced into tissues thus weakened they find them an easy prey.

Parents should know that body resistance is much lowered when the weather is hot and humid. Hot weather in itself is not so bad, but when it is both hot and humid for weeks at a time there invariably is an increase in children's diseases, and particularly in those diseases in which the alimentary tract is involved.

During the epidemic of infantile paralysis in and about New York in the summer of 1916 the weather was exceedingly hot and humid for weeks, and it is worthy of note that as soon as it began to cool slightly and the atmosphere became drier and clearer the number of cases reported at once showed a marked falling off. In such weather parents should pay close attention to the intestinal tracts of their children, both in the matter of food taken and in the matter of keeping the bowels clean. Children should not be permitted to play to the point of physical exhaustion, and they should be kept indoors and at rest for an hour or two in the heat of the day, and especially following the mid-day meal.

Finally, if children are taken down and infantile paralysis is suspected or a positive diagnosis is made, the vital question is: What should be done? Osteopathy has proved the most successful treatment to date for infantile paralysis in both the acute and chronic stages. In fact, it is the only known treatment that is able to cope successfully with this disease. If the child is so ill that it apparently can not be touched, do not be afraid to call an osteopath. If a prejudiced M. D. says that the osteopath "will ruin your child," that it "will surely die if an osteopath treats it," etc., etc., do not be deterred. The osteopath is the one to say when osteopathic procedure is indicated and when not. If the average M. D. were asked when osteopathic measures were indicated in any condition he would almost always say never. Why, then, should the public expect a man who is prejudiced against all forms of treatment but his own to recommend Osteopathy for infantile paralysis or for anything else?

The medical profession is very dogmatic as to what should and what should not be done during the acute stage of infantile paralysis, and one can but wonder at their colossal conceit when one contemplates their record of failure—abject failure—in treating this disease. The osteopath realizes that he does not know all that is to be known about infantile paralysis, but he has demonstrated that his treatment will will do more for it than anything else will do. And what is more, it has been fully, indisputably proven that the earlier the osteopath gets the case the better are the chances for complete recovery of the use of paralyzed parts after the acute phase of the disease subsides.

CHAPTER 7

INFANTILE PARALYSIS

E. Florence Gair, D. O., Brooklyn, N. Y.

While a student at the American School of Osteopathy I became greatly interested in the treatment of Infantile Paralysis, and I decided then to make it as far as possible a specialty, or my hobby, and try out everything, no matter how longstanding or how bad! In the class room I had been told not to consider a case after two years from the attack and to seldom give prognosis for a cure after six months.

I started my clinical work in the Fall of '11 after graduation in June. My first case was a "dope" case I had to put in the ward of a private sanitarium, as no hospitals are open in New York City to osteopathic physicians. While treating this case another woman in the ward told me of an infantile paralysis case just dismissed from Rockefeller Institute as a hopeless cripple, and asked me would I take it?

In this case the left leg hadn't a muscle that reacted to stimuli; it hung limp from the thigh down. I got excellent results in a short time; and during my absence at Christmas time, when I went on to take a Post-graduate course at the American School of Osteopathy, the Rockefeller Institute sent for my case, not knowing it was under my care. The child's walking amazed them greatly. Several doctors and nurses gave a thorough examination with all the tests. I was asked on my return to call, which I did, and Dr. Draper and I had a long talk and thoroughly discussed medical versus osteopathic treatment for this disease. As he was in charge of the ward for infantile paralysis he took me thru and showed me his cases. One case, the last, was being left entirely to nature's course, to see the result. I begged him to take findings, then let me treat, and go back again in half an hour and again take findings, and see what Osteopathy would do for such a case. Then I proposed to him that I would give so much time there and we would each take a certain number of cases and see results, or else he would send me cases after his examinations and keep in touch with each

case every month. I believe fully had he been free he would have complied with any of these suggestions. But Dr. Flexner was in charge over him, and there was the barred door. So this was my first and last visit to the Institute, and I fully realized how little such an institute is out for an all-round investigation. It must come only within certain prescribed centres. How wrong this is, only the unprejudiced investigator knows.

This first case, however, brought me any number my first year, for an uncle of the child was a barber in Harlem,

FIG. 25. Dr. Florence Gair's sanatorium in Brooklyn. Dr. Gair has the largest infantile paralysis osteopathic clinic known.

and he spread the news broadcast. The little girl's father was a fireman, and he likewise spread the good news, so that I had over 50 my first winter. One was a young Jewess of thirteen who had been in double braces for twelve years, her feet in plaster off and on for the past two years. They were swollen, misshapen and horribly discolored from impaired circulation. She had such a bad lumbar curve from secondary contractures of her legs that she walked with buttocks swung out and to the right, shortening her stature

considerably. I treated the case twice a week all winter, with very gratifying results. The curvature straightened, and the secondary contractures left the limbs, the feet became shapely; the swelling all disappeared as the circulation was restored; and today she walks thirty to forty blocks without tiring. The first time I insisted on her discarding her braces she could only go a few steps at a time and sit

FIG. 26. Dr. Gair's collection of braces, casts, etc., removed from infantile paralysis cases during the past few months. Had she started saving them from the first, she would not be able to put them in one cart load.

down and rest. She could hardly reach the car in front of my door, and had to rest on the curbstone. I didn't get her for treatment after the first winter, as she felt she was cured. The right leg had had a ham-string tenotomy performed, which left it contracted, so never was as good as the left leg. It is such a mistake to do these operations before treating the case and watching for nature's restorations first.

There is time enough later to resort to the knife, plaster and braces. This is the great mistake in medical treatment; the end procedures are resorted to in the beginning instead of as a last resort, and WHEN IS THE LAST RESORT?

I was greatly interested in a case in my neighborhood which was stricken in the '80's. All the doctors gave up the case, but the mother never lost hope. She massaged and worked hard over those four crippled limbs and back. It

FIG. 27. Last winter's case. Back of both legs atrophied—now, almost completely restored (case from 1916 epidemic).

was two years before the arms were of use; it was four years before the legs returned; and eight years before the child really walked. But today she is the mother of four children, runs her own auto, skates and dances. It shows that nature needs both time and, in many cases, assistance, to do her work, and we often give up too soon. This case gave me much food for thought, with this result: in my seven years of

practice I have never resorted to an operation or employed a brace. In the bad spinal cases I use a boned corset for support if the spine is weak, while the child is learning to walk. I have the mothers massage and rub hot oil into the affected limbs and spinal muscles—if they have the time, hot salt baths and exercises against resistance at first, then overhead bars and gymnastic work, acco rding to the case.

FIG. 28. (1916 epidemic) Treated last winter. Paralyzed from chin to toes. All spinal muscles weakened, as well as both arms and legs. Fine results, as you see by picture.

FIG. 33. This winter I took a young lad of eleven braced most up to his chin for weakness in spine and legs—even a worse cripple than my Jewish girl I mentioned. He'd had the attack in infancy. His back was badly deformed with a mean double curve. To make this worse, his right thigh was so badly contracted and flexed that he couldn't sit up, and muscles atrophied. The first day I examined the case

it looked so helpless I was going to dismiss it, but the child begged so pitifully and said he knew he'd be cured if I'd just treat him. I told the father he might carry him to me for the Sunday clinic and I'd try him out, but to be sure to keep off the braces. He came the latter part of January, and owing to the inclement weather of this winter made many skips. Still, he is walking today on one crutch; both legs are on the floor; and the spine has lengthened out several

FIG. 29. Boy age 3. Same boy as in Fig. 36, taken one year later.

inches. He sits up nicely now as well. The atrophy remains, but the contractures have all disappeared from feet and limbs. All he says now is, "Didn't I tell you so? I knew I'd get well under the right treatment." It shows me how little we can prognosticate in these difficult long-standing cases. I find nature responds so quickly, and so unexpectedly, to the touch of the right button. Our motto: "Find it, fix it, leave it alone:" How fittingly it works with nature!

This week, (last week of April, 1918), I had a two-year-old baby who had been under a chiro for months. He had failed to touch the right button and remove a bad pelvic twist on the lumbar. This had caused marked contracture of the right leg. The external muscles (the thigh rotators) had twisted the thigh and the post-tibial group, with Achilles tendon, had made the foot contract to bring the sole uppermost. After reducing the lumbar lesion Wednesday, the rotators of the thigh gave way, and the leg went down to normal position. After stretching the foot muscles—I bound them in adhesive plaster—I found this morning, three days later, a marked improvement. The foot stayed placed normally on the table with thighs flexed. No atrophy being present, I hope to get nice results in a few weeks in this case.

I examined a bulbar case this week I had treated last winter. I got it two years after attack. You cannot find a trace of muscle defect. The treatment resulted in a complete cure.

As my practice is entirely confined to clinical office work, I have taken very few acute cases. In such a work as mine one must limit one's endeavors.

My earliest infant paralysis case, a boy of three years, was seen by me on the fourth day of the attack. Three baby specialists had seen the case, and had agreed that nothing more could be done save to leave the limbs swathed in cotton batting, keep the child warm in bed on his back, perfectly quiet, and in six weeks bring him for electrical treatment at the office.

The mother, hearing of my work, rang me up to ask what I thought. I told her NOW was the time to establish the cure, the sooner the better. I'd undertake the case, if I might have full charge and she would promise no interference. When I saw the child that morning he was lying a helpless mass in bed—paralysis complete on right side, including the face, with loss of speech, the right side of the mouth sagging and drooling saliva.

I prepared a three-quart enema, and with my metal sigmoid colon tube I administered a good cleansing of the colon. The odor from the bowel was a stench, showing how necessary it is to thoroughly cleanse the tract, and this medicine will never accomplish. Then I examined him for lesions

and corrected those I found in lumbar, dorsal and cervical regions of the spine. This took about ten minutes. I had the boy put back to bed. I told the mother to turn him on his face, and let the spinal cord get drainage, which would rest him, to keep him warm in bed, give plenty of water, but just a liquid diet. She could rub the affected limbs with hot olive oil, but not for more than fifteen minutes, and also massage his back muscles.

I 'phoned next morning and heard the good news that the arm was moving and speech returning, so I skipped that

FIG. 30. The description of this case in the text is most interesting. Note the improvement as shown in case 31.

day and went the following afternoon. I found motion was coming back to the leg. I administered the same treatment as first day and found the bowels in much better condition.

On my next visit the following day I found full motion restored to both limbs and speech nicely returning. What was my surprise on the fifth day to find him so lively that I couldn't catch him on the bed to treat him. He ran in every direction.

It was a balmy, sunshiny spring day, so I told the mother to take him out at noon each day. This case doesn't show a trace of the disease to-day. Here is an interesting feature: He caught cold in the next ten days, and had a relapse with loss of speech and the use of the right arm. I sent him to Dr. DeTienne for these treatments. He soon had him well again.

The M. D. formerly in charge had rung up to learn how the boy was doing. On hearing of his improvement, and that Dr. Gair was in charge, he told the mother to have a care, as in two or three weeks the after effects would be worse.

FIG. 31. Same as case 30, taken a few weeks later.

It was hypnotism. I wasn't a "regular" practitioner. I had no diplomas. I was just a quack. The mother was frantic and rang me up to tell me.

My next earliest case was brought to me from a City Hospital after a three weeks' stay. (Both these cases were before the 1916 epidemic, else I couldn't have seen them for from six to eight weeks.) This child was in a frightful condition. The nurse had left a water bag which was too hot on the loin, with a resulting blister which became infected. It was a nasty big oozing sore when I saw it. The child was also infected with a nasty coryza. Her stools were run-

ning blood and both ears pus, besides the paralysis. It was a nasty case to handle.

In two weeks I had her walking the length of my treatment table after pennies.

The bloody stools ceased after the first enema, cleansing the colon and reducing the lumbar lesions, putting an end to that trouble. One ear cleared up in a few days, the other ran pus for over two weeks.

The healing of the sore was likewise of long duration. This child made a nice recovery by the end of that winter.

FIG. 32. "Three ambulance calls had refused to take him, as he was considered too far gone." He now rides his velocipede for hours.

I lost track of these cases, as the poor move about so much from one spot to another, and I haven't seen this one since.

The winter following our epidemic brought me over one hundred and seventeen cases. I was in Seattle during that summer.

From October onward cases in all stages of the disease kept coming in. It was very interesting to watch the progress of the different cases. Some showed no signs of improvement for six months. I wondered how the parents kept up

their courage, but it was only through seeing the improvement in the others and hoping that their child in the end would get well. One little fellow was brought to me early in the fall. Three ambulance calls had refused to take him, as he was considered too far gone. He was in a pitiful plight, stools running blood, rectum paralyzed and protruding, bad leg and spinal paralysis, with a horrible coryza. To show what a nice recovery he made, I have taken his picture. He can run about now on his velocipede for hours. Fig. 32.

FIG. 33. This boy had an attack of infantile paralysis when a baby and was practically helpless when taken and restored to the condition as shown in the picture.

One child, not three years old, was brought on a stretcher. Spine too weak to sit up, legs both paralyzed, also right arm. I had her walking nicely in three treatments. This was a perfect case. Since then she broke her arm and had wrist drop. I was fortunately able to correct this deformity as well.

I am still treating a little boy of three. The home town physician said he must be operated on at once. The right abdominal muscles were paralyzed, and the stomach protruded out like a small balloon. The child's right leg and arm were affected, and the spinal muscles too weak to give

support. Today he is walking, the leg muscles firm, the atrophy keeps decreasing and he has two nice shapely limbs. The arm is perfect, the spine is still a little weak, and to prevent a curvature I have him in a boned corset. The abdominal muscles have gradually regained their tone, so that there is is now no protrusion. In another year the spine, I hope, will be strong and able to do its work.

FIG. 34. Most deformed case of talipes I have seen. Foot flexed on shaft of tibia. Heel and metatarsals meeting. Complete muscular atrophy of plantar muscles. Boy now skates with rollers and on the ice.

I am still getting cases from the 1916 epidemic, that had received the medical treatment for two years. It is surprising to see the quick results which can be attained in these later cases. I immediately take off the braces and sometimes wonder what would indicate their use in cases of babies not yet walking.

The improvement that comes from reducing a spinal lesion and giving the limb the normal blood and nerve sup-

ply is often astonishing. A flabby useless limb will tone up in less than a month's time. Sometimes the improvement which is the result of treatment seems hardly credible. It only goes to show how responsive nature is, if we only touch the right button, assist, and not hinder.

Sometimes I do not see a case for a year or two after the treatments, and the improvement is gratifying. Many bulbar type cases have been coming in of late to let me see

FIG. 35. Bulbar paralysis on right side of face. Complete restoration. Right arm a trifle weak at deltoid yet.

the cure. You can't find any lack of tonicity. Both sides of the face are normally balanced. This means more to a girl than to a boy, as the boy's deformity can be later covered up with a beard or moustache. Some of these cases were of four or five years' standing before they were referred to me, this making the cure all the more interesting from the standpoint of the duration of the paralysis.

My quickest recovery was the case of a child of three, Fig. 30. A week before the attack she had fallen down the cellar stairs. It was Sunday and the mother had returned from Sunday School. She noticed a sort of weakness in the child's limb, with a sudden giving way.

Finding the child had lost all use of the lower limbs, she quickly prepared a hot foot tub, with mustard added, into which she put the child while she ran for a doctor. The child, for the next three months was confined to bed, couldn't sit up, and screamed so much with pain that narcotics had to be administered. The mother took her child everywhere, seeking a cure. Nine surgeons at the Long Island College Hospital advised an operation for the hip joint. In the meantime the mother heard of me at her office, and next morning sent the child to my clinic, with a young girl who cared for it in the mother's absence. I adjusted a fourth and fifth lumbar. The child sat up and ate her evening meal for the first time since the attack, and had no further trouble. It was an overnight cure.

The M. D.'s termed it a case of hypnosis and told the mother that the child's condition would be worse when the effects wore off. She has only a slight ptosis of left eyelid, which is hardly noticeable. The leg doesn't show a trace of the disease, Fig. 31.

In getting my histories, many of my more rapid cures give direct histories of falls. On correcting the resultant lesion, the limb was quickly restored to use.

Most of my cases from the 1916 epidemic are now walking nicely. Some get well quicker than others. One never can tell, on examining a case, how it will turn out. The one you least expect results from often proves the best cure, and vice versa. The greatest trouble is, we give up too soon; we are too easily discouraged.

My greatest annoyance is interference by the visiting medical nurse with the weak parent. She returns them to medical procedure, they go back to the brace, to the cast, or to surgical interference—and the poor child must suffer!

The only thing I resort to is an ankle corset and a boned waist for the weak spine. This can be taken off during exercise and at night. I like elastic sides to give play for the ribs.

I encourage mental effort in all exercise; that must be secured. Therefore, exercises against resistance are the best. I keep the child creeping as long as possible while the spine remains weak, and encourage chinning, and work on horizontal bar for muscle development. Swimming also is fine—it brings all the muscles into play—likewise the Kiddie Kar, the tricycle and velocipede, for lower limbs. I don't like mechanical electrical machines for training, for this does

FIG. 36. Same case as Fig. 29. Boy two years old when this picture was taken. Boy at left had legs, arms and back paralyzed. He now wears a little corset, but walks nicely.

not bring the cells into the same stimulus as personal mental effort in the training. I tell most of the children they can all walk if they only want to hard enough, and not to give up too soon and become lazy.

My reason for objecting to the cast and the brace is this: the disease includes the motor and the nutritional nerves. As soon as you place a limb in plaster you decrease

the circulation to the part and increase the atrophy, and you don't get the desired results. The brace does the same thing. It is heavy for the weak limb, nearly always makes deformities of the feet, enlarges the ankle bone, and causes nasty sores and always atrophy and muscular weakness.

Osteopathy immediately goes to the centre of the trouble, reduces the lesions, giving the impaired limb a better nerve and blood supply, reducing the contractures of old cases, and preventing them in the recent. It is the only logical, sensible, curative treatment for this disease.

FIG. 37. She can now stand on her legs again. I expect a complete cure.

