OPTIC NEURITIS FOLLOWING SPHENOIDAL SINUSITIS LOCATED BY THE DIFFERENTIAL EXPLORATORY TEST.*

BY

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AMONG the various lesions of the optic nerve that are known to occur as a result of sphenoidal sinusitis from infection by pyogenic organisms, definite optic neuritis may be one of the most important to trace to its source. In milder cases we believe that bacterial toxins alone suffice to cause relative scotoma and contraction of visual colour fields; but with a definite optic neuritis it seems probable that the infective organisms from focal sepsis of the involved sinuses penetrate the optic nerve sheath, as in the case of chronic sphenoidal sinusitis demonstrated after death by the researches of Pickworth.¹

On disinfection and drainage of the focal infection largely depends the saving of sight, and also, possibly, the averting of very grave sequels.

When the infected sinus is anatomically normal in development—that is to say, when the two sphenoidal sinuses are bilaterally symmetrical with a medial septum dividing the right from the left—the diagnostic location of the focal infection is relatively simple, and then the opening and draining of the infected sinus is fairly straightforward. Unfortunately the anatomical development of the sphenoidal sinuses and the posterior ethmoidal cells is very frequently most irregular, for one sphenoidal sinus may be very large, while the other is small, much undeveloped, and, so to speak, so tucked away as to occupy a small corner difficult of access. Again, the posterior ethmoidal cells may be exceptionally large, and extend back so as to occupy the space proper to a sphenoidal sinus; they may even extend backwards above the corresponding sphenoidal sinus, which then lies beneath the backward extension of its posterior ethmoid cell.² When healthy, such abnormal anatomical conditions are immaterial, but when infected the actual location of the diseased sinus may be a matter of supreme importance, for although an infected cell be small and extraordinarily undeveloped, it may be large enough to breed millions of pyogenic organisms.

Formerly I fear I must have failed on many occasions to detect focal infections in such circumstances until I hit on a method by which the difficulties mentioned may be circumvented. This, for want of a better term, I speak of as the "differential test," as related in two remarkable examples I reported recently.³ In the case I now record this diagnostic method proved invaluable.

A man was referred to me by Dr. Prosser James in December, 1927, with blurred vision and aching in his left eye. He had tonsillotomy at the age of 10, and a traumatic septal deflection when he was 12, and more or less recurrent nasal catarrh since then; no history of syphilis or gonorrhoea was present, but he had influenza in 1921. His eye troubles began with iritis in the right eye in January, 1925, but he later developed left-sided iritis, and was then seen by Dr. Leighton Davies, who diagnosed optic neuritis.

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When I first saw him there was no nasal discharge, and, in fact, examination of the nasal passages was negative with the sole exception of slight fullness of the minute vessels in the arch of the choana, as seen by endorhinotomy. Such vascular fullness I had seen before in similar cases, and therefore, despite the absence of any other indication of nasal infection, the sinuses were explored with the suction syringe by my usual method.

The results obtained were as follows. The right antrum was clear and sterile.

The left antrum contained pus (*Staphylococcus aureus*).

The sphenoidal sinus entered through the right nasal passage contained some blood, some crystals, but no organisms; the sphenoidal sinus entered through the left passage was sterile. The right posterior ethmoidal cell (3½ inches) contained blood from which *Staphylococcus aureus* was recovered. The left posterior ethmoidal cell (3¼ inches) was clear, and staphylococci were similarly obtained from it. But on applying the "differential test" it was proved that the sphenoidal sinuses entered through the right and left nasal passages were one and the same cavity! It followed that the other sphenoidal sinus had yet to be found; by the use of a fresh cannula passed through the right nasal passage, and another through the left; owing to abnormal over-development of the right sinus both cannulae have entered this sinus; the small ill-developed left sinus has been missed. Proof of this is afforded by attaching the syringe to one "differential" cannula and quickly injecting sterile water, which appears escaping from the free projecting end of the other cannula.

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FIG. 2.—One cannula passed into the sphenoidal sinus through the right nasal passage, and another through the left; owing to abnormal over-development of the right sinus both cannulae have entered this sinus; the small ill-developed left sinus has been missed. Proof of this is afforded by attaching the syringe to one "differential" cannula and quickly injecting sterile water, which appears escaping from the free projecting end of the other cannula.

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The results of this operation and further course are best shown by citing the reports of Dr. Leighton Davies, who writes:

"When I first saw him in March, 1925, he had very severe iridocyclitis of both eyes with double optic neuritis, vision R. 6/24 L. 6/60. He had an x-ray examination of his teeth, and two were removed on account of abscesses at the roots. I had the patient's nose examined, and it was then reported free from infection. Some staphylococci were found in the urine, and for this he was given autogenous vaccines; he improved very considerably, and, curiously enough, relapsed each time the vaccine was given up. By October, 1925, the iritis had entirely disappeared, and the optic neuritis was rapidly subsiding; in December I discharged him as cured. He started work in London, but almost immediately began to relapse and was seen by Mr. Fleming."

FIG. 3.—By directing the left exploring cannula more outwards, it has been made to enter the small left sphenoidal sinus previously missed. Consequently, the two cannulae being now in separate cavities, water injected through the one obviously cannot escape through the other. Hence the proof of having entered both sinuses, one over-large, the other abnormally small.

