C A S E
OF
RECURRENT ANÆSTHESIA
OF
ALMOST THE ENTIRE SURFACE OF THE BODY,
ACCOMPANIED BY PARTIAL LOSS OF MOTOR POWER IN ALL THE
LIMBS, TRACEABLE TO THE EFFECTS UPON THE SPINAL
NERVES OF EFFUSED PRODUCTS WITHIN
THE SPINAL CANAL.

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THE accompanying case I have thought worthy of being submitted to the attention of the Society, chiefly for the following reasons :

1st. On account of the great infrequency of the post-mortem appearances met with.

2d. On account of the character, cause, and mode of access, &c., of the various symptoms.

3d. On account of the close and intelligible dependence of the symptoms upon the lesion, as determined after death.

Previous history.—The patient was a tall, well-made bricklayer, who had been in the habit of drinking as much as fifteen or sixteen pints of “half-and-half” daily, and when at work several pints of gin in addition. About six years before his fatal illness, in the winter, and whilst at work building (being otherwise in good health), he became, for

the first time, affected by numbness and the peculiar sensation usually termed "pins and needles" in his lower limbs. He, however, continued his work for some weeks, experiencing no other discomfort whatever. Becoming at last unable to follow his avocation, he was treated by a medical man; and, under the use of repeated blisters to the back, in the space of about four months "quite recovered."

After this first attack he was for some weeks "every winter" affected (though to a less degree) by the same kind of numbness and peculiar sensations, but was never compelled to give up his work until the beginning of the winter of 1852-53, when the old symptoms returned, but with greater intensity, and affecting the arms as well as the legs, and at this time he came into St. George's Hospital.

Symptoms.—When admitted he appeared to be enjoying good health and spirits, and was quite "free from pain." There was, however, the following interference with motor power, and general sensibility of the integuments. The sensibility to pinching or pricking of the skin of either leg, as high up as the middle of the thigh, was extremely slight, very sharp and continued pinching with the fingers being only faintly perceived. A similar kind and degree of obtuseness as regards pinching and pricking of the skin of both arms, at all parts below the elbows, was also found to exist, and both cheeks, as well as both sides of the nose, were in like manner very deficient in sensibility.

The tactile sensibility of the skin of the forehead, as of all parts of the body not alluded to above, was quite natural.

As regards voluntary motor power, the muscles of both arms and hands were manifestly much weakened, the grasp with both hands being extremely feeble and limited. The muscles of the legs were also much weakened, as the patient could only walk with crutches and with a tottering gait, and was unable to stand unsupported. The sphincters did not seem to be affected. The mental powers appeared to be perfectly natural, and all the special senses quite perfect; but the patient complained of restlessness and want of sleep, and of troublesome dreams.

Slight involuntary twitchings of all the limbs were at times noticeable.

No pain or tenderness could be induced by pressure upon, or movement of the head or spinal column. The pulse was regular; the appetite good; the bowels somewhat inclined to constipation; the urine was high coloured, and, although at one time only having a specific gravity of 1011, was free from albumen. The specific gravity subsequently much increased. Auscultation and percussion indicated nothing wrong in the thoracic organs.

The patient was treated by repeated blisters to the spine, by diuretic medicines containing the nitrate of potass and tincture of cantharides, and by small doses of mercury. The use of the cantharides was pushed so far as to produce decided irritation of the kidneys; for this reason it was three or four times omitted and resumed. This line of treatment was continued with short intervals for above four months; at one period the extract of *nux vomica* being resorted to, whilst the cantharides was left off.

After a time some, but not much pain was complained of in the hands, feet, and thighs; and occasionally there was pain across the abdomen; but no pain was complained of either in the head or back. Unusual severity of cold weather was wont to increase the numbness in the limbs, but he recovered gradually so far as to use his limbs pretty freely, and to experience but a slight amount of numbness, and that only occasionally. He then left the hospital, and about two months after doing so the numbness of both hands, along with partial loss of power in them, recurred, but especially in the right one. He continued taking the diuretic medicine with the cantharides, and in a week or two the symptoms again departed.

Five months later, numbness of both arms and hands recurred, appearing firstly and mainly in the right side, with partial loss of power; and somewhat later numbness in the left foot also. These symptoms came on, and again went away several times. Slight pain in the head also supervened, not limited to any region; but there was no

giddiness, and apparently no confusion or aberration of thought. Under the continued use of the tincture of cantharides and small doses of strychnia he again recovered, and left the hospital free from any numbness, and with perfect sensibility of the skin. After this nothing is known of the condition of the patient for the term of a year and a half; at the end of which period he was brought a third time into St. George's Hospital, but on this occasion in a very soporose condition, rambling in mind when spoken to, and with slight trembling of the facial muscles. The tongue was furred and dry, and the pulse quick, 100 per minute, and feeble, but regular; and it was at first thought that he was the subject of continued fever.

