Original Articles.

ANTERIOR POLIOMYELITIS IN THE ADULT,
WITH ILLUSTRATIVE CASES.

BY G. L. WALTON, M.D., BOSTON.

This disease deserves more notice on the part of the general medical profession. In the first place, it is of not infrequent occurrence. I have notes of ten typical cases seen in consultation during the past four years. In the second place, its early recognition is important as bearing both on prognosis and treatment, or rather care, for too energetic treatment in the early stages is in danger of retarding rather than favoring the ultimate progress.

The clinical history of these cases conforms much more accurately to the textbook type than do cases of certain other disorders with which the general practitioner is more familiar.

Symptoms of poliomyelitis in the adult are overlooked, not because they vary materially from the same disease in infancy (infantile paralysis) but because this diagnosis does not enter the mind of the practitioner in case the patient is an adult, whereas it is ever present when the patient is a child.

In the adult appears the same stage of fever, during which signs of irritation appear, and during which the destruction of anterior spinal gray matter produces relaxed paralysis of various muscle groups, without loss of sensation or sphincter control (temporary loss of sphincter control did occur, however, in the first case reported); there are the same favorable prognosis as regards health and the same gradual disappearance of paralysis with more or less permanent residuum.

The essential features point, in the adult as in the infant, to an infectious process, of more or less diffuse onset, but having for its chief point of attack the anterior gray matter of the cord, to which region the ultimate injury is limited.

It is not improbable that the original infection involves, to some extent, the meninges, and even the nerve sheaths, as shown by rigidity and sometimes retraction of the neck, pain in the back, neck and extremities, and general tenderness. These symptoms attract little attention in the child, and may even be accompanied by convulsions, without diverting attention from the important feature, namely, absolute flaccid motor paralysis of rapid onset unaccompanied by anesthesia. It is this combination which points distinctly to disease of the gray matter of the cord rather than to the meninges or the peripheral nerves.

In the adult the initial symptoms are apt so to color the picture that the essential nature of the injury is overlooked, and the final paralysis is erroneously attributed to the remains of meningitis or neuritis. The following notes are those of two recent cases in which the initial symptoms indicated that the meninges shared in the original infection.

CASE I. C. D., male, sixteen, patient of Dr. Beaton, of Franklin Falls, N. H. Previously well and strong. On first day walked two and one-half miles; felt as if had "taken cold"; could not walk home. On second day, feverish; on third day, consulted physician; temperature 104° F., *pain in back of neck with marked retraction of head*; headache; heavy feeling in limbs without numbness; on fourth day, pains in arms; temperature 105° F.; on the fifth day and for two days after required catheterization; on sixth day temperature 102° F.; relaxed paralysis of both legs and right arm; patient feels well, and stiffness of neck has practically disappeared; on seventh day, temperature 100° F., no further extension of paralysis; on tenth day, temperature was normal and patient began sitting up, after which pain and tenderness reappeared in the legs and forced his return to bed, since which they have lessened. Within a month after the onset the arm had nearly recovered its power, but both lower limbs were practically helpless with loss of all reflexes.

It is too soon to announce the final result of this case, but indications point to incomplete recovery as regards the paralysis. In this case the attending physician blamed premature effort for the return of pain and tenderness, an opinion with which I am inclined to coincide. There was certainly no fever or other indication of recurring infection, an extremely rare complication in any event.

CASE II. G. G., male, twenty, patient of Dr. May, of Newton. Previously well and strong. On first day was in bed complaining of headache and *sensitivity to light*; temperature 102° F.; the third day was up but easily tired; on fourth and fifth days, patient kept quiet without definite symptoms; on sixth day, chills and malaise, vomiting, temperature 102.5° F., *general hyperesthesia*, blood count 14,000 whites. On seventh day, temperature 101.4° F., listless, sleepless, *severe pain in head and back, inability to bear light* and sudden onset of complete relaxed paralysis of left shoulder group without anesthesia; *marked rigidity of neck and of back*; on eighth day, while the temperature was still elevated, the paralysis spread to the other arm and to both legs; on ninth day, stiffness and pain had practically disappeared and temperature was normal, general condition was good, but paralysis was complete.

