Clinical Department.

THE TREPHINE OPERATION IN GLAUCOMA*.

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THE unsatisfactory results of iridectomy in chronic cases of glaucoma have been acknowledged by all operators.

I wish to define chronic glaucoma, for the purposes of this paper, as those cases in which there is a continued, slowly increasing tension with steadily diminishing vision and field.

The progress of the disease can be stayed to a certain extent by the use of myotics, but as a rule, they lose their efficacy in the end, and the disease goes on to blindness.

When iridectomy was practically the only operation done for chronic glaucoma it was usually found that the vision diminished immediately after the operation and rarely returned to the condition just previous to the operation, and the ultimate result of many of these cases was that the progress of the disease was not stopped. This unsatisfactory state of affairs has led a number of operators in the last ten years, to devise operations by one means or another, to establish a corneal fistula at the sclero-corneal margin by which the aqueous would drain out beneath the conjunctiva, and thence be absorbed. Some of these operations have been deemed by their advocates, and by others to introduce into the case new dangers, and also to be, in some instances, difficult operations to perform. Several gentlemen, of whom Dr. Elliot of the East Indian Medical Service is the most prominent, have advocated the use of the corneal trephine to remove a disc at the sclero-corneal margin. As this method seems easier and safer than the other methods proposed, I have done nine operations following the method of Dr. Elliot with the exception that in all but two instances which will be noted, I have done a complete iridectomy through the opening made by the trephine, and am glad to accede to the request of the chairman of the committee on papers and present you with a brief resumé of these cases.

CASE 1. A woman, a Syrian, 48 years of age, first seen by me May 28, 1913.

The left eye had an attack of acute glaucoma three years before, but as far as I could determine there had been practically no local treatment, simply morphia for the pain.

At the time of this visit the right eye had good vision with normal disc.

In the left eye she had a tension of + 2, pupil 5 mm. in diameter, typical pathological depression of the disc, and great pain, which had been increasing for several weeks. Two per cent. pilocarpine only reduced the pupil to a diameter of 4½ mm. The tension was very doubtfully diminished, and the pain continued. There was no vision.

Operated on by me June 10 with Elliot's trephine. Good operative result, but after recovery she still complained of some pain and the tension was a little above normal. Pilocarpine controlled the pain.

The patient was seen by me September 13. There was some complaint of conjunctival irritation, but no pain. Over the trephine opening there existed a very large, translucent bleb, which had a base of 7 or 8 mm. in diameter, and an elevation of at least 5 mm. with conjunctival congestion in this neighborhood. Tension had not increased since June. She was using no myotic and had no severe pain. The result was a success in that otherwise we should have been obliged to have removed the eye on account of the unbearable pain.

[Later. The eye was subsequently enucleated for pain and increase of tension.]

CASE 2. Mrs. F., 48 years of age, first seen by me June 30, 1901.

There was slight increase of tension, marked depression in the disc in each eye, but not so much that one would feel sure it was pathological.

The field of the left eye was lost almost to the fixation point down and in. V.O.S. was 20/CC. Vision in the right eye was .7‡2. She was given pilocarpine and when next seen by me in September, vision in the left eye had risen to 20/C-1, and in the right eye it was .8-4. There was no shallowing of the anterior chamber, no history of rainbow halos. Tension was very doubtfully increased. Field in the right eye was slightly diminished in all directions. A collyrium of pilocarpine was prescribed and she was seen by me from time to time.

In March, 1903, vision in the right eye had risen to .9-3. The tension was normal under the myotic. The vision remained the same without lessening of the field or vision under continued use of pilocarpine, till May 6, 1908, when I found by my note that the entire nerve in the right eye was somewhat depressed, although the vessels did not cut under in any place. The vision was .9-5. May 3, 1909, the tension was slightly increased in each eye. Vision in the right eye had fallen to .7, and the field was more contracted than on previous occasions. The pilocarpine solution was increased in strength and the tension became normal, but the vision in the right eye did not again rise above .7. March 7, 1911, vision in the right eye still remained at .7. The field also never recovered its former size, though not markedly diminished.

In the left eye there was some congestion suggestive of chronic irido-cyclitis. Vision in the left eye by June 16, 1910, was diminished to 1/CC eccentrically.

In June, 1911, the field in the right eye had again diminished in size, but vision remained the same. The appearance of the disc was slightly more pathological in character.

In October, 1912, vision in the right eye had fallen to .5, the field had diminished, especially upward and inward, and I advised operation. The patient returned in February, 1913, and by focal light there was slight haziness of the cornea.

The trephine operation was done by me May 22, 1913. The removal of the disc left a small layer of sclera in the bottom of the trephine opening cover-

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ing the lower third. The iris was coaxed through the opening and a generous iridectomy done. There was considerable hemorrhage. Recovery was without incident. The bleb over the trephine opening was distinctly visible, though not nearly the size of the one previously described. Tension was normal.

