

NEURITIS.

CLINICAL LECTURE DELIVERED AT THE BUFFALO GENERAL HOSPITAL.

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CASE I.—The history of the first patient presented to you to-day is as follows: "Male, laborer, thirty-eight years old. Family history negative. Has always had good health until present trouble began. Last September, being out of work, he tramped over a considerable portion of the country, sleeping sometimes on the ground, occasionally under shelter. One night, after a hard day's tramping, he threw himself upon the ground in damp clothing. He awoke the next morning feeling cold and benumbed, and, as he expressed it, stiff in his legs and arms. He walked that day with difficulty. The stiffness and loss of power increased gradually until, at the end of a few days, he found himself unable to stand." He was brought to the hospital a month ago, when he was examined and the following condition found. There was loss of power in the anterior group of muscles of the leg, loss of patellar reflexes, diminution of sensibility. The muscles of the calf and thigh were normal. Examination of the upper extremities showed paralysis of the forearm muscles, both anterior and posterior, with a tendency to contracture of the flexors. Sensation was diminished. A diagnosis was made of multiple neuritis, due to cold and exposure. At no time does he remember having had fever. There was atrophy of the muscles of the legs, feet, and hands, but not of the forearm.

The differential diagnosis should be made in this case between multiple neuritis and progressive muscular atrophy. In the latter we expect to find a slow progression, the atrophy usually beginning in the hands, the loss of power coming on subsequent to the atrophy. The history of this case, as we get it imperfectly from the patient, is that he lost power first, and that the muscles did not waste until some time afterwards. In progressive muscular atrophy the reflexes are not lost until very late in the disease, whereas in neuritis they are lost in the early stages. Some of you may suppose that this is a case of rheumatism, especially as neuritis due to exposure is often spoken of as rheu-

matic neuritis. The differential diagnosis here is easy, in that there has been no swelling or pain of the joints, no real stiffness or soreness of the muscles themselves, and the tenderness, which is slight, is along the affected nerve-trunks.

An examination of the nails of the hand should always be made in such cases. In this patient you will observe that instead of being flexible the nails are brittle and reedy, which is an evidence that their nutrition is interfered with and that trophic changes have taken place. We next examine the skin. In place of the rough, reddish, hairy hand of a working-man, you will notice that the skin has a peculiar, smooth, glossy appearance, especially along the fingers. This is technically known as Glossy Skin, and is quite characteristic of the trophic changes which occur in this tissue in the later stages of neuritis.

An electrical examination shows loss of faradic irritability to the strong current in both arms and legs. The galvanic current shows contraction to the anodal closure to be stronger than to the cathodal closure. This is known as the Degeneration Reaction, since normally the response of the muscle to the cathodal closure should be the stronger. The degeneration reaction suggests that the nerve-fibres are degenerated, but, as the cathodal contracture is present, we are enabled to say that the degeneration is not complete.

CASE II.—The second patient is a female, aged twenty-seven, who was brought into the hospital two weeks ago with the following history. On Monday morning she commenced a hard day's washing, having her hands alternately in hot and in cold water, and using her hands at times with forcible contraction in wringing out clothes. The next morning she was unable to raise the left arm. There was considerable pain about the shoulder-joint, the pain radiating down the arm. Examination at the hospital three days later demonstrated complete loss of power of all the muscles of the arm and forearm, great tenderness along the trunks of all the nerves coming from the brachial plexus, and consequently the diagnosis was made of polyneuritis.

This case is a peculiar one, and it illustrates the fact that the same cause does not operate equally upon similarly exposed parts of the body, for we learn that the patient used both arms equally, working as hard with the right as with the left, that the patient had not had a previous injury of the left arm, and that it was apparently accidental that one arm was affected instead of both. In this patient, although the disease is only of short duration, we notice that the nails of the left hand are more brittle than those of the right. The skin-changes are not so marked.

The treatment of these cases has differed, because we received the one in the acute stage, the other in the chronic. The indications for the male patient point clearly to an attempt to restore the lost muscular power and to cause the resorption of the products of inflammation. This is best accomplished by systematic massage of the affected extremities by the interrupted galvanic current in order to cause muscular contractions. The joints should be moved daily, in order to prevent false ankylosis. The necessity for this is at once apparent to you when you observe the difficulty which I have in extending and flexing the wrist. This should have been done long ago, but owing to lack of medical attendance it was neglected, and we have, as a result, limited loss of function in that joint as well as in the fingers. Motion of the joints is too often neglected, the physician directing his attention to the affected muscles and nerves, forgetting that the stiffening process is continually going on.

As an illustration of how carelessly such cases are treated, I will relate the history of a case of syphilitic hemiplegia with gradual recovery of the muscles and partial ankylosis of the shoulder-joint. A brakeman recently came to my office with power in all the muscles of the arm, but unable to move the arm away from his side. It had been supposed by his physician that this limitation of motion was due to paralysis of the deltoid and other muscles moving the shoulder. The mistake was easily demonstrated by an attempt at passive motion. It took weeks of persistent effort, which consisted of massage and manipulation, to restore this cured arm to usefulness.