CHAPTER 8

CASE REPORTS

L. J. Bingham, D. O., Ithaca, N. Y.

Case 1.—Infantile paralysis in a boy 10 years old; called October 16. 1915, on the sixth day after initial attack. Patient contracted the disease in the country on a hot October day after drawing a hand-sled up and down the road and other strenuous exercises causing extreme fatigue. Case reported high temperature during the first six days; temperature subsided just before I was called. I found the following picture: Both legs paralyzed, left one slightly worse than the right. Patient was unable to lift either leg. There were symptoms of extensive inflamation of the spinal cord and its coverings, with typical opisthotonos simulating spinal meningitis. There was pain in the legs, the back muscles and the back of the neck, and marked tenderness along the whole spine. The patient was constipated, with a furred tongue and poor appetite. The bony lesions present were a twisted fifth lumbar vertebra, and upper cervical lesions, thus making a block of the circulation at both ends of the spinal cord. There was a twisted pelvis, slight curvature, and an irregular alignment of ribs and vertebræ at points all along the back. His teeth were bad. Muscles were rigid along the whole spine. Previous to the attack the child had been notional about eating; parents indulged him with sweet foods and things he liked. Patient responded rapidly to treatment from the first. The diet was regulated, constipation relieved by enemata, and the lesions reduced as rapidly as possible. Treatment was given twice a day at first, diminishing until finally he was taking only one treatment a week, until May 13, 1916, when the patient was discharged in good condition. He apparently has as good use of his limbs in every respect as he ever did.

Case 2.—On the 19th of October, 1916, I was called twenty miles in the country to see a brother and sister of seven and nine, respectively. These children had been constant companions of a neighboring child that died of infantile paralysis about a week previous. Both children came down with the attack the day before I was called. There was a temperature of 102, together with the usual characteristic sumptoms of an acute attack of infantile paralysis, but the paralysis had not yet manifested itself

I will describe how I handled these cases and thereby give my methods of treating infantile paralysis. I ordered the mother to discontinue all food, excepting fruit juices, all the water they could drink and concentrat-

ed vegetable broth as long as the temperature lasted. The broth was prepared by grinding equal amounts of several vegetables through a food-cutter and boiling this pulp for three hours, afterwards straining out the pulp and allowing the child to drink the broth. I ordered an enema morning and night, a cold compress about the neck, and a daily hot bath. In cases where there is evidence of inflamation along the spinal cord, a cold, wet towel is put over the area and kept on until the pain and inflalmation subsides; rest in bed and treatments two or three times a day as long as the febrile stage lasts.

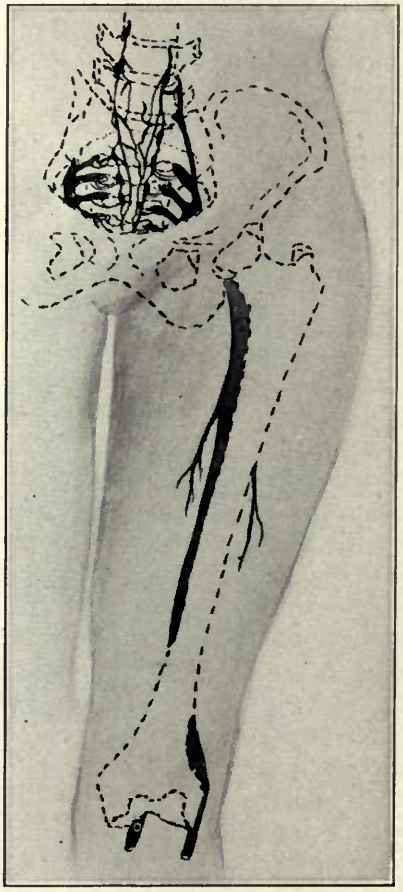


FIG. 38. Nerve mechanism down thigh disturbed through a twisted pelvis and slight spinal curvature.

There were well-defined lesions in the pelvic and cervical regions. The boy had a slight curvature. I corrected these lesions as best I could on the first day. I stayed several hours and treated two or three times before I left. The mother followed my instructions carefully for a week before she gave any solid food. The little girl came through without any signs of paralysis. The boy had a slight paralysis of one leg and there was some paralysis of the chest muscles which interfered somewhat with breathing. On account of the quarantine laws and the great distance from town, it was several weeks before I got to treat the boy again. On the 4th of December the child was brought to Ithaca and they stayed several days. He

FIG. 39. This case has improved under treatment so remarkably that the curvature has been almost eradicated.

then had a slight limp and his curvature was increased and it was difficult for him to take a full breath. I treated him three times on successive days. Later, he was brought in at intervals of a few weeks apart, until I had given the child seven treatments. This case made rapid improvement, the limp disappeared and the breathing and curvature improved. The last time I saw the case I could not detect any muscle deficiency and the boy seemed to be as vigorous as before the attack.

I attribute the comparatively mild effect on these two children to the fact that I saw the cases early and gave the corrective treatment and ob-

tained the cooperation of the mother in dieting and nursing the patients. I believe it is of utmost importance that food be withheld from infantile paralysis patients during the temperature stage and that every effort be made to eliminate and stop the production of toxins. Cold compresses placed over the areas of the cord involved are a great benefit. In addition to correcting the bony lesions, gentle, general relaxing treatment to keep down the nervous irritation, aid the circulation, and to promote elimination is indicated. I believe osteopathy is a specific for infantile paralysis if it is applied properly and early enough. Properly graded exercises are important in helping to regenerate muscles and restore their function during the later stages of treatment.

N. GAYLORD HUSK, D. O., Bradford, Pennsylvania

Case 3.—Boy age four. Arm and leg paralyzed, unable to sit up alone. This case was in the hospital for a time under medical treatment but was brought home as hopeless, the physicians saying nothing further could be done. Under osteopathic treatment he began to improve at once and continued to improve steadily. The leg has been restored to normal,

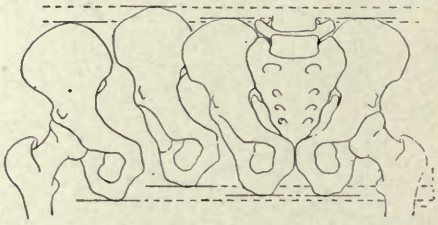


FIG. 40. Front view of the pelvis, also outlines of the innominate bone when lesioned.

and the arm has only a slight impariment of function when raising it above the head, but in time use and growth will rectify this slight defect. Fifty treatments were given.

Case 4.—Boy aged two. Leg nearly helpless, could not stand or walk on it, only slight motion of foot. Previous to the attack the patient walked normally. After a few treatments improvement was noticed. At first there was marked atrophy but this is greatly improved. This boy can now walk with but a slight "swing" to the foot. This case has had fifty-one treatments to date— two treatments a week — and is still under treatment. I am confident this case will be restored to normal.

L. M. BUSH, D. O., Jersey City, N. J.

Case 5.—A. C., aged 9 months; date of first treatment June 1, 1916. Previous history, bronchial pneumonia in January, not well since. No history of fall obtainable. Four brothers and sisters, none took the disease though exposed. Present illness: About May 7 child indisposed and slightly feverish, continued irritable for two or three days before it was noticed that child did not move limbs. M. D. called and case diagnosed infantile paralysis but merely kept under observation. No particular medical treatment begun and parents became impatient and brought child to me. Examination showed both limbs flaccid and completely paralyzed, no reflexes, sensation to pain normal but no movement even of toes when foot was pinched or tickled. Too young to test control of bladder or bowels. General appearance irritable, cried when limbs were moved or when they were washed or manipulated, face pale and thin, no fever, arms normal.

Spinal lesions. Second, third and fourth lumbar vertebra apparently posterior and ligaments tense at this area.

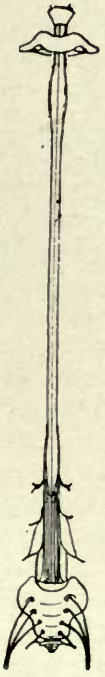


FIG. 41. Relationship of the spinal cord to the atlas and sacrum. The cord does not extend as far down as the sacrum, but spinal nerves pass through it as through a sieve.

Treatment. Gentle relaxation of lumbar region with strong flexion and extension and stretching same; flexion, extension and rotation of thighs to obtain free motion or sacro-iliac synchondroses and correct lesions; flexion and extension of knee and ankle joints to prevent anylosis or fibrosis and some manipulation of the muscles of the limbs to keep up circulation. After a week the child began to move the toes on one foot; in two weeks could move ankle and toes of other foot. In four weeks was able to flex legs and thighs weekly. I instructed the mother to exercise the limbs frequently and offer some resistance to movements of the child. In six weeks child could kick quite vigorously and move the foot almost normally. In ten weeks tests showed that there was full return of normal muscular action, though muscles were still weak. Child continued to gain strength and started to walk at eighteen months. Child also gained five pounds in first ten weeks' treatment. There are no signs of the paralysis at present.

Case 6.—D. H., age 4 years, male, August 1916.

Previous history. Had been playing with two children in same block who had been attacked with infantile paralysis the previous week. Weather hot and very humid (see note below).

Present illness. Child appeared tired, cross and restless, and parents were worried because other cases of paralysis had started the same way. Sent for me as a precaution as this was in the midst of the big epidemic. Saw child at 9 p. m., fever of 103, restless and irritable, but no intestinal or other trouble to account for the fever. No paralysis yet. Gave treatment paying special attention to lumbar region of spine; there was a marked rotation of the 12th dorsal vertebra on the 1st lumbar. I also manipulated the limbs to stimulate reaction. Visited child following morning at 8 a. m., fever 102, still restless no appetite, but no symptoms otherwise to account for fever; bowels moving but lost control of bladder. No other signs of paralysis. Treated similar to previous time. Saw child again at 8 p. m. and found temperature $100\frac{1}{2}$, child seeming better but still no control of bladder. Treated twice next day and temperature normal by night. Treated following day and child felt and acted fairly normal except for paralysis of bladder. Continued treatment for three weeks before child regained control of bladder. In this case only paralysis was of bladder but due to the history of exposure and manner of onset I feel sure it was a typical case of infantile paralysis, and I mention it particularly because I was called probably at the very onset of the fever (mother said he seemed to have none two hours before when she put him in bed) and the frequent treatments broke up the attack as an attack of pneumonia is frequently aborted. The paralysis of the bladder would seem to fur-

ther clinch the diagnosis. I did not call in consultation as the scare was so great I knew the family would be quarantined and the child removed where I could not treat him, to an isolation hospital. I had the family observe strict quarantine rules, however.

NOTE. In watching the epidemic of 1916 here, I found one point that seemed to throw more light on the cause of infantile paralysis than any other. This was borne out later by weather bureau reports. The number of cases varied directly with the humidity and not with the heat. It was worse in seacoast towns where the humidity was greatest. The epidemic began to wane the first part of August when the weather became clear, though still very hot, and by the first of September there were few new

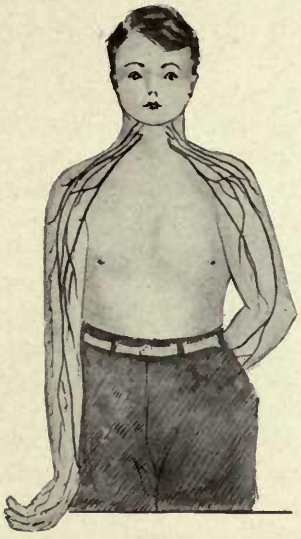


FIG. 42. Hand everted. Lesion at 4th cervical. Case cured by osteopathic adjustment.

cases, though it was still hot. That year there was a great deal of cloudy weather during the late spring and early summer here and even plant life acted in a peculiar manner, as lettuce rotted in the fields, beginning at the core; many other vegetables did the same and I laid it to the lack of sunshine and continued humidity, as when the weather cleared about the end of the first week of August both the paralysis and this condition of the vegetable kingdom righted themselves.

Another point of possible value: My own opinion is, that if a germ is the immediate exciting cause of infantile paralysis it is a widespread organism like the pneumococcus and present in most subjects all the time;

that it starts the general infection, just as the pneumococcus, when through general or local causes the resistance of the individual is lowered. Children being the weaker and less matured would be more susceptible because such general causes as humidity and excessive heat would reduce their resistance faster than it would that of adults.

In several cases I have found a history of falls and believe this to be predisposing, allowing the infection to get a start. In practically every case I have had there have been other children in the family and none got it. I believe the above theory explains the cases where more than one in a family have been infected, and that it is not by direct infection.

REGINALD PLATT, D. O. Minneapolis, Minn.

Case 7.—In 1910 there were four cases of infantile paralysis among students at Princeton University that were admitted to the University Infirmary during the month of October. Two of these ran a very short course and were fatal, the diagnosis not being made until autopsy. Dr. Simon Flexner and some pathologists from Johns Hopkins were in consultation and made the final diagnosis. Two other cases dragged along, one under treatment as typhoid for some time, was taken home and the last I heard, rather indirectly, was that while he lived he was so badly crippled that his return to the university was given up. The fourth was diagnosed as infantile paralysis, taken home and did not return.

At the opening of college at mid September, one of the students came to me for treatment for constipation and some trouble with his heart. He started in to take treatment twice a week. On the first of November he came for treatment and complained of feeling out of sorts. He had had a bad night and felt nauseated all the time. Had never vomited in his life, but felt now that vomitimg would relieve him. Upon examination of the spine, I found the musculature of the splanchnic region acutely contractured and very sensitive, with increased rigidity of the vertebral column. He had tried to eat breakfast but could not. Complained of chilliness, and showed temperature of 100.5 degrees. I gave him a thoro general treatment, specializing a little on neck and splanchnic regions, sent him to bed with instructions to eat nothing, drink a glass of water every hour and apply hot water bottle to the splanchnic portion of the spine. I kept him in bed for two days and treated him daily for four days, at the end of which time he seemed normal. Nausea left on the third day, after which the appetite returned and I concluded that the case had been a simple indigestion.

The following Monday, November 7, he came to my office to obtain an excuse to talk to the Dean. I wrote the excuse and as he was leaving the room he remarked: "What do you suppose is the matter with my right leg? It doesn't work right." I made an examination and found that the calf muscles of the right leg were partially paralyzed. He lacked the power to raise the heel from the floor while walking. There was a difference in the tonicity and temperature of the two legs. The short flexors seemed to be somewhat affected, but not to the same degree. This paralytic condition, together with the other known cases in the infirmary, led me to suspect that this might have been a similar case. The more I thought of it, the more the idea grew upon me. On November 16, I took the patient to the office of a medical doctor, who had a good electrical apparatus and asked him to make the tests for the R. D., and after doing so he gave it as his opinion that it was a case of infantile paralysis. Shortly after this the uncle of the patient told him to go to another medical doctor, who was a particular friend of the uncle, and have him make the

FIG. 43. Back view of the pelvis. Relaxed muscles and ligaments in infantile paralysis sometimes allow this condition to occur. Spinal curvature is the result.

electrical test (This second medical doctor was very bitter against the osteopaths.) After making the test he made the remark: "I guess there is no doubt that you had infantile paralysis, but it must have been a mighty light case."

I treated the case regularly three times a week, until the college closed in June, and at that time there was very little difference in the power of the two legs. The one affected would tire more quickly than the other. When he came back to college in September, there was so little difference that only on a rather severe test was it noticeable. I reported the case to the State Board of Health as infantile paralysis.

Now as to the conclusions: I believe the case to have been infantile paralysis, but a light case. There were at least two factors that in my opinion contributed to the mildness.

1. The few treatments received prior to the infection were directed to the area involved in the usual cases and, no doubt, had the effect of raising the resistance.

2. He was under treatment from the very first symptom of any trouble, said treatment being directed specifically to the anatomical lesions present. The absolute rest given the alimentary tract with copious water drinking, favored elimination.

Another factor that was probably as powerful as any other was the freedom of both physician and patient from the dread which a diagnosis of infantile paralysis would very likely have inspired.

I think that if we osteopaths could only lose sight of the disease as an entity, and get away from the dire prognoses which are based on drug therapy, we would take an immense stride forward. Instead of treating the disease, treat the patient, and give him a chance to live. What might have been the outcome of the above case if I had been handicapped with a diagnosis of infantile paralysis during the acute stage, is hard to imagine. I was fresh from college and well filled with the ordinary med-

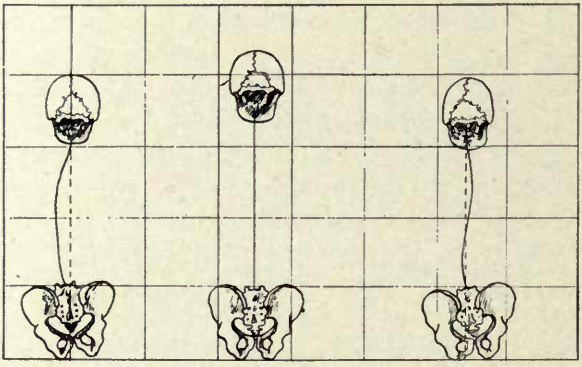


FIG. 44. Curvature is always accompanied by tilted hips.

ical teachings, and just as liable to be swamped with a mere name as another. I have often thought since that the failure to make a diagnosis was the luckiest thing that ever happened to that patient.

I have often heard osteopaths caution against manipulating the spinal tissues while they are so sensitive in the acute stage of infantile paralysis. Fear of exciting or increasing spinal irritation was the reason advanced. In almost all of these cases the pathology of the nervous system develops very early, while the acute symptoms are at their height. This stage sometimes only lasts a few hours, in which time disastrous results have been wrought in nerve tissue. After the acute stage is over the return of function seems to vary directly with the time that elapses before osteopathic treatment is instituted. The longer the elapsed time, the slower the improvement and the less of it. From this I conclude that treatment

during the acute stage is especially indicated, as in that stage the pathology is developing. If we can resolve a certain amount of pathology, after its establishment, by our treatment, directed to improve the circulation to the cord tissue, why should not similar treatment have been a greater benefit when given at the time when the pathology is in the initiatory stage?