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In March, 1926, he was seen again by Dr. Davies, when there was a distinct recurrence of the optic neuritis, but no iritis; he had practically recovered by July, 1926, and in the meantime had had a tonsil enucleated. In November, 1927, he had another recrudescence of his optic neuritis. On no occasion has there been any scotoma, either relative or absolute; the fields were quite symmetrically contracted, and there was no enlargement of the blind spot.

On January 2nd, 1928, three weeks after the sinus operation, Dr. Leighton Davies reported:

"The vision has improved, and this improvement is associated with a very definite lessening of the optic neuritis, which may be said to have practically subsided, though, of course, the appearance of the discs is not quite normal. He has never made quite such rapid improvement."

On April 30th, 1928, three months after the nasal sinus operation, Dr. Leighton Davies reported:

"All the evidence of any congestion of the blood vessels of the retina has disappeared."

Time alone can show whether the remarkable improvement following operation will be permanent. The main purpose of this communication is to describe the diagnostic technique for infection of irregularly developed sphenoidal and posterior ethmoidal sinuses, which has proved immensely helpful in several cases coming under my notice. I believe that it would have been impossible to detect the highly virulent focus of streptococcal infection in this case except by the diagnostic method described. At any rate it is felt that such exploratory methods have the advantage of giving exact information as to the presence and location of an infection, or of its non-existence, in which case any useless operation could thereby be avoided.

REFERENCES.

- ¹ *Journ. of Laryngol. and Otol.*, xliii, No. 3, p. 188.
- ² The Operation for Drainage of the Sphenoidal Sinus, *Bristol Med.-Chir. Journ.*, xxxiv, No. 131, December, 1916.
- ³ Anatomically Irregular Sphenoidal Sinusitis with Optic Neuritis, with Two Examples, *Lancet*, 1925, vol. ii, p. 858.

PROSTATIC OBSTRUCTION.

A SUGGESTED PROCEDURE FOR MORE ACCURATE DIAGNOSIS
AND FOR THE TREATMENT OF SELECTED CASES.

BY

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The procedure described in this paper is suggested for the treatment of various types of prostatic obstruction, for which the methods of treatment at present employed are not entirely satisfactory. It is devised particularly for dealing with small and moderate enlargements of the fibroid type and with local adenomatous projections on the vesical orifice. In most of the prostates of this type the pathological capsule is so ill developed, or is so adherent, that clean enucleation is impossible. It is these cases that give so much trouble during operation and are followed by the least satisfactory results.

The technique here described serves two purposes: (1) the more accurate diagnosis of the type of prostate that is causing obstruction to the urinary outflow; (2) the destruction by electro-coagulation, under visual control, of the offending portion of the prostate. It entails the use of two instruments, which may respectively be termed the diathermy catheter and the suprapubic cystoscope. The catheter is passed per urethram, the bladder is then distended with water and the cystoscope passed into it by suprapubic puncture (Fig. 1).

Description of Instruments.

The diathermy catheter is exactly similar in shape to the ordinary gum-elastic coude catheter (Figs. 2 and 3). It is 12 inches long and 22 Charrière in circumference. It consists of a metal tube insulated with special boilable lacquer. It is provided with two lateral eyes on the bend, and terminates in a detachable silver electrode. Various

shaped and sized electrodes can be fixed as desired. The proximal end terminates in a cylindrical chamber and connecting plug attached thereto at right angles. The chamber is provided with a stopcock, which controls the flow of the fluid. The catheter is connected to the diathermy machine by means of a rubber-covered cable with push-in connector.

The suprapubic cystoscope consists of a valved cannula (Fig. 4) fitted with compression ring and rubber washer, trocar and cannula (Fig. 5), and telescope (Fig. 6). The size of the cannula is 21 Charrière in circumference and 4½ inches long. It is provided with a sliding guard, which can be fixed in any position. The optical system, owing to its comparative shortness (6½ inches in length) and large diameter, gives a very brilliant image. It is, in addition, provided with wide angle objectives. The lamp is enclosed in the alignment of the telescopic sheath in order to ensure smooth passage through the cannula. It is connected to the battery by means of the usual switch, which is sprung into a groove behind the eye-shield. Leakage at the proximal end of the cannula can be controlled by means of the compression washer in the cannula.

Anaesthesia.

The procedure can be carried out under urethral or sacral anaesthesia, combined with local infiltration at the site of the suprapubic puncture,

but in the main I have used general anaesthesia.

Technique.

The patient is placed on the table in a moderate Trendelenburg position. The indifferent electrode of the diathermy machine is applied to his thigh, preferably the right, as the operator stands on his left side. The diathermy catheter is introduced and the bladder filled with sterile water from a funnel. It is filled to such an extent as to ensure that the peritoneal reflection is raised away from the pubis so as to allow of the introduction of the cystoscope into the bladder. A small incision, a quarter of an inch long, is made through skin only, in the middle line, 1 inch above the pubic symphysis. The trocar, carrying

FIG. 1.—The cystoscope should have been shown as entering the bladder nearer the pubic symphysis and in a vertical direction.