

A CASE OF DORSAL PACHYMEINGITIS.

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THE case about to be related, though somewhat deficient in clinical details, yet is possessed of some pathological interest.

The patient G.G., aged 60; a compositor, was admitted into one of the surgical wards of St. Bartholomew's Hospital, on October 14, 1883, suffering from simple fracture of the lower third of the left femur, owing to the accident of falling down-stairs.

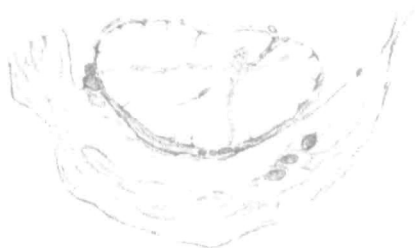
The notes of the case as regards spinal symptoms are unfortunately rather meagre. They may be summarised as follows.

For ten years at least he has suffered from progressive paresis of lower extremities, which increased to such a degree that for five years he has been unable to get about without assistance. During this period and till death, has been subject to excruciating shooting-pains in the lower limbs, most severe in the left. There were also frequent pains of the same character in the left side, about the position of the lower ribs. No atrophy of muscles. Great reflex excitability of both legs, with sudden painful spasms at night for some years. Bowels always very costive, but no loss of control over rectum. Has had to use a No. 10 catheter for over five years, unable to pass water without it. His wife says that he has been extremely irritable and capricious in temper lately. He is the father of five children, two healthy, three died at about fifteen months "of convulsions and teething."

No history of syphilis, direct or indirect, could be elicited.

Oct. 14th, 1883.—On admission, considerable rigidity of both legs was noted, most obvious in the sound limb. Thigh adducted. Intense reflex excitability; so much so in the fractured limb, that splints had to be discontinued and the limb laid on a pillow. Distinct loss of sensation in both limbs. Upper extremities quite natural.

Oct. 19th.—A large bed sore discovered over sacrum on right



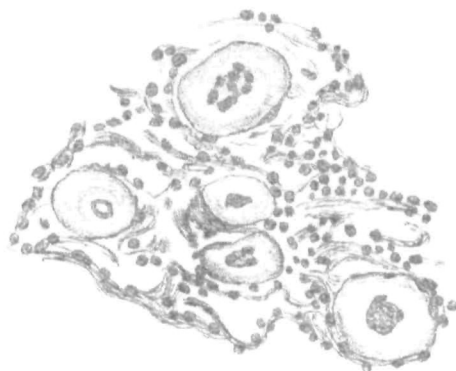
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side. Cystitis. Urine highly coloured, offensive; sp. gr. 1020. Alkaline. Albumen and pus.

Oct. 20th.—Pain in right shoulder, with some difficulty in raising the arm.

Oct. 23rd.—Shoulder better.

Oct. 25th.—Cystitis improved. Diarrhoea.

Nov. 14th.—Bedsore over both great trochanters.

Nov. 30th.—Abscess in scrotum. Opened.

Dec. 28th.—Going on well till this morning, when he had a rigor at 6 A.M. Temp. $103^{\circ}4'$.

Jan. 13th, 1884.—Another rigor at 6 A.M. Temp. $102^{\circ}6'$; unconscious muttering, delirium.

Jan. 31st.—Sore on back worse. Edges undermined, spines bare. Right great trochanter exposed.

Feb. 11th.—Died. The temperature during this period was always above normal at night, sometimes 103° – 104° , often above normal in the morning.

At the autopsy, made on Feb. 12 by the surgical registrar, Mr. Bowlby, to whom I am indebted for the spinal cord, the cadaver was found to be well nourished. No atrophy of muscles. Brain quite natural. Thoracic organs natural. Liver, spleen, stomach and intestines quite natural. No signs of visceral syphilis. Kidneys enlarged, and suppurating in places. Ureters dilated, and bladder much thickened.

Spinal Cord, Macroscopic appearances.—Whole arachnoid-cavity much distended with clear fluid. At about the middle of the dorsal region, involving a length of about 7 cm., the membranes are fused together into a tough white leathery mass, about 5 mm. thick. This thickening involves rather more than one-third of the circumference of the sheath, and is adherent closely to the cord along the posterior half of its circumference. The cord at this point is much flattened out, measuring only 5.5 mm. antero-posteriorly. Here also the cord is twisted and distorted, being drawn round from right to left, so that the thickened mass, though adherent over the posterior segment, lies in the bony canal rather to the left side. It is not adherent to the bony canal, nor is there any disease of the vertebrae. The posterior roots are involved in the membranes on both sides. Anterior roots natural.

Microscopic examination.—Cord hardened in ammonium bichromate solution for three weeks. Stained in picrocarmine and hæmatoxylin.

Mid-dorsal region (Fig. 1). *Membranes*—Thickened dura mater composes about one-fifth of the whole mass. The component bundles of connective tissue are separated by large numbers of leucocytes. Vessels are numerous, the walls of which are not markedly thickened. Between the dura and

pia mater is a mass of fibrous material making up quite $\frac{1}{2}$ of the whole. This consists in its outer $\frac{3}{4}$ of bundles of large wavy structureless fibres, cut in all directions, but mostly running parallel to the fibres of the dura. There are numerous lacunæ containing nuclei, but no vessels. As the inner boundary is reached, the fibres become smaller and the lacunæ larger, containing numbers of leucocytes. Here numbers of blood-vessels make their appearance (Fig. 4). The vessels here, and to a somewhat less degree in the succeeding sections of the cord, have remarkably thickened hyaline walls. All distinction between middle and outer coats is lost. The elastic lamina is undistinguishable in most of the sections. In some the intima is considerably thickened. There is in some of the vessels a distinct proliferation of nuclei of the intima.