Owing to his mental condition, it was very difficult to make out to what extent the powers of motion or the sensibility of the skin were interfered with. There was, at any rate, no actual paralysis or spasm of the muscles of the face or eyeballs, and the pupils acted naturally. There was no vomiting.

He was cupped at the back of the neck, and freely purged. During the night he was rambling much, and continued in a semi-comatose state, secreting spoons and other objects under the bed-clothes. There was occasional twitching of the muscles of the arms and legs.

On the following morning the pupils of both eyes were noticed as being "contracted." The stupor continued, and great irritability of temper came on, manifested by the fits of anger which he gave way to whenever any part of the body was even slightly pinched. During the next night he had some kind of a "fit," attended by much struggling. This was followed by dyspnœa accompanied by much noise in the throat, and by death on the third day after his final admission into the hospital.

Post-mortem examination sixteen hours after death.—The body was well made, and muscular in all its parts. No emaciation existed. All the limbs were rigid, the thumb of the left hand being firmly flexed into the palm.

The heart was quite natural, but the lungs, kidneys, liver,

and spleen, and also the lower part of the small intestines, were highly congested.

On examining the "*head*," the cranial bones were found to be quite healthy. The cerebral membranes at the upper parts of the brain were natural, but the surfaces of the convolutions were dry and flattened. At the central part of the base of the brain, posterior to the optic commissure, much tolerably firm fibrinous material existed beneath the arachnoid membrane, matting together the various vessels and nerves of the part. The pituitary body was very indurated, being infiltrated with and surrounded by similar fibrinous material. The brain-texture itself was natural, excepting very slight softening of the boundaries of the lateral ventricles, which were full of a quantity of limpid fluid.

On examining the "*spinal column*," the vertebræ, as well as the dura mater covering the spinal cord, were found to be natural. The spinal arachnoid membrane was, however, more than usually opaque; and here and there, although infrequently, bands of adhesion existed between this membrane and the subjacent pia-mater, along various parts of the spinal cord. The most interesting changes observed were in connexion with several of the spinal nerves. In many parts, though chiefly at the lower cervical and the upper dorsal regions of the cord, both the anterior and the posterior roots of the nerves were invested by very firm fibrinous material, partly of a white and partly of a pinkish colour. In many cases this deposit was so scanty as only to be seen on close inspection, coating over the nerve-roots. In other places the deposit was sufficient to form a layer, obscuring and matting together the various nervous strands composing the entire nerve-root; whilst in a few cases the deposit existed around the separate roots in single masses, appearing like beads of various sizes.¹ In one instance (see Plate XI) it formed a pink-stained mass around one

¹ The preparation of the spinal cord will be placed in St. George's Hospital Pathological Museum, as No. 5, Sub-series iv, Series xxiv.

of the anterior roots on the right side, of the size of an ordinary pea, and having (except for its colour) much the appearance of a neuroma or gangliform enlargement. The spinal cord itself was natural, both as regards size, colour, and consistency.

On microscopical examination, I found that the great part of the material investing the nerve-roots possessed all the histological appearances of ordinary fibrinous material; but, on examining that portion of the exudation which immediately surrounded and penetrated between the various nervous elements forming the entire root, in addition to a quantity of granular and amorphous material, there were found vast numbers of peculiar round and oval, and in some cases oat-shaped, bodies. On the application of acetic acid, these bodies became somewhat larger (see Plate XI, fig. 2), but did not appear to alter in any other way. The nerve-fibres of the various affected nerve-roots were, in most places, very opaque, and filled with granular matter and fatty particles and globules. Where the masses about the nerves were of a pink colour, blood-globules were found mixed with the material.

Remarks.—In reviewing the various phenomena of the above case, I will limit myself strictly to the points which appear to me mainly worthy of consideration. I will, in the first place, allude to those morbid changes discovered after death which more obviously deserve notice, that is, to the pathological condition of the roots of the spinal nerves.

The adventitious material attached to, and in many places surrounding firmly, and as it were incorporated with, the roots of the nerves, was manifestly the remains of some exudative process which at some time or another had, during life, affected the spinal membranes. Whatever may have been the precise nature of this process, whether, that is to say, it was one of a purely local nature, and of a kind usually designated inflammation of the spinal membranes (the masses of deposit about the nerves being, in fact, only part of some exudation, the rest, chiefly fluid having been absorbed), or whether it was of a more unlimited

nature, an expression or manifestation, *i. e.*, of some general cachectic state such as will induce, as we know, fibrinous effusions simultaneously into various organs and upon various free surfaces,¹ it was equally interesting and important to find that the chief results of the exudative processes had become aggregated around the roots of the spinal nerves.² In this way, no doubt, these roots had become much compressed, being in a degree affected much the same as if a ligature had been passed round them. In not any of the cases of acute or chronic spinal meningitis which I have either met with or heard of, has the inflammatory exudation become so disposed as in the present case.

