

ON A FORM OF MULTIPLE NEURITIS PREVALENT IN THE WEST INDIES.

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ABOUT nine years ago I ventured * to direct attention to a form of multiple neuritis very prevalent in the West Indies, and now recognised by practitioners in Jamaica, which appeared to possess points of interest, inasmuch as, so far as I could find, it had not been previously described by any writer on tropical diseases, and because it seemed probable that the poison causing it was that of malaria.

Since that time the study of many hundreds of cases of this malady has strengthened my belief that it is a distinct and unrecorded form of neuritis, and it seems to me that a brief account of it may be of interest to medical practitioners not only in other tropical countries but in England.

I will describe first a common, more or less typical case, and then proceed to deal more minutely with the chief symptoms and physical signs that are to be noted in this particular form of neuritis.

It will be understood that in the following remarks I speak almost entirely of negroes, though, with the exception of the extreme pigmentation, to be mentioned later, the description will apply equally to whites.

A patient presents himself complaining of "numbness and cramps in his hands and feet, dimness of sight, and a tightness round the waist." This is almost always the remark first made by the applicant for treatment. (If the case be somewhat more advanced, he may add to this the statement that he fears he is getting "hard of hearing.") He goes on to say that he suffers from severe burning in the palms of the hands and soles of the feet, and that very often this is worse at night than in the day, and that the pains and

* Sajous's *Annual*, vol. i., 1888.

the burning heat prevent his resting. It is rarely that he gives more information than this. On examination it will be seen that there is slight excoriation, with fine, branny desquamation, of the edges of the eyelids, margins of the lips, and around the margins of the nostrils; the palpebral conjunctiva may be hyperæmic, as will be the lips. The heat in the hands complained of by the patient will be found to be not merely subjective but appreciable to the touch, and due to a hyperæmic condition of the palms; the acuteness of vision for form will be found to be more or less impaired according to the stage to which the malady has progressed; examination of the main nerves to the extremities will show that they are very tender on pressure, especially the ulnar nerve, and along the distribution of their terminal filaments they may be tracked by lines of fine herpetic vesicles.

On admitting such a case to hospital, and watching its further progress, it will be noted that at night the patient will be awake for hours, rubbing his feet and legs, most probably, and moaning with pain. The loss of vision will proceed until he can with difficulty distinguish a large object immediately in front of him, and cannot recognise individuals. The muscles of his limbs will waste until the "claw" hand and foot are marked features, and this wasting of muscles and the disappearance of fat will produce an emaciation which is very noteworthy in advanced cases. There will be found to be no alteration in the reaction of the pupil to light and accommodation, no falling when the eyes are closed, and the sphincters will not be affected. Should the disease make further headway, the patient may become a mere helpless skeleton, unable even to feed himself, his breathing laboured from implication of trunk muscles in the general muscular atrophy, almost blind, and with, perhaps, an ulcer on the cornea, quite deaf, and with, possibly, small bullæ on the extremities. There may also occur during the course of the malady monoplegias, as facial palsy, palsy of some of the external muscles of the eyeball, and (but very rarely) of some group of muscles in an extremity. The temperature chart will show a subnormal condition in the mornings, with an evening rise of one or two degrees. A fatal termination is

fortunately rare. When it occurs it is due to the dyspnoea and the riotous action of the heart, resulting from vitally important nerves becoming involved in the now almost universal nerve changes.

As a rule, however, under appropriate treatment recovery gradually—with perhaps, from time to time, slight recurrences of the nerve inflammation—takes place, the patient becomes stronger, can help himself a little, assimilates food well, and puts on fat again; then is able to walk a little, first with help and afterwards alone; his grasp, measured with the dynamometer, shows daily increase of muscular power; his sight clears up, and his deafness gradually passes away (though if this has been extreme it is usually one of the last symptoms to disappear).

It will be seen that the chief features of this disease are: (1) A more or less widespread neuritis, involving some of the nerves of special sense, especially the optic nerve; (2) the occurrence of trophic changes in the skin along the distribution of the nerve terminations, in the muscles, in the mucocutaneous lines, and occasionally in the cornea; (3) the rare, but still to be noted, occurrence of monoplegias; (4) the fact that the disease may be very severe, lasting for many months or even years; (5) the fact that recovery is the rule and a fatal termination very rare; (6) and that it attacks many hundreds of persons, at least in Jamaica, the great majority of these being the black or coloured inhabitants, who constitute the bulk of the population, though the white residents are not exempt by any means.

I will now endeavour to describe, more in detail, the most important symptoms and signs, and discuss the probable origin of the poison which so severely attacks the peripheral nerves.

