of ionization is simple, its technique having been improved by new apparatus and new practical electrodes. Every practitioner in eye work may employ it with ease. We repeat once more: The method is of great therapeutic value in most of the common diseases and changes of the eyes and, when used in the uncommon and rare cases, sometimes produces astonishing and very impressive therapeutic results. If used in the early stage of a disease the restoration of the function is complete. But even in chronic cases the method should be tried since it stops the progress of inflammations and is a mighty factor in accelerating the resorptive power of the tissues.

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SCLERECTOMY WITH IRIDENCLEISIS.—A MODIFIED GLAUCOMA OPERATION

BY

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JAVA

SEEING that there have been described so many good operations for glaucoma, I have been in doubt, whether I should publish the method which I have used during the last ten years. Still, as it has given good results, it might perhaps be of some use to describe it.

My idea has been to find a method that will combine perfect safety with great efficiency. It is in reality to a certain degree a combination of Herbert's wedge-isolation-operation and iridencleisis; but there are differences which prevent me from calling the operation after Herbert. These differences are the following:

1. I am not operating subconjunctivally, but exposing the operation-field by forming a conjunctival flap.

2. I combine the two operations mentioned above; and

3. I fasten the fold of the iris in order to prevent it from withdrawing into the anterior chamber, a mishap which otherwise often will take place. For this purpose I use a stitch. The only suitable material for this purpose is a woman's hair.* Further details are given in the description of the operation which follows.

First are given two instillations of pilocarpine and then 4 instillations of 5 per cent. cocaine, then pencilling of palpebrae and surroundings with tinct. jodii 1-spir. fort. 4. For injection I use a solution of cocaine and adrenaline (or supra-renine) of which 1 c.c. contains 2 milligrm cocaine and 1 drop of a 1 per cent.

Fig 1.

solution of adrenaline. From this solution are given 2 c.c. retrobulbar, 1 c.c. subconjunctival on the upper part of the globe and 5 c.c. around the external canthus for akinesia. Then 4 instillations of cocaine and 2 of adrenaline.

The retrobulbar injection is very important; in the first place because it diminishes the tension considerably, and then for the anaesthesia and immobilization of the globe. After the injection we must wait 10-15 minutes before beginning the operation.

First. An external canthotomy is made. The conjunctiva bulbi is cut along the upper third part of the limbus. At both ends the incision is elongated 4 mm. in a horizontal direction. The flap is freely undermined and pushed away from the limbus (Fig. 1, a a).

Now, the wedge-isolation-operation of Herbert is made with the very narrow knife of the same author. The length of the flap is 7 mm. and the breadth 2 mm. (Fig. 1, b b). If the point of the knife should appear outside the limbus, it must be withdrawn and adjusted, otherwise the iris will easily get perforated.

* Women's sterile hairs are available in flacons (RM. 1.30) from R. Wurach, Berlin C2, Neue Promenade 5.

Before the incision has been quite finished, the top of the flap is cut off from behind.

This fragment, "the wedge," can be removed; but if it is a little adherent at a single point, it can also be left. It will not cause any difficulty. In Fig. 1, we see the flap b b after the top has been cut off.

For the following manipulation we must use Matthieux's iris forceps. With this instrument the iris is grasped half way between the root and the edge (Fig. 2). A fold of the iris is drawn out and perforated with a fine needle armed with a woman's hair

which is also provided with a needle at the other end (Fig. 3). Both ends are brought through the conjunctival flap from behind forward at a distance of about 7 mm. from the edge (Fig. 4). *The stitch need not be tied.* The ends are cut off in a length of 8 cm. and are fixed on the skin with leucoplast, but in no way stretched; on the contrary, they must be so long, that the eye can move freely in all directions without any stretching of the hair.

The conjunctival flap is drawn freely down over the cornea and fastened in this position by two stitches. After the operation has been completed, atropine must be instilled twice. This is important. It is advisable to close the canthotomy with a single stitch.

In Fig. 4, the conjunctiva bulbi has been drawn down over the whole operation field and fastened in this position by two stitches, c c.

The letters h h mark the free ends of the hair. The stippled lines show what is covered by the conjunctiva, viz., the sclerectomy-wound and the fold of iris, kept in position by the hair.

Fig 4

The hair is not only used to keep the iris-fold in its place, but also to dilate the two openings made by the needle and in this way to keep the drainage of the anterior chamber going. This is done in the following way :

While the ends of the hair are kept in place by the pressure of a finger, and the patient is told to look downwards, a glass rod is passed behind both parts of the hair, and they are stretched upwards with moderate force. In this way the iris-fold is also stretched upwards, and the holes in it are dilated. During one week this manipulation is repeated every day, and then the hair is removed.

In Fig. 5, we see a diagram of a sagittal section of the eye; a is the iris-fold, b one of the holes and c the conjunctiva bulbi.

Fig 5

I imagine that somebody perhaps while reading this description would ask himself the question: "But what about infection?"

I fully understand this. In fact, I should never think of doing this operation when using a thread as sewing material—even if it were possible. All the fine voids in the thread would be hiding places for microbes and sources of infection. But a hair is a compact cylinder. And there is one thing more; the needle holes in the conjunctiva bulbi will very soon close firmly, "hermetically" around the hair.

However, more important than these considerations is the experience, and I am pleased to tell, that in 107 operations there has not been the slightest trace of infection or even of inflammation.

The results of the operation have usually been very good. In a few cases there was for a time a moderate increase of tension. In such circumstances treatment with pilocarpine will sometimes be sufficient. When the patient was living far off, I have preferred to perform a second operation opposite to the first and then with good result.

I can say, that time and experience have increased my confidence in the operation.

ABSTRACTS

I.—TRACHOMA

MacCallan, A. F. (London).—Trachomatous conjunctivitis, its surgery and pathology. *Lancet*, p. 215, January 25, 1936. Hunterian Lecture. R.C.S.Eng. on January 17, 1936.

MacCallan states that trachoma is a primary epithelial lesion probably due to a virus and that the histological changes seen in subepithelial aggregations, and sometimes diffuse exudations, of lymphocytes differ in no way from other forms of conjunctivitis such as follicular conjunctivitis. The characteristic features of trachoma are the extension of this subepithelial lymphocytic infiltration to the upper fornix and down to the upper corneal limbus, and the formation of pannus. Pannus is the result of direct spread and is not caused by contact with the infected upper palpebral conjunctiva.

The gelatinous swellings seen in stage 2 are not due to development and change in the original follicles but to occluded ducts of Meibomian and sebaceous glands with retention of their secretion.