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THE NEURITIC FORM OF ALBUMINURIC RETINITIS.

BY

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Optic neuritis does not often occur as the only ophthalmoscopic change in Bright's disease, and most text-books of general medicine and ophthalmology make no mention of it; but it deserves, nevertheless, to be borne in mind, as the failure to recognise its true nature may easily lead to an error in diagnosis. Cases have been described by Heyman, Liebreich, Wecker, Schmidt, Magnus, Gowers, and others.

The typical ophthalmoscopic picture is one of prominent greyish-red swelling of the optic disc, not extending into the surrounding retina; fulness and tortuosity of the retinal veins; possibly one or two white spots on the swollen disc, but rarely any hæmorrhages or other gross lesions. The picture, in fact, closely resembles that of "choked disc," so often seen in cases of intracranial tumour.

Gowers and Groenouw emphasize the fact, that this condition occurs in cases presenting other symptoms suggestive of a brain lesion. Thus, one patient of Gowers (of granular kidney) complained of constant severe headache and occasional attacks of sickness; another patient exhibited mental changes; and a third had convulsions and coma. In the last case a diagnosis of cerebral tumour was made, but at the examination no brain lesion was present, and the patient was found to have suffered from granular kidneys. In one reported case *post-mortem* examination showed pachymeningitis hæmorrhagica, while in another, reported by Uhthoff, no brain lesion could be found.

These cases emphasize the importance, in cases with optic neuritis and cerebral symptoms, of ascertaining the condition of the urine, before making a diagnosis of cerebral tumour.

Gowers is of the opinion, that in all the cases which he has seen, there were slight retinal changes which would have been sufficient to distinguish the cases from those of cerebral neuritis, but these slight changes might be overlooked, on account of the prominence of the nerve changes. In the case reported below, the only such change was a hæmorrhage near the disc in one eye.

It is important to note that the condition seems to warrant a specially bad prognosis, as it is soon followed by a fatal result.

The following case presented no difficulty in diagnosis, but is interesting as showing the affection in a fairly typical form.

Mrs. M., *æt.* 55 years, admitted to Glasgow Royal Infirmary, under the care of Dr. J. W. Allan, 16th August, 1903, with swelling of legs, breathlessness, and general weakness, the earliest symptoms dating from three months only. She was going about her household duties in a sort of way, until

the time of admission. For several weeks the urine had been scanty and high-coloured, and micturition frequent. Not much headache, and no defect of sight, complained of. Good health until onset of present illness. Married, and had had 15 children. Lips on admission somewhat livid. Respiration hurried and shallow. Pulse rather rapid, irregular, small; and soft. Temperature normal. General anasarca. Heart perhaps a little enlarged, with some accentuation of second sound at base. Œdema of bases of both lungs, and pleural effusion on right side, forty ounces of fluid being withdrawn by aspirator. Uniform enlargement of liver. Spleen not palpable. Some ascites. Urine, acid, specific gravity 1025, with a considerable quantity of albumen, but no blood: abundant tube casts, chiefly hyaline and finely granular.

Eyes.—Marked strabismus convergens said to date from measles in childhood. *Ophthalmoscopic Examination.*—In both eyes choked disc, tortuous vessels. A whitish patch bordered with pigment showing through lay a little beyond the temporal edge of the swollen disc. Retina normal. In left eye there was a flame-shaped hæmorrhage near the lower-outer margin of the disc. V.R. and L. = J. 1 with glasses. At a subsequent examination swelling of disc showed slight diminution, and atrophic crescent coming more distinctly into view at temporal side of each disc.

Progress.—Southey's tubes were used for the limbs, and three days later paracentesis thoracis repeated. During some days patient was restless and mildly delirious. Urine for some days scanty in spite of treatment. Albumen (at first 0.4 per cent.) showed slight diminution. Anasarca increased, and condition became, on the whole, worse. On 31st July, 1903, after addition of diuretin to other treatment, there was great increase in quantity of urine, fall of its specific gravity, and corresponding decrease in percentage of albumen. General condition appeared to improve with lessening of anasarca, breathlessness, etc. On 3rd August, 1903, patient after a sudden attack of dizziness and vomiting, with a few twitchings about the mouth, became unconscious, and died three minutes after onset of symptoms.

Post-mortem Examination.—Fluid in both pleural sacs and recent pleuritic adhesions in right. Passive congestion and œdema of bases of lungs. Hypertrophy of left ventricle of heart. Atheroma of aorta and coronary arteries. No pericardial fluid. Passive congestion of spleen and liver. Right kidney smaller than left. Both kidneys showed slight granularity of surface and adhesion of capsule. Cortex not greatly diminished, and kidneys, as a whole, not much shrunken. Some dulness of the meninges. Atheroma of cerebral vessels. No excess of fluid in ventricles. Brain otherwise apparently normal. Eyes showed a fusiform swelling of optic nerves behind the globe, and swelling of optic papillæ. In left eye the hæmorrhage near the disc and a patch of old choroidal

atrophy outside the macula, could easily be seen by the naked eye.