1. *The neuritis of the nerves of the extremities, with the trophic changes resulting.*

The first nerve attacked in the majority of cases is the ulnar. It becomes very tender on pressure, and may feel slightly enlarged at the elbow. The other main nerves in the extremities are attacked almost immediately after, and their terminal distribution (in the hand) can be mapped out by

feeling (in the negro) the tiny herpetic vesicles which form, which rarely coalesce into large bullæ, and which soon dry, and are then, in the black skin, easily seen, as each becomes a centre for desquamation. This desquamation, which is fine and branny, involves the whole of the palm, which becomes more and more deeply pigmented as the disease progresses. Should bullæ form and be neglected, small ulcers may result, but this is apparently rare. In the feet the thick epidermis of the soles of such patients as walk barefoot will come off in large flakes, and the soles also will become pigmented.

Sometimes pain in joints is complained of, but I have only very rarely seen effusion into an ankle or knee joint, and in these cases I could not feel satisfied that a patient, already the victim of neuritis, had not accidentally injured the joint.

Sensation is never completely abolished; it may become blunted, and impulses may be delayed in transit and a very delicate touch not felt, but this is in very advanced cases. Usually slight continued pressure on the nerve trunk will, however, cause more or less anaesthesia in the extremity, with "tingling" and "numbness" in the parts supplied. It is this "numbness and tingling," or "foot going to sleep," or "crampiness," which the patient first notices when he lies or sits in one position for a short time, and which if he be of a superior grade of intelligence leads him to seek advice; if he be not, or be careless, it is the gradually increasing impairment of vision which brings him to the doctor.

And this leads me to note (2) *The effect of the neuritis on the nerves of special sense, and its results.* The optic nerve affection is most frequently retro-bulbar. Little is to be seen on ophthalmoscopic examination but some degree of hyperæmia of the disc and retina, but the acuteness of vision is severely affected, and there may be well-marked scotoma with micropsia. In one case there was paralysis of the external rectus in each orbit, and in several cases I have seen the cornea involved in the trophic changes.

Recovery of sight is the rule, the scotoma grows smaller and finally disappears, and the micropsia passes away. It is noteworthy that in some cases where the scotoma has been

very marked there has been, on a recurrence of the malady, or even when a patient has "run down" from overwork or fatigue, a slight return of the "spot," generally smaller, and not lasting so long a time as on the first attack, but, in the same region; from which I think the inference may be drawn, that restoration of vision in the disturbed end-organs of the displaced fibrils in the optic nerve trunk may occur long before the displacing inflammatory material has been completely absorbed.

When there has been no scotoma, the acuteness of vision for form gradually grows stronger until the power of sight normal to the patient is restored; though it will generally be found that a latent error of refraction, which was unnoticed by the patient before the attack, will now call for correction.

I have not seen optic atrophy result from this form of neuritis.

The deafness presents no peculiar features, except its sudden onset and rapid increase in intensity. It is not present in a fairly large percentage of cases.

(3) *Monoplegias.* These are not common, the most frequent being facial palsy. In one case there was double facial palsy; in one (as stated above) double palsy of external rectus. In one case, where the right brachial plexus was markedly attacked, there was paresis of the right upper limb, which was only overcome after many months of daily treatment, local and general.

(4) In a very grave case, with loss of power in the chest muscles, and when the innervation of the diaphragm and of the heart is seriously involved, the effect on respiration and on the heart's action is painful to witness, and leads to a fatal termination. Speech becomes difficult, the voice high-pitched and whining, and often a word or two may be sounded on the inspiratory current of air.

(5) *Mental condition.* Only in the gravest cases, when the patient is a mere helpless, wasted living thing, passing his excreta almost unconsciously, there may be delusions; and if he be not so far advanced as this, some feeble violence; but I am glad to say that such cases I have only seen two or three times. Possibly they may be found in asylums.

(6) *The condition of the muco-cutaneous orifices.* This demands some little notice, as redness and "irritation" of the eyelids and lips are often the first external signs noticed. It soon passes into a slight eczematous condition, especially at the corners of the mouth and round the margin of the nostrils, with fine, branny desquamation. A similar condition of the muco-cutaneous line in the prepuce is not uncommon. More rarely there is a similar condition of vulva and anus. The lips and inside of mouth are hyperæmic, and there may be much loss of surface epithelium on the tongue.

