THE CORNEO-SCLERAL TRACK SUTURE*

A NEW TECHNIQUE

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VERY many different corneo-scleral stitches are used in cataract extraction, and it is generally agreed that such stitches should be capable of closing the corneo-scleral section promptly at any stage of the operation with perfect apposition of the lips of the wound and without danger of inversion. It should, furthermore, be simple to introduce, and not hinder the subsequent steps of the operation. For obvious reasons a suture placed before beginning the corneo-scleral section is to be preferred.

Track Suture

According to these criteria, a track suture may be considered satisfactory. The usual technique for placing this suture may be summarized as follows:

The conjunctiva is separated from the upper part of the limbus, and somewhat undermined. A No. 5 black silk suture on a semicircular $\frac{3}{4}$ " needle is passed vertically across the limbus through the superficial half of the sclera and cornea, including 2 mm. of each at 12 o'clock. This track suture is then cut short so that a few millimetres remain protruding from each end of the track. The section is then made, cutting the track at the corneo-scleral junction, and dividing the suture within it. The track is now threaded from the corneal side with a No. 6 black silk suture double-armed with $135^\circ \frac{1}{2}$ " needle, by pulling out the contained suture from each half of the track. The upper needle also includes the cut edge of the conjunctiva. The central part of the suture is lifted up, as a loop, and the cataract extraction proceeded with. While tying the suture, the assistant pulls down the conjunctiva over the wound which is thus sealed off effectively.

The outstanding feature of the track suture would appear to be the perfect apposition of the lips of the wound which it affords without any tendency to inversion. The threading of the track, of the limbal end particularly, is sometimes time-consuming and requires practice. Moreover, although the track is made before the section, the stitch, in essence, is post-placed, as the track is threaded *after the section*, a serious drawback should a crisis necessitating closure of the wound develop during the early part of the operation. To overcome this shortcoming in an otherwise satisfactory procedure, the following technique is suggested.

A Pre-Placed Track Suture

The conjunctiva is separated from the upper part of the limbus with a few nicks of a straight conjunctival scissors, and somewhat undermined. By applying fixation forceps near the limbus at 6 o'clock the globe is fixed, and rotated down by a slight pull on the

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bridle suture through the superior rectus. An unthreaded semicircular $\frac{3}{4}$ " needle is passed vertically through the superficial half of the sclera, 2 mm. above the limbus, at 12 o'clock, so as to emerge after traversing the anterior half of the cornea 2 mm. below the limbus (Fig. 1). The needle is allowed to remain in this position and the fixation forceps are removed. A horizontal cut is then made through the limbus down to the needle with a sharp narrow knife. This cut divides the anterior layers of the track (in which the needle is lying) into two parts, scleral and corneal (Fig. 2). The slot separating these two parts extends for 2 or 3 mm. on either side of the needle. While the cut is being made there is a tendency for the needle to wobble. It is essential, therefore, to steady it by catching it near the tip with a fixation forceps, and lifting it up a little. As soon as the limbus has been cut down to the needle the feel of the knife against the needle is unmistakable.

FIG. 1.

I.H.

FIG. 2.

I.H.

The track needle is now withdrawn by a needleholder, and the track is threaded with No. 6 black braided silk suture on a Grieshaber 7 mm. needle (a 135° $\frac{1}{2}$ " needle may be used instead). After taking in the conjunctiva the suture needle is introduced into the track from the scleral side (which is accomplished easily), emerges from the corneo-scleral slot, and is pulled out of it (Fig. 3). The suture is pulled forward with the needle to make a large loop. The suture needle is next introduced into the slot through the upper end of the corneal track, and emerges from the lower end of the corneal track (Fig. 4).

FIG. 3.

I.H.

FIG. 4.

No difficulty is encountered in finding the track after removal of the track needle, and it is surprising how quickly the threading of the track is effected without any hitch or loss of time. The assistant now holds apart the free ends of the suture along with the upper and lower ends of the loop, while the corneo-scleral section is performed in the usual way. Care is taken to bring the knife edge out of the slot at the conclusion of sectioning (Fig. 5). Alternatively the keratome and scissors technique may be employed. When the lens extraction has been performed and the suture is being tied, the assistant brings down and holds the conjunctiva over the wound with two narrow conjunctival forceps placed on either side and near the stitch. This helps to seal off the wound effectively.

The same track needle can be used for a number of operations, and the process of cutting the corneo-scleral junction down to it does not appear to affect either the subsequent utility of the needle or the cutting edge of the knife.

FIG. 5.

The main advantages of the pre-placed track suture are that it is placed before the corneo-scleral section, and also secures perfect apposition of the wound edges without danger of inversion. This stitch has been used in over a hundred cataract operations with very satisfactory results. Although I prefer not to make a conjunctival flap, the technique outlined above could also be used in cases where this is considered desirable.

Summary

A technique is described of placing a corneo-scleral suture in cataract surgery before making the section; it is based on the principle of making and threading a track through the anterior half of the sclera and cornea near the limbus, in order to achieve perfect apposition of the wound edges without danger of inversion.

Dr. Ishrat Hussain, Registrar in this Department, kindly made the accompanying drawings.