Then again as regards the chief symptoms manifested during life, the tendency to their recurrence, with intervals of perfect freedom, cannot fail at once to strike the mind as peculiar. Thus, we find the patient first of all affected in his lower limbs, as to motion and sensibility, for a period of five months; then for a time enjoying entire immunity; then being subject to slight relapses every year, but only in the winter-time; then having a relapse so severe as to necessitate discontinuance of his work; then, after partial recovery, having slight attacks, the upper limbs only (and chiefly the right one) being affected; and finally, after several more slight invasions, being attacked by his last illness, the commencement of which we are quite ignorant of, but which differed materially from all previous attacks.

As far as I know, this recurrent character of the symptoms is very unusual; for although in certain cases of spinal meningitis, in which spasm is produced, painful convulsive action of muscles is wont to appear irregularly, and with

¹ As regards the predisposing cause of the exudation, perhaps the generally good condition of the patient, and the exciting cause of the attacks (outward cold), would be opposed to the idea of any cachectic influence having been at work; whilst, on the other hand, his intemperate habits favour such a view.

² Possibly the accumulation of the adventitious material into mostly rounded masses may have been partly owing to the pulsating movements which the spinal membranes, and perhaps also the cord itself, undergo during respiration.

remissions, yet it is rare to have such a chronic series of attacks with lengthened intervals as in the present instance.

Respective of the course which the symptoms took, it appears very clear that the nerves of the lower part of the cord were first in order affected, then those of the upper part, and finally the fifth cranial nerves, owing to the disease travelling gradually upwards from the lower part of the spinal to the base of the cranial cavity.

It is to be observed that, except towards the last stages of the disease, little or no pain was at all complained of. This was most interesting, as pointing rather to the immunity from disease enjoyed by the spinal cord itself; but it was certainly unusual to find that such alterations in the spinal membranes and nerves had occurred without more pain having been experienced, and with so little spasm or rigidity of muscles; the only tendency in this direction noticeable being the slight twitchings of the various muscles. This continued freedom from pain or pathological muscular contraction should, no doubt, be attributed to the extreme slowness of the diseased action.

Later on, however, we have the history of pain in the limbs, and slightly in the abdomen; this may have been owing to the supervention of some alteration in the nerve-fibres, as we see from microscopical research that they had become themselves affected structurally. And as time progressed, the mind, which had hitherto remained unaffected, became much disturbed. This accession to the symptoms might well be set down to secondary changes coming on in the brain, and, no doubt, corresponded with the invasion of the sub-arachnoid tissues at its base, and with the softening of the walls of the ventricles, with effusion into their cavities.

I will not fail to notice the numbness of the cheeks and nose. This, doubtless, resulted from some implication of parts of the fifth cranial nerves, either from softening of their structure or compression by effused products; but how it came to pass, considering the position of the intra-cranial effusion, that these nerves should be involved, and yet, as it

seemed, the third and fourth nerves escaped, whilst after death all appeared to be alike implicated, I cannot explain. I can only, by way of illustration, call to mind the fact that very frequently extensive sub-arachnoid effusion of lymph, in scrofulous meningitis for example, is found at the base of the brain, matting together the various nerves, and yet no special symptoms referable to the muscles supplied by them are produced. Before closing, I would draw attention to the microscopical appearances depicted in the Plate accompanying the case. The nerves, as before described, are seen in a very unnatural condition, being opaque and granular, and containing much fat in the form of globules. This alteration in the roots of the nerves which were affected by the adventitious material I am inclined to attribute mainly to the pressure of that substance, although possibly the roots of the nerves may themselves have been affected directly as to their nutrition, by virtue of the diseased process extending to them from the investing serous membrane.¹

The histological character of the deposit found amidst the various nerve-fibres of the affected roots is peculiar, and is well seen in the Plate XI, fig. 2. I do not remember ever to have met with exactly similar structures as the small corpuscles present in any exudative material that I have examined.

¹ Such extension of diseased action from membranous surfaces to subjacent structures is well seen, for example, in certain cases of pericarditis, where the muscular substance of the heart becomes affected consecutive to the affection of the pericardium.

EXPLANATION OF THE PLATE.

The drawing represents a case of enlargement and cohesion of the roots of the spinal nerves, anterior and posterior.

Fig. 1 shows a portion of the lower part of the cervical region, of about the natural size.

Fig. 2 shows the microscopical appearances of some of the affected nerve-roots, along with that of the adventitious material.