September 13, 1913, tension was still normal and vision was 20/XL. The patient comfortable.

CASE 3. Mr. Y., 54 years of age, first seen by me November 9, 1905.

Fifteen years before he had a von Grafe operation on the left eye for cataract, and three years before vision in the left eye had begun to fail. Previously he could read fairly well.

In March, 1904, he had had a secondary operation on that eye but without benefit. When I first saw him tension was + 1 —, he saw colored rings at times, especially blue and green. The ophthalmoscope showed a white nerve with deep depression of the temporal two-thirds of the disc. There was loss of field to the inner side. Vision in the right eye was 4/CC with a partially opaque lens and no tension.

I advised preliminary iridectomy and extraction in the right eye. The extraction was done under cocaine November 19, 1905, without incident. Subsequent vision in the right eye was 20/XL. A secondary operation was done December 6, 1907. There was no ophthalmoscope abnormality of the disc.

In March, 1908, he had a hemorrhage into the vitreous of that eye which left a floating membrane. There was increase of tension afterwards and vision in the right eye fell to 7/XL. Two per cent. pilocarpine kept the tension normal and vision remained the same till January, 1910, when pilocarpine failed to control the increase of tension and one-fifth per cent. eserine was added to the solution. He had a stronger solution of eserine which he used when rings around the lights returned, that stopped the phenomenon. Vision remained approximately the same until December, 1911, when there was distinct loss of vision and contraction of the field on the nasal side.

In June, 1912, there was some steaminess of the cornea of the right eye. He was given one-half per cent. eserine to use habitually, but vision and field continued to fail and haziness of the cornea to increase. In April, 1913, after the use of eserine twice, the tonometer gave a tension of 45 mm. Hg., and I advised trephine operation.

The operation was done April 24, 1913. There was a good-sized bleb over the trephine opening after recovery. Tension was normal. By May 21, steaminess of the cornea and the little stippling of the surface had entirely disappeared and the eye was comfortable.

In September vision, which before operation had diminished to perception of light had increased to 2/C. There was no pain, tension was normal and he was using no myotic.

CASE 4. Miss R., age 59 years, first seen by me May 13, 1910.

Fifteen years before she had first symptoms of glaucoma in the right eye, *i.e.*, rainbow halos, etc. Nine years later iridectomy was done. At the time of this visit, vision in the right eye was .7 and the patient said it had remained practically the same since the operation.

Six years before she first noticed rainbow halos in the left eye, and some irritation after long use. Vision in the left eye was .7 —. She was using a myotic and was very much opposed to another operation.

Ophthalmoscope showed depression of the disc in the left eye, well marked, though not typically pathological. Anterior chamber shallow, field approximately normal. She continued under my care and with the use of a myotic, examination from time to time showed little appreciable change.

In October, 1910, the patient stated that without the use of the myotic the eye got hard. Halos were seldom seen.

September 12, 1912, vision in the left eye was .7 and the patient reported that a sleepless night, or any physical or mental disturbance would make the pupil in that eye unusually wide and that on this occasion it still remained wide open with the myotic. It was wide and one-fifth per cent. eserine was added to the pilocarpine solution. She returned three days later with small pupil. Vision, however, in September, 1912, had fallen to .5 and the field was contracted to the inner side, the tension slightly raised. It was found necessary to increase the strength of the eserine to control the situation.

In June, 1913, the patient returned after having been absent from the city during the winter. Vision in the left eye had fallen to .4 + 1. Pupil was 3 mm. in diameter, anterior chamber very shallow and there was a number of adhesions of the iris to the lens capsule. No history that the eye had been red during the interval.

I advised trephine operation and the patient consented, although she had previously determined never to have an operation on the second eye.

The operation was done June 12, 1913. The iris was so tied down that an iridectomy could not be done through the trephine opening, but a large button-hole was obtained.

November 11, the field had returned to approximately normal size. Vision was .4. No pain. Patient said the eye reddened somewhat from continued use. She was using no myotic. Tension was normal.

CASE 5. Mrs. L., 59 years of age, first seen by me September 2, 1913.

Vision had been distinctly failing for three months. Vision in each eye barely perception of light. No pain, headache or halos. Pupil not dilated, anterior somewhat shallow. Ophthalmoscope showed a large pathological depression of each disc. O. D. tension + 1 and O. S. + 1—.

The trephine operation was advised. This was done September 3d on the left eye and the 10th on the right eye.

A fair iridectomy was obtained through the trephine opening in each case and there was good drainage through the opening in each eye.

After recovery from the operation the patient returned to another city and subsequent history of the case is limited to a letter stating that the patient three months after operation could see large objects.