The congestion of the cord in the early stage of infantile paralysis can be compared to the congestion of the lungs at the beginning of a lobar pneumonia. In the latter instance there is plenty of good evidence that osteopathic treatment will reduce the congestion and normalize the circulation in the lungs in a very short time. (I have seen it done in less than half an hour.) If the congestion progresses to consolidation we are confronted with a pathology different in nature, and the resolution requires more time. Still, osteopathic treatment will resolve the consolida-

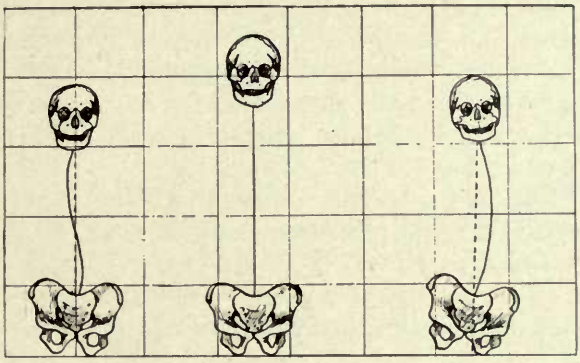


FIG. 45. Spinal curvature not only produces lack of symmetry, but interferes with organs and tissues.

tion more quickly than any other method. The pathology of infantile paralysis practically is much like that of pneumonia, viz: an intense congestion followed soon by a degeneration of vessels and consequent formation of hemorrhagic foci thruout the affected portions of the cord tissue. We all know what a clot means in nervous tissue. We all know that the rule is that, no matter how soon treatment is instituted to resolve the clot, the restortation of function is never complete. Why, then, should we hesitate to attempt the resolution of the initial congestion before the clots are formed? In the lungs we have the freest anastomosis in the body; this is an immense aid in the resolution of the clot in pneumonia and is the anatomic reason why a complete restoration of function is had in the usual recovery of pneumonia. In the grey matter of the nervous sys-

tem we have the least free anastomosis of the arterial circulation; hence the lasting loss of function following a clot in this locality.

Everything points to thoro osteopathic treatment in the earliest stages of all acute diseases, and infantile paralysis would seem to be no exception to this rule. The idea of waiting until the acute stage is over for fear of producing more irritation, seems like hesitating to drive a mad dog away from biting a baby, because the dog might not like to leave.

W. A. WOOD, D. O., Centralia, Illinois.

Case 8.—I have only had the opportunity of treating one acute case of poliomyelitis. In November, 1912, there were two cases in a small town in adjoining houses, one patient 3 and one 4 years old. I was called to see the four-year-old and a very prominent M. D. to see the other. We each examined and consulted together on both cases. He said there was very little could be done for them. I treated the four-year-old and he treated the other one. The doctor made very light of me when I gave him my prognosis. The result now is that the case I treated osteopathically is almost as sound as before. Having been affected in both legs the right leg was worse than the left. She still has a very slight limp, hardly perceptible to one not especially looking for it, with no atrophy of muscles. The M. D. finally gave the other case up as hopeless; told the mother it would always remain paralyzed, which it has, so far, with the muscles badly atrophied. I lay my success in this case to the spinal treatment during the fever stage, which assisted in reducing inflammation.

LYNETTE BARTON, D. O., Bartlesville, Oklahoma.

Cases 9-10.—Several cases of infantile paralysis came under my care in the year 1913. Most of them came in the month of June. Without referring to my books, I recall thirteen cases. Probably there were two or three more that I have forgotten. One case, a girl aged four, died. She had been treated with great severity by a chiropractor previous to my visit. Otherwise I think she might have recovered. The majority of these cases were referred to me by medical doctors thru the influence of an M. D. who had opportunity to observe the progress of a similar case of his own that had been brought to me over his protest. Of these thirteen cases, seven were mild. Four of the seven were turned over to me as soon as the fever left and these four show no evidence of the paralysis to the untrained observer. Of these four the minimum of treatment administered

to one patient was six treatments. The maximum to one patient was twenty-four treatments. The other three of the seven mild cases were brought to me at periods varying from three to six weeks after the onset. One, a boy four years old, had never entirely lost the ability to walk. These show slight atrophy of muscles and to a slight degree characteristic gait. No shortening. No contractures. No curvatures.

One severe case where I was called early shows less evidence of the disease than the milder ones that came under treatment late.

In three of these thirteen cases the lesion was in the cervical enlargement. It is difficult to get babies to submit to neck treatment. These were more severe than most of those showing lumbar cord infection, and results of treatment were not so good.

One girl of 11—a terrible case—was able to attend school the following year. She shows few signs of the disease, but her arms are weak and

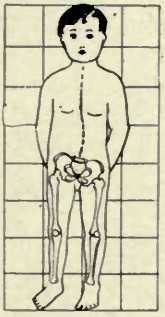


FIG. 46. The shortening of a leg following an attack of infantile paralysis produces curvature and a weakened organism.

she has to wear a brace to prevent curvature. I got her early. The other two were six weeks late. The cases ranged in age from 13 months to 11 years. The youngest of them all a Polish baby whose parents could not talk to me without an interpreter—showed consideralbe atrophy of the gluteal muscles of the affected side after four or five treaments. Both sides were alike when treatment was concluded. This nearly always occurred in the cases that came to me early. The Polish baby was the one that received twenty-four treatments and the parents wanted me to publish the cure in the daily papers and give their names as references.

Treatment: During the period of fever, ice packs to spine or ice water sponging. Ice cap to head. Extremely gentle inhibition treatment to spine for short period, once or twice daily. In all cases massage of painful limb, gently given for short periods, with olive oil, witch hazel and alcohol equal parts.

I never treat a case of infantile paralysis long at a time. After the fever is past, but while the spine is still sensitive, I use gentleness in handling. When the sensitiveness has vanished I treat vigorously, but never long at a time. I use a vibrator close under the heel on the sole of foot of the affected limb. This gets vibration on the long bones and attached muscles and constitutes about the only local treatment given limb. I do not use the vibrator on the back. I instruct the mother to rub the affected limb for three minutes twice daily with a compound of olive oil, witch hazel and alcohol, and to sponge the spine, limb and ankle once daily with cold salt water.

Things to guard against: Over-treatment and electrical treatment. Medical doctors are liable to insist upon both. I have never seen anything but harm result from either,altho this may or may not be permanent. I advise osteopathic treatment for infantile paralysis without delay. In the beginning of the disease two weeks' time is so important. I treat three times a week the first month. After that semi-weekly. In the cases I have described only one took as much treatment as I thought advisable. Most of the chronic cases that come late for treatment should have from four to six months' treatment. Rest four months and take three more. Then two months' treatment twice a year for a few years. Only one of these children has ever needed leg braces.

HARRY W. GAMBLE, D. O., Missouri Valley, Iowa.

Case 11.—One case I carried thru the acute stage was a few years ago. I made an early drive, eight miles on Saturday, and found a boy in an alarming condition. His father asked me to take the case and stay on the job as long as life was left and that I thought I could do good. This was a very malignant type and I was greatly worried, along with all the family. Father at noon told me they were satisfied that I had held my own which the medical doctor could not do, but if I wished help from Omaha, Sioux City or Council Bluffs, he would be glad to wire for it. I told him I felt I was doing all a D. O. could do, and wanted no help of that kind, tho I wished some one to share the responsibility with me, as I feared death soon in the case. I did not wish to call an M. D., for fear he would wish to dope for this or that, and I expected no advantage from such a course. They were satisfied with my work, the father only wished to show willingness to get more help if I needed it. Ice water compresses to spine, with thoro, frequent treatment to the entire spine thruout the day and much of the night, showed decided results before midnight; coma

and delirium, with respiration that discounted Cheyne-Stokes type. Results showed osteopathy could deliver the goods. The boy had not been very strong and active, but paralysis of feet and legs responded daily very fast; and nutrition and motion were soon perfectly restored. I stayed all day Saturday, from before daybreak, until about 2 a. m. Sunday, when I got four hours sleep and the boy got quite a little rest at this time, then, getting worse again, they awakened me, when I got back on the job and worked almost constantly: I would treat the cervicals for opisthotonos and delirium; fever not very high; massaged legs after treating spine thoroly, as they were cold and seemed lifeless; one arm slightly involved; worked all the time, as ice packs to spine and head did good when I did not treat. By Sunday noon he seemed like another person. It was phenomenal how he responded, and after dinner I went

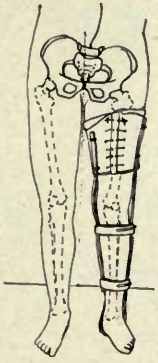


Fig. 47. Brace removed six years after an attack of infantile paralysis.

home and returned daily for a week, then alternate days a few times, and he was cured, no evidence whatever of the paralysis.

I have carried but two cases of infantile paralysis thru the acute stage, but have had several others under my care after convalescence, to deal with the paralytic conditions. None need have misgivings but that osteopathy can and does deliver the goods even in this terrible malady. The first case I had about ten years ago, after paralysis involving both legs in boy ten years of age had discouraged the M. D. in charge the first few days, who advised that there was little hope of his ever walking even if the patient lived, and he advised osteopathy. I went to examine and prognose the case, and was given full charge of the patient Both legs totally paralyzed; treatment daily, almost entirely to spine. Restored one leg to perfect use, and the other leg gained slowly but surely for six months. Later I treated but once weekly. Not a toe could be moved,

bowels and bladder but slightly involved. When the boy quit he was in better health than ever, and can now skate, or ride a bike very decently, tho considerable atrophy still exists, and he walks with considerable swing and limp. His brother is one of nine from this community now at A. S. O.

I have been called in to play second-fiddle in two cases, both very low for a week before they called me, reaching the unconcsious stage and apparently completely paralyzed, one girl age ten, they gave brandy to, internally, externally, and eternally, but I could not agree with such procedure. Heart about 160, etc., and I only treated her twice during the first day, she dying that night.

Cases 12-13.—Two other cases that I stuttered about the diagnosis of, but decided finally were cerebro-spinal meningitis, recovered fully.

FIG. 48. Well developed curvature in a neglected case.

The last one, boy, nine years old, had a homeopath and allopath, and was surely dying, had he contiuued down the path. He called for the osteopath, both in delirium and when conscious, as I had pulled his chum thru a year ago when given up to die with rheumatism of heart. His parents could not have faith in osteopathy when both M. D.'s could not control the case, and they feared poliomyelitis, so they thought they could not let him die without granting him his dying wish for treatment.

Bunting, nothing gives me the gratification and downright joy, not to add respect for our profession, that results such as this case showed. Every treatment showed decided gain; so, in a few days, he was out of danger. It is so closely related to poliomyelitis that, when congestion can be so wonderfully controlled in meningitis of one kind, it assures me equally wonderful results can be had in any other. The destruction of any area

must make allowances for results expected. Of course there is very much that I don't know in the disease you ask light on, but I have given you some hints that may serve you. Pure ten-fingered osteopathy is the only type found in this community, thank God. Am heart sick after just reading reports that there is so much damnable doping by pseudo D. O.'s going on. I'd hang or ostracize every mixer in the ranks and refuse license to every such person. Drugging is rotten enough in the hands of the best M. D.'s.

J. W. PAY, D. O., Milbank, S. D.

Cases 14-15.—Four years ago an epidemic passed this way and it was my fortune to have seven cases to care for. These varied from the

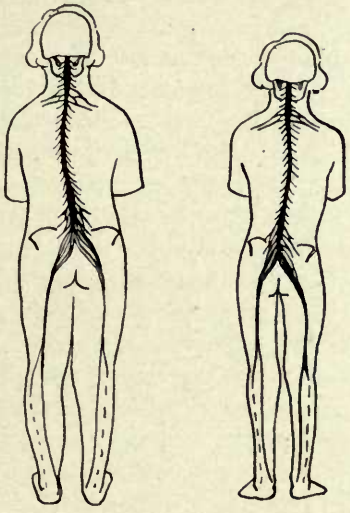


FIG. 49. Neglected cases.

first stages to paralysis of several months' standing. The cases that I had from the beginning made the best showing and there is not one of them but what is walking today. The two cases that came to me later, after receiving the regular medical treatment, show good results, all improving greatly under treatment. But one of these cases will be crippled in one leg, as the destruction of tissue had gone too far before the case came to me.

A typical case in a two-year-old boy made a complete recovery in three weeks' time. The lower limbs were affected in this case.

The case of a four-year-old girl, where the arm on the right side and both lower limbs were affected, recovered completely in three months.

In the seven cases treated all have been restored except the one case mentioned, and all show normal conditions: so I should say osteopathy is the successful treatment. I realize seven cases is not sufficient experience to base much of a conclusion upon, yet to me it shows that we are able to do immeasurably more for for these cases than the old-time treatment.

MARGARET E. SCHRAMM, D. O., Chicago, Illinois

Case 16.—I have had a typical case of infantile paralysis, which I cured in two months' time. Osteopathy's success was stupendous! Three medical doctors had given up the case as hopeless before I took it. Osteopathy was employed as a last resort. My little patient's mother took care of her baby in the most intelligent and conscientious manner, without which all osteopathic treatments must have come to naught.

Three years ago I was called to attend a baby girl nine months of age. She had been a healthy, normal and mentally bright baby before being stricken. When I first saw her both of her lower limbs and one arm were paralyzed; flexor and adductor muscles were contractured; her eyes were of a leaden hue and her temperature was subnormal. Was a bottle-fed infant. I was properly frightened at the sight of a child so nearly dead; however, I was determined to give osteopathy the usual good try out. The first time I treated the baby was late at night. That was on the first day of the month. The next day I treated her twice (early and late); after that once a day up to the 7th of the month, when I began to treat every other day. My first treatments lasted four minutes and were directed to the spine only (greatest tension in upper dorsal area). Gradually the treatments were made more general, lasting about ten minutes. My little patient got her first ten treatments at home and then sixteen treatments more at the office a few blocks from her home. Twenty-six treatments did the work. All the functions of her body have been restored and the child has enjoyed perfect health ever since. The only adjunct to osteopathy employed was a tepid bath daily, followed by an olive oil rub and the taking of half a teaspoonful of olive oil daily. We had no trouble with the bowels of the patient. We did not dress the baby after her bath, but wrapped her in a soft flannel blanket and let her take her morning's nap. After the nap she was dressed and taken for an outing. This happened in early autumn, but the outings were adhered to rigidly.

When I first treated the baby she cried violently and fought against it with all her might; that made me think that I was hurting her; however, a little incident proved to me that pain was not the cause of her rebellion.

The baby's mother found it necessary to leave her charge for a week in order to recuperate her strength. The child was left in the care of a stranger. I called at the house again because it simplified matters for the nurse. When I came to treat the little one (this was probably at the end of the first month) she was delighted to see me, because she knew me better than her nurse. From then on her treatments seemed to be pleasant or even entertaining to her. We have been friends ever since. No doubt the baby had been spoiled in spite of all efforts on the part of the mother to control the situation. The little one had developed a habit of being awake at night and to sleep, whenever she did sleep, in the daytime. She

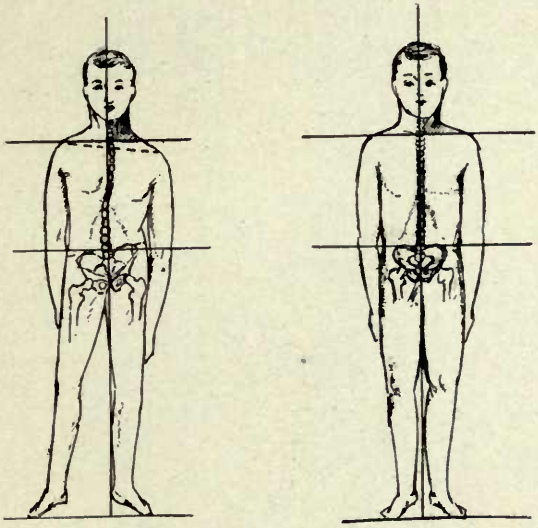


FIG. 50. Case restored to normal by osteopathic treatment.

overcame this habit in six weeks. It must be considered that the child suffered desperately for three months before I took the case, passing thru all the stages of the disease.

A. J. BROWN, D. O., San Antonio, Texas

Case 17.—History of case of infantile paralysis, November, 1913. Children of Mr. and Mrs. Fersons, Bay City, Texas. Girl, aged 3 years, stricken on Wednesday, died on Sunday. The boy, aged 20 months, was stricken the following Wednesday. The fever lasted about a week, resulting in complete paralysis, even to all muscles of the neck and to the upper eyelids. The child was taken to the leading physicians in Houston and

San Antonio, but no hope of recovery was given by them. The child was brought to me about two weeks after being stricken. I gave him daily treatments with the following results: After the second treatment, normal movement of the bowels and kidneys. End of first week, eye and neck improvement well marked. Second week marked improvement in all the limbs; third week, could turn and roll over on bed; fourth week, could stand on feet with a little help, and from that on improvement was fast until complete recovery was effected. I treated him daily from Nov. 20 to Jan. 31, giving sixty-five treatments in all. I understand that his health has been even better since recovery than before the attack.

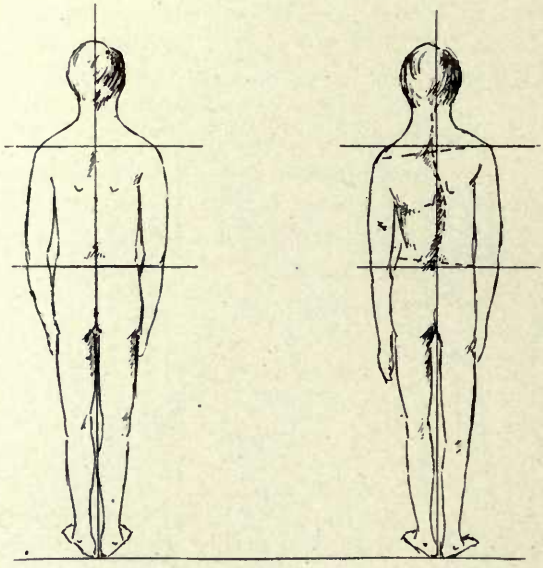


FIG. 51. Back view of case 50.

The treatment I gave daily was to spearate each vertebra, move both sidewise and apart so as to give free circulation to the cord and take out all contractions of spinal muscles. Gentle treatment of abdomen and loosening of the muscles of the limbs along the course of the blood vessels and nerves.

I have had altogether about twenty cases of infantile paralysis and very good results in all; but the results were more marked in this case, due no doubt to getting the case so soon after the fever. If we could get these cases at the first we could save 90 per cent in my opinion.

HARRY VAN DORAN, D. O., Elizabeth, N. J.

