OPTIC NEURITIS OF UNKNOWN ORIGIN.¹

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In the great majority of cases double optic neuritis is caused by organic intracranial disease, most frequently by tumor. In almost all of the remaining cases the cause is a general infection or intoxication. The number of infections and toxemic states that may possibly cause optic neuritis, without intracranial disease, is large, but this symptom is rare in any of them except uremia. If inflammation of the optic nerves does occur in uremia or in any of the infections it is generally accompanied by retinitis. A similar neuro-retinitis with hemorrhages is occasionally seen in the severe forms of anemia.

Some local diseases outside the cranium seem, very rarely, to cause optic neuritis in a way not as yet understood. Thus coarse disease of the upper part of the spinal cord, tabes, suppuration of the middle ear and even suppression of menstruation, have been included in the list of causes. Finally, as one of the following cases will show, intense double optic neuritis, such as is most characteristic of tumor, may occur without any other disease, local or general, being found to account for it.

In each of the following cases the original diagnosis of tumor or abscess, based mainly on the presence of optic neuritis, was wrong; they are therefore reported in the hope that they may contribute to an accurate estimate of the significance of this very important symptom.

Case I. Some years ago at the request of Dr. John Chase, of Denver, I examined a young man, far advanced in pulmonary tuberculosis, whom Dr. Chase was treating for a purulent discharge from the right middle ear, doubtless tuberculous in origin. Headache with chills, fever and vomiting had raised a question as to the existence of intracranial inflammation, and on finding double optic neuritis, of moderate intensity, worse on the right

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side, I diagnosticated cerebral abscess. Operation was not recommended on account of the general condition and the absence of localizing symptoms. The ear improved very greatly under appropriate treatment, the headache and optic neuritis subsided and, without the development of other cerebral symptoms, the patient died some six months later of pulmonary tuberculosis. Looking backward it seems most likely that the optic neuritis was caused by the aural suppuration without the intervention of a coarse intracranial lesion.

Case 2. Miss P., aged twenty-nine, was seen in February, 1902, in consultation with Drs. Alfred Mann and E. W. Stevens of Denver, to both of whom I am greatly indebted for details of the case. The patient was always delicate; a tendency to pulmonary diseases and suppuration of the right ear date from infancy. In 1898, at twenty-six years of age, repeated pulmonary hemorrhages caused a change of residence from Canada to Colorado, and great improvement followed. In the summer of 1899 there was some headache, which Dr. Stevens completely relieved by correcting refraction. The eye-grounds were then normal. Pulmonary hemorrhages occurred again in 1900, during and after a visit to Canada. In the summer of 1901 Dr. Stevens was treating the right ear and the suppuration had ceased. In July vision in the right eye failed rapidly, and intense optic neuritis, with hemorrhages scattered throughout the retina, was found. There was no pain, dizziness or nausea, and the urine was normal. The left eye was normal. Pulmonary hemorrhages again occurred. Four weeks after the affection of the right eye optic neuritis was observed in the left eye. Gait, station, reflexes and subjective condition were normal. The general condition was elaborately studied by Dr. Mann, assisted by several other physicians. The urine, in particular, was thoroughly and repeatedly examined with negative result. The swelling of the nerve heads reached three diopters, but mercury and potassium iodide seemed to cause improvement. In September the late Dr. Eskridge saw her, and a diagnosis of tumor was made, the treatment being discontinued. In the meantime suppuration of the right middle ear had started afresh. In January, 1902, vision had fallen to light perception, and mercury and iodide were resumed with considerable benefit.

I found the patient, in February, rather anemic but well nourished, her weight being greater than ever before. Speech and mental condition were perfect. There was no subjective disturbance whatever. Motion, general sensibility, stereognosis, the tendon reflexes, and the Babinski reflex were normal. Opacity, due to retinal hemorrhages, prevented an examination of the eye-

grounds. The patient was able to read very coarse type with great difficulty.

