which to my mind was unquestionably induced by the malarial fever, this point seemed to be clearly demonstrated. In this case, as shown in the figure, there were some very minute ulcers which seemed to be separated from the others in the branch by a narrow isthmus of unbroken epithelium, suggesting that the branch had been formed by the confluence and breaking down of little vesicles that were adjacent. The staining of certain points in the branch more deeply than others with fluorescein, seemed to indicate that these were the points of the original infiltrations. That anti-malarial treatment acts well in cases in which there is malarial poisoning has been pointed out by Kipp,¹⁴ Hotz¹⁵ and others, but this can hardly be cited as proof of the direct relation between malaria and dendriform ulceration. In Case 2, the exhibition of arsenic in 5 drop doses of Fowler's solution apparently worked like a charm, but I am still in doubt as to whether it was the anti-malarial or the caustic treatment that effected the cure.

Hagnauer observed sixteen cases of herpes corneae, in a period of six weeks, in patients affected with the grippe, and Hansen,¹⁶ Pflüger,¹⁷ Greff,¹⁸ Eversbursch¹⁹ and others, have recorded cases observed in the last epidemics of influenza, that in appearance simulated keratitis dendritica. It seems quite probable that future observations will tend to simplify the pathology of this interesting subject by classifying all dendriform ulcerations as herpes of the cornea, rather than adding the complication of another variety of keratitis.

70 State Street.

TWO CASES OF BRAIN TUMOR WHERE OPTIC NEURITIS WAS THE ONLY POSITIVE SIGN—AUTOPSIES.

Read before the Section on Ophthalmology at the Forty fourth Annual Meeting of the American Medical Association.

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Although pathognomonic symptom is a term in medicine, yet taken in its strict interpretation we have no symptom by which we can positively determine a disease without question. Taken in its better sense, a characteristic symptom of a disease, we may call optic neuritis a pathognomonic symptom of brain tumor. This has been so well established that it needs no discussion. The object of this report is not to further establish that fact, but to present two cases where optic neuritis was the first, and up to the time of its discovery, the only positive sign upon which a diagnosis could be based. For that reason I take it, brain tumor, with its ophthalmic aspects may be worthy of a discussion here, inasmuch as the ophthalmologist is sometimes called upon to give his opinion and to aid in the diagnosis of a case. To give positive or negative evidence as to choked disc may be all that is asked of him, but if he is also able by his knowledge of the relation between choked disc and intracranial diseases to differentiate between abscess, tumor, aneurismal tumor, etc., as well as to give some opinion as to its proba-

ble location within the skull, his services will surely be of more value than those of the specialist whose knowledge as well as his practice is limited to the eye.

Case 1.—Is a lad 17 years of age, well formed and well nourished, of good parentage. There is a large family of boys and girls all in good health. In April, 1887, he had a fall from a bicycle, striking his head and rendering him unconscious, from which he promptly recovered. From that date, however, he was under treatment from time to time, for what his physician supposed to be a general run down state. He had no special symptoms except weakness and malaise with occasional dizziness when walking. The physician under whose care he was at that time, tells me that at no time did he have any symptoms that led him to suspect any cranial trouble. In November, 1887, the family changed physicians and employed Dr. James Fraunfelder of Canton, Ohio. The boy made occasional visits to his office, complaining mostly of dizziness and occasional vomiting. The Doctor suspected some head trouble, but continued to treat him expectantly until in December, when he took to his bed, saying he was too tired to be about. Shortly after this he complained that his vision was imperfect and confused. My service was asked Dec. 15, 1887, to determine the cause of his eye trouble, and if possible shed light upon the diagnosis. I found the patient in bed. His greatest complaint was that he was tired, did not sleep well, and did not want to exert himself. While he had had occasional headaches up to this time, they had not been severe nor localized. There was no paralysis or febrile condition. An examination of the eyes revealed moderately dilated pupils, that reacted to light rather sluggishly.

With such tests of his vision as could be made, it was found that he could read large types and distinguish objects in the room. His confusion of vision was probably diplopia, although it was impossible to make tests to prove it. Such tests as could be made showed no paralysis of ocular muscles. The ophthalmoscope showed at this time a double optic neuritis in the swollen stage, with numerous retinal hemorrhages in the region of the disc. The revelation of the choked disc with the history of the head injury and character of the symptoms led at this time to a provisional diagnosis of cerebral abscess in the latent stage. The later gradual and uniform development of symptoms changed the diagnosis to that of brain tumor. These symptoms were, gradual and increasing pain, localized to right side, vomiting, gradually increasing in frequency. Facial paralysis and paralysis of external rectus muscle of right side. At no time was there rigor or rise of temperature, nor were the symptoms sudden or rapid, thus excluding any suppurative process. During the last week of his illness he had several epileptiform convulsions; except during these, he retained consciousness and a fairly good intellect up to the time of his death, which occurred the last week in January, 1888, five weeks after the ophthalmoscope revealed the optic neuritis.