Case 18.—Aug. 8, 1916. Patient, Lee MacInnis, age 5 years, male. Address, 33 Montgomery St., Newark, N. J. History of present illness: Child arose in the morning without apparent illness; an hour later complained of pain in the abdomen and in the muscles of the ulnar portion of the forearm and hand, left side. When I arrived at 1:30 p. m. the above symptoms were present and there was tenderness over the deltoid, tenderness and pain on slight pressure in first to sixth dorsal area, right uni-

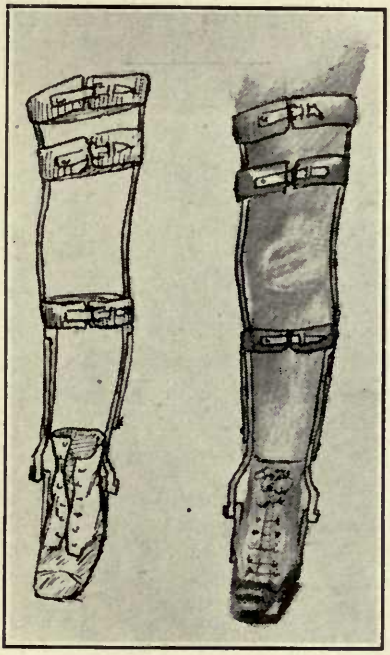


FIG. 52. Brace removed from infantile case—(author's case).

lateral first and sixth dorsal, both slightly posterior, and rotated fourth cervical. Temperature, 103° F. I found out that the child's aunt had been holding a child in her arms, the child being sick then, and a day later the case was diagnosed as acute anterior poliomyelitis, but without being aware of this she also held Lee MacInnis. There was also a case of anterior poliomyelitis in the house next door, 31 Montgomery street. Treatment: I first manipulated in area affected, then adjusted to correct all lesions, gave an enema of two quarts of tepid water and salt solution. Full pack, using cold epsom salt solution. Repeated the above, or por-

tions of the above treatment, as the case indicated. After the cold full pack the temperature dropped to 101 F. I remained with the patient till 5:30, when the temperature was 100 4-10 F. Aug. 9, 9 a. m.—Temperature normal, muscular pains absent.

Diagnosis—Anterior poliomyelitis, abortive type.

Addendum: I know of other osteopaths who have treated cases of infantile paralysis in the acute stages. I have found that all acute contagious diseases respond quicker to osteopathic treatment than to the medical. We osteopathic physicians have not had the opportuinty to take care of an epidemic because all health boards are composed of or controlled by the M. D.'s.

L. M. BUSH, D. O., Jersey City, N. J.

Case 19.—A. C., age 9 months; male. Previous history, pneumonia January , 1916, lost 2 pounds from 16 to 14 pounds; continued to lose gradually until May, at that time weighing 12 pounds. Onset present illness about May 7, 1916; out of sorts a few days previously and slight fever. May 7 it was noticed he did not move his limbs. M. D. summoned paid little serious attention to case until a week or two later he pronounced it infantile paralysis and left a little medicine. May 27 case brought to my office with both limbs entirely paralyzed from the hips down. Could not even move his toes. Temperature 99 3-5, pulse 120, considerable rash on skin of whole body. Had been fed on Eskay's food, so I changed to modified milk formula and treated three times a week. Lesions 12 D, first and second lumbar posterior, making quite a lump. Whole lumbar spine was stiff. I treated specifically these lesions; also used pressure along the sciatic nerve to stimulate and keep them from degenerating. The baby could move his toes in a week, draw up his limb in two weeks and kick off the covers in a month. Discharged Aug. 7, no paralysis gained 3 3-4 pounds and perefctly healthy.

MARY D. MORGAN, D. O., McMinnville, Tenn.

Case 20.—Dr. Mary D. Morgan tells of an interesting acute experience which she believes was anterior poliomyelitis, but diagnosis is not sure. Three years ago I was called to see a little girl 5 years old, who was very ill. I had been their family physician for several years. I did not hazard a diagnosis at the time of the acute illness but afterwards concluded it was infantile paralysis. I gave all my time to the thought of what

was to be done for her while she was so terribly ill. The mother and I sponged her off and I treated the neck gently and on down the spine until all tension was removed. The fever fell several degrees, she quieted down, dozing off to sleep. The fever was very high. Sometimes she was delirious, complaining much of back and limbs. This lasted for a week. We watched over her day and night, doing all that could be done. The fever gradually subsided; by the fifth day she slept more naturally.

She complained of numbness in the limbs. I directed my treatment more to restoring the circulation to the limbs. As she gained strength this numb feeling left and she learned to walk as before. It was, indeed, a hard fight. I am doing all I can in my humble way for the people, and to convert them to Osteopathy.

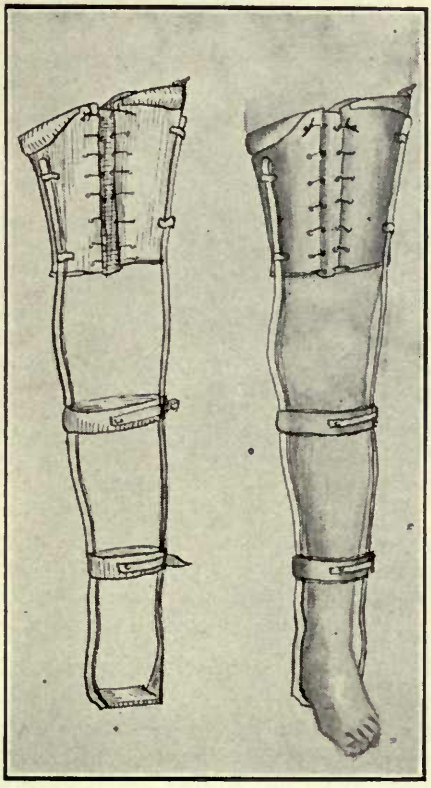


FIG. 53. Brace removed after two years' use—(author's case).

T. M. KING D. O., Springfield, Mo.

Cases 21-22.—About eleven years ago a 3-year-old child was afflicted with anterior poliomyelitis and had the usual symptoms, as I remember, without having a record of the case to refer to, and in addition a history of a fall previously. I was called on the case three weeks after paralysis had occurred and found both lower limbs totally paralyzed. She was unable to move a muscle below her waist. The only lesion found was a posterior condition of the fourth dorsal. In six weeks' treatment the child made a complete recovery.

Another case was stricken in the month of August with the usual history, vomiting, high fever, headache; and on the third day the right

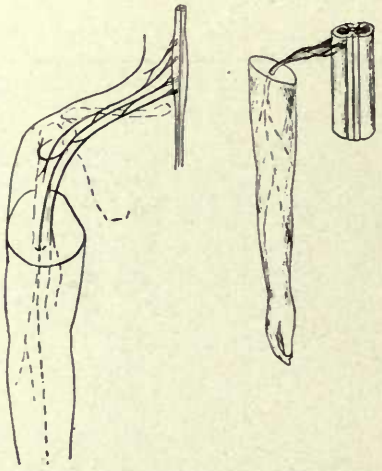


FIG. 54. The nerves pass down the arm from the spinal cord. The flaccid and atrophied muscles in infantile paralysis cases are restored by treating the spinal cord centres. Osteopathy affords speedy relief in these cases.

leg was paralyzed. When I first saw her the following December she had but little use of the limb and was unable to support her weight on it. During three months' treatment she improved sufficiently to walk without support. I have no doubt she improved much more, for I referred her to an osteopath in Kansas, as they were leaving Springfield, but I lost track of the case.

I have treated other cases, but have had very little success in any case that was of more than one year's duration.

I realize these are very unsatisfactory reports and I cite them only for the encouragement they may lend to others who come in contact with this dread disease. By all means get the cases early if possible.

W. W. HOWARD, D. O., Medford, Ore.

Case 23.—In September, 1913, two children, boy and girl, were stricken with anterior-poliomyelitis at the same time. They were about the same age. The boy, 2 years old, came down with the disease on Monday. I was called and began to treat him the following Sunday. First he was taken to a very fine M. D. and surgeon, who diagnosed it as infantile paralysis and said he would never walk. The right leg was paralyzed. In two weeks he began to try to stand. I treated him ten months. Result: Complete recovery, both as to size and strength of leg.

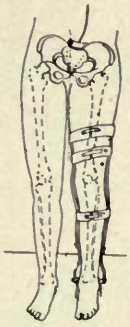


FIG. 55. Braces have been taken off by the score through osteopathic measures.

The little girl is still in bed, helpless. They have had her up and down the coast to different specialists with no results. They never took her to an osteopath. They were told of my success, but for some reason would not try Osteopathy. (I was told because of prejudice against any system that was non-drug.) I was also told that both children had been affected to about the same degree. But of this detail I cannot vouch.

K. T. VYVERBERG, D. O., Lafayette, Ind.

Case 24.—I want to relate my experience with a case of infantile paralysis I treated that made a complete recovery. Boy, five years old, became paralyzed early part of July, 1912. Called to see him four or five weeks later. Medical treatment up to that time. Entirely helpless when I first saw him. Both legs equally affected, arms slightly, all back muscles, and muscles of neck; could not raise his head from bed. Suffered considerable pain. Spine contracted and very sensitive. Reflexes gone. Commenced light, gentle, general treatments daily for about seven days. Hot fomentation to back daily; also instructed mother to rub legs and arms and back lightly once or twice daily. We noticed

considerable improvement at end of first week. Treatment every other day for about two months. Then twice a week for a while. Then once a week for some time. Had boy under my care for about a year, at the end of which time I pronounced him well. His entire muscular system is now as strong as any boy of his age. His endurance is good. The knee reflexes have not returned, but possibly may in time. We must get these cases early to get the best results. The parents of the little boy think that osteopathic treatment can perform miracles, as their first

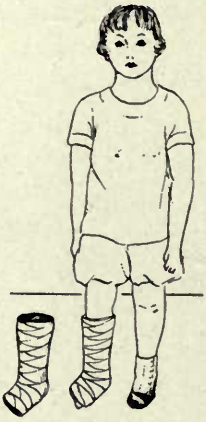


FIG. 56. Plaster paris cast removed from boy aged 3—(author's case).

doctor told them that their child would probably be helpless the rest of his life.

I treated a number of other cases that were brought to me after disease had been standing a year or longer. I found that I could not improve them very much, except possibly their general health.

I. L. JAMES, D. O., Springfield, Mo.

Case 25.—In July 1913, we had about fifteen cases of infantile paralysis in Springfield. On July 3rd I was called to see a little boy about three years old, and on arriving at the house was given the history of the case, and was told that the child had been under the care of the family physician. On June 30th the child was taken suddenly ill with nausea, vomiting, malaise, and temperature running up to 103°. The medical man diagnosed the case as acute indigestion, and when he was called again, three days later, found the legs of his patient both completely paralyzed. His diagnosis was then given as infantile paralysis, and he told the parents

that there was very little that he could do, merely leaving a tonic, and instructing them to give him warm baths every day. He further told them that the condition that the boy would be in a year from that time would be his permanent condition for life.

After making an examination I was satisfied that the medical man's diagnosis was correct, and in response to the questions of the parents told them I was confident that Osteopathy could effect a cure, as I had been able to secure the case in its early stages, and our experience had shown that in most cases of this kind we were able to secure wonderful results, particularly when the case was received in the early stages of the disease.

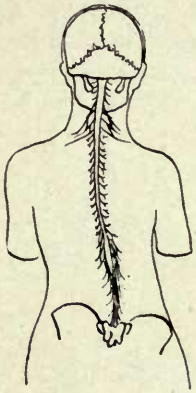


FIG. 57. Curvature weakens the body and causes nervous instability.

The case was given me, and I went to work. I visited the child once a day, giving him osteopathic treatment and instructing the mother to give him warm baths each day. As before stated, at the beginning of the treatment both limbs were completely paralyzed. At the end of three treatments the child was able to crawl around on the floor, and after about ten treatments was able to walk by being supported. From that time on recovery was rapid, but I continued the treatments until forty-four had been given. I see this child frequently, and will say that he is as healthy, strong and active as any normal child, and shows no signs of muscular weakness or atrophy in his lower limbs. I had this case before our local osteopathic association, and the doctors were all delighted with the results obtained.

BERNARD S. MCMAHAN, D. O., Washington, D. C.

Case 26.—Child, age 3 years; six weeks previous to treatment she lost use of right limb; had walked normally for age previously. Muscles

just beginning to lose tone. After six weeks' treatment she regained use of limb very materially. Stopped treatment on account of moving, but the improvement continued and nearly a year later I learned there was no trace of the disease.

RALPH D. HEAD, D. O., Pittsfield, Mass.

Case 27.—Girl, 4 years of age, attack came on in the usual manner. For four weeks was under the care of an orthopedic man without results. The legs were paralyzed and during that time there was absolutely no improvement. The M. D. was discharged and I was called at the fifth week. Both legs absolutely paralyzed. Muscles of right leg very flaccid and less tone than left. Treatment was as follows: Twice a day

FIG. 58. The curvature found in a spine is usually in proportion to the difference in the length of the limbs.

the mother (who by the way, is a trained nurse, and can therefore carry out instructions intelligently) gave the child a hot bath, with a handful of mustard in water. The child was given a thorough massage of the muscles three times a day. The limbs are at all times kept warm. To accomplish this I keep woolen underwear on the child and at first used in addition flannel cloths to wrap around legs. Specific osteopathic treatment has been given to loosen up the lumbar region, which in this case was very stiff and rigid. There were no obvious structural changes. Prescribed resisting exercises which would bring into play all muscles of thigh and leg. Let me say that this latter has got to be done very slowly

and patiently and must be persisted in. It must not at any one time be carried to the point of fatigue, but be done enough times so that at the end of day the child will have had practically all the exercise it can stand and be comfortably tired. Great care must be exercised to see that the muscles which present the most marked symptoms of paralysis shall receive their resisting exercises or else the child will be over-developed in one set and an opposing group will be so weak that it results in contractures and deformities. Result, after four weeks of treatment, the child can now use legs in most all of their normal movements with the exception of extending legs on thighs. I might add in treatment, that I do not let the child get on to her feet as yet, depending entirely upon the exercises to strengthen her limbs.

These cases are not for the hurried or three minute osteopaths. On the contrary, they must be studied carefully and intelligently. The care of the child by nurse or parents is of the greatest importance, and unless you can have their faithful following out of your instructions you are only half accomplishing what might be done.

LOUIS E. WYCKOFF, D. O., Los Angeles, Calif.

Cases 28-29.—We had an epidemic in July, 1912, in which I had experience with two cases of recent infection, but not during acute symptoms and not until after fever had subsided. So I cannot say anything about

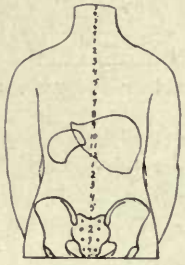


FIG. 59. Level shoulders and hips are usually found where no spinal curvature exists.

the results of osteopathic treatment during the acute stage. I was called in each case about a week after the fever abated.

One, a boy of 16, had paralysis of the leg, arm and face, and I succeeded in overcoming all but the paralysis in one leg.

The other, a baby of two years, had been left with facial paralysis. This was entirely corrected.

One thing I feel quite positive of is that it is infectious, but not actively contagious. Both of these cases came in contact with children up until quarantined and not one case was traceable to them, nor was there any in their respective neighborhoods.

I believe that Osteopathy will show best results in all these cases, early or late.

Practitioners cannot be too careful in asepsis and hygiene, because I know danger from infection is great. We know a young physician who is a hopeless cripple from contracting this disease from a case.

C. L. NELSON, D. O., Logansport, Ind.

Case 30.—I wish to call your attention to the epidemic of anterior poliomyelitis that passed over this country in 1909 and 1910, since which time I've had under treatment with varying success at least twenty-five cases, and have seen even a larger number of chronic cases leave my office because I would not encourage them to expect speedy and complete recovery.

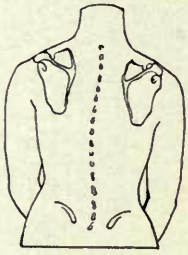


FIG. 60. Curvature undermines the health.

During this wave of which I speak I was not privileged to see any of the cases in the active or acute stage, and of the fifty or more cases, of which I knew, reported as such, I think but four resulted fatally. My cases have ranged in age from 2 years to 30 years and from a slight damage to one hand to complete paralysis of hand and arm and a complete paralysis. Of twenty-one cases, fifteen were female. The greatest obstacle in treatment of these chronic cases is to get the parents to be persistent—to stay with the treatment for two or three years, or during the growth and development of the child, but where I've been able to have them realize the situation I've had results that were very satisfactory to them as well as to myself. Another obstacle in our treatment is the lack of knowledge of the pathology of the disease. It is recognized as infectious and contagious, but of all the cases in this county I

know of but two families where there was more than one case, and this in face of the fact that many of them were not recognized and correctly diagnosed in their earlier stages and no quarantine or preventable measures were adopted.

Am sorry to confess I've never kept case reports in any of these cases, but as I look over my list I recall each of them and their damage and history. Could write for each of them quite a complete outline. One peculiar thing I've noted is that the damage is not always in proportion to the severity of the acute attack—in other words, cases that were badly damaged were reported as having had but a few hours or a day or two of illness, while cases with slight damage were reported as having had a most serious illness.

ALICE N. WILLARD, D. O, Norfolk, Va.

Case 31.—Two young naval officers on board ship worked all day in the bilgewater. That night they were off duty, on shore together. Both were taken with infantile paralysis and treated by the naval hospital physicians. One of them had no other treatment and when last heard from was still in a wheel chair. The other "lived up to the light," as it was shown him. He had massage and later when hearing the good news of Osteopathy came to us for treatment. He improved rapidly and when called away on duty had only a very slight limp.

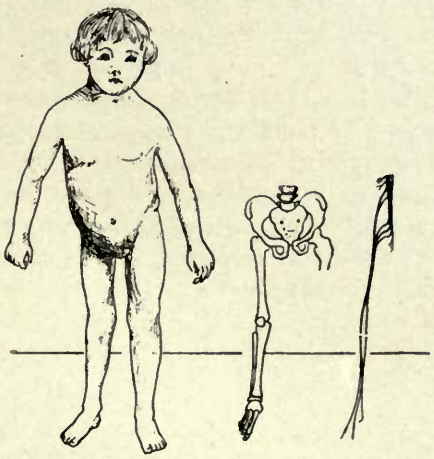


FIG. 61. Infantile paralysis deforms the little ones unless they are properly treated. The shortened and withered leg, the tilted hips, and the affected nerves are shown.

It has been my good fortune to have had the opportunity of watching closely the cases of two boys.