Cord.—Flattened antero-posteriorly. Right half smaller than left. Relation of parts distorted, as seen in figure.

In the white matter, the whole section shows softening with destruction of nerve fibres. The softening is much more marked on the anterior or unattached segment than on the posterior adherent segment. This must be due to latter being in a measure protected from the acute inflammatory processes spreading in from the spinal canal. The thickened vessels pass into the cord from the pia mater, and are scattered plentifully in cross-section over the whole section.

The right anterior horn of the grey matter is much attenuated; only one or two ganglion cells can be found, and they are highly degenerated. Left anterior horn also greatly affected, though less so than right. Some four or five ganglion cells are visible, but all showing more or less granular degeneration. Left posterior horn elongated and attenuated to a much greater degree than the right. The left posterior roots show in section proliferation of nuclei with considerable disorganisation of the nerve fibres. The right posterior roots look natural. Both show great hyaline thickening of the vessels, which in this part reach their highest degree of degeneration.

Upper dorsal region (Fig. 3).—Fibrinous thickening of pia mater. Marked softening of the white matter all around the periphery of the section, with complete disappearance of nerve tubules in the softened area, except on each side of the anterior fissure.

As the grey matter is approached, the nerve fibres make their appearance, and here the neuroglia becomes considerably thickened and condensed. This is most marked in the posterior columns and reaches its greatest degree in the postero-median columns, where there is considerable sclerosis. Even here there are, however, many axis-cylinders. The ganglion

cells of the anterior horns are wanting in sharpness and distinctness.

Cervical region.—To the naked eye the carmine-stained sections show slight deepening of colour marking the postero-median columns, and under the microscope there is a marked increase of the neuroglia. Except for the peripheral softening, as in the preceding section, the cord is natural here.

Upper lumbar region (Fig. 2).—Shows a considerable increase of connective tissue in the posterior columns. This is most marked in the middle $\frac{1}{3}$ of the posterior radicular zones, where large branching fibres pass from the posterior horns towards the posterior median fissure. The white matter between this and the transverse commissure shows similar connective tissue-increase, but to a less degree. The same may be said of the lateral columns close to the grey matter.

Sections taken lower still in the cord show less and less departure from the normal.

Remarks.—In spite of the lack of syphilitic history, there can, I think, be no doubt of the specific nature of the affection in this case. It probably originated at a gumma of the dura mater in the subarachnoid space, which subsequently took on the present fibroid condition.

A noteworthy feature in the case is its chronicity. The fatal termination might have been indefinitely postponed, had it not been for the accident, whereupon an acute meningo-myelitis was lighted up with the accompanying cystitis and bedsores.

One cannot help speculating on the possible good results of an early and vigorous mercurial treatment in this case. Certainly the effects of such treatment are not encouraging in the later stages, as detailed in a somewhat similar case reported lately by Eisenlohr.¹

Though the neuroglia changes in the posterior and postero-median columns above the lesion are probably of a secondary nature, the same cannot be said of the similar changes in the same regions below. We have here a distinct but early stage of sclerosis. The nerve fibres are diminished in quantity, but their structure is little altered.

At the same time one cannot overlook the well-marked changes in the small arterioles. These are shown in Fig. 4, which is taken from a part of the thickened meninges, and is a rather strongly marked type of the vascular changes in a greater part of the cord. The lumen is much diminished, and

¹ 'Neurolog. Centralblatt,' Feb. 15, 1884; and Abstracts in the present number of 'BRITN.'

in some there is a distinct proliferation of the nuclei of the intima; beyond this, however, there is in the majority of the vessels no thickening of the intima to the great degree described by Heubner,¹ Drs. Greenfield, Gowers, Barlow and others.²

In the dura mater, or rather the most peripheral part of the area of pachymeningitis, we find the vessels not increased in thickness, but the perivascular spaces crowded with leucocytes. Such a condition has often been described;³ and in an extreme degree by Dr. Buzzard in the last number of 'BRAIN.'

It is tempting to connect the two conditions, and to suppose the hyaline thickening to be a further development of the perivascular infiltration. If this position can be accepted, there is no great difficulty in connecting the fibroid changes in the neuroglia with those of the vessels, when the close communication between the lymph-spaces of the cord and those around the vessels is borne in mind.

Lastly, these vascular changes might be attributed by some to the condition of the kidneys; but I think the fact that they are most affected in the region of the syphilitic lesion is in favour of the theory of an extension of the so-called "gummatous processes" into the perivascular spaces.

¹ 'Die luetische Erkrank. d. Hirnarterien,' 1874.

² 'Visceral Syph. Path. Trans.' V., xxviii.

³ Moxon, 'Lancet,' Sept. 25, 1869. Bruberger, 'Virch. Arch.,' 1874, p. 285.