Autopsy.—Body fairly well nourished. Calvarium removed, external and internal surface of skull normal. Calvarium not unusually adherent to dura mater; dura mater hyperemic. Surface of brain when dura was removed showed no abnormality or asymmetry. No unusual amount of fluid in arachnoidal space. Brain removed without membranes. The optic nerves when exposed showed to sight and touch no unusual appearance. Longitudinal sections of the brain were made from above downwards. The tissues were normal in appearance and consistency until the temporal lobe of right side was reached; here the tissues began to soften from above downward until a glioma, pear shaped, amber in color, soft and somewhat commingled with the cerebral substance was found, lying at the base of the middle lobe. Its long axis, more than two inches, was directed backward and inward. The large end, over an inch in diameter, was backward and within the temporo-sphenoidal lobe, the small end forward and outward.

Case 2.—Also a young man, 19 years of age. The history I obtained is imperfect, as he was living in the country and did not consult any physician early in his trouble. When he did, he went the rounds of all of them, so that it is impossible to get any connected report. In November, 1892, he came into the hands of Dr. J. F. Marchand of Canton, Ohio, with whom I saw the case, and to him I am indebted for the following history of symptoms: he first complained early in the summer of 1892 of an unsteadiness of gait; this continued until late in the summer, but was not sufficiently annoying for him to seek advice. Later, however, he had

¹⁴ Op. cit.

¹⁵ Chicago Med. Journal and Examiner, December, 1881.

¹⁶ Hospitals Tidende, 1891.

¹⁷ Reviewed in Annales d'Oculistique, Fev. 1892.

¹⁸ Berlin Klin. Wochenschrift Nr. 27, 1889, Ibid.

¹⁹ Münch. Med. Wochenschrift S 89, 1889.

seasons of vomiting, and for this he saw a number of physicians without relief. In September of the same year he took to his bed, not because of any inability to be about, but apparently from the beginning of a lethargy which continued to develop and from which he never could be wholly aroused. When I first saw him in November, 1892, he was vomiting considerably and had by this time become somewhat emaciated. His intellect was dull, his condition was passive in the extreme. He answered questions in short, shouting monosyllables, yes or no. It took him considerable time to understand what was said to him, but when he did understand, his answers were intelligent and correct. He complained of some headache, but it was seldom severe, and at this time not localized. The first examination of the eyes made at this time revealed widely dilated pupils. Eyes straight. Tests showed remote and proximate vision normal. The media were clear and fundus normal, except considerable hyperemia of the disc, which by subsequent examinations proved to be commencing optic neuritis. Under treatment with bromids and ergot his vomiting ceased for quite a period and his condition somewhat improved.

A subsequent examination made January 15, 1893, showed a double optic neuritis in the swollen stage, with numerous hemorrhages in the retina. There was still considerable vision, as he was able to read a typewritten address on an envelope and other such tests as could be obtained. There was no paralysis of any muscle of the body, and at no time up to the time of death did any develop. The subsequent history is one of constant decline. Emaciation became extreme, although he ate largely and vomited but little. Toward the end he became blind, developed the cephalic cry and was reduced to imbecility. On the morning of March 12, 1893, he ate a hearty breakfast and died almost instantly afterwards.

Necropsy.—Body greatly emaciated; calvarium removed; membranes anemic; no arachnoidal fluid; brain removed without membranes; surface of brain showed no asymmetry, but bloodless. Sections of brain made horizontally from above downward, nothing abnormal except anemic condition until ventricles were opened. These were enormously enlarged and distended with fluid. Further sections of the cerebrum showed no evidence of lesion. When the cerebellum was examined a tumor, disc shaped, about one-half inch in thickness and two inches in diameter, was observed upon the superior surface of the cerebellum, covering the superior vermiciform process and extending about equally over each lateral hemisphere. The tumor was a soft glioma and broke down under slight pressure. An examination of the optic nerves showed nothing abnormal to sight or touch.