At the opening of a country school two boys drank freely of the water from a well that had not been cleaned out since the year before. Both were taken with infantile paralysis and treated by the same M. D., with the usual results. The one having no other treatment has made no progress toward recovery, remaining about the same. The other was brought to me for treatment and is now perfectly well, feeling only a slight weakness in the right leg when stepping up. As I treated this case myself alone I had a good opportunity to study it.

My husband, the late Dr. William D. Willard, had wonderful success in infantile paralysis, having treated some children at the same time the M. D.'s were treating others during an epidemic. His cases recovered without the serious results that the others experienced. I am sorry that I cannot give you the details in these cases also.

E. C. HIATT, D. O., Payette, Idaho

Case 32.—The one case of infantile paralysis (in a boy of 5), which I have treated, came with a history of a fall out of the back of a wagon on to the head; and as the facial muscles were the first to show paralysis the diagnosis was uncertain. The arms were not affected, but the left side of the face and both legs were almost completely paralyzed. It was several days before there was much prostration. After nearly two months he began to walk again. Gentle and thorough relaxation of all spinal musculature I regarded as an important part of the treatment. Medical books to which I have access say nothing about the facial muscles as likely to be involved in this disease; but I remembered that Dr. Laughlin had mentioned that they were sometimes affected, and that helped form my conclusions, until Dr. Gerdine confirmed the diagnosis fully. For a long time the child walked with a limp and the mouth was drawn around to the right side, but now, after a year, there is very little evidence of his trouble to be found.

C. A. BLACK, D. O., Lima, Ohio

Case 33.—A prominent medical doctor in Lima, Ohio, claimed that little Helen Watkins would always be a cripple, following an attack of infantile paralysis. After such a prognosis the mother became discouraged and was advised by a friend to try Osteopathy. The patient has

completely recovered from paralysis of the entire right side in three months' treatment, with no deformity. The patient is 4 years old and condition is believed to have been caused from a fall down cellar stairs. Her sixth, seventh and eighth dorsal were rotated to right with very marked lesions and rigidity. Right innominate was posterior, causing considerable difference in the length of legs. There have been five cases of infantile paralysis in Lima thus far; one case died, three were left with deformity and one case entirely cured.

EUGENE PITTS, D. O., Bloomington, Ill.

Case 34.—I could not write a scientific case report to save my soul, but I have had many cases of infantile paralysis and as they vary in violence so greatly it would be necessary to keep strict case reports on every case to give definite conclusions. But generally speaking, I have decided

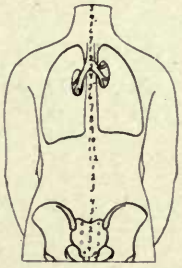


FIG. 62. The lungs are more perfectly shaped when no spinal curvature is present.

lesions at the atlas, 3 C., 11 and 12 D., and 3 and 4, lumbar, to be the cause of the disease, and I have never known of a single death from this disease in this town in nearly sixteen years of practice where a D. O. was called in in any reasonable time. I remember the case of Sylvia Green, 3 years old, who was stricken five years ago last March, and was delirious when I arrived, but after three hours' osteopathic work, with high enemas, and hot baths, was restored to consciousness and made a complete recovery. Sylvia is now a little past 8 and is going to country school every day and is a perfectly healthy child.

T. OREN WATSON, D. O., Seattle, Wash.

Case 35.—My youngest sister was stricken with the sporadic type of this malady eighteen years ago at the age of eleven months. This gave

me an opportunity to watch the case and its handling by the best medical doctors in our locality, which was in an Eastern State.

The child had the usual apparent light cold, but on the morning of the third day of her supposed cold the right leg hung limp. She was immediately taken to the best medical men available, but they were all at a loss to know what was wrong. They advised the use of a battery, which caused the baby to scream with pain throughout the treatment, but outside of that she was cheerful and happy. During the electrical treatment the little thing would reach down and try to pull the helpless limb away from its tormentors. This treatment was continued for a while, with no help. The case was then taken from one medical doctor to

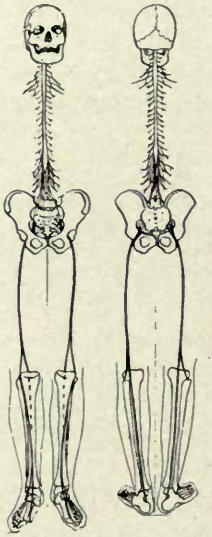


FIG. 63. The bony framework protects the central nervous system.

another for seven months with many diagnoses, none of which were correct. The prognosis was always hopeless. About this time an osteopathic physician was engaged who succeeded in giving her some use of the limb, but just what groups of muscles were again brought into action I cannot say, as my knowledge of anatomy in those days was somewhat limited. I have forgotten just what actions she regained, but mother advises that she took two steps after a month's osteopathic care. Then she fell ill with cholera infantum and died in seven days, as mother thought she was too sick to take to the osteopaths, who were twenty miles away. She called in the medical men again for this latter complaint, under whose care she passed away. I have since cured many

cases of acute diarrhea in both old and young with no failures, and if I had known as much then as now, or if mother had taken sister back to the osteopaths for the complaint that proved fatal, we might have had her with us yet. In later years, while I was in training for my profession, this disease (infantile paralysis) came under my consideration. Immediately I diagnosed my sister's case, and this, I am sure, was the first correct diagnosis.

The disease under consideration was first discovered in 1840 in Europe, where it is quite prevalent yet and they still have frequent epidemics.

There have been a few epidemics in the United States, also in Australia. There was an epidemic in Los Angeles a few years ago. This is the location of my Alma Mater and they naturally handled a number of cases the in the college clinic, with uniformly good results when taken in time.

As you know, the specific organism causing the disease has not been discovered and probably will not be until our microscopes are made much stronger than now, as it passes through the finest porcelain filters very readily.

The organism seems to thrive in the secretions of the nose, from which secretions of a monkey suffering with the disease it is possible to transmit it by inoculation to other monkeys for several months.

The undiscovered cause, be it a germ or what not, seems to attack first the endothelial cells lining the terminal arteries of the central nervous system and most frequently the anterior spinal branches of the lumbar enlargement in the spinal cord, in which are located the nerve cell bodies of the nerves that supply the muscles of the lower extremities. This causes an immediate inflammation and round cell infiltration around the artery in which is located the nidus of infection. The severe acute inflammation with the attendant swelling and other phenomena cuts off the circulation to and crowds the anterior horn cells to such an extent that they undergo cloudy swelling, and if not relieved, degeneration.

This seems to be the primary lesion and there are such lesions for each group of paralyzed muscles. They probably all start about the same time. In the cases that prove fatal one of these primary lesions involves the medulla oblongata or later spreads to it from the cervical enlargement, invading the upper vegetative centers or the nucleus of origin of the pneumogastric nerve. There are many secondary foci for the infection in various terminal arteries of the nervous system, but before these become as formidable as the primary lesion the patient, in favorable cases, has developed a reaction and the increased leucocytes keep down these secondary lesions.

The lymphoid tissue, which forms the white blood cells or leucocytes, whose business it is to fight all infections, increases very materially throughout the body, thus showing that the organism which causes the disease is circulating in the body fluids and exciting the protective reaction known as leucocytosis.

After the patient overcomes the infection the spinal cord shrinks and the anterior roots decrease in size at the point or points of the primary lesions due to the death of the nerve cell bodies in the former and their fibers in the latter.

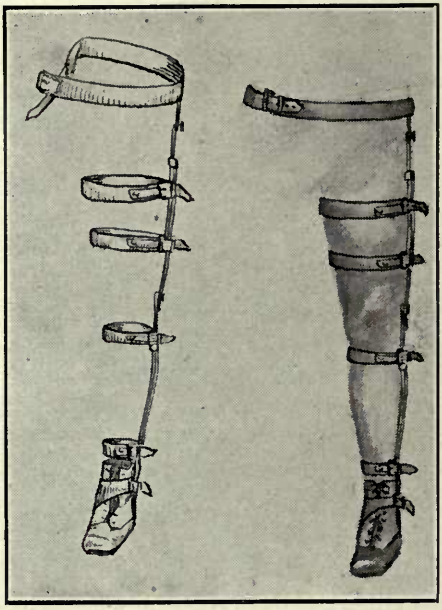


FIG. 64. From a girl of 7 years.

Symptoms. The incubation period lasts about five days, during which the patient has headaches, pains and stiffness of the limbs with a fever running from 100 to 102. Following this the paralysis appears, usually of one leg, but may be one arm, both arms or one leg and one arm or any other combination of these. The paralyzed member is not anesthetic because the sensory nerve cell bodies, as you know, are not located in the spinal cord, but in the posterior root ganglia of the spinal cord. The limb is not painful unless injured or stimulated by heat, electricity or otherwise. In a few weeks the paralyzed muscles begin to show a disuse atrophy.

Prognosis. If the case is properly managed from the beginning so as to limit the damage done until the body cells have a chance to overcome the invading organism, I consider the prognosis good for an ultimate recovery with little or no muscular loss. However, if the primary lesion involves the medulla oblongata the prognosis, I think, would be wholly bad, no matter what treatment given.

General Management. Two nurses should be put on the case at the beginning, with nothing to do but look after the patient night and day.

FIG. 65. "Hipping out" accompanies scoliosis; a poor physical start in life for a child.

The patient should be kept lying face down on a feather pillow with the body and hence the spinal canal sloping upward toward the head, so as to give the return blood flow the best opportunity to get away from the congested area, thus lessening the congestion and destruction of nerve cells in the primary lesions. The gentle upward slope of the body and spinal cord tends to keep the primary lesions from spreading toward the brain stem.

The child under no circumstances should be picked up and fondled by loving mothers or other persons, as this bends and twists the back and greatly aggravates the already severe inflammation, causing it to spread and involve more of the nervous tissue. The patient suffers no pain

as a result of the handling and the mother, not knowing the condition existing in the spinal canal, thinks that it does no harm to handle the child.

Treatment. The only treatment needed in the acute stage is gentle intermittent pressure lasting for five minutes on the erector spinæ muscle mass over the involved portion of the spinal cord, as indicated by the paralyzed muscles. This will drive the blood out of the tissues surrounding the primary lesion toward the heart; this in turn will drain the excess of blood from the cord through the small veins passing through the intervertebral foramina, relieving the congestion and inflammation in the spinal canal. These treatments should be given every hour,

FIG. 66. The nerve mechanism of the leg.

night and day, when the patient is awake. This can be given by the nurses under the direction of an osteopathic physician. This form of treatment should be kept up for at least four weeks and six weeks would be better. After that treatment should be given to stimulate the circulation of the blood and nerve force through the spinal cord and the paralyzed muscles. This will hasten the growth of the nerve cell processes of the injured, but not destroyed nerve cells, and help them to reestablish their connections with the paralyzed muscles. The passive exercise of the limbs will prevent some of the wasting until such time as the nerve cell damage can be repaired.

Quarantine. Each case should be strictly quarantined and no one except the nurses and the physician should see the patient. All dis-

charges from the mouth and nose should be burned right in the room if possible and all other excreta should be thoroughly disinfected before leaving the room. All linen and clothing should be soaked in strong soapsuds of the two per cent mercurid iodide germicidal soap for several hours before leaving the room.

The physician should make an entire change of clothing and put on garments covering every portion of his person completely, using a respirator wet with soap suds of the above-mentioned soap, and before leaving the room this clothing should, while yet on the physician, be thoroughly sprayed by the nurse with the strong soapsuds, when he should retire to another room and remove the wet garments, dropping them into strong soapsuds again. These to be boiled without removing from the soapsuds then hung out to dry and be ready for the next visit.

The nurses should care for themselves in the same way.

U. G. LITTELL, D. O., Santa Ana, Calif.

Case 36.—A. C., girl, age 4 years. Under M. D. care first week. Diagnosed sciatica. I was called Nov. 15, 1911, the 8th day of the disease. I found the left leg in a state of flaccid paralysis and the little patient suffering from nocturnal paroxysms of pain, accompanied by intense itching all over the paralyzed limb. The pain recurring about every hour. I gave treatment every hour the first night, and with increasing intervals, for eight nights. Then three times per week to Nov. 29, then twice a week to Jan. 22, 1912.

Result: patient walked with crutches about a month, then laid them aside with fair use of the limb. At present, after six and one-half years, the affected limb is slightly shorter and considerably smaller than the other, showing that certain trophic nerve centers in the cord were disabled.

Treatment in this case was directed to the relaxation of tense spinal tissues and encouraging elimination, with passive movements, at first, and later active resistive movements of the affected part.

Case 37.—A. M., male, age 18 years. As in Case No. 36 this patient came under my care a week after initial fever appeared. I found an oversized young man weighing 200 pounds, with partial paralysis of the right arm and the left leg.

Initial symptoms were described as a "grippy cold." Here I found tension and tenderness from occiput to sacrum. Treatment was given twice daily for six days, then once a day for twelve days, when with slight

improvement, he was taken to another city. Later he was placed under the care of another osteopath and made a complete recovery in about a year from date of initial attack.

Case 38.—M. H., male, 6 years old. Had classical symptoms of anterior poliomyelitis with complete right-sided paralysis when one year old. When brought to me he had fully recovered the use of the leg but the wrist was flexed at a right angle and the fingers flexed to the palm. He had never used the right hand. The mother stated that when he was asleep the wrist and fingers would straighten out. In this case the first dorsal vertebra was lateral to the right. This was easily corrected. Treatment twice a week for seven weeks with gradual improvement. I used a splint to keep the wrist in extension between treatments.

J. P. FOGARTY, D. O., Michigan City, Ind.

Case 39.—Dorothy Thornton, Michigan City, Ind., age 5. Family history good. Previous history of child, unusually good health. Present illness: Following a three weeks' stay in the hospital for what was diagnosed as acute poliomyelitis, the child was brought to me with a flaccid paralysis in the anterior tibial and peroneal group of muscles in one leg.

When first seen by the family physician, was said to have fever, pain in the neck and spine with head drawn back (opisthotonos), followed by paralysis.

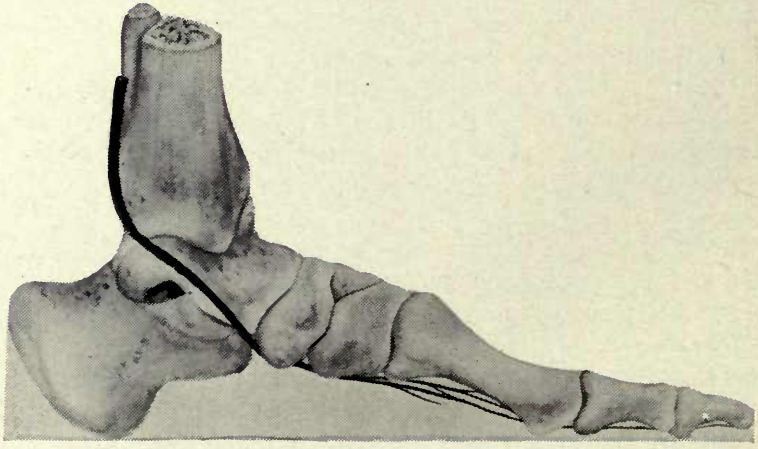


FIG. 67. The normal arch of a foot is wonderful in construction and arrangement. The black line is the large nerve that supplies the muscles in the sole of the foot. Infantile paralysis weakens the arch.

The child was treated daily for about one month with a general spinal treatment and manipulation of the leg. Later, twice or three times per week for 7 or 8 months. During the first month treatments were given very light but general, later on more specific and heavier.

There was a gradual improvement from the first and by the seventh or eighth month had completely recovered and had a normal gait.

This particular case would seem to show that a complete cure is possible when osteopathic treatment is started early and kept up. I consider this rather a light attack, although the child was said to have been quite ill at first.

A. G. WALMSLEY, D. O., Peterborough, Ont., Can.

Case 40.—Girl, aged five. This case first came under my notice October 26, 1917. The history is as follows: Some five weeks previously the mother of the child found one morning that the child was unable to raise up or to turn over in bed, and would not allow any one to touch her about the trunk or lower limbs because of the pain resulting therefrom. An M. D. was called, who after examining the case pronounced it hip disease. The prognosis was grave; he said that the child might not even live, and that if she did she would be a cripple. In the week immediately following, the child improved slightly, its mother being able to handle it somewhat, but it was still confined to bed. At the expiration of two

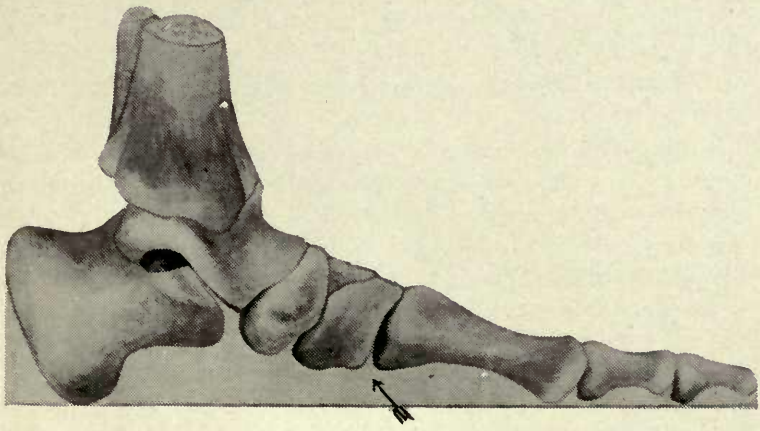


FIG. 68. "Broken arch." The arrow indicates one joint that is opened up. Notice the heel-bone sprung backwards. Compare with Fig. 67 and note how much nearer the floor the arch is at point of arrow. The nerve was left out to show the better the sprung joint.

weeks the doctor in attendance asked for consultation, and the consulting physician concurred in the diagnosis and the prognosis of his colleague. Three weeks later, or five weeks from the onset of the trouble, the child was brought to my office; the mother carried the child upstairs and sat her down on the office floor, the child not yet being able to stand, and of course it could not walk. Before examining the child I inquired carefully into the history of the case. As soon as the mother mentioned hip disease I naturally was on the alert, realizing that hip disease is not a disease to be trifled with. The history brought out two very interesting points, namely: First, two days before the onset of the disease the child while playing in the yard climbed a ladder to a height of some four or five feet and from this position fell to the ground. Second, this child is inordinately fond of meat, and at some meals will eat nothing

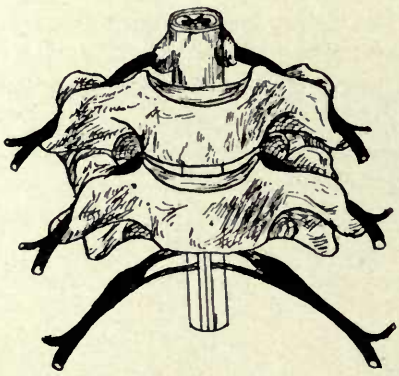


FIG. 69. "The spinal column is literally alive with nerves."

else if it can get all the meat it wants. It so happened that at this time the mother of the child was spending considerable time with the neighbor next door whose husband was on his death bed, and the child was with her the greater part of the time. While there the neighbor's daughter indulged the child's appetite for meat. That the toxic state produced by overeating, and especially of meat, lowered the child's resistance and made it more susceptible to the paralytic condition that ensued, seems a reasonable hypothesis.