The forecast for the future is the same in this as in the preceding case.

In four other of the ten cases stiffness and pain in the neck were prominent symptoms at the onset, namely, cases 4, 5, 8 and 10.

The distribution of the paralysis in these cases renders it probable that the meningeal infection was coincident with, rather than in extension of, the cord lesion which caused the final paralysis. In Case II, for example, the stiffness, pain and retraction were marked in the neck, whereas the final paralysis involved the lower limbs almost exclusively.

Although it seems that poliomyelitis in the adult conforms in many ways to the ordinary poliomyelitis of infancy, its clinical features may diverge sufficiently to render the diagnosis far less easy, especially if the practitioner is not on the lookout for it. The apparent difference is, perhaps, largely due to the ability of the adult more

accurately to describe his symptoms, partly also to the more leisurely onset of the disorder.

All the cases coming under my observation have occurred in young robust adults, generally from seventeen to twenty, eight of them males.

The affection has been ushered in by severe headache and neckache, perhaps backache, general malaise, with or without chills, sometimes with general pain and tenderness, sometimes with marked rigidity of the neck and retraction. The symptoms of an ordinary "cold" have been common at the onset of, or perhaps preceding, the infection of the nervous system, doubtless indicating the initial action of the micro-organism. The fever has run a fairly moderate course; it has sometimes, but not generally, reached 104° F., and has lasted rather longer than is common in children, for example, seven days. The paralysis is longer deferred than in children, but when it appears it may do so with great rapidity, perhaps in the course of a few hours, but it is generally longer appearing than in infants. In the following cases the paralysis appeared on respectively the ninth and sixth days.

CASE III. C. H., male, seventeen. Patient of Dr. Hunt, of Newtonville.

Athletic boy. First day, legs felt tired and painful. The next day, was walking about. The third day, nausea, malaise and headache. The fourth day, there was fever, temperature 101.6° F.; was in bed. Had pain in back, head and legs. The fifth day temperature 100.4° F.; pain continued. The sixth day the temperature was 102° F.; ached all over, including arms. The seventh day the temperature was 100° F.; legs ached. The eighth day the temperature was 99.8° F. in the morning, 100.7° F. in the afternoon; vomited; pain lessened. The ninth day the temperature was 99° F. This day appeared definite loss of power, and patient had to be helped to chair. The tenth day he handled the legs better and felt better. On the eleventh day the temperature was normal; there was no numbness or sphincter disturbance. Moderate tenderness in both arms and in left leg; cannot raise left knee in bed nor roll left leg. All affected muscles react to faradism. Knee jerks active right, absent left. No anesthesia.

Three months later was up and about, swinging the left leg slightly but able to walk without a cane. Can go up stairs one step at a time. (No extension of paralysis after temperature normal. Case of practical recovery.)

Went on crutches about eight months, then with cane. About eight months later left off cane and from that time has had practical use of leg except a little difficulty in ascending hills and running.

CASE IV. D. D., female, seventeen. Seen recently in consultation with Dr. Adams, of Pittsfield, and Dr. Powers, of Boston.

Well and strong. First day, chilly and severe headache. Second and third days, dull ache in arms, legs, and especially neck and left shoulder. Fourth day the pain continued. Temperature, 99° F. to 100.2° F. Sixth day, knees gave out, especially the right; temperature was normal. No loss of sensation; no sphincter disturbance. Loss of power to raise right foot at ankle, and to less degree same loss on left. Loss of power in left shoulder and upper arm group, especially deltoid and biceps. Weakness in extension of left wrist. Movements of hands and toes normal. Marked stiffness of neck and inability to bend head forward,

actively or passively. No further extension of paralysis. Two weeks later all muscles contract voluntarily and to faradism except tibialis anticus on the right.

