WILTROUT (I. D.)

MULTIPLE NEURITIS

BY

IRVING D. WILTROUT, M. D.

SUPERINTENDENT AND PHYSICIAN IN CHARGE OF THE OLIVER WENDELL HOLMES SANITARIUM FOR NERVOUS DISEASES,

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MULTIPLE NEURITIS.

BY IRVING D. WILTROUT.

Superintendent and Physician in charge of the Oliver Wendell Holmes Sanitarium for Nervous Diseases, Hudson, Wis.

This term applies to a disease in which many nerves are simultaneously inflamed. The terms, "disseminated neuritis," "polyneuritis," "progressive neuritis" are terms that have been used to designate this disease, which in most instances pursues a rapid course. Simple neuritis involving one of the larger nerves, or its branches, has been recognized by the earlier neurological writers. Multiple neuritis, in its various general forms and its many combinations of symptoms, was formerly thought to depend upon a lesion of the spine.

In 1864, Duménil, of Rouen, described multiple neuritis and showed conclusively that it was a disease not of the spinal cord, but of the nerves themselves. That the earlier student of neurological study failed to discover a proper seat of lesion in this disease in not surprising, when we take into consideration the fact that our methods of examination and discrimination are of so recent origin. Few had confidence in Duménil's observations; it required the conclusive experiments of Jaffory (1879), Leyden (1880), and Stuart (1881), to settle beyond dispute the fact, that the *nerves* were the diseased structures and not the *spinal cord*. There are various forms of this disease. The morbid changes may be interstitial or parenchymatous and degenerative or both. Five chief classes are recognized by Gowers, as follows: (1) Diphtheritic neuritis, (2) Tabetic neuritis, (3) Leprous neuritis, (4) Endemic neuritis, (5) Chronic neuritis, or that variety so common in this country with indefinite pathological character, running a moderately rapid

course and which will bear many further subdivisions. It may involve chiefly the connective tissue between the bundles of nerve fibres, and this variety would be called interstitial neuritis; or it may involve the sheath of the nerve itself. In severe cases, that run a more acute course, the inflammatory process necessarily involves the entire nerve, rapidly destroying it. In most cases the naked eye changes are very faint if at all discernible, but under the microscope the sheath will appear to be infiltrated with lymphoid cells and in many old cases many spindle cells and fibres increase its bulk. Dark spots are seen on sections of the degenerated nerve fibres and in some places two or more blend together, and the nerve becomes irregular—the white substance is broken up, and enlarges the fibres in some places, while at others, it has been removed and the sheath left empty. There is no uniformity of nerve destruction in a single case. The larger nerves apparently resist inflammatory action or inflammatory processes, more successfully than the smaller ones. In the majority of cases the nerves of the limbs suffer most. Corresponding nerves on the two sides are usually affected alike. The musculo-spinal nerve in the arm and the anterior-tibial nerve in the leg generally suffers first and in the greatest degree. The nerves of the trunk are rarely involved. The pneumogastric, phrenic, hypoglossal and laryngeal nerves are rarely involved. The spinal cord remains healthy in most instances. Chronic myelitis occasionally occurs, but this Gowers concludes is only incidental. This disease is found frequently in chronic alcoholism and in these cases lesions of the kidneys, heart and brain may be found on post-mortem, but they bear no relation to this disease. The manifestations of this disease are in most instances very striking in spite of the fact that they were, at one time, regarded as confusing. The earliest and dominant symptoms are those of motor palsy and sensory irritation. This disease as it progresses gives great muscular weakness and wasting. Gowers, Shultz, Eisenlohr and Stuart believe

that the disease is commonly ushered in by rigors, fever and often a temperature of 103° to 105° F. In the nine cases I find in my record books, which include some of the most pronounced types of this disease, I have failed to discover a high temperature; even where the exciting cause was presumed to exist in exposure, no indication of a chill could be discovered. It is my judgment that this disease in many instances occurs insidiously. The most striking symptoms and among the first to appear, in the cases I have had under observation, are the hot, burning prickling pains in the ends of fingers and toes. In three of the cases analyzed there were general rheumatic pains deep seated, spoken of before the motor symptoms made themselves manifest. Sensitiveness is early increased and is deep seated. The muscles become sensitive and remain so to deep seated pressure.

In many instances, the loss of power is earliest felt in the extensor muscle of the arm, later the power of flexion of the ankle and the extension of the toes becomes impaired; very frequently, however, the limbs become useless first and remain so, while the arms maintain throughout a fair degree of strength. Most writers confirm a common opinion that rapid emaciation and flabbiness of muscle supervenes very soon after the initial attack, or at a stage of acute invasion or pyrexia. In the cases I have record of, these symptoms in no instance came on rapidly, and in three cases came on mildly and tardily. The severe pains accompanying this disease—referred to by many writers—I think are those in which there is an unquestionable rheumatic history.