Examination. My first thought on examining the child was to confirm or disprove the diagnosis of hip disease. This was not a difficult matter, and in a few minutes I was able to assure the mother that the child had not hip disease. She then asked me: "Well Doctor, what's the matter?" I answered: "Your child has infantile paralysis." Her

next query was: "Can anything be done for her?" And I assured her the child could be greatly helped and in all probability cured. Continuing with the examination, I found slightly rotated third and fourth lumbar vertebrae and a very tense condition of the lumbar group of muscles and some involvement of the muscles higher up in the spine.

The child was still quite tender and made quite a fuss during treatment, but after each treatment this tenderness was less noticeable and in a few days had entirely disappeared. After five treatments the child was able to walk by taking hold of chairs or tables, and from this time on the improvement was rapid. I treated the child three times a week for five weeks, and twice a week for three weeks following. By this time she was walking very well but would tire easily. I urged the mother to continue bringing the child once or twice a week for a time until it would be fully recovered, but for some reason unknown to me she discontinued. The first week in May, or about four months since I last saw the child, the mother brought her to my office to show me how well she was. Inquiry revealed the fact that while the child is walking well and in good general health, she still tires more readily than before the attack I again urged the mother to bring her back, but she has not yet done so.

After I had been treating this case some six weeks, and the child had made the splendid progress referred to, the child missed one week during which she was not brought for treatment. When the mother brought her back I wanted to know why the child had missed coming the previous week, and the mother informed me that she had been next door nursing the neighbor mentioned above and could not bring the child. The mother then went on to tell me that the child had had another very sick turn and that she thought it was going to have another attack similar to the one that prostrated her before. Inquiry brought out the fact that the neighbor's daughter had again been indulging the child with all the meat she would eat, and added to this some candy.

This was a sporadic case of poliomyelitis, there being no others in the city to my knowledge at that time, and I feel no hesitation in saying that the causative factors in this case were the toxic state due to wrong food and over-eating, and the effects of the spinal injury resulting from the fall.

Some four weeks after I began treating the child, the M. D. who was called in consultation by the physician in charge, saw the little girl playing about in a neighbor's house and the neighbor and the mother of the child had much difficulty in convincing him that this was the child he and his colleague said might not live, and that if she did live would be a cripple.

M. E. CHURCH, D. O., Calgary, Alberta, Can.

Cases 41-42.—On July 10, 1916, I got a hurry call to come and see a couple of boys that were unable to get up. They had been sick in bed for only a day and two nights, but had not been feeling extra well however before this, which was just after their arrival in Calgary. School closed the last of June, and the mother and three boys, $3\frac{1}{2}$, 8 and 9 years respectively, together with their mother, left University Place, Edmonton, to visit some relations in the country, and then to come to Calgary to spend a while with Mrs. Johnson's mother, the boys' grandmother. While in the country the boys played hard, as only boys can, had lots of good things to eat, lots of milk to drink; in fact, their father runs the dairy of the Alberta University at Edmonton. On the train

FIG. 70. The white tract within the sectioned spinal column is the spinal cord with its three surrounding membranes. Notice the cord extends only down as far as the small of the back. Between the spinal bones or vertebrae the spinal nerves pass out to supply the muscles and organs of the body.

coming down they had some ice cream cones and drank of the water on the train quite freely. As the case history showed, they had been in Calgary but four days, neither of the patients, the two older boys, felt extra well after their arrival, but had not complained to their mother until the night preceding the night I was called, and then it was simply that their legs were weak. The mother thought it might have been from playing too hard that they were sore and stiff, and had them stay in bed the day before. In fact, they tried to get up and couldn't.

On arrival at the home I found the two boys in one bed suffering from an inability, as they expressed it, of drawing their legs up and straightening them down. This was particularly true of the right leg of the older boy, and the younger boy (aged 8) was similar except not so bad; the younger boy's face showed signs of slight paralysis on the right side, which had not completely recovered at the end of two months.

The boys were extremely nervous and irritable and complained of the back hurting. Having made the usual tests carefully, reflexes, etc., I turned them one at a time on their faces and gently manipulated the spine. The whole plan of treatment was for improved circulation to and from the cord; I then treated the neck gently, also carefully manipulated the musculature of the legs.

The boys were refreshed from the first, and to make a long story short, I called twice a day at first; at the end of two weeks the boys were sitting up, able to draw the legs around, and were putting their weight on in three weeks and were taken to their home in a little over a month.

The picture shows them standing on the veranda at two months, and shortly after this they entered school. I often hear from them, they are both well and as strong as if nothing had ever happened to them. I might say the younger boy, who seemed to have a predominance of the Bulbo-Spinal type, improved on his feet the quicker for the involvement was less in the area of the cord where the nerves to the limbs were affected. The facial paralysis cleared up slowly.

I will now mention the fight we had with the Health Officer, who would not call and see the cases at first, and said the injection of spinal fluid into a monkey was necessary before a positive diagnosis could be made. To nip this in the bud, I wired New York, and got a reply saying that inoculation was not necessary in well-marked cases. My diagnosis was also sustained by the Health Officer of Edmonton, and admitted to by the Health Officer here later, after he lost his "swelled head" and was called down by a couple of the newspapers.

I honestly believe from these two acute cases and a number of chronic cases I have treated, that there is no treatment that can begin to compare with Osteopathy in the treatment of acute or chronic poliomyelitis.

The boy of three and one-half years did not show a symptom of poliomyelitis, and he was with the other boys constantly until their condition was diagnosed.

W. J. CONNER, D. O., Kansas City, Mo.

Case 43.—Boy about five years old. Examined 1908. He was brought to my office paralyzed from the neck down. He could not work a muscle in arms or legs. Bladder and bowels also paralyzed. This condition had existed for about ten days.

Upon careful examination it seemed a hopeless case. I decided to call counsel; Drs. Cornelia Walker and Irene Harwood also pronounced it a difficult case.

We decided that osteopathic measures offered the only hope of restoring the patient, and with that feeling I undertook to handle the case.

Tenderness of the cervical tissues, without any specific lesion was noted. A relaxing treatment was given, with the object of accelerating the circulation to the cord in the cervical region.

He was given all the oranges he wanted to eat. In one month's time he was sent home with the use of all his muscles. At home he made

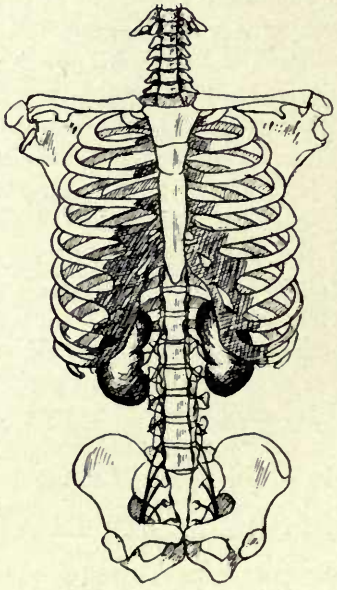


FIG. 71. Watch the kidneys in paralysis cases. A curvature will weaken them.

a perfect recovery. I followed the case for several years and he is now as perfect as though he had never been affected.

Case 44.—Baby two years old developed the usual symptoms of infantile paralysis. On the third day both legs were paralyzed. It proved to be a mild case, as six treatments directed towards clearing the circulation to the lower dorsal and upper lumbar region restored the case to normal.

During my practice I have received for treatment twelve cases, and every one made perfect recoveries under the same treatment as indicated above.

In order to get the best results, you must get the case within a week or two after the initial symptoms. The sooner the better. I have never been more than a month curing any case.

Many are the cases I have treated during the chronic stage of the disease, but never have had the same results as when treated in the acute stage.

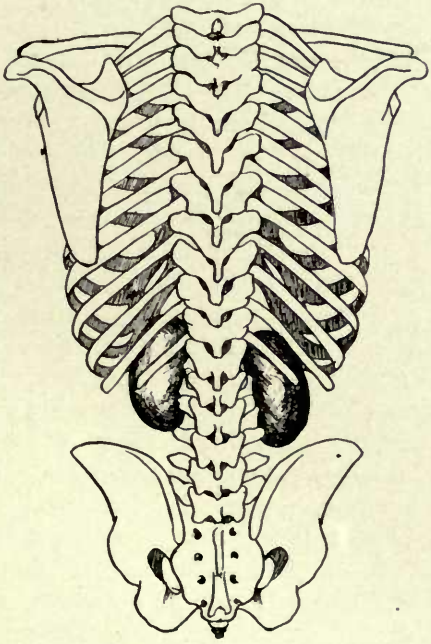


FIG. 72. Back view of Fig. 71.

H. W. GAMBLE, D. O., Missouri Valley, Ia.

Case 45.—Last August there occurred four cases of infantile paralysis in this town within three days' time, within a radius of a half mile distance. The youngest was six months old, the oldest was five years. Across the street from the latter, the same week, a lad seventeen years of age was stricken with an unusual train of symptoms which the two consulting M. D.'s finally pronounced brain fever but had many characteristic symptoms of I. P. and might as well have been so diagnosed.

A week later a girl age 22 years living sixteen miles from here was attacked with infantile paralysis; no other cases in this community developed that I know of, and all of the above came into our care soon after they were diagnosed (but diagnosis was never made until after paralysis was established). There seemed no possibility of a common infection or exposure to such. But one case was quarantined by the attending physicians and it was more isolated than the rest. Two cases permitted a number of other children to become exposed but no other cases resulted.

One case was taken much the same, almost identically, the family claimed, as a little brother two weeks later whom I treated from the outset and in three days he was well, with no paralysis developing; the family feels Osteopathy prevented serious results as followed the case under medical treatment before they called the osteopath.

Climatic conditions in the above little epidemic seemed to have much to do with its presence. It was dry and dusty. During the past eighteen years we have had probably more than an average acute practice in our field, and have had many cases to treat, most of them coming to us some months or years after paralysis is established. Our treatment for the chronic conditions has been probably the average, and results ditto. It has been our practice to treat the chronic cases more strongly and less frequently then the acute, otherwise it has varied less than it appears to with some D. O's. These cases all presented much the same history and symptoms, only in varying degrees of intensity, digestive disturbances predominating and most of them were treated accordingly by the M. D.'s; i. e. for above symptoms, as infantile paralysis was not suspected in any until paralysis intervened. F. E., age 3 years was most seriously afflicted, though in apparently good health previously. Family history rather bad, father's habits bad, mother's health poor. Two medical doctors handled the case for about three weeks when they advised the family to try Osteopathy. The right arm, back and legs were paralyzed, though had a trifle use of the hand. No motion in either leg or foot and back muscles paralyzed also. Very fretful and

nervous, had to be turned every few minutes night and day for the first month of illness. Stomach, bowels and kidneys, all in bad condition, air hunger and dyspnoea pronounced the first week of treatment. Medication had been modest but took scarcely any after starting treatment, and discontinued in a week. Hyperesthesia most pronounced thruout the spinal area, with no portion more affected than the other. Contraction of soft tissues less than would be found in most any other acute illness of same severity. Treated daily for two weeks, thrice weekly for two weeks, then twice weekly from October 1, 1917 to date April 1, 1918. Treatment was very gentle; slow, relaxing and inhibitory throughout the spinal area. General conditions improved from the first treatment. The child was turned on either side and as hyperesthesia was relieved the treatment was increased to comfortable toleration. Both legs were

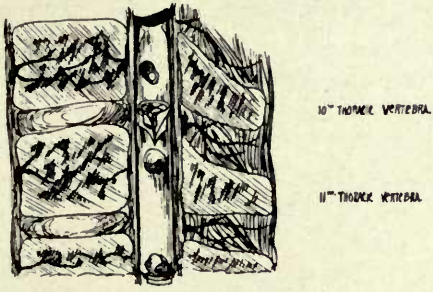


FIG. 73. A section of the spine cut in half to show the groove for the spinal cord. The three spots indicate the openings where the spinal nerves pass out. Notice the network of ligaments or bands that bind the vertebrae together.

very tender also, and gentle treatment was given them every time. Within less than a month the arm was in apparently perfect condition, the back and hips began to get some strength, and in about six weeks he could sit propped up in bed. Sleep improved every treatment and within a couple of weeks was sleeping normally, though had to be turned often the first ten days or two weeks; each treatment made his rest longer between being turned until he could sleep all night long and could turn himself after couple of months' treatment. His general health by that time was almost perfect. It was about four months until he could sit unsupported on the table, and until he could take a very thorough treatment of any strength, while at present he is taking a very strong treatment. The right leg has been the worst, and atrophy more pronounced. He can crawl on the floor and onto the couch and turn a somersault. Wiggles the toes and foot slightly of left leg, but only faintest indication

of motion in the right foot. Improvement still continues but is some slower than at first, as was expected.

Case 46.—D. D., age 5 years. Taken with what was diagnosed as autointoxication. Left arm and leg were affected the third day, the arm but slightly, and the leg more severely. M. D. thought she had made good recovery, and said he would call up on 'phone, though he thought further calls unnecessary. Family became alarmed at the paralytic condition so thought of Osteopathy. I pronounced it infantile paralysis, and told them to isolate the case. Recovery of all trouble seemed good save for paralysis. Muscular atrophy developed in the leg, of half an inch, measured 3 inches above patella; cervical hyperesthesia most pronounced.

Treatment daily for ten days, then alternate days for two weeks, then twice weekly for six weeks. The arm became normal within ten days, the leg and back improved steadily so could stand on both feet inside two weeks, could walk in three weeks; eversion of foot, and foot drop was overcome in six weeks and discontinued treatment thinking the child cured. I urged them to bring her once weekly for two months longer, but they hated to part with "der gelt," and thus economized. Case was generally considered cured by others, though I told them it was not yet complete, for when tired from overstrain at play the limp is quite apparent. They took the child to the family doctor to show them her cured condition, but he grunted that "she only had a slight touch of it," notwithstanding she could not sit alone nor stand alone when he ceased visits.

Case 47.—P. L., age 4 months, also pronounced autointoxication. Family doctor only made a couple of calls, did not consider the babe was in a serious condition, and it seemed to be well, though parents noted it failed to move one leg.

The father stopped me in the road one day a couple of weeks after the doctor quit the case, though they had gone to his office telling them they feared infantile paralysis. He scouted the idea; but I told the father I was satisfied it was infantile paralysis. He asked me if I could help it, and I assured him that the results generally were good, but urged early treatment which he promised to start at once. Opposition prevented for some time, so it was over a month from onset until they brought the baby to me. Atrophy of the right leg was most pronounced, half an inch at the calf and 3-4 inch two inches above patella.

Tho child had appeared most robust, it has had chronic constipation, kidney and stomach trouble. Hyperesthesia localized at the lumbar enlargement.

Treatment given to the dorsal and lumbar areas thrice weekly for one month, then twice weekly for five months. Recovery was slower than those cases taking treatment earlier. Muscular atrophy not entirely overcome but much improved, can use the leg considerably and bears weight upon it now. Constipation has been most obstinate indeed. Expected it to improve with little attention to it but got no improvement

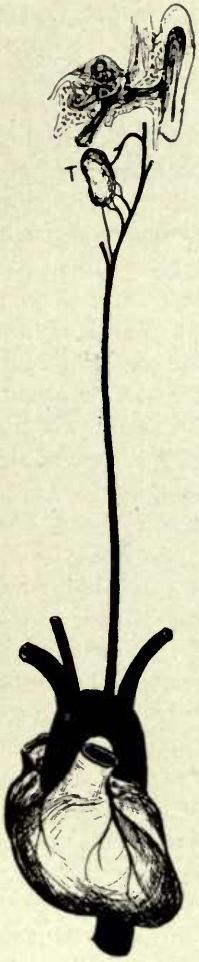


FIG. 74. The tonsils are located in the region of the Eustachian tubes that connect the back of the throat with the middle ear. Each tonsil is supplied with at least four arteries. Good drainage prevents congestion, and sometimes partial deafness. Keeping the tonsils normal helps to prevent the entrance of germs.

until I gave it more direct treatment, and now the general health is the best it ever had.

The furnace allows the home to be very drafty, and many severe colds have hindered more rapid recovery. I expect the child to walk, though there will likely be some limp.

Case 48.—E. H., age 3 years. Attended by same physician who advised Osteopathy in first case. He did not give diagnosis, but said the spine was affected and thought Osteopathy would help it. The child's neck, shoulders, left arm and leg were badly involved; he could not sit up so was carried to our office.

He had been attacked two weeks previously and they supposed it was stomach and bowel trouble with slight fever. In the cervical and lumbar enlargements there was pronounced hyperesthesia. Very gentle but thorough treatment to entire spine given daily for ten days, then thrice weekly for one month, then twice weekly for two months.

Sleep during or following treatment almost invariably followed, as in nearly every case treated. Improvement noted from the first, and treatment gave improvement in general health as is usual. Kidneys of most cases seem to be in poor condition and improve greatly with treatment. Ninety-five per cent. of the treatment is to the spinal area and I rely upon spinal treatment for practically all results.

The arm was first to recover, then the back, then the leg and finally the neck so patient could at last hold the head up. Three months' treatment made practically perfect recovery from every trace of paralysis, and general health best ever enjoyed.