The internal treatment should consist in the administration of potassium iodide and iron. We will substitute the faradic current for the galvanic as soon as we discover the return of faradic irritability, which we will look for once a week.

The treatment of the second case should be directed on entirely different principles, because the conditions are very different. Here we have acutely inflamed tissues, and, following the law laid down by Hilton, we will prescribe rest. The arm should be placed in the position which the girl finds gives the greatest relief; it should be wrapped in hot wet bandages. We will give her, internally, sufficient morphine to quiet the pain. She will be placed on light diet and the following prescription:

R Sodii bicarb., 25;
Potassii nitratis, 25;
Potassii et sodii tart., 50.

Sig.—One teaspoonful dissolved in water, three times daily.

We will also give her a wineglassful of Hunyadi water before breakfast if there is still any tendency to constipation. This treatment will be continued till the acute symptoms subside; then we will give her the mild galvanic current, not exceeding three milliampères, along the course of the affected nerves. We will choose for our negative electrode the large six- by four-inch copper plate covered with spongio-pyline. The positive electrode will be of the size of a half-dollar, covered with the same material, and will be applied over the affected nerves. As the symptoms of pain disappear we will increase the strength of the current. We will commence using massage with very gentle friction within a week, gradually increasing its force as the acute symptoms subside. The subsequent treatment will be the continuance of massage and manipulation of the joints.

The prognosis in the first case is unfavorable, as far as complete recovery is concerned, owing to the duration of the disease, although we may hope for partial restoration of some of the muscles. In the second patient we look for complete recovery, as the case is taken in time, and our experience has taught us that the majority of properly-treated cases of acute neuritis are restored to health.

Now, a word with regard to the pathology of neuritis. As its name indicates, it is an inflammation of a nerve-trunk. The causes of this disease are, first, traumatic, which may include the direct wounding of a nerve by a sharp instrument, and pressure upon a nerve, as from a crutch or a blow, or even the compression of a nerve-trunk by a strong muscular contraction. Nerves affected by this cause may be those of the brachial plexus, the musculo-spiral especially, and the great sciatic. I have one interesting case of neuritis of the nerves in the palm of the hand, which was caused by firmly grasping a small rope in attempting to raise a weight. A second cause of neuritis may be an inflammation of the nerve-trunk from adjacent inflammation, as from an ulcer or a bed-sore. Intercostal neuritis has been observed following pleurisy. As already illustrated by the first case shown you this morning, cold is another cause of neuritis. According to some authorities, gouty persons and those who suffer from muscular rheumatism are more apt to have neuritis from this cause than those who are affected with acute articular rheumatism. Neuritis occurs also from many general diseases, chief among which are syphilis and cancer. It also occurs after small-pox, typhoid fever, scarlet fever, measles, diphtheria, and in constitutional states such as that induced by alcoholism.

Neuritis due to traumatism, either direct or indirect, is apt to be limited to one extremity, and even to one nerve-trunk of that ex-

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tremity. Neuritis due to alcoholism and to constitutional diseases is apt to be multiple. As an illustration, diphtheritic paralysis usually affects many different and widely-separated nerve-trunks. Alcoholism produces neuritis of the nerves supplying the extensor muscles of the legs, and, less frequently, the extensors of the forearm.

The differential diagnosis between neuralgia and neuritis should also be made. The severe neuritis causes pain which is intense, and which is greatest at the seat of inflammation. This is so because the sheath of the nerve is greatly inflamed, and the nerves to the sheath, or the *nervi nervorum*, are first affected. In a very short time the other nerve-fibres become affected, and then we have pain in the entire area of distribution of the nerve. Neuritis of mixed nerves interferes with the afferent and efferent conducting functions, causing first persistent hyperæsthesia, then plaques of anæsthesia, the muscles at the same time becoming weak and soft, atrophying rapidly, and then showing a loss of electrical irritability. In slight cases the sheath is mainly involved, and the conduction is not interfered with. In this case the differentiation from neuralgia requires close observation of the character of the pain. In neuritis the pains are continuous, and if the nerve is superficial it can be felt to be swollen. In neuralgia we sometimes have remissions of pain and there is no fever, whereas in neuritis we usually have, at any rate local, elevation of temperature.

In the treatment of neuritis we should be governed by the principles of relieving pain and fever in the acute stage, and if we suspect syphilis we should use potassium iodide. If we suspect rheumatism, salicylate of sodium or salol should be used. In the chronic cases we should direct our attention to repairing nutrition. In old cases which have been neglected and in which we find contractures, it is rare that you will ever have to do more than I have indicated in the way of massage and manipulation of joints, though you may come across instances in which nothing short of tenotomy will rectify the errors of those who preceded you in the management of the cases.

PARALYSIS AGITANS.

