

THE CURRENT STATUS OF INTRAOCULAR LENSES

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During the 30 years since Ridley implanted his first intraocular lens, there occurred a technological explosion resulting in lens implants supported by the angle of the anterior chamber, lens implants supported by the iris or the iris and posterior capsule, and lens implants placed in the posterior chamber.

Note that the original Ridley lens has been replaced by those of Pearce and Shearing. The Dannheim and Strampelli angle supported lenses have been replaced by those of Choyce and Kelman. Epstein's iris supported lens has been succeeded by many styles, including those of Binkhorst, Copeland, Fyodorov, and Worst.

As a result of the clinical studies of Kelman and Binkhorst, many surgeons have returned to the extracapsular cataract extraction for cataract surgery with or without a lens implant. They are attracted by a current thesis that the posterior capsule protects the retina by lessening the possibility of cystoid macular edema and retinal detachment. This premise, while accepted by many, has not yet been clinically proven.

The following movie demonstrates a popular method of extracapsular cataract extraction in the United States with the implantation of a Shearing posterior chamber lens. It also demonstrates the use of Healon (sodium hyaluronate) to protect the cornea with an intracapsular cataract extraction.

A criticism of reports on the results of a surgical procedure is that the results are not recorded at the same postoperative time for each patient. Therefore, the author performed a retrospective study of his first 300 intracapsular cataract extractions with a Binkhorst iris clip lens implant

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begun nearly seven years ago. Although most patients were followed for longer periods of time, only those results at 34-40 months postoperative were tabulated.

The patient population in this series is as follows:

PATIENT POPULATION	
EXAMINED	257
DIED	30
LOST TO FOLLOW UP	13
TOTAL	300
AGE RANGE	61-90 YEARS
MEAN AGE	74.3 YEARS

The visual acuity results are as follows:

VISUAL ACUITY N° (%)				
	EXAMINED	DEAD	LOST	TOTAL
20/20-40	226 (88)	26 (87)	9 (69)	261 (87)
20/50-70	10 (4)	1 (3)	1 (8)	12 (4)
20/80-400	14 (5)	2 (7)	2 (15)	18 (6)
< 20/400	7 (3)	1 (3)	1 (8)	9 (3)

The causes of visual acuity less than 20/40 are as follows:

CAUSES VISUAL ACUITY LESS THAN 20/40 N° %			
	EXAMINED	DEAD ± LOST	TOTAL
SENILE MAC. DEGEN.	14 (5)	2	16 (5)
CYSTOID MAC. EDEMA	5 (2)	3	8 (3)
CORNEAL EDEMA	3 (1)	1	4 (1)
RETINAL DETACHMENT	2 (1)	1	3 (1)
OTHERS	7 (2)	1	8 (3)

The following additional procedures were performed in these patients:

ADDITIONAL PROCEDURES	
PENETRATING KERATOPLASTY	3
DISLOCATION CORRECTION	7
RETINAL DETACHMENT REPAIR	3
IMPLANT REMOVAL	1
DISCISSION SECONDARY MEMBRANE	6
PARS PLANA MEMBRANECTOMY	4
REPAIR WOUND DEHISCENSE	1
SUTURE LASER	1

The Food and Drug Administration in the United States has undertaken the most exhaustive study in medical history of a surgical procedure. Every lens implant surgery since February 1978 has been carefully followed. The lens implantations were performed. The types of lens implants used in this

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interim data results were reported at the 1979 meeting of the American Academy of Ophthalmology. During the first 18 months of the study 177,503 study were as follows:

TYPE IMPLANT	NUMBER	PERCENT
ANTERIOR CHAMBER	53,930	30.5
IRIS FIXATION	81,481	46.0
IRIDOCAPSULAR	31,080	17.5
POSTERIOR CHAMBER	11 012	6.0
TOTAL	177,503	100.0

The results were compared to a group of control patients consisting of those considered eligible to receive an intraocular lens who chose to undergo cataract extraction without an intraocular lens.

A comparison of some of the important complications of lens implant surgery with those of controls follows:

	COMPLICATIONS (%) DURING FIRST SIX MONTHS				
	CONTROL	ANT. CHAMB.	IRIS FIX.	IRIDOCAPS.	POST. CHAMBER
NUMBER	3,132	6,650	14,360	5,722	1,182
DISLOCATION		0.2	1.0	0.9	0.6
RET. DETACH.	0.9	0.3	0.3	0.3	0.6
ENDOPHTHALMITIS	0.2	0.1	0.2	0.1	0.0
MACULAR EDEMA	3.2	4.9	3.0	2.2	4.3

The significance of the FDA Study is as follows:

1. The number of patients in the study exceeds that of the sum total of all patients in all reports in the ophthalmic literature.
2. The results of all patients are recorded at the same postoperative time.
3. The rate of complications is highly acceptable and compares favorably with that of routine cataract surgery without a lens implant.
4. If the interim data report is a true reflection of the results, lens implant surgery is justified in a high percentage of cataract operations.

What does the future promise? Although the optical correction of aphakia, by spectacles, contact lenses, intraocular lenses, or refractive keratoplasty, will be the subject of many scientific meetings during the decade of the 1980's. I predict that the most controversial subject will be a more fundamental one. This is the intracapsular-extracapsular controversy. As a result of currently ongoing scientific studies, the role of each method in cataract surgery should be increasingly clarified. I fully expect the 1980's to be the most exciting decade in the history of cataract surgery.