Case 49.—G. E., age 22 years, living sixteen miles from here, taken ill soon after the above cases. M. D. from her nearest town did not attempt to name the disease; no one thought it was of any importance. The M. D. did not have to make but one or two calls, fever but a trace, and recovery seemed O. K. after couple days confinement to bed; but the left arm and leg did not act right, so they drove in to see me a few days later. I used a meat auger and Presbyterian corkscrew for a long time to get a history of the case. They acted as though they were in a den of thieves, but had no better place to go, and refused to give symptoms and history I wished; I finally told her I could not make out any thing but infantile paralysis from her reluctant story. I advised her to remain close to town with friends and have frequent treatment. After remaining all night with their friends they drove home the following day. She was again taken much as before and the doctor asked for consultation, when they told him they had been here and I pronounced it infantile paralysis. They quarantined the case after the other doctor got there,

she being some worse than the first time, this attack lasting a week, and the paralysis being more pronounced. Roads and weather prevented her return for treatment until March 1st, when she took three times weekly when possible. The right leg did not seem atrophied, and she only complained of sort of stiffness and weakness in that ankle. The atrophy in the arm and leg improved as did function until the left leg seemed normal in nutrition. While the right leg did not improve in size, its function did improve considerably; it still shows atrophied condition which was not suspected at first. This is unusual, I believe. Fifteen treatments have been given altogether with improvement sufficient for her to dispense with housekeeper's services, and she handles the home duties very nicely. Can get the arm up to the head quite well now, walks with but little limp, increased in weight 7 pounds, though she claimed good health at the time she began treatment. Treatment will be continued for some time to come, with less frequency, and with expectations of further gain.

Fig. 75. The chest is hung onto the spine, and fastened together at the front by the breast-bone. As we breathe this cage of ribs and muscles moves upward and downward, aiding respiration.

Case 50.—M. E., age 17 years, was taken ill the same week as the first four mentioned. Typhoid fever was suspected, from digestive tract symptoms, by attending physician. Grew much worse for couple days when he had a consultation with another M. D. and they thought it was brain fever. It seemed more like cerebrospinal meningitis than it did infantile paralysis. The fifth day the fever and delirium, pain in the back, neck and head were much worse; some retraction of head, and almost total blindness for a day or so. Little hope was held out for recovery; the paved street was roped off for 10 days for convulsions were occasioned by noises of the street. Dr. Gertrude Gamble (my wife) was called at this period and worked constantly the first night, ice packs, and treatment occupying her time, until the trained nurse arrived.

Gentle, inhibitory treatment was given to the entire spinal area thrice daily for a week, twice daily for a week, daily for two weeks, alternate days for a month, thrice weekly for a month, and twice weekly for a month. Six treatments were given the next two months. Opisthotonos and convulsions were relieved from the first, fever of 104.5 responded to ice packs and treatment. None of the previous cases showed so high temperature. He could lie in no position save upon his back for some days before treatment was instituted, and within a few hours he got much comfort and rest when enabled to change his position. Sleep resulted from the treatment much more satisfactorily than from opiates.

Eyesight slowly improved for some days until within a few days he could recognize objects, though it was some months until oculist thought it wise to test eyes and fit him with glasses, which have helped him quite a little and his condition was sufficiently improved by January to resume high school work.

Paralysis was not noted until ill a week, when the family thought it was weakness, and did not wish to believe it was anything else. The arms and shoulders and neck were mainly involved, though whole spinal group of muscles were slighly involved, and when convalescence was well advanced he could not sit up without being propped up, and handled his hips poorly, but they soon recovered. The deltoids and triceps were in worse condition than the rest of arm and shoulder muscles. It was two months before he could comb his hair or raise from treatment table without holding his head in his hand, to assist it, and it was four months before it was not an effort to handle the head and neck.

Santa Barbara mineral waters were used for bowels and kidneys with good results in this and some of the other cases.

As the patient improved the strength of the treatment was increased and spine was sprung throughout as much as prudence permitted each

time, and nothing but good resulted therefrom. Some osteopaths seem to fear to do much more than spinal massage; from experience I have proved such fears to be unfounded. A typhoid or pneumonia case demands quite as much caution in the treatment to the spine as poliomyelitis, and judgment is quite as essential as skill in the proper handling of any of them, if they are very alarming in their nature, but the more real Osteopathy they get the more flattering your results will be. This case recalled that he had made a visit of three days to Great Lakes less than a month previous to his attack, and while he was there they were having an epidemic of cerebrospinal meningitis that was serious, and in

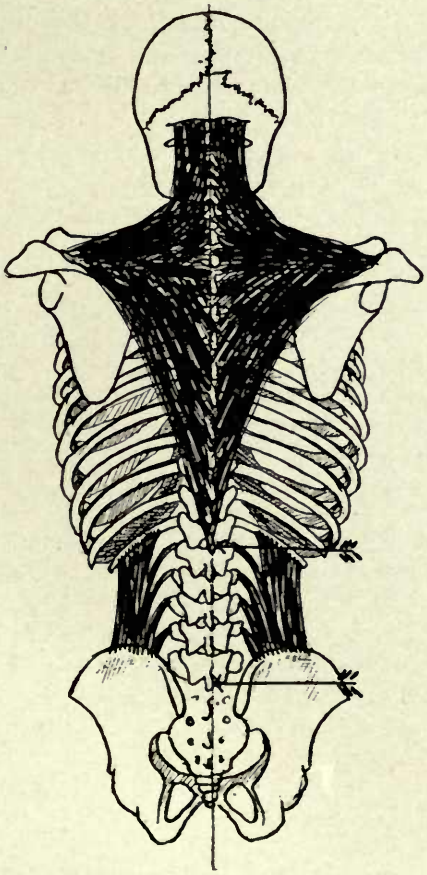


FIG. 76. The attachment of these muscles to the spine, shoulder blades, collar bones, and head assist in keeping the framework in perfect alignment. Paralysis weakens them.

which I lost a cousin that I will always feel might have been spared, had he been under osteopathic treatment.

In no case have we felt there was any benefit from drugs previously administered, and in no case do we wish their continuance. We have told the attending physicians in cases of other kinds as well as poliomyelitis, that if we work with them, a placebo suits us best of all and satisfies the critics, and we think many cases have received placebos when the family doctor continued to make occasional calls. A dust-covered high frequency instrument was used on one case for satisfaction of the former doctor, who preferred to give violet rays the credit rather than Osteopathy; fortunately, much improvement was shown before he 'phoned the family to have it used. I could not see that its use was of value other than to satisfy all that everything possible was being done to cure the case. The cure I believe was wholly due to osteopathy.

FIG. 77. The bones of the pelvis as well as of the hips are all bound together with ligaments. Strains and twists will cause these side bones to assume a new position that may weaken a child.

Diet should be restricted in any and almost all cases of acute illness, but otherwise little dependence is placed upon it for special results. Exercise in early convalescence is restricted, but later on is encouraged. Cases which have neglected taking treatment for a year or more will generally show improvement. One bad case was able to walk without her crutch and went to work as a telephone operator when she had been badly crippled in both legs and arms for two years, and had but two months' treatment at that.

WALTER GUTHRIDGE, D. O., Spokane, Wash.

Case 51.—Being a victim of poliomyelitis, I was always very much interested in it and have seized every opportunity I could of learning something about the disease. There is some first hand knowledge that

can only be appreciated by a victim. I can readily raise the toes of my right foot; but as to the left—I cannot even try. There does not seem to be any more natural motor connection between me and the toes of my left foot than between me and the peninsula of South America; I can no nearer try to raise one than the other.

I had the disease when two and a half years old; and after the age of four, as the right leg was not much affected, I traveled on crutches leaving the left leg to dangle, until I was eight years old. I kept the left leg bent at the knee, until I could not straighten it. The muscles of the hip allowed the head of the femur to draw out of the acetabulum and form a joint in the thyroid foramen. At the age of eight the lame leg was two inches short. At that time, I began to wear a brace, and also took two years of vaccuum treatment, which forced circulation into the limb so it grew as fast in length, after that, as the other leg.

Case 53.—In the summer of 1910 and 1911, I had the satisfaction of attending some patients in the acute stage of the disease. One of them, a nervous boy six years old, and very small for his age, had had lagrippe during the previous winter. About ten days before his sickness, he fell and tumbled end over end down a steep hill. He was picked up a little dazed but would not admit that he was hurt. On Saturday, July 9, he was taken sick and his right leg was sensitive, his throat was sore and he had some fever and was very restless. Appetite was good on Sunday and Monday forenoon. On Monday afternoon, he had nausea and was fretful. He walked, but back and legs seemed stiff.

These symptoms were reported to me the next morning by a relative of the boy who was taking treatment. I recognized the disease as poliomyelitis and advised that they do something at once. I told the patient to keep the child from lying on his back, to apply cold pack to the spine and thoroughly cleanse the bowels. I hoped they would call me immediately; but a negro woman neighbor calmed their fears and assured them he would be all right in a day or two. There had been constipation from the beginning; Syrup of Figs had been given on Sunday; there was but very slight movement of bowels on Tuesday, but on Wednesday they thought he was better. On Thursday morning he was so much worse that a neighbor called her physician. Paralysis was present and the doctor recognized the disease and left medicine. Four big doses of physic were given, castor oil and salts; but bowels seemed paralyzed. A little urine, the first in sixty hours, was passed at four P. M. At six P. M. the doctor returned and found patient's head retracted. He diagnosed the condition as a complication of poliomyelitis and cerebrospinal meningitis and gave up all hope of the child's recovery.

I was then called and arrived at seven P. M. The patient was only semi-conscious; we administered an enema at once and soon secured two copious movements of the bowels. At the dorso-lumbar region for a space three inches long and one inch wide arterial pulsations were more forceful and prominent than I had ever supposed they could be on any part of the body. Muscles along the spine were very tense. My treatment consisted principally of light vibrations over dorso-lumbar region. The neck muscles soon relaxed and the patient went to sleep. About every half hour during the night he would become restless, but gentle pressure on the dorso-lumbar region would quiet him and he slept fairly well during the night. Temperature was 101 degrees on Thursday, and did not get higher afterwards; breathing, quick and short. He was fed a little meat soup and strained oatmeal gruel but had no appetite till Sunday, July 17. Treatment was continued daily for two months, and once a week for four months longer, when a brace was placed on his right leg and he began to walk.

Nine months after the disease, he had grown at least six inches in height and almost doubled in weight.

FIG. 78.

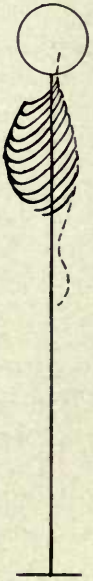


FIG. 79.

FIG. 78. The normal chest is conical in shape. The ribs attach themselves to the breast bone and the organs are well protected.

FIG. 79. The ribs are also attached to the spine and if no curvature exists they are equally spaced, and free action in respiration is assured.

Atrophy of all the muscles of the right leg was very marked in a few weeks after the disease. He never regained the use of these muscles. There was marked stiffness of the spine during the disease but no specific bony lesions that I could discover. The relief that treatment gave the patient during the acute stage deserves notice; light manual vibration was the treatment that afforded most relief.

Case 54.—On July 19, 1910, I was called to see a child three and a half years old just one month after the disease began. His right leg seemed completely paralyzed from the gluteal region to the toes; but there was very little atrophy. I treated him until October, when he began to walk on a brace. Six months later he discarded the brace.

Case 55.—In 1909, a four-year-old boy fell and broke his arm which was put into a cast. While the arm was in the cast, the boy had a disease characterized by fever, restlessness and stiffness; but the doctors called to see him could not diagnose the case. As the symptoms subsided the stiffness persisted, and the mother diligently required the child to exercise until the symptoms passed away. When the cast was taken from the left arm it was found that every muscle of the arm, the exercise of which had been prevented by the cast, was completely paralyzed, and they have never improved. The hand extended beyond the cast so the fingers could be moved and a slight motion allowed the wrist; just those muscles that could be exercised, and no others escaped paralysis. The reflex stimulation of muscular activity on the cells of the spinal cord saved those cells from destruction.

The germs of this disease are so small that they readily pass through a Berkfelt filter. It has been proved that the dust from the carpet and walls of the sick room contain the germs, which may, therefore, be distributed widely through the air. And it is also known that the disease occurs in light form and may never be recognized. These light cases spread the infection and it is possible that many healthy people may act as carriers; thus, the disease may be carried long distances from any known case.

The germs gain access to the body through the nasal mucosa and during the incubation stage scatter all through the body and may be found in nearly all or all of the tissues. Nerve cells seem to be the least able to overcome the toxin of these germs, so after the cells of the most of the body have been able to counteract these toxins and overcome the germs, the germs seem to concentrate in the nervous tissues some place where they have not met so much opposition. This final location of the germs may be anywhere in the spinal cord or brain where some peculiarity or weakness allows the germs to grow more virulent until

their toxins tend to cell destruction of the nervous tissue. More frequently than anywhere else the lumbar enlargement of the cord is affected.

The extreme hyperemia and capillary pulse beat of the affected part shows nature's gallant effort to supply that location with blood to overcome the disease. The white blood cells congregate in great numbers and are found just outside the lumina of the bloodvessels. If the hyperemia is not very active the white blood cells may accumulate in such numbers that by pressure they occlude the lumina and thus shut off the blood supply.

There may be noticed symptoms of a cold in the head, fever and restlessness. Sensitiveness of some part of the body may early indicate where the principal trouble is going to be. Stiffness of all or many of the muscles of the body is perhaps the most diagnostic symptom. All symptoms may be so slight as to be overlooked until paralysis sets in.

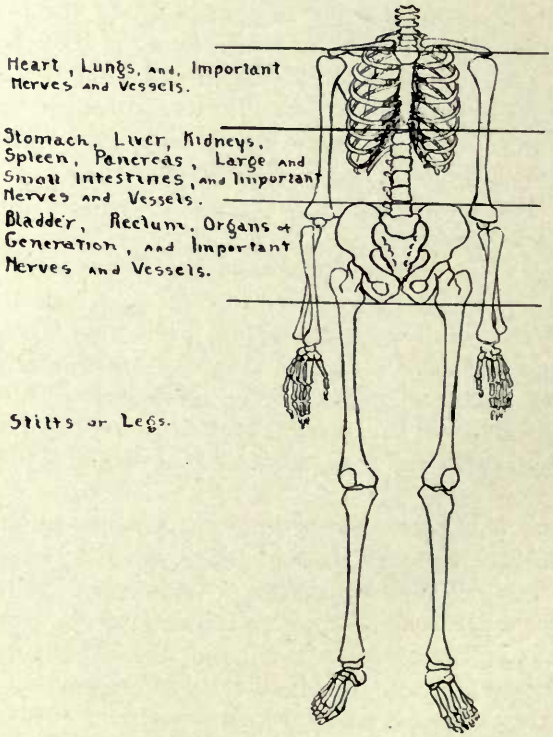


FIG. 80. Framework of the house in which we live. Perfect alignment is a preventative measure.

In other cases the preliminary symptoms may be severe and no permanent paralysis take place. This was my experience in at least one case.

In cerebral cases the symptoms differ very widely from the above. The child seems to prefer lying on its back and rolls the head from side to side or remains quiet. Generally the patient becomes unconscious; head is not retracted; diarrhea prevails, while constipation is the rule in spinal cord cases. Cases of this type were frequently diagnosed as cerebral meningitis previous to 1910.

Proper treatment during the acute stage may do a great deal of good and help the patient through with less damage than he could expect to receive without correct attention.

We must, in order to assist nature in overcoming any disease, see what nature's method of fighting this disease is, and aim to assist in just

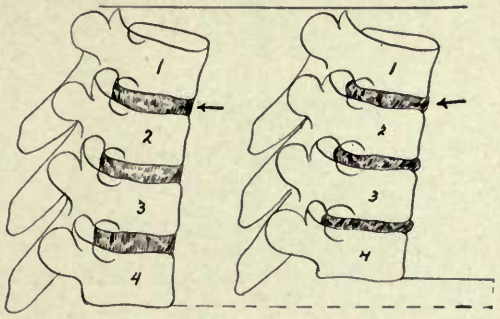


FIG. 81. We are shorter at night than in the morning, and we are shorter if we stoop, as in round shoulders. The arrow points to the pads between each section of the spine.

the line nature is trying to act. The germs gain access through the nasal mucosa and spread all over the body. More than a thousand people are exposed to every one who is susceptible enough to suffer noticeably from the disease. Nearly all tissues of the body are immune from attacks of the germs and readily overcome them. Thus these tissues easily manufacture enough antitoxin to kill the germs, and if the circulation to every cell of the body is perfect this antitoxin is carried to every cell and the germs eradicated. The nerve tissue is the only kind that may need help and if any particular part of the nerve tissue is specially weakened, the germs at that point grow more virulent and their toxin tend to destroy the helpless nerve cells. We know that nerve cells that are actively functioning can put up a strong fight; but the quiescent ones are much more likely to succumb. It is, therefore, the duty of the physician and nurse to allow the nerve cells to have all the needed physiologi-

cal stimulation that muscular activity can give them. Not only should the circulation through the nerve tissue be kept as perfect as possible; but we should be sure that the antitoxin, which every other tissue of the body manufactures, is carried promptly into the circulation and thus brought to the needy nerve tissue. As soon as the disease is recognized, if the bowels are constipated they should be well cleansed with enemas, and treatment begun.

During the acute stage, the child should be put into a bath at temperature of about 103 to 105 degrees. The heat helps to relax the contractured muscles. While in the bath, massage should be given to thoroughly stimulate the venous and lymphatic circulation, so the antitoxin made by the body cells can be utilized where needed, and the toxin from

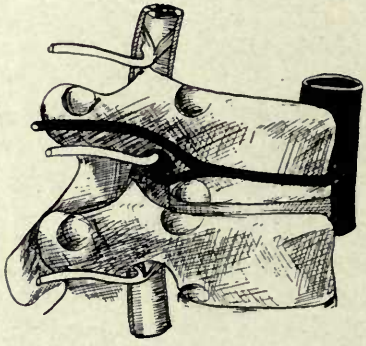


FIG. 82. Nature's method of nourishing the spinal cord, its membranes and the spinal sections called vertebrae. The artery sends a branch into the opening where the spinal nerve comes out. Any irregularity of the spinal column, such as a curvature, will interfere indirectly with the artery and nerve, also a vein that passes out to convey away the impure blood. Each spinal segment must be nourished properly or else the nerves suffer.

the disease germs disseminated over the body, to more fully stimulate the manufacture of antitoxin by the stronger tissues. Every muscle, as far as possible, should be exercised passively while child is in the bath, so that the nerve cells of each muscle will have the reflex stimulation of muscle activity. The bath and treatment should last ten minutes or more and be repeated about every two hours, or even oftener, as the case requires.