In view of the lapse of time and the absence of confirmatory symptoms, we all thought that the diagnosis of tumor must be abandoned. Taking the preceding case and the few similar cases in the literature into consideration, in the absence of any better explanation, we came to the conclusion that the aural suppuration might be the cause of the optic neuritis. Dr. Stevens accordingly did a thorough operation on the mastoid cells and tympanum. Improvement in the eyes began at once and continued steadily. The patient, who has returned to Canada, writes that she sees to read and write practically as well as ever, and that her general health is good.

Case 3. Miss M., aged sixteen, first examined March 16, 1899. Her father died, at about fifty, of some form of paralysis; otherwise the family history was good. She had been generally healthy in infancy and childhood, but at nine had both scarlatina and diphtheria, and at eleven suffered a mild attack of chorea. She had menstruated first in the preceding August, and again in December, but not afterward up to the time of examination. February 21, 1899, being apparently in perfect health, she did about an hour's work at school with the microscope, and immediately afterward complained of some pain in and about the eyes. This pain persisted, and two weeks later she consulted Dr. Wiest, of Longmont, Colo., who found vision in the left eye only 20-80, and referred her to Dr. Chase, of Denver. Five days later Dr. Chase found intense left optic neuritis with vision reduced to light perception; there was also a beginning optic neuritis in the right eye. For two days at this time there was some headache with nausea, and there was one spell of vomiting. There had been no diplopia, and mental symptoms had been entirely absent. Thinking it probably a case of intracranial disease, Drs. Wiest and Chase placed the patient in my care. I found the left pupil dilated and without light reaction; there was intense optic neuritis, the disk being swollen three times its normal diameter, its veins large and tortuous and buried here and there in exudate; there was a hemorrhage in the upper nasal quadrant; vision was limited to light perception. In the right eye the pupil reacted fairly well, there was optic neuritis of moderate intensity and vision amounted to 4-25. The patient's general appearance, facial expression, color and nutrition were excellent. Mental condition and speech were perfect. There was no motor defect except a slight weakness of the right ankle, which was only occasionally noticeable. The knee reflexes and Achilles reflexes were normal and equal on the two sides. Cutaneous sensibility was normal.

Smell, taste, hearing and the drum membranes were normal. Lungs, heart and circulation perfect. Urine clear, of full quantity and specific gravity; no albumin; no sugar. There was no fever.

The gravity and obscurity of the case compelled a careful consideration of even remote possibilities. Uremia was excluded by repeated chemical and microscopic examinations of the urine and by the continued absence of characteristic symptoms. There was no reason to suspect poisoning by lead or any other metal. Alcohol was not used. Anemia was manifestly out of the question. No attack of influenza or other acute infectious disease had preceded the optic neuritis. Syphilis, both acquired and inherited, was carefully considered from every point of view, and was excluded as certainly as it can ever be. Even the exceedingly remote possibility of a menstrual disorder having some causal relation was considered, but there was nothing to indicate that menstruation was not being normally established. In view of all these negative features and the intensity of the optic neuritis, a cerebral tumor was thought to be the cause, and an unfavorable although carefully guarded prognosis was given. Mercurial inunctions and potassium iodide were administered in full doses.

The diagnosis and prognosis were happily not confirmed. In ten days the inflammation of the left nerve was apparently subsiding, and vision in that eye had risen to counting fingers at three feet. But the nerve of the right eye was more swollen, and vision had fallen to counting fingers. From this time there was steady improvement in both eyes, the left surpassing the right. In six months the disks had entirely cleared and, although they seemed rather pale, vision in each eye was practically perfect as to acuity, colors and field. The case was carefully observed at regular intervals for more than a year, and reports have been received from time to time since. A few weeks ago the patient was still in perfect health. At no time has anything occurred to confirm the diagnosis of tumor or to throw any light on the question of cause.

As to the first and second cases, I think it quite probable that the aural suppuration had some causal relation to the optic neuritis, but such cases are too few to permit of any confident opinion as to the mode of origin. As to the third case, I can form no definite opinion of the cause that has any degree of probability. Even the supposition of an unknown toxic agent is not free from objection, for any symptoms other than the optic neuritis which might be attributed to intoxication were limited to about two days and could be otherwise accounted for.