THE REMOVAL OF DISLOCATED LENSES BY THE BARRAQUER METHOD

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Until recently the surgical treatment of a dislocated lens was associated with a considerable degree of pessimism.

In this series of illustrations it is proposed to show how this condition can be dealt with surgically with a large margin of safety. I have personally treated the eyes of 8 patients along the lines described here with considerable success.

Rationale of Treatment

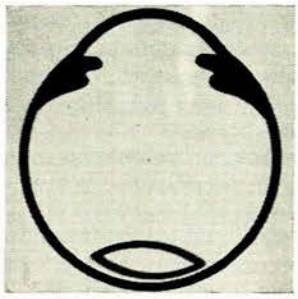

Fig. 1.

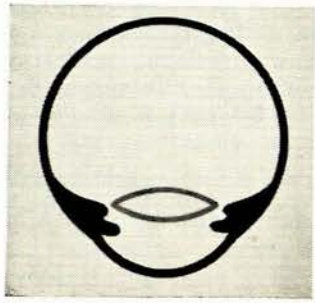

Fig. 2.

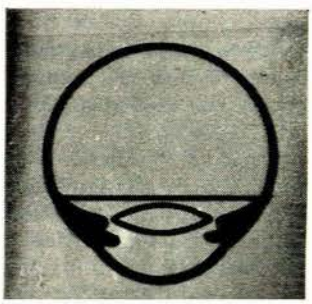

Fig. 3.

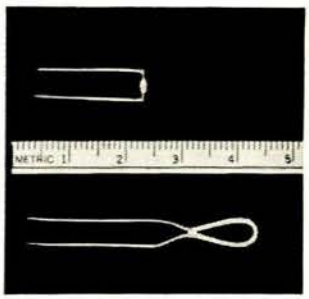

Fig. 4.

A diagram of an eye with the lens dislocated into the vitreous is shown in Fig. 1. It is the purpose of the operation about to be described to remove such a dislocated lens with a minimum amount of trauma and, if possible, with no loss of vitreous.

The principle involved in this method is to turn the patient into the prone position so that, with the head downwards, the lens will gravitate into its physiological position behind the iris (Fig. 2).

Once this has been done the lens is fixed in this position by means of a needle which is inserted 6 mm. behind the limbus (Fig. 3). Barraquer[1] has devised a double-pronged needle for this purpose (shown in the upper portion of Fig. 4). Calhoun and Hagler[2] have modified this needle by adding to it a small light handle (shown in the lower portion of the picture).

Now that the lens has been trapped in this position (Fig. 5), the patient is turned onto his back for the next stage of the operation, and the lens is removed as for a cataract-extraction. Subluxation of the lens (Fig. 6) is dealt with on the same principle except that it is usually not necessary to turn the patient over into the prone position to insert the Barraquer needle.

To avoid the ever-present hazard of vitreous loss, it is of paramount importance to reduce the intraocular tension to as near atmospheric pressure as possible. For this purpose one uses:

'diamox', intravenous 'urevert',[3] retrobulbar anaesthesia and massage of the globe[4] and hypotonia.[5] I have latterly also found the oral administration of glycerine[6] preoperatively a safe, effective and more convenient method of relieving intraocular tension than urevert.

The Operation Technique

I have found it advisable to do the first stage of the operation on the operation trolley, seen on the left-hand side of the operating table (Fig. 7). From this position it is relatively easy to turn the patient into the prone position on the operating-table with the minimum of difficulty. It is awkward to turn a patient round on an ordinary operating table.

To begin with, an incision is made in the conjunctiva and subconjunctival tissue 5 mm. behind the limbus on the temporal side (Fig. 8).

The sclera is diathermized accurately at this site to mark the spot where the Barraquer needle is to be inserted and prevent any possible bleeding that may occur (Fig. 9).

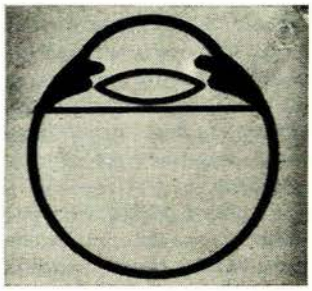

Fig. 5.