Among the points of interest, those especially claiming attention are I think, 1, that the ophthalmoscope was the first to give objective and positive evidence of a cerebral lesion in either case; 2, the obscurity of the symptoms and the similarity in both cases of cerebral abscess in the latent stage. In Case 1, a positive diagnosis was not made until late, on account of the head injury being taken as a cause of abscess. In Case 2, a diagnosis of brain tumor was made, not because of any uniform symptoms of brain tumor, but because of the absence of any ascertainable cause of an abscess; 3, the location of the tumor. Tolerance of the nerve elements of the temporal lobe has been shown many times in abscess following injury or ear diseases. Tolerance is also shown in Case 1 to a tumor in the same location until it reached considerable size, when by encroaching upon the sixth and seventh cranial nerves, strabismus and facial paralysis resulted.

In Case 2, the remote position from intracranial nerves would account for the absence of paralysis of parts supplied by them. The mental condition in Case 2 was due, not to the location of the tumor primarily, but in all probability to the great distension of the central cavities of the brain and the consequent anemia, with its effect upon the nutrition of the elements. We find, however, in both cases, that while the other intracranial nerves tolerated the neo-

plasm, that the optic nerve succumbed to inflammation.

A point of interest in the autopsy is the absence of fluid in the arachnoidal space in both cases, as well as the apparent normal state of the optic nerves to the unaided senses. No microscopic examination of the nerves was made to determine the condition of the sheath or intervaginal space.

Of the two prominent theories advanced for choked disc, namely, the lymph space and the vasomotor paralysis theory, I can not see that these cases add to or subtract from either. Certain it is that our knowledge of the pathology of optic neuritis is unsatisfactory and that neither of the theories, clever and enticing as they are, are able to withstand criticism or investigation. The conclusions reached by Gowers¹ are rational and in accord with the present state of our knowledge. He says: "It is probable that optic neuritis is rarely due to a single factor, and that the most potent element is the descent of a process of tissue irritation, which when it reaches the papilla sets up a more intense inflammation; that in some cases this influence is alone effective; that in others it is aided by the distension of the sheath which hinders the escape of effete products, increases edema, or even conveys irritating material."

"The distinction between optic neuritis and choked disc is one of degree and not of mechanism. So far as optic neuritis has any single significance, it is that of an irritative process within the skull."

DR. DE SCHWEINITZ—I have listened with interest to Dr. Morrow's paper, and would urge the importance of placing upon record, in connection with careful ocular examination, all cases of intracranial lesion, especially tumors, in which the position of the disease had been substantiated by a necropsy.

We all know that there are the so-called "quiet regions" in the brain. I had a case in my own practice, of large tumor of the right frontal lobe, without the presence of active symptoms until about thirty hours before death. The tumor occupied the white matter of the right frontal lobe as far back as the bases of the first and second convolutions, and from the ventricular surface involved the head of the caudate nucleus, and by softening, the structures as far back as the thalamus, and yet was practically, if not entirely, quiescent. Optic neuritis had been present for some time and was probably the only symptom of the brain tumor until thirty hours before death, when convulsions, hemiplegia and conjugate deviation of the head and eyes to the left side were noted. These symptoms were the result of a fresh hemorrhagic lesion in the left crus and on the left optic thalamus.

I would urge the importance of a careful examination of the field of vision in all cases, especially if operative interference upon the intracranial lesion is contemplated. I have the report of a case of epilepsy, not Jacksonian in type, which has existed for two years, with no other symptom save the convulsive attacks and headaches. The fields of vision were concentrically contracted. Two years later double optic neuritis and left lateral hemianopsia were manifest. On the strength of the late development, hemianopsia, Dr. Wood diagnosticated a secondary lesion in the cuneus, thinking it probable that the original lesion, a tumor, was connected with the cerebellum, because this was the "region of silence" nearest to the area which gave evidence of the disease by reason of the hemiopic defect in vision. The patient was trephined by the late Dr. Agnew,

¹ Lectures on the Diagnosis of Diseases of the Brain. W. R. Gowers M.D., F.R.C.P., 1885, p. 164.

and a cystic tumor, or area of inflammatory degeneration, found within the cuneus beneath the gray matter. The patient died, and at the autopsy a large tumor occupying the second and third temporal convolution of the right side and approaching the fourth convolution, was discovered, together with a patch of hemorrhagic softening in the cuneus and a line of softening running nearly the whole length of the center of the occipital lobe. The field of vision in this case correctly located a lesion in the cuneus, although it gave no evidence of the tumor in the temporal lobe on the right side, which hence may be involved without the production of immediate direct symptoms. This case, utilized to illustrate the importance of the field of vision in localizing intracranial lesions, has been fully reported, both from the neurological and the surgical aspect, by Drs. Wood and White.

Dr. MORROW—In reply to Dr. de Schweinitz's remarks regarding the field of vision, I will say that it was impossible to get any satisfactory tests of the field. Such rough tests as were possible were of no value, and so were not reported.

