MANAGEMENT OF POSTERIOR DISLOCATION OF THE LENS AFTER ZONULOLYSIS*

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SINCE the recognition of the action of chymotrypsin on the zonule of the lens by Barraquer, a large literature has grown on the use of this enzyme in cataract extraction. Much of it concerns post-operative complications, but of these no single complication appears to be specific to the enzyme. At operation, however, posterior dislocation of the lens is a rare though virtually specific complication. Troutman (1960), in a national survey of the use of chymotrypsin in cataract extraction in the U.S.A., discovered that posterior dislocation of the lens occurred nine times in a total of 1,581 cases. Cashell (1960), after 2 years' experience with the enzyme, noted posterior dislocation of the lens on three occasions.

Usually the lens without its zonule floats in the patellar fossa of the vitreous, but, especially where the vitreous is abnormal, it may dislocate backwards in one of two ways:

- (i) The lens may slide under the iris on the surface of the vitreous without actually sinking into the vitreous body;
- (ii) The lens may sink into the vitreous.

Method

(i) When the lens slides over the face of the vitreous to disappear behind the iris, it will usually float back again into the pupillary area, but this may take some time, even minutes. As the lens reappears it should be snatched by a quick movement with the Arruga capsule forceps. This manoeuvre may not always succeed with a very slippery lens. It is then possible to use a vectis without breaking the vitreous surface.

(ii) If the lens drops back into the vitreous without floating up again, the gentlest procedure is to leave the lens where it is and sew up the eye. Kirby (1950) stated: "If the lens remains in the viscid vitreous long enough, it will cause degeneration and liquefaction of the vitreous. Then the methods for its removal are simpler, though the prognosis is grave." In such cases the capsule is intact and therefore the eye will usually remain quiet. A rise in tension may occur but this should be controlled by cyclodiathermy (case report). If an attempt is made to remove the lens, vitreous is almost bound to be lost, the retina may be damaged, and, even more serious, the capsule may be broken. Of course, if the capsule is broken, every effort must be made to remove the nucleus of the lens from the eye.

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Case Report

A woman now aged 61 was a myope of -10 D sph. in the right eye and -7.5 D sph. in the left. The vision in the right eye had always been poor but had become worse since 1956. In 1959 an immature cataract was observed in the right eye and early lens changes in the left.

Operation.—On January 31, 1962, a right cataract extraction was planned. The eye was opened with a keratome and scissors, an iridectomy was performed, and chymotrypsin was injected under the iris. Shortly after this the lens dislocated backwards into the vitreous; it did not float up again and removal was not attempted, but the eye was closed with three sutures of Barraquer silk. Post-operatively there was a mild striate keratitis and a small hyphaema. Two large choroidal detachments developed but these disappeared in a few days.

A month after the operation the tension in the right eye began to increase, and on March 19, 1962, a right inferior half penetrating cyclodiathermy was performed (60 ma for 5 sec. at 6 mm. from the limbus). After this operation the tension became normal.

Result.—On January 12, 1963, the visual acuity in the right eye was 6/60, with $+5$ D sph., $+3.5$ D cyl., axis 15° , and in the left eye it was 6/18 partly, with -8.5 D sph., $+1.5$ D cyl., axis 180° . The eyes were white and straight, with normal tension. The corneae showed Vogt's limbus girdle.

In the right eye the anterior chamber was deep and full of clear aqueous. There was a broad iridectomy above. The vitreous face appeared intact although the vitreous itself appeared rather fluid. The cataractous lens was situated over the lower peripheral portion of the fundus. An early generalized choroidal sclerosis was present and there was a myopic crescent at the disc, but there was no cupping. Above, an area of choroido-retinal atrophy was situated at the equator between 11 and 1 o'clock. The left eye showed a clear anterior chamber of medium depth, a normal iris, and an immature cataract. The fundus was poorly seen but the disc appeared to be similar to that of the right eye. The poor vision in the right eye was attributed partly to the amblyopia and partly to the choroidal sclerosis.

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