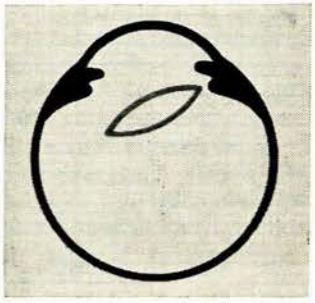

Fig. 6.

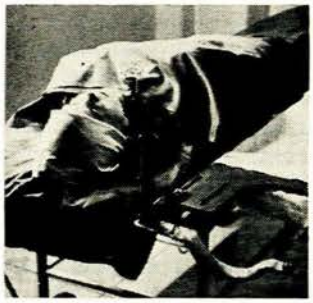

Fig. 7.

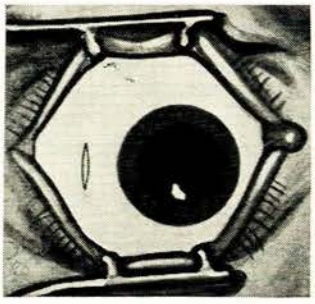

Fig. 8.

The patient is then rolled over onto the operating-table, face down (Fig. 10) and the head is supported by means of a special head-rest which I have devised and had made in the hospital workshop. With the apparatus shown in Fig. 11 it is possible to position the head by means of the screws on either side, marked A and B on the picture. In this way, the lens is allowed to gravitate into its physiological position behind the iris.

To adjust the screws and to insert the needle, the operator takes up a position underneath the patient's head by lying on a platform supported on two stools, as illustrated in Fig. 12. I devised this platform after trying out various methods of working below the patient. An essential feature of the platform is the raised head-rest as shown. This allows the operator to work comfortably at an angle of vision of 45 degrees, thus circumventing the discomfort of vertical vision.

By lying on this platform instead of sitting on a stool as is frequently recommended, the operator is enabled to work with far greater ease and accuracy. While working under the patient, as illustrated in Fig. 13, it is possible to accurately manoeuvre the lens into its physiological position behind the iris.

The Barraquer needle should then be inserted through the diathermy marks on the sclera (Fig. 14). This should be done in such a way as to avoid penetrating the lens. The needle should then be impaled into the sclera on the corresponding opposite side of the globe. Once the lens has been fixed in this position the patient should again be rolled over into the supine position onto the trolley where the next stage of the operation takes place.

At this stage of the operation the patient lies in the supine position with the needle fixing his lens in as normal a physiological position as possible (Fig. 15). As the lens in congenital dislocations may possibly be irregular in shape and smaller than usual,[7] it may again slip back behind the double-pronged needle. It is, therefore, important at this stage to make absolutely sure that the lens is still in position. If the lens is not opaque then it may be necessary to use ultraviolet light to permit visualization of the transparent lens. If this light is not available, one can improvize by using a torch with an ultraviolet transmitting filter. Before opening the anterior chamber, the intraocular tension should be checked with a sterile tonometer. If the tension is not sufficiently reduced, intravenous diamox or even hypotensive anaesthesia should be administered.

The rest of the operation proceeds as for a modified cataract extraction. The conjunctiva is incised at the limbus. A conjunctival flap is fashioned and retracted from the cornea as illustrated (Fig. 16).

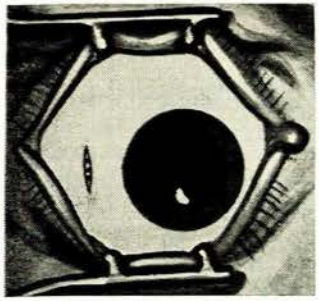

Fig. 9.

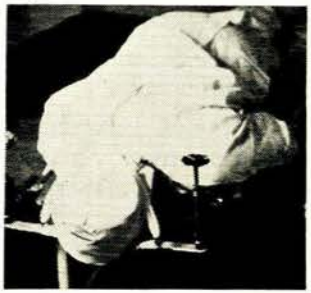

Fig. 10.

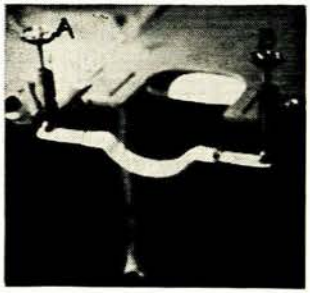

Fig. 11.