CLINICAL LECTURE DELIVERED AT ST. LUKE'S HOSPITAL, CHICAGO.

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THIS is a case of not very well pronounced paralysis agitans, or the shaking palsy of old age. The patient is seventy-five years old. If you will watch the hand you will see every now and then that there is a paralytic trembling of the fingers. It began about ten years ago. He was then injured by a falling building. He was perfectly well up to that time, but the accident produced paralysis of the fingers and hands, and also fracture involving the ankle-joint. The patient is a printer. About six months ago the trembling began to increase, and kept increasing until he could not pursue his vocation any longer. It never gets so bad that he cannot hold his hand still for a short time if he wills to do so. It was quite marked to-day when I first came into the ward. He has used tobacco for the last sixty years; has taken no whiskey for the last seven years; has been in the habit of drinking a little beer after work; never was intoxicated from beer, except perhaps in his young days he says he might have been. The disease is now in its first stage; when it develops into a well-marked case the tremulousness will increase. It generally begins in one finger,—the index or forefinger,—and comes on, apparently, without any immediate cause. It is one of the indications and consequences of old age. It is frequently accompanied by well-marked cramps in the muscle affected; then there commences a tremulousness of some or all the fingers; then it will go on and affect the whole arm; then the muscles of the face, right or left side; then it almost always affects the leg before it crosses over; but at last, in old people, it comes to affect the muscles of the whole body.

One of its characteristics is its rhythmical action; so many muscular contractions in a given time. The implicated muscles contract and

relax with wearisome, indeed exhausting, regularity, and cases have been known where death occurred as a consequence of this unceasing rhythmical pulsation of the muscles. It is tiresome to watch a patient so afflicted; hour after hour, for days or even weeks, sometimes even during the hours of sleep, this regular jerking of the muscles goes on, exhausting the patient and wearying those who are compelled to be witnesses of his affliction. On account of its perfect regularity, or of its perfect rhythm, the peculiar muscular contraction of shaking palsy cannot be imitated. It shows most curiously in the writing of the patient, and I once saw and helped expose an attempt to counterfeit the signature of a magistrate afflicted with paralysis agitans. It was a case involving the validity of a marriage, and the magistrate who, it was claimed, performed the ceremony and signed the certificate, was dead. The "expert" question involved the genuineness of the magistrate's signature. It was a question very easily decided. The attempt to imitate the symmetrically tremulous handwriting of the dead magistrate was very easily seen when the genuine signature was compared with the counterfeit.

With reference to the pathology of this disease, I have only to say that there is no well-marked characteristic lesion. In different cases a variety of lesions have been observed, but they are uniform in only one particular,—namely, that they always partake of some form of degeneration. While the fatty degeneration is the most common, calcareous deposits around or upon the blood-vessels of the brain have been found, and pigmentary degeneration of the brain-substance has been noted, and in some cases all these changes occur. These changes, you will observe, are not characteristic of any one disease; they simply show that nutrition is gradually being undermined by advancing age or other causes. In other words, paralysis agitans is nothing more nor less than the symptom which indicates a gradual interference with the processes of nutrition.

As to the treatment of this disease, of course you do not need to be told that it is incurable; but I think our authors generally say too little about the treatment, because a great deal can be done to ameliorate a patient's condition. In the first place, a patient is generally anæmic, and this indicates some one of the chalybeate tonics, and they are generally more useful if combined with arsenic and quinine. The well-known elixir of iron, quinine, and arsenic answers a very good purpose.

Of course it should be continued for a long time in such doses as are well borne by the patient. Now and then you will find a patient

to whom arsenic seems to be a poison,—an active poison in the smallest doses. In such cases of course the arsenic must be omitted, but I always regard it as unfortunate, because arsenic is so generally useful in neurotic conditions.

Another matter which always needs attention is the obstinate constipation which is almost invariably present. It arises partly from inertia of the muscular layer of the bowels, and partly from the mental dulness which is conspicuously present. It is best remedied by some combination of strychnine and aloin.

The aloin, belladonna, and strychnine pill, now so much in use, answers the purpose very well. Frequently the patient is troubled with insomnia, and we should always make careful inquiries about this.

If the patient does not sleep, a dose of chloral or sulphonal, or some one of the recently-discovered hypnotics, should be given without hesitation. Do not, however, fall into the error of prescribing opium or any of its preparations. The diet should have careful attention. I think it is quite too commonly the fact that the aged are not properly fed. The idea prevails generally that a working-man's diet is suitable for an old person, with poor teeth or no teeth and feeble gastric digestion, and so it not infrequently happens that an aged person slowly starves in the midst of plenty.

Aged people, and especially those with paralysis agitans, require a nutritious diet which is easily masticated and easily assimilated. Let me urge you, therefore, in conclusion, to give some attention to the treatment of paralysis agitans. Do not pass it by as unworthy your attention because it is theoretically incurable. If the patient cannot be cured, his condition should be ameliorated as far as possible.