CASE 6. Miss L., age 73, first seen by me December 7, 1912.

First had slight discomfort and pain in right eye eight years before, and at the end of a year vision in this eye had considerably diminished until at this time there was no perception of light. This had been about the same for five or six years.

Vision in the left eye had been diminishing for

three or four years, more rapidly the past six months. There had been considerable pain, but no halos. The anterior chamber was shallow, the pupil in the left eye 3½ mm., although she was using a myopic. Tension +1 and field lost to point of fixation inward and downward. Vision 20/XXX-2. There was a deep pathological depression in each optic disc. The patient's mother lost vision in one eye wholly. Mother's brother and sister were blind from glaucoma. The maternal grandfather had very poor vision. Except in the case of the uncle and aunt, the patient did not know the cause of the loss of vision.

The pupil contracted under a myotic, the slight congestion disappeared and the tension diminished. Advised operation.

On September 10, 1913, did a trephine operation under holocaine with large button-hole iridectomy through the trephine opening. There was good drainage after the operation.

CASE 7. Mr. A., an Armenian, age 55 years.

First seen by me May 21, 1913. For thirteen months vision in the left eye had been failing, said to have followed some accident. He had an iridectomy, but the vision continued to fall. At the time of the visit, vision in each eye was falling and tension in each eye was +1. 32 mm.: Hg. O. S. and 35 mm.: Hg. O. D. Patient counted fingers at six feet with each eye.

Advised operation. Patient went away and did not return till November, 1913, and then vision was reduced to perception of motion at three feet. There was a shallow anterior chamber, pupils dilated, and the field showed that in each eye it was reduced to a small rounded area extending from the point of fixation about 25° horizontally outward, much less vertically in the right eye, and in the left eye the field of vision covered only about 10° and was similarly placed to that of the right eye.

On November 18th, a trephine operation was done on the left eye, and on November 25th, on the right eye.

The operation on the left eye was done near the margin of the previous iridectomy, but I did not succeed in increasing the iridectomy. Upon recovery there were distinct blebs over each trephine opening. On January 4, 1914, vision in the right eye was 7/CC. Tension was normal.

Any ophthalmologist who has followed these cases will recognize them as those which present the most unfavorable aspect for operative benefit, and the majority of them with the old method of iridectomy would probably go on to permanent and total loss of vision.

These operations I have done according to the method prescribed by Dr. Elliot in which a rather large flap of conjunctiva is dissected up to the margin of the cornea, thence the dissection is more carefully made so that the epithelial surface and perhaps the anterior layers of the cornea are elevated and the flap is then turned back over the cornea, the trephine blade is placed so that about half of its diameter overlaps the dark crescent of the cornea, the other half being over the opaque sclera.

The trephine button is removed as thoroughly as may be, although Dr. Elliot himself feels satisfied if the corneal half of the opening is left patent. The iris is then seized through the opening and a portion of it removed. In most of my cases I have done a complete iridectomy. The conjunctiva is replaced and sutured.

I have found the operation in my hands easy and safe. In none of these cases did I find it necessary to use a cutting instrument to dissect up my flap from the cornea, and I did not carry the cut in the conjunctiva absolutely to the sclero-corneal margin, but I left a space of one or two mm. on each side. I have found the horizontal handle which comes with the Elliot trephine to be a distinct aid in determining the direction in which the cutting instrument is acting, as the slightest tipping of the trephine is perceptible owing to the turning of the flat horizontal handle between the fingers of the other hand. The movable stop on the blade which comes with the Elliot instrument for the purpose of guarding against too deep incision I have found to increase the difficulties of the operation by obscuring the seat of operation. However, it is of considerable comfort to the novice in this operation.

I believe we have in this method a new and valuable procedure and that its use will probably be more and more extended to other varieties of glaucoma as our confidence increases. Whether constant leakage of the fluid will tend in time to impair the physiological functions of the eye only time can determine, but as far as we can see at the present time, the trephine opening effectually prevents any subsequent pathological increase of the intraocular tension.

A SIMPLIFICATION OF THE TECHNIC OF REPOSITION OF THE RETROVERTED UTERUS.

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THE technic usually described for the reposition of the retroverted uterus is as follows:

Grasp the cervix with volsellum forceps and draw down the uterus. With the finger in the posterior cul-de-sac, raise the fundus until it can be grasped by the fingers of the other hand on the outside of the abdomen. Then push the cervix back into the hollow of the sacrum.

This process is often very painful, and necessitates a certain amount of trauma. It has been my experience that only the first and last of these steps are necessary.

The method which I have used is as follows: Grasp the cervix with volsellum forceps, raise the handle as shown in the diagram (1), and push the cervix back into the hollow of the sacrum (2).