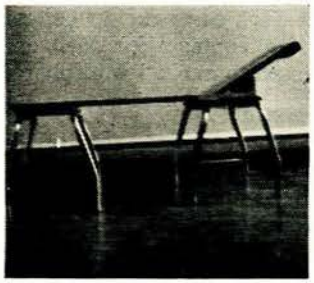

Fig. 12.

An *ab externo* corneal incision is commenced and a corneoscleral suture is inserted (suture not illustrated). The corneoscleral incision is enlarged with scissors. It is advisable to make the corneoscleral incision in the temporal area between either 6 to 12 or 8 to 1 o'clock (Fig. 17).

This has in my opinion three great advantages (Fig. 18):

(*a*) It allows a broad iridectomy to be done in the upper outer quadrant enabling one to get a good view of almost the whole fundus in case of a retinal detachment (a not unusual complication of an ectopia lentis).

(*b*) It makes it unnecessary to use a superior rectus suture to pull the eye down which in my opinion predisposes to vitreous loss.

(*c*) It allows greater access.

If the hyaloid membrane is intact, the lens should be removed with an erisophake or an Arruga forceps. If this is not the case and the vitreous is fluid, a vectis extraction is advisable. After the removal of the lens at least 7 corneoscleral sutures should be inserted with a very sharp Grieshaber needle. Sterile air should be injected into the anterior chamber and the conjunctiva should be drawn as an apron over the incision (Fig. 19).

Only after the corneoscleral incision has been securely sutured, should the needle be removed. To do this, it is important to use counterpressure which can conveniently be obtained by the use of a vectis (Fig. 20). If these precautions are not taken it is possible while pulling out the needle to grossly distort the globe, and even to lose vitreous. The corneoscleral sutures should be removed after 4 - 5 weeks. After this the periphery of the retina should be inspected to see if prophylactic light coagulation is necessary to prevent a detachment of the retina.

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Fig. 13.

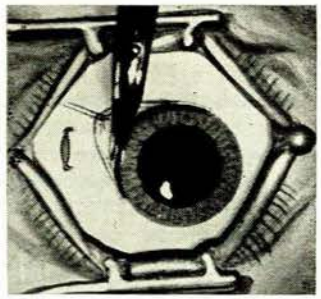

Fig. 17.

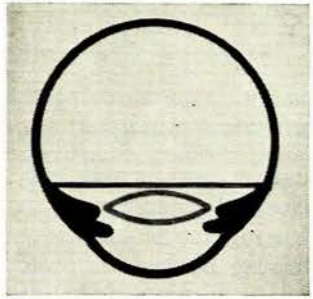

Fig. 14.

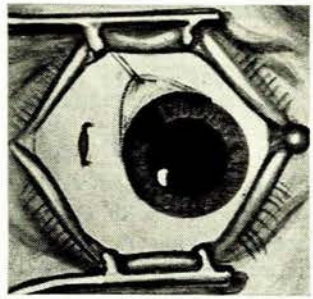

Fig. 18.

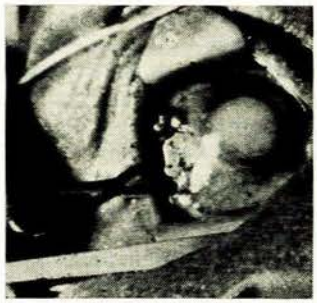

Fig. 15.

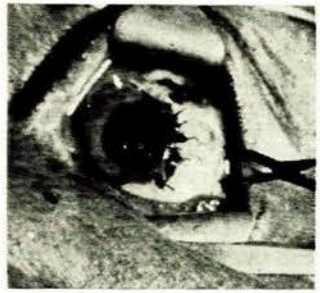

Fig. 19.

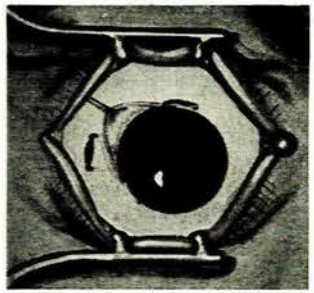

Fig. 16.

Fig. 20.