Reflex action in the affected limbs is always lost. Knee jerk is absent. Trophic changes in the skin, nails and hair. Oedema of the limbs is present. The latter symptom is found chiefly in the cases of alcoholic origin. An effusion about the joints was spoken of by one of my patients, but I attributed this to an early attack of rheumatism. Some writers speak of incoordinate movements; these cases are evidently of that

variety which have their origin in alcoholism, and have in association a distinct spinal lesion. An almost pathognomonic symptom is anaesthesia of the skin, associated with excessive weakness of the muscular and other structures, reached by deep pressure. There is a form of this disease called by some authors *acute multiple neuritis* or *malignant multiple neuritis*, which differs from the common type herein described in the rapidity of its march from the periphery. Few have witnessed cases of this variety, and some dispute has arisen in regard to the identity of this type of the disease. The constitutional symptoms in this variety would be more pronounced and pyrexia would continue throughout the attack. Trophic changes in this variety are pronounced, and appear early in the disease. The common course that the greater number of these cases pursue is as follows: The disease continues four or five weeks, then frequently remaining stationary; the patient then slowly regains strength and recovers in a period varying from two to six weeks. In other cases the disease continues to grow worse at once, and the stationary period does not appear until the patient has suffered for months and is reduced in strength; often then for months the disease remains stationary, and the patient is helpless, may move around on crutches, but there is no apparent improvement. A slow progress toward recovery then takes place, requiring often years and years to regain substantial strength. In the more acute variety, which I think in the future will be shown to have an etiology of its own, and entirely disassociated from the more chronic variety. The destructive work is done so rapidly that in a fortnight the patient is prostrate and dying from the exaggerated sensibility and muscular weakness; the pain and suffering through morbid dread of paralysis and helplessness, very frequently induces mental symptoms of an emotional type. We can look for an explanation of this in the great reflex phenomena in the nervous system. Delirium and hallucinations occur in cases where alcoholism has been

the exciting cause. What the future may reveal on this subject it is impossible to forecast, but one fact is apparent, that the sub-acute variety of this disease is frequently witnessed in those who have a tubercular family history.

I found a very pronounced phthisical history, to anti-date four cases of the nine I have had the privilege to study. The diagnosis of this disease is not always an easy task. In the earlier stages the chief points to depend on are the motor and sensory symptoms herein described; on their localization in the distal points of the limbs, and on the tenderness of the nerve trunk and the muscles. The early pains can be differentiated from rheumatic pains by their location. Pains along the track of the great nerves of the body, together with a burning, tingling sensation in the distal ends of fingers and toes should excite suspicion that they are of nerve origin, even before the muscle weakness makes the nature of the disease unmistakable. This disease is often confounded with polio-myelitis. The distinction rests on the symmetrical localization of the neuritic pains while that of polio-myelitis is random in distribution. Other designations are the persistence and severity of the neuritic pains; the location of the inflamed nerve trunk, and the anæsthesia in the area of their distribution, symptoms never present in polio-myelitis. A history of alcoholism and phthisis affords grounds for a presumptive diagnosis. The treatment for this disease is stated briefly. At the onset of the attack the treatment should be that suitable for a local inflammation anywhere over the body; absolute rest is of the highest importance in the more acute cases; all excitement should be avoided; nourishing food should be administered without stimulants. I wish to outline particularly the treatment most suitable in the chronic variety. If alcohol has been taken in excess it should at once be abandoned. If there is a phthisical history, cod-liver oil and preparations of malt should be given. Warm baths should be given daily at a temperature of 106° F. and should continue for a half hour, if the patient can endure

it. Friction to the skin is useful—it may be employed almost from the beginning; later on a complete massage treatment will be endured readily. My practice is to instruct the masseur to avoid the hacking and muscle twisting movements. I find friction with a flesh brush a very good exciter of circulation to the periphery. In the later stages of the disease galvanism is indicated; the best method to apply this is to place the positive pole along the spine and the negative by means of a dampened sponge electrode to the limbs. If the digestive organs are not normal, I have confidence in forced feeding—made so popular of later years by Weir Mitchell. Where the legs lose their strength and movements of the body are tiresome and uncertain, I advise the use of crutches, believing that it is wise to lift the weight of the body off of the affected limbs. A course of anti-rheumatic treatment is advisable in all instances where there is a suspicion of a rheumatic diathesis. Where the feet become oedemic, as in cases of an alcoholic type, and where the kidneys may be failing in their functions, I use freely citrate of potassium and acetate of potassium, often giving the two in conjunction with some compound tincture of bark. The chief anti-rheumatic treatment I have employed is the salicylate of sodium.

I cannot conceive that iron is of any profit, unless there is anaemia, then iron and arsenic are indicated. Quinine is only indicated where there is suspicion of malaria, for the primary physiological effect of the quinine on the nerve centres is to congest them; hence it would be no useful remedy to continue during the progress of the disease. Strychnine is indicated in the latter stages of the disease, and is a valuable resort in cases with cerebral complications. Iodide of potassium and mercury, although having been freely used have few advocates. Where the disease is of an inflammatory nature principally affecting the sheath, and throws out inflammatory product, making adhesions and thickenings, these remedies are given in large doses and have a salutary influence.

Arsenic is useful in anaemic and chlorotic patients and where there is a notable impairment of the digestive functions. Cod-liver oil, when intolerable to the stomach, might be used as an injection. Relief of pain, in the earlier stages of the disease, is a problem that confronts us, and unless we are strong in resolution we will yield to the first impulse and first desire of the patient and give opium or its salts. Antipyrine, or acetanelide, will invariably relieve pain. I cannot too strongly condemn the use of opium in this or any other disease of the nervous system, where the use of it can be avoided. In cases where there is the slightest tendency to mental depression the habit of opium is certain to be acquired.