CRYOSURGICAL CATARACT EXTRACTION*†‡ ITS UTILIZATION IN A LARGE SURGICAL PRACTICE IN WEST PAKISTAN

BY

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SINCE Krwawicz (1961) published his cryoextractor techniques for intracapsular cataract extraction, numerous reports have appeared and several different instruments have become commercially available, so that cryosurgery is now another accepted method for removal of an opaque lens. This report presents the statistics of the use of this technique for cataract surgery in West Pakistan.

Methods

The instrument used for cryoextraction was the basic component of the Thomas Cryoptor (Figure), which utilizes Freon 22 as a refrigerant.

FIGURE.—Thomas Cryoptor, manufactured by the Ohio Chemical Division of Air Reduction Company, Inc., Madison, Wis. 53701, U.S.A.

A compilation of cases operated at the Sir Henry Holland Mission Eye Hospital, Shikarpur, West Pakistan, was made during a one-week period in January, 1967, when the cryosurgical instrument became available. The series ended when the refrigerant gas was expended.

Basic cataract extraction techniques were used in all cases. At this hospital the technique consists of a von Graefe knife corneo-scleral-conjunctival incision, a sector iridectomy, and an attempted intracapsular removal of the crystalline lens with capsule forceps, unless an extracapsular extraction is indicated. Extracapsular extraction may be carried out to prevent possible vitreous loss in the presence of the following danger signs of temporary raised intra-ocular pressure:

- (1) the appearance of an exophthalmic eye;
- (2) no wrinkling of the corneal surface after the knife section and after the speculum has been raised to produce the Flieringa's ring effect on the intra-ocular contents.

* This material has been reviewed by the Office of The Surgeon General, Department of the Army, and there is no objection to its presentation and/or publication. This review does not imply any endorsement of the opinions advanced or any recommendation of such products as may be named.

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Material

A small consecutive series of 322 cataract extractions was selected, beginning from the first cryo-extraction and ending with the last; 53 eyes, which had planned extracapsular extractions, were excluded from the statistical evaluation. The advanced state of pathology of the lenses seen was very clearly observed. Morgagnian cataracts occurred frequently. Calcareous lenses were also noted, as well as black cataracts and lenses in which the capsule was degenerated sufficiently to be observed by gross examination. There was no selection of specific cataract types for preferential treatment with cryosurgical techniques or otherwise.

Results

The results of this study are set out in the Table.

TABLE
RESULTS IN 269 CATARACT EXTRACTIONS

Type of Extraction	Total Eyes	Intracapsular		Unplanned Extracapsular (i.e. ruptured capsule)
		No.	Per cent.	
Cryosurgical*	55	53	96.4	2
Non-cryosurgical	214	149	70.0	65

* The smaller number of cases operated by the cryosurgical method was due to the limited availability of Freon refrigerant.

Discussion

In underdeveloped areas of the world, where a very large number of cataract extractions is performed, most of the patients present with advanced stages of lens pathology, and many are essentially blind from their dense bilateral cataracts. For these patients, an extracapsular extraction can be helpful and often ideal. However, whenever possible, an intracapsular lens extraction is advantageous as it may prevent the complications sometimes associated with retained lens material, such as prolonged intra-ocular inflammation and subsequent reduction of visual acuity. Thus, the surgical technique that offers the best chance of an intracapsular lens extraction (when such an extraction is not contraindicated) is probably the technique of choice.

The present study indicates that cryosurgical removal of the lens greatly enhances the chances of a successful intracapsular extraction; 96 per cent. of intracapsular cataract extractions were accomplished with the cryosurgical instrument as against 70 per cent. with non-cryosurgical techniques (which included forceps, erisophake, and expression). It should be noted that the percentage of non-cryosurgical unplanned extracapsular extractions varied in the group of participating surgeons from 14 to 45 per cent. This indicates that, even in the most successful personal series, there would be 10 per cent. fewer ruptured capsules when the newer freezing techniques were used. In the least successful personal series there would be an improvement of 41 per cent.

Conclusions

Cryosurgical techniques in cataract extraction have been shown to enhance significantly the proportion of successful intracapsular operations.

REFERENCE

KRWAWICZ, T. (1961). *Brit. J. Ophthalm.*, **45**, 279.