SIMPLIFIED CATARACT EXTRACTION*†

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THERE are numerous techniques for the performance of cataract extraction and the literature is so vast that it is difficult to attempt to make any comprehensive references.

The chief points of difference appear to be in the method of anaesthesia, the use of a conjunctival flap, and the method of making the incision and suturing the wound. A few brief notes will be made on each of these points and a method of extraction will be described which the author has found satisfactory in over a thousand cases. Safety and simplicity have been the objectives.

The method of opening the eye is simple and can be standardized so that it can be used for glaucoma operations (with a flap), open capsulectomies, or any operation in which an opening into the anterior chamber is required.

Anaesthesia

The operation can be done under general or local anaesthesia. General anaesthesia in skilled hands is now so safe and free from care that it can well be employed for all patients who are reasonably fit, but local anaesthesia, especially using the deep-sedation methods, gives excellent results. Better results will be obtained by the beginner with the former method as general anaesthesia causes the patient to be entirely divorced from the operator.

Incision

A number of surgeons use a von Graefe knife. The von Graefe incision using a full section is beautiful to watch but on occasions, especially with a shallow anterior chamber, it can be difficult and there is danger of entanglement of the iris. This method relies on a perfect knife and if, by chance, this knife is not sharp, the incision can be positively dangerous. The keratome has the same disadvantage with the risk of wounding the lens. The advocates of the keratome use scissors, and if this has proved satisfactory it would seem possible to make the whole section with a scissors except for the initial opening, and this is the method that has been adopted.

Conjunctival Flap

Much has been written about the value of this. There is strong experimental animal evidence that a flap leads to better healing and reduces the risk of epithelial downgrowth (Dunnington, 1951) but in clinical practice this is not the case and a limbal wound without a conjunctival flap appears to heal well without complications. Barraquer and Boberg-Ans (1959) and Hill, Howard, and Barraquer (1962) are strongly in favour of it, but Hilding (1962), in a series of 558 extractions without a flap, endorses the view that a flap is probably clinically unnecessary and should be avoided in the interests of simplicity.

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Surgically a flap is a nuisance. It interferes with the incision and it interferes with making adequate corneo-scleral sutures. In addition, the flap made by a full von Graefe section is rarely complete and must carry all the theoretical disadvantage of no flap at all.

Suture

It is strange that there should be any disagreement here. Zorab (1961) stated that 14 per cent. of surgeons use no suture and apparently 56 per cent. use only one.

In no other part of the body is the wound left unstitched and it would appear just as essential in the eye. The question whether the sutures are post- or pre-placed is probably immaterial as long as they take a deep but not penetrating bite into both the cornea and sclera and close the wound without overriding or lateral displacement. At least five are probably necessary and a continuous running suture as suggested by Barraquer may be even better.

Technique

General anaesthesia is preferred. The stages of the operation are shown diagrammatically in Figs 1 to 7 (opposite).

Fig. 1.—Lid sutures are inserted—two in the upper and one in the lower lid. It is important that those in the upper lid are *not* crossed as adjustment in the middle of the operation is often necessary. The usual superior rectus stitch is inserted. There has never been any need for a Flieringa ring which seems clumsy and unnecessary.

Using a Bard-Parker 15 or Gillette D blade, an ab externo incision a few mm. in length is made through half the thickness of the corneo-scleral junction at 12 o'clock. A pre-placed suture is placed in the groove and pulled out into a loop.

Fig. 2.—The anterior chamber is entered with the tip of a knife.

Fig. 3.—A small von Graefe knife is good but the Bard-Parker blade is just as good and the opening needs only be large enough to admit one blade of a Castroviejo spring scissors with fine blades. The remainder of the incision is made with this scissors on each side down to 3 and 9 o'clock. There is virtually no bleeding with this method and any small amounts can be quickly controlled with saline irrigation by a 2 ml. syringe using a lacrimal cannula.

Fig. 4.—After a peripheral iridectomy, alpha-chymotrypsin (ACT) is injected into the anterior chamber and washed out after 3 minutes. ACT has proved absolutely safe and there seems to be no reason to limit its use except on the grounds of expense. Its chief value appears to be that in nearly all cases the lens can be grasped at 12 o'clock and slid out of the eye. At this stage it is valuable and important to adjust the superior rectus and upper lid sutures to ensure that there is no undue traction on the eyeball.

Fig. 5.—The assistant raises the cornea with the anterior loop of the groove suture, and with a Lang's forceps without teeth, in the left hand, the iris is retracted so that an Arruga forceps can be placed as high up as possible at 12 o'clock with the blades horizontal. This is done under direct vision with a fully-retracted cornea.

Fig. 6.—When the grip of the lens is secure the Lang's forceps is removed from the iris and transferred to the cornea where it serves as an expressor at 6 o'clock.

FIGS 1-7.—Stages of the operation.

With a combination of expression and traction there is no difficulty with the extraction which at all times is under direct vision.

Hyperature intumescent lenses can be difficult and present a problem with all methods. The erisophake may be the answer, but such cases do well if a deliberate extracapsular extraction is performed.

Fig. 7.—The 12 o'clock groove suture is tied and four more are inserted through half the thickness of cornea and sclera using fine Barraquer silk. Post-operative injection of air, saline, and the use of post-operative miotics have all been considered unnecessary.

TABLE
COMPLICATIONS (LAST 100 CASES)

Hyphaema	{ 1 mm.	3
	{ Over 1 mm.	0
	{ Total	0
Iris prolapse		2
Vitreous loss		0
Infection		1
Retinal detachment		2

Complications.—The above method has been used in over a thousand cases. Vitreous loss has been negligible and the last hundred cases (see Table) have been performed without this. Iris prolapse occurred in only 1–2 per cent. of cases and while figures of hyphaema are difficult to assess these have been minimal. There have been no cases of epithelial downgrowth. The Table shows the number of complications encountered in the last hundred cases.

In three cases the notes do not make it clear whether a hyphaema occurred or not, but as the visual result was good it may be assumed that none occurred.

The case of infection was a severe one but responded to subconjunctival Celbenin and resulted in a visual acuity of 6/6 after an open capsulotomy.

Removal of Sutures.—It has never been found necessary to remove sutures as a routine. In 90 per cent. of cases they drop out on their own. Occasionally the 12 o'clock suture persists, but its removal can be deferred until at least 4 weeks after operation when the eye is quiet and the wound well healed. Very rarely, when this appears to cause irritation, early removal is necessary, but sedation or even further general anaesthesia is required.

Summary

A simple method of cataract extraction is described which has been used in over a thousand cases. The combination of general anaesthesia, no conjunctival flap, an easy scissors section, and firm closure of the wound, without suture removal, has given good results with minimal complications.

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