I believe it to be highly important to impress upon the general practitioner the necessity of early and frequent examinations in cases of suspected head trouble, as well as in those cases where the diagnosis is clear, for the reason that positive evidence can often be obtained by the ophthalmoscope and perimeter, both as to the condition and location, that would escape other means.

PURULENT OPHTHALMIA FROM THE STAND- POINT OF ITS SPECIFIC MICROBIC CAUSE;

WITH A PLEA FOR A MORE ENERGETIC, RATIONAL, ABOR-
TIVE TREATMENT WHERE POSSIBLE.

Read before the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association at Milwaukee.

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(Concluded from page 564.)

Mauriac³⁷ decides that "the abortive treatment is indicated and has some chances of succeeding in acute gonorrhea only during the first hours of its outset." Diday³⁸ believes: "That in the early stage every gonorrhea can be aborted," and "that the abortive treatment is neither locally nor constitutionally dangerous." Two methods may be followed: a strong solution may be used for a short time in the urethra or a weaker solution may be left in contact for a longer time. A 5 per cent. solution of nitrate of silver is allowed to remain in the urethra from forty to ninety seconds, according to the pain produced. A free discharge occurs after two days, and as a result of the burning may continue for four days and then gradually ceases in a few days more. The abortive treatment is considered worthy of trial in view of the serious complications at times following a gonorrhea. *If possible complications govern the use of abortive treatment of an urethral gonorrhea how much more urgent is this plan in a similar inflammation of the conjunctiva, because of their infinitely greater frequency and more deplorable results to the eyesight of these cases.* According to Horner³⁹ the blind in different countries owe their loss of eyesight to this disease in from 20 to 79 per cent.

In the newborn eye, Credé⁴¹ of Leipsic, recommended the instillation of one drop of a 2 per cent. solution of nitrate of silver and had the satisfaction of noting a reduction of purulent attacks from 7.5 to 0.5 per cent. In the lying-in hospital of Halle,⁴² under the same treatment these cases fell numerically from 12 to 3 per cent. *The mechanical⁴³ removal or the destruction of the gonococcus is the therapeutical indication in all these cases. Remove the discharge and the loosened epithelia by watery solvent and brush, using at the same time and in the meantime an innocuous solution of the most powerful microbicide we possess.* The personal element in the treatment of all diseased conditions enters largely, and the followers of a plan are not always as successful as the originator. On this account, though all agree upon the same remedy, a few still advocate its use in strong solutions most carefully applied, for direct destructive effect; whereas, a more numerous company nowadays use nitrate of silver in weak solutions more freely and without injurious risk and with equally good results. *Without known exception, it is decided that the remedy should only be used after suppuration has commenced.*

Such a conclusion I most forcibly condemn as inaccurate and unscientific, and cite as my authorities the pathological facts of this paper, and those of my own clinical experience. For years past I have looked upon all forms of conjunctivitis as closely associated with mycotic processes, and have treated them on anti-bacillary lines, and invariably their severity and duration have been most favorably modified thereby. If one microbe can produce a colony, and the latter only results in that wonderful process of attraction of leucocytes from blood vessel to mucous surface, and which we designate suppuration, where is the wisdom of waiting microbic multiplication with its resultant pus before applying our anti-bacterial methods. *Here, without bacteria no pus is sound antiseptic teaching, and if we destroy, or remove them from the conjunctival surface, where recently implanted, or few in number, we will avoid the appearance of suppuration and escape entirely the so-called acute stage of the cases under consideration.*

Under any circumstances ample irrigation with thorough brushing of the conjunctival surface for the mechanical removal of secretion and microbes fills the indication. For the purpose of removing microbes from an infected instrument, H. Knapp⁴⁴ in 1886 found that irrigation with running water was insufficient, but by rubbing the blade with his fingers at the same time as washing and afterwards polishing with a towel he succeeded in sterilizing it. Gayet⁴⁵ of Lyons, after carefully disinfecting the conjunctival sacs of his cataract patients still found that microbes remained in 75 per cent. of them on making cultivation experiments. Hence simple water, or solutions of antiseptics, with irrigation of the conjunctiva alone, are insufficient to insure thorough cleansing, and Knapp's rubbing of the instrument finds its parallel in a thorough brushing of the conjunctiva. This method, however, did not suggest itself to me in this way, but was thought of as an ordinary common sense procedure. If brushing will remove germs from a dermal surface why not also from a mucous membrane?

A fountain syringe and light pressure was suggested years ago by Dr. C. S. Bull.⁴⁶ A mucous solv-