The paralysis may rapidly spread in the course of a day or two, but in only one (Case 5) of the 10 cases reported was there further extension of paralysis after the fever had disappeared. This may be of importance in prognosis, but further data are desirable. At present I am inclined to prophesy that there will be no further extension of paralysis after the temperature has dropped to normal, whereas in case it has not done so the family should be warned of the possibility of extension.

In Case II the left shoulder group alone had become paralyzed on the seventh day; the temperature was still somewhat elevated. The next day all four extremities were completely helpless. In Case IV, on the other hand, which I saw on the seventh day after the temperature had become normal, the paralysis had come to a standstill and was practically limited to the left shoulder group, the flexor group of the right leg, and to a less degree of the left leg. The prediction of no further extension was verified by the further history.

It is justifiable to give a good prognosis as regards life, even though there may be at the onset more or less meningeal accompaniment, and though the paralysis may not have reached its maximum. With regard to disappearance of paralysis, the prospect seems to me better than in children. A proportion of four practical recoveries in ten cases is surely unprecedented in the history of infantile paralysis.

A brief history follows of the cases in which, as in Case III, practical recovery followed.

CASE V. P. O. D., male, twenty-seven years. Patient of Dr. Mead, of Winchester.

Robust. In the evening of first day noticed weakness of fingers in undressing; the next day difficulty in walking, and toe-drop. Third day the legs were more helpless but he could still stand. Fourth day was worse, but went to his office, having to be helped to the train. Fifth day could not rise from chair but could walk across room. Sixth day could not even sit up in bed; dull ache in back of neck, no numbness or trouble with sphincters. There had been no elevation of temperature since the third day (that is, there was in this case extension of paralysis after temperature became normal).

Physical examination shows paralysis, purely motor, especially affecting extensors of both lower extremities. Gradual improvement set in about a month after onset, and three months later he could skate, dance and ride without trouble. Detailed examination showed all movements perfect except a slight difficulty in using the arms, as in putting on the coat.

CASE VI. R. D., male, nineteen. Patient of Dr. Beaton, of Franklin Falls, N. H.

First day, fever 102° F. Second day, pain in back. Third day, paresis of superior oculi recti; pupils large and immobile to light; pain in left shoulder and in back. Fourth day, was unable to walk a crack and left toe dragged; knee jerk was absent. Fifth day, the paralysis increased, temperature became normal on this day. Six weeks later, practical recovery, but slight weakness in arms on use, as after a long drive.

CASE VII. Male, fifteen. R. C. T. Patient of Dr. Jackson, of Milford.

Previously well, though not strong. At onset fever during seven days (highest temperature 103° F.). In bed four weeks. No pain in head or back; no soreness,

but pain in both legs. No sphincter trouble, no numbness. Before fever subsided found could not move leg. Improved gradually. When I saw him (six months later) left calf nearly one and one-half inches smaller than right, left thigh two and one-fourth inches smaller than right. Coldness of left foot. Complete and extensive relaxed paralysis. The leg is now (three years later) used practically as well as ever.

In the following case the boy now (three years later) gets about as well as ever, but still has weakness in the leg.

CASE VIII. P. A., male, seventeen. Patient of Dr. Stevens, of Belmont.

Previously well and strong. At onset thought had taken cold; sore throat, temperature of 103° F. One week later similar attack accompanied by backache and temperature of 103° F. Pain also in back of neck, and stiff neck. In bed ten days during which lost power in left leg, with toe-drop; knee jerk absent left, lessened right. Improvement gradual. Six weeks later could not stand on toes. Three months after could stand on toes but not on heels. Six weeks later could not bend his back to lace his shoes, but after another six weeks could do so. Three months after onset left calf measured three-fourths inch less than right; left thigh just above knee one inch less than right. Three months later complete paralysis of tibialis anticus and peroneus longus persisted on the left, with degeneration reaction.