Microscopic Examination of Kidneys.—Kidneys showed two distinct sets of changes. At some spots changes were present indicative of an acute nephritis (cloudy swelling and fatty degeneration of epithelium of tubules, areas of intense round-celled infiltration, hyperæmia of the vessels of pyramids), in other regions there were indications of a long-standing interstitial nephritis (strands of new-formed connective tissue, containing here and there clumps of atrophied glomeruli and tubules, inequality of diameter of tubules, and thickening of the intima of vessels of cortex), while in other parts, the kidney structures, tubules, and glomeruli, presented practically normal conditions. The case may therefore be looked upon as one of advancing interstitial nephritis in a moderately early stage, interrupted and terminated by supervention of an acute attack.

Microscopic Examination of the Eyes.—The posterior part of each eye presented the characters usually found in highly myopic eyes, *viz.*, oblique entrance of the optic nerve, supertraction of the choroid and retina at the nasal side of the disc, retraction of the choroid and retina from the temporal side of the disc, and an area of thinning and atrophy of the choroid at the temporal side, corresponding to the white crescent seen ophthalmoscopically. A short distance behind the lamina cribrosa the optic nerve was distended, partly by œdema, partly by a moderate round-celled infiltration of the connective tissue septa of the nerve. In its passage through the scleral aperture the nerve appeared constricted, and again broadened out in front of the lamina cribrosa, showing a considerable projection of the papilla, from œdema of the nerve fibres without cellular infiltration. This swelling of the nerve fibre layer ceased rather abruptly a short distance from the scleral aperture on each side, and the retina elsewhere presented no abnormalities. Thickening of the walls of arteries, both in choroid and in retina, and dropsical distension of the optic nerve sheath behind the globe were also present.

Remarks.—Cases like the above raise the interesting question, "Is the condition of the optic nerve of the nature of the choked disc found in cases of intracranial tumour, and other causes of raised intracranial pressure, or is it of the nature of an actual neuritis, assuming these two conditions to be different in their nature and origin?" Some authors refer to it as a neuritis, others as a papillitis, others as œdema of the papilla, and others as choked disc or "stauungspapille." One or two points in this case may be mentioned, which seem to support the view, that the condition is primarily an œdema of the papilla and nerve and not an inflammation:—(1) The preponderance of the œdematous distension, and the comparative insignificance of the cellular infiltration of the papilla and trunk of the nerve. (2) The manner in which the swelling

is seen, both ophthalmoscopically and microscopically, to be limited to the actual nerve-head. (3) The retention of good vision. (4) The apparent tendency of the swelling of the disc to diminish when free diuresis was established, relieving the mental symptoms, and presumably causing diminution of intracranial pressure. It is to be noted that cases presenting this ophthalmoscopic picture, have usually shown an exaggeration of mental or cerebral symptoms, thus exhibiting a group of symptoms suggestive of intracranial tumour. One is tempted to think that the œdema of the nerve may have its origin in a rise of intracranial pressure, due perhaps to excess of fluid in the lateral ventricles of the brain. In the case reported above, such improvement as resulted from the onset of diuresis might be attributed entirely to relief of such excess pressure. It certainly was due to no improvement in the general health of the patient, who died, it will be remembered, three days later with no new development of pressure signs.

Speaking of the class of cases in which the neuritic form of albuminuric retinitis occurs, Gowers states that it practically always occurs in cases of advanced chronic kidney disease, commonly of contracted kidney, but he mentions its occurrence in a case of large pale kidney with commencing induration. The above case was, so far as can be judged, one of chronic interstitial nephritis in a not very advanced stage, complicated by the supervention of an acute process. From a study of the foregoing in relation to other recorded cases, the following conclusions may be drawn:—

(1) The neuritic form of albuminuric retinitis is of rare occurrence.

(2) It is found usually in cases presenting severe cerebral symptoms, and may thus lead to suspicion of cerebral tumour. Renal disease must therefore be excluded, before resorting to a diagnosis of cerebral tumour in such cases.

(3) It is probable that in most cases other slight retinal changes are to be found at some time or other, which would point to the renal origin of the condition.

(4) It occurs mainly in cases of advanced chronic interstitial nephritis, but may also accompany other, apparently less advanced, forms of renal disease.

(5) The condition of the nerve is probably of the same nature as the choked disc of intracranial disease, and like it is to be attributed to increase of intracranial pressure.

(6) Its occurrence suggests a grave prognosis, and is usually soon followed by a fatal result.

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