(7) *The general hyperæmia due to dilated arterioles* is well seen in early cases in the conjunctivæ, palms of hands, soles of feet, and mouth, and the resulting heat and tingling are bitterly complained of by the patient. These parts, which are normally the least pigmented external portions of the negroes, become deeply pigmented as the disease progresses, and remain so after it has passed away. Of course the whole skin (as well as other organs, to be mentioned later) may become more deeply pigmented, but the change is most striking to the observer in the regions which are normally fairer than the rest. Then the colour may vary from brown to intense black.

(8) *Reflexes, etc.* An examination of the reflexes, superficial and deep, does not bring out any point peculiar to this form of neuritis as compared with others. The gait in walking might be called "typically ataxic," but it is only when the muscles of the lower limbs are much wasted that the patient cannot stand upright alone, with closed eyes, or turn sharply in his walk, or touch any given spot on his head or body with eyes closed—in short, co-ordination of his muscle actions appears to be good in proportion to the degree of perfection of muscle nutrition, the action of the muscles being short and jerky when wasting is present and the case an advanced one, any failure to carry out a desired action being the result of want of strength in the muscle itself and not of loss of central co-ordinating power.

(9) *The sexual functions* seem to be only affected when widespread impairment of muscular action renders all movements difficult, or when the general condition of the patient

has arrived at a state which causes him anxiety and distress.

(10) I have seen very few *post-mortem examinations* of cases which have died of this disease. The most noteworthy feature was pigmentation of the brain, spinal cord, and large nerve trunks. The liver and spleen were such as are usually found in cases of malarial poisoning.

(11) The disease attacks both sexes, at any age, but is most common in youth and in adults. It appears to prevail most in districts on the seacoast and low-lying inland regions, but on this point I have no certain information to offer, as the majority of patients treated in the Public Hospital, Kingston, belong to that city and its immediate neighbourhood.

(12) *Treatment.* The treatment adopted in the Public Hospital and found to be of most service has been, during the early and acute stages, rest in bed, nourishing food, gradually increasing in quantity and variety, and the internal administration of quinine and strychnine for a considerable period of time in moderate doses, frequently repeated, and often combined with small doses of iodide of potassium. The quinine has been given with the object of combating the malaria believed to be present, and the other drugs with the view of stimulating nerve nutrition and absorption of inflammatory material in the affected nerves.

Massage and electrical stimulation are resorted to for wasted muscles, and active and passive movements of the extremities.

Complete change to a temperate or, if the patient can stand it, a cold climate, is apparently one of the most powerful agents in the restoration of health, for continued residence in the patient's usual environment, though it may not prevent recovery, certainly retards it, and occasional recurrences of the malady may result.

(13) As to the *poison* which, circulating in the blood of the affected person, causes this form of multiple neuritis, I have been led to think that it is the poison of malaria.

The fact that the disease attacks those who have resided

in malarious regions, or have suffered from the milder* and more chronic form of malarial poisoning, while persons who live always in non-malarious regions, or who rarely visit such parts, and have not, in consequence, contracted and taken home with them malaria, would appear to be but rarely attacked, if ever. The value of quinine in the drug-treatment of the disease, the striking and rapid recovery of a case in which it has been possible to give the patient complete change to a cold or temperate non-malarious climate, and the remarkable pigmentation of various organs, so suggestive of malaria, all seem to me to point to the possibility, if not probability, that the poison generated by malaria parasites may, when repeated from time to time and not eliminated promptly, cause this form of multiple neuritis which I have endeavoured to describe.

That the poison, whatever it may be, attacks at once vast numbers (comparatively speaking) in Jamaica, and has done so for a number of years beyond my ken, and that this poison is not that of alcohol nor of lead, are facts absolutely to be relied on, I venture to submit. That it is not the poison of syphilis I think all will agree. Is it the poison of beri-beri? It seems to cause results which differ in many points from those described by the authorities on beri-beri, though they strike one as being somewhat allied. What, then, is the only other known poison which can fit in with all the circumstances mentioned? Malaria is the only one that appears to me to do so, but I have constantly before me the possibility that this poison may be caused by some agency at present unknown, some micro-organism not yet identified. Hence it is that I am anxious once again to bring the subject before the notice of the medical profession at home and abroad, in the hope that investigation may prove whether or not malaria or some other poison is the cause of this multiple peripheral neuritis.

* By "milder" in this connection I mean the brief attacks of ague without much constitutional disturbance occurring from time to time in persons living in malarious regions.

THE
PRACTITIONER,

A Journal of Practical Medicine
and Surgery.

EDITED BY
MALCOLM MORRIS.

OLD SERIES, VOL. LIX.

NEW SERIES, VOL. VI.

July to December, 1897.



CASSELL AND COMPANY, LIMITED:
LONDON, PARIS & MELBOURNE.

1897.

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