Careful stretching of the spinal column should be attended to to force and free the circulation through the affected part. If the circulation is kept as free as needed through the cord, the accumulation of white blood cells, that by pressure often occlude the blood vessels, will not be

likely to take place. This one thing is most essential. Light manual vibration correctly used over the affected area between the times for the baths and treatment will also help to this end and relieve the patient very decidedly.

This scheme of treatment should continue during the whole twenty-four hours of each day during acute stage. It is during the quiet hours of night, while the patient is more quiet than usual, that damage is most liable to be done. Do not let the child lie on his back; turn him over as often as he desires. The limb or limbs paralyzed, or threatened, should be frequently moved for the sake of the reflex effect on the nerve centers.

After the acute stage is over treatment should be continued until the body is in the best possible shape. Where the muscles are atrophied a few weeks after treatment, it is good evidence that the nerve cells governing those muscles are either dead or very weak. Other nerve cells may act on those muscles but the dead cells cannot be regenerated by any means at our command. The weakened muscles can be strengthened by special exercises designed for each case. Surgery is sometimes indicated.

Susceptibility seems greatest during the second and third years of life. The youngest patient I have known was eleven months, and the oldest nearly seventy years. In experiments on monkeys, practically every monkey was susceptible by inoculation, but I have seen no report of any monkey taking the infection in a natural manner. It was proved that immunity as a rule resulted from once having had the disease.

M. D. Commends Osteopathic Treatment

It is a great satisfaction to the Osteopathic Magazine to be able to present to its readers a report by F. Fisher, B. A., M. D., of Curling, Newfoundland, on his experience last year with three cases of poliomyelitis (infantile paralysis) in which he gives frank credit to the treatment of an osteopathic physician. Statements of this character from medical practitioners are so rare that they have a really unique interest.

Referring to the cases of Frank Meaney, 7 years old; Gordon Meaney, 5 years old, and their sister, May, 11 months old, Dr. Fisher says, in a statement that was read at the annual convention of the American Osteopathic Association in Boston the first week in July:

"At first I thought I had a case of cerebro-spinal meningitis. When paralysis developed and muscles began to show wasting, together with absence of deep reflexes and acute onset, the malady impressed itself upon me as cases of anterior poliomyelitis.

"Two days before the death of the second child I was fortunate in securing the services of Dr. Philip Holliday, an osteopathic physician of Montreal—fortunate as regards diagnosis and more so respecting treatment. Realizing the great and lasting benefit given some patients of mine I had him treat two months previous, I gladly gave Dr. Holliday a free hand in the treatment of these cases of infantile paralysis. I was interested to see how he could, by his manipulative method, relieve congestion of the brain and spinal cord.

"That he did so relieve pressure was proved by the fact that while the child was in a state of convulsions he would administer his treatment but a very short time when the convulsions would cease, and the little boy would be able actually to recognize his own parents. This occurred not only once, but if I remember rightly some half dozen times. It seemed to me that, had Dr. Holliday been two days earlier, he could have saved this child's life also. His treatment in the cases of the oldest boy and the baby was most effective. In the case of the brother it restored his right leg to normal condition, and I believe arrested the disease in the left. The little sister shows no ill effects whatever of the paralysis of the arm, and the boy, apart from a slight limp, which is weekly improving, is able to move freely about and play again with his companions."

Club Foot Follows Infantile Paralysis

GEO. M. LAUGHLIN, D. O., Orthopedic Surgeon

This is a case of acquired club foot due to infantile paralysis. The patient is 22 years of age. She gives the following history:

When two years old, she had an attack of infantile paralysis, and she recovered from the attack, except she has paralysis in the left leg and foot. In the beginning there was paralysis of both legs and involvement of one or both arms, although eventually recovery was complete except in the left leg.

This case presents some very interesting features because there is a deformity here which would persist unless certain things are done. This case will respond to Orthopedic treatment. She says that an operation was performed about six years ago, which operation is what we would ordinarily do for dividing the plantar fascia or the tendo Achilles. She wears a brace to hold the foot normal, or as nearly normal as it will go. Here is the brace this patient wears. It is cumbersome. You see it is heavy; she is troubled in putting it on and taking it off. She walks poorly with this brace because the tendo Achilles is too short. She walks on her toe in advancing.

I will not discuss in this case the treatment for infantile paralysis, that is its cause, symptoms, and treatment for the acute stage. Here is a case that has long since passed the acute stage and is characterized by paralysis of certain muscles which has resulted in a definite deformity and can only be corrected by certain definite methods of treatment. In order to determine what might be done, we have to take into consideration the muscles of the thigh, back and buttocks and see to what extent the muscles are paralyzed. If the muscles of the legs, thighs and buttocks are completely paralyzed nothing can be done. If only certain groups of muscles are paralyzed, and other muscles remain in nearly normal strength, we can do certain things which will eliminate the necessity of wearing apparatus and which will at the same time permanently correct the deformity.

In looking over this case, I find no paralysis of the spinal muscles. Both gluteal muscles are about the same. There is strength in the gluteal muscles on the left side. If the gluteal muscles are paralyzed, they would be very poor. The body would protrude when weight is put upon the muscle. You can see that as I step on my right leg and the left is off of the floor, I stand erect. If the left muscle was paralyzed, the body would protrude.

Now I will next test the flexors and extensors of the thigh. In order to do that, I will have her sit up. Now I will have the patient extend her leg. See, she can extend the leg. Now with the leg extended, I will see if I can push it down. See, I can hardly push it down. We know she has got strength in the quadriceps extensor. When it is paralyzed, the patient will walk putting the foot down carefully, and unless there is the proper balance, the patient will go down because the quadriceps extensor is not strong enough to maintain the leg in proper position.

Now I shall test the hamstrings. I will have the patient draw her leg back and see if I can straighten it. See, the hamstrings are normal. So the flexors and extensors are normal.

Next, we come to the foot and the leg. Now you can see she has talipes equina varus. Talipes is due to contraction of the tendo Achilles. You will notice the foot turns in. That is due to some contraction of the tibialis anticus, which remains good, and to paralysis of the peroneal muscles. The tibialis anticus is not sufficiently opposed to keep the foot in normal position. It is not only a flexor muscle but turns in (inverts) the foot as well. She can flex the foot normally. She can not flex the foot out (evert) as the peroneal muscles are paralyzed. She has a good gastrocnemius, fairly good tibialis anticus, but the peroneal is paralyzed.

There are two operations for this. First, I will mention one. There is one operation which will give this patient a good foot. You know treatment won't do it, for she has had the condition too long. Where some of the muscles are paralyzed and some are healthy, we figure out a plan whereby we can transpose a healthy muscle. Where the tendon transplantation is indicated, you have to have some good muscles. We can transpose the tibialis anticus from the inside to a little past the middle of the foot. The tendon is inserted into the bone by dividing the periosteum and making a groove in the bone so the tendon will lay in there. Of course, I will flex the foot around a little over-corrected before planting the tendon. I will then apply a cast and a suitable support. If the support is not worn long enough, it may come loose. Slitting the tendo Achilles, we can flex the foot up and there is no danger of secondary contraction. If it is divided across, it will go together again and contract. Make an incision down the tendo Achilles and splice it, and we don't get a secondary contraction. Having transposed the tibialis anticus from the inside to the outside of the foot, she should be able to flex and extend the foot, and should be able to go about without a brace. Suppose she did not have a good tibialis anticus or had very little power of contraction but had a good flexor of the great toe. I could take that just the same. Taking off the tendon of the great toe, pulling it up and passing it down outside the foot it would be good. What else could I do? I could fix the ankle. I would go into the joint here and ankylose it by taking off the cartilage of the astragalus and tibia and getting fusion of the bones.

Notes on Infantile Paralysis Cases

EVELYN R. BUSH, D. O., Louisville, Ky.

"Many cases of paralysis have been restored to comparative efficiency by Osteopathy, after all other methods failed," said Dr. Bush.

"I will not enter needlessly into anatomical or pathological findings, but at once take you into the realms of re-education of muscles, where long and unusual experience has furnished me with interesting and wonderful data.

"The technique to be pursued in the re-education of muscles in paralysis is a subject upon which practically no literature has been written.

"We have not enough osteopathic physicians to meet the demands for osteopathic work, hence they have so little time for writing, while the physicians of other schools have so little constructive treatment, as yet, to give to the world on the subject.

"A detailed account cannot be given at this time, of our various methods of ascertaining the loss or impairment of power of individual muscles or groups of muscles. A knowledge of the origin and insertion, nerve supply and normal action of a muscle or group of muscles, gives the ability to work out according to the type of individual under treatment, the series of tests or experiments necessary to gain the desired information.

"While we are cautious to be accurate in our physical findings, we recognize the unlimited importance of our mental findings. One of our important duties is to secure the best mental atmosphere, for without it our work will be far less rapid.

"There is more or less fear present in the mind of every paralytic case. This must be eradicated at the earliest possible moment. The physiological effect of fear in these cases receives all too little attention within our ranks.

"It is of paramount importance to see what is the stage of development of the will of the individual. What the steam is to the engine, so the will is to the paralytic—an absolute necessity."

"The physiological power of 'interest' is as yet an unknown subject in connection with these cases. It has been said, 'If a man expended the same amount of muscular exertion sawing wood, which he does climbing rocks and wading streams after trout, he would faint dead away.' But interest is the soul of will. Therefore, see that you have the patient's interest. There is nothing more deplorable than the pathetic look in the faces of most of the paralyzed patients and their relatives. Why? Not the disease itself, for you know running down the category of diseases there are many, many diseases worse than paralysis. Why? I answer—because of the discouraging words humanity was accustomed to use relative to paralysis before Dr. Still gave Osteopathy to the world—Helpless, hopeless, incurable cripple! Words! enduring words! How they sink into the mind and what havoc is wrought by them!

CHAPTER 9

Osteopathic Treatment Versus Medical Treatment of Infantile Paralysis

E. Florence Gair, D. O., Brooklyn, N. Y.

Since I have explained my objection to the use of the case and the brace (they both retard and hinder nature in her effort to re-establish normal physiological functioning to the affected parts by impeding the circulation), in like manner I will try to explain why I object to the medical regime in handling this disease.

Infantile paralysis is not like an acute tubercular infection to a bony part that at once requires rest and immobility to the affected area; instead, this is a disease that urges the quickest ridding in the system of the toxemia being formed and this at the earliest moment.

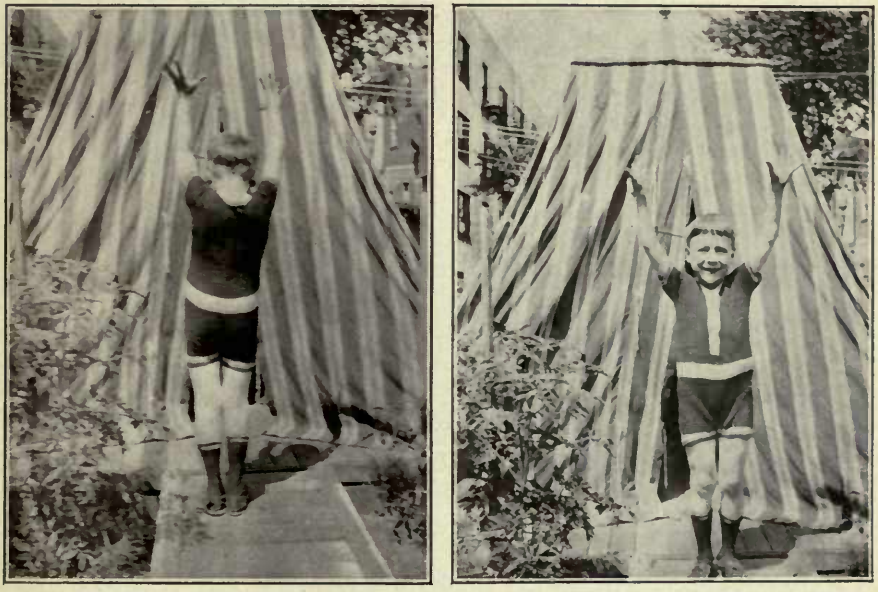
In all acute diseases we osteopathic physicians work with the idea of helping nature to regain her own balance to do the work; we therefore free up the circulation wherever impeded, and likewise the nervous system, thus permitting the cells to regain their normal tone throughout. We help the system to eliminate the toxins being formed by improving the action of the skin, the kidneys and the bowels. I believe had every case been given the following treatment many a life might have been saved and many a limb regained its functioning. As the disease generally starts with a mucous infection in the head I employ a gargle of hot water and vinegar—a tablespoonful to a half-glass—this cuts the phlegm and cleanses the membrane, then I have the nostrils rinsed with a mild antiseptic—very mild though—followed by an oil spray or melted white vaseline. This spraying and gargling can be done every few hours. The infection passes down the mucous membrane to the bowels, therefore a thorough cleansing with water—no medicine yet ever cleansed the colon—it merely makes a centre clearing, leaving the accumulation around the colon wall. This water bath to the colon greatly helps in diluting the toxemia. I use a cup of steeped strained flaxseed for bad cases, or oils;

milk of magnesia is excellent, or bi-carbonate of soda, or anything of that nature that will not injure the mucous membrane. I always use the Cole's Metal Sigmoid irrigator—it is so easily inserted and stays when it is put at the mouth of the descending colon. I can then use as much water as I feel I need with no expelling or displacement of the tube on the evacuation of the fluid contents. The rubber tube must be reinserted at every expulsion of water and must cause an irritation in the end of the mucous membrane if continually reinserted. The wash out is never so quickly done or so thorough. I follow up the irrigation with a hot bath—from which, undried, I wrap the child in a blanket and put him to bed with hot water bottles to get well bathed in perspiration. If the fever does not abate—compresses around the abdomen are used. Later a good massage with hot oils and a little alcohol. This frictional rubbing helps to rid the muscle toxins, and so helps the nervous tone. Nothing is given to eat, but all the water, hot or cold, the child will drink with a fruit juice added, preferably lemon without sugar, the first day. This helps to keep up the dilution of the toxins by eliminating through the kidneys. Every mother that attends my clinics is taught this procedure in handling a fever. It gives them confidence and keeps them from that panicky feeling as soon as a child looks ailing.

In the recent epidemic of "Flu" I did not lose a single case. I simply instructed each parent what to do, and when able the patient came to me for treatment. No complications set in, and no after results. What is it but just common sense, and had this method been instituted in the army many a boy might have been saved. Many a disease can be readily checked at the outset by this rational method of handling, as most children's diseases either start with a cold in the head or an upset intestinal tract. It is the common-sense method. The medical treatment for infantile paralysis was rest and a cathartic—a rest of a six weeks' period and then electric treatment or massage. In the meantime the toxemia has overwhelmed the cells in the spinal column. The only sane feature of their treatment was that of massage. Those children who had that, were best off for it helped nature most—but even in those cases, WHEN DEFINITE BONY LESIONS PERSISTED that limb was cut off from its normal

blood and nerve supply and could not regain its tone, and that is why such astounding results take place under osteopathic care. The lesions are reduced permitting normal stimuli of nerves and blood flow through the limb.

Lately I had a twelve-year old boy brought me from a medical hospital where he had been treated since 1916. They had kept him on a Bradford frame for a WEAK BACK. The condition was pitiful. He was stiff as a board all over and very painful to the touch, a bad lumbar curve had form-



FIGS. 83-84. A complete right side paralysis with loss of speech cured in four treatments. Boy today is in perfect condition. (See Chapter 7, p. 71.)

ed, and a resulting compensating one above, the limbs in contraction, skin so harsh and badly nourished. In a few weeks I revolutionized him. He comes in smiling, the family are so happy for they begin to see hope for recovery. The special curves are gradually disappearing. The contractures are giving way, the skin is improving, and the boy is happy. An uncle brings him Sunday and a young boy for the Wednesday treatment. What the resultant effects would have been had the Bradford frame been em-

ployed much longer is easy to conjecture. Yet these poor people paid $3.00 per week for two years for WHAT?

Another case similar—a twelve year old boy had been left in a hospital. Last June the parents brought him to me. They took him home for they saw him getting worse instead of better. The mother had a good supply of common sense and began massage and muscle exercise. I gave three treatments before I left for the summer and this September on my return I was indeed happy with the change. The father picked up a Ford car for $50.00, which he repaired, and the boy has had good airing since. He is certainly progressing each month, and yet these cases seem so pathetically hopeless when you first see them.

This fall I had the good fortune to get a baby stricken this September. The case was never diagnosed Infantile Paralysis, but the mother kept noticing how unstable the child was when walking, how it would drop suddenly after a few steps; I told her that without a doubt it was a case of poliomyelitis. The limbs toned up into firm hard flesh and the baby walked nicely after three treatments.

One of my girls who came to me two years ago with weak ankles—she couldn't then walk two blocks without fatigue—hiked seven miles this summer. Her case is one from infancy. I always feel proud of results from these long standing cases, and I am still wondering how that muscle tone and strength of limb is obtained after all these years. How do we do it? Do we establish new pathways for a nerve cell that dies? Is it resuscitated? Or do we get other nerves to take up the functioning of the dead nerve? These cases get better and better each year. Nature abhors a vacuum. It is the mutual effort I believe. It is the energy and mental stimulus of those treating the disease imparted to the child's. The more mental effort and energy the child uses the better the child gets. Each year I treat this disease I feel more and more the wonderful something we each possess that is at our call if we only understand. The Lord helps those who help themselves.

Nature has within her resources unlimited processes, but one must go along with her and not against her. She needs our assistance both mental and physical.

I notice in my work that the mothers who never say die, who won't give up a case, accomplish wonders in this disease. It is truly remarkable what some of these mothers accomplish. I have one mother in mind. She took a helpless boy of three from the hospital in a pitiful condition—the last doctor gave her no hope—told her the case was hopeless. She never knew how she pushed the baby home she was so dazed. When she came to herself she determined she would not give her boy up. She started in massage and muscle exercises, she made up all sorts of exercises. It was remarkable the change in six months, and since bringing him to me the reconstructive progress has been steadily going onward.

I never forget to instil into these patients, never to give up, to keep on and on, till each year brings the child nearer perfection.

November, 1918.

FIG. 85. Author's case of infantile paralysis now completely restored. For three years I have been raising rabbits to give my clinic cases, and with good results. I find that the rabbits absorb their interest and in their effort to catch them, they forget their affliction and exert every ounce of energy possible to capture them. This exercises the muscles.

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