In the two remaining cases improvement has come to a standstill for so long a time as practically to preclude recovery.

CASE IX. M. A., male, twelve. Patient of Dr. Bowker, of Brookline.

Active and strong. Had a "cold" and did not feel well during few days prior to day of actual onset. First day, headache and was delirious after rough usage at football. Second day, temperature 102.5° F., headache, soreness in chest and back. Third day, still in bed. Fourth day, up. Fifth day, temperature normal; this day appeared loss of power in right leg. No loss of sensation, but marked loss of power of thigh muscles right, less left; knee jerks absent both; some loss of power in right leg also. Improvement appeared two days later, but paralysis of leg has persisted four years, and mechanical support is necessary.

CASE X. M. C., female, thirteen. Patient of Dr. Averill, of Campello.

Robust. Played football up to day of onset. That night had pain between shoulders. The next day rode bicycle. Coming home found difficulty in getting on and off and in pushing. (Has had coryza two days.) The second day knees gave out, then arms. The third day could only crawl on knees; marked tendency to retraction of head; temperature, 104° F. Temperature normal from the seventh day. The ninth day still unable to bend head forward. No extension after temperature became normal. The paralysis has remained stationary for three years. Patient is unable to walk.

I cannot forbear emphasizing the importance of rest in the treatment. The patient cannot be kept too long in bed, nor too long postpone bearing the weight upon the paralyzed limbs. It is of importance already, while the patient is in bed, to commence upon treatment directed toward the obviation of contractures. A light elastic

stretched from the foot to the knee¹ is useful in toe-drop, as well as a cradle to keep off the weight of the clothes. Energetic massage and electrical treatment should be postponed at least a month, after which they contribute greatly to favorable progress. Otherwise the management of the case is orthopedic.

Conclusions. — Acute or subacute poliomyelitis in young adults is not rare.

The real seat of the infection is apt to be obscured by temporary symptoms pointing to the meninges and nerve sheaths. The implication of the meninges is probably independent, not an extension from the substance of the cord.

The onset of paralysis is more retarded in adults than in infants, and the extension of paralysis from one group to the other is less immediate.

No extension of paralysis is to be expected after fever has subsided.

Prolonged rest of the affected muscles is desirable, as well as early orthopedic measures.

DIAGNOSIS OF GASTRIC CANCER.*

BY RICHARD F. CHASE, M.D., BOSTON.

CANCER of the stomach is a very common disease, more common than many realize. It causes about 2% of the total mortality. Of all cancers, nearly 50% involve the stomach. Statistics show that the disease is on the increase. In the writer's experience gastric cancer is encountered once in about every one hundred and fifty patients over fifteen years of age, as seen in a general medical clinic. If in such a clinic we should exclude the considerable number of patients under thirty years of age, we would then find the per cent of cancer patients vastly increased. Of a recent series of 100 consecutive cases of gastro-intestinal diseases taken from private records, it was found that 10 or 10% were cancer of the stomach.

The general physician who sees but one or two of these cases yearly rarely has the great seriousness of the subject brought home to him, as does the physician or surgeon who encounters fifty to one hundred or more cases each year. Yet it is upon the general physician that the welfare of these patients most depends, for it is he who first sees them and first directs their treatment.

Since there is no medical cure for the disease, and because surgery if taken advantage of early enough may bring about cures, an early diagnosis and resort to surgery is the accepted course to be taken.

But here the very important questions arise, By what means and how early may the diagnosis be made?

Medical means of diagnosis:

History. — The symptoms arising from gastric cancer are usually of short duration at the time the patient first seeks treatment; rarely have

¹An admirable appliance for distributing the pull of the elastic is the boot of Gowers, made of a single piece of sole leather, cut so as to make a hinge at the heel.

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