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EIGHT YEARS EXPERIENCE WITH THE WORST MEDALLION TWO LOOP LENS

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282 cataract patients were operated and a Worst Medallion 2-loop pseudophakos was implanted. The material consisted of 154 males, 128 females, mean age 58.8 years, range 3–88 years. 200 had senile, 35 pre-senile, 31 traumatic and 16 some other type of cataract. 247 were intracapsular, 35 extracapsular extractions. 87.6% of all cases had a vision of ≥ 0.5; if 8 cases with non-implant dependent complications are excluded, the rate is 90.1%. The following complications were observed: one bullous keratopathy (0.4%) and 5 local corneopathies (1.8%), 9 cases of uveitis (3.2%) of them 2 hypopyon, 1 vitritis and 6 anterior uveitis, 19 cystoid macular oedema (6.7%) and 10 retinal detachments (3.5%). Subluxation was the most common complication, 28 cases (9.9%), and broken sutures were seen in 15 eyes (5.3%). Secondary glaucoma was observed in 2 cases (0.7%), 3 cases (1.1%) needed secondary surgery. The complication rate is similar to that of conventional cataract extraction given in the literature.

Key words: lens implant – iris fixation – visual results – complications.

The reports from Scandinavian countries about intraocular lens implantations are comparatively few and the series small (Baggesen et al. 1977; Boberg-Ans 1977; Krause 1977; Eriksen & Nielsen 1983). The existence of reports covering a long observation time (Binkhorst 1975) shows that lens implants are safe in the long run. Many large series (Worst et al. 1977; Jaffe 1979) and detailed reports regarding the visual acuity, including careful registration of observed complications (Nordlohne 1975; Worst 1977), are available. The complication rate of a cataract extraction with and without a lens implant is about the same (Percival & Yousef 1976; Stark et al.

1977; Jaffe et al. 1978). The presence of an intraocular lens implant can give rise to some complications of a specific nature, such as subluxation of the lens. Some dreaded sequelae like endothelial corneal dystrophy are also seen in routine cataract extraction (Jaffe et al. 1978; Meredith & Maumenee 1979). An implant may be more safe, as the incidence of retinal detachment may diminish compared with non-implant eyes. Technical progress has given even better post-operative visual acuity, and the percentage of visual acuity ≥ 0.5 (20/40) with iris fixated lens and intracapsular cataract extraction varies between 56% (Baggesen et al. 1977) and 99% (Stark et al. 1982) e.g. Eriksen & Nielsen (1983) 77%; Drews (1982) 79%; Kersten & Kolder (1982) 82%; Jaffe et al. (1978) 89%; Stark et al. (1977) 97%. The visual acuity for non-implant operations is reported to be within the range of implant operations (Jaffe et al. 1978; Meredith & Maumenee 1979; Eriksen & Nielsen 1983). The purpose of this article is to present the results of 282 intraocular lens implants done by the author since May 1974. The Worst Medallion 2-loop lens, sutured to the iris, has been used.

Material and Methods

This retrospective study consists of 282 patients operated between May 1974 and June 1982, with a mean age of 58.8 years, range 3–88 years, 154 males (54.6%) and 128 (45.4%) females. 200 had a senile, 35 a pre-senile, 31 a traumatic, and 16 had some other type of cataract. 247 of the extractions (87.6%) were intracapsular, and 35 (12.4%) were extracapsular. The mean post-operative observation time was 26 months. 22 patients were lost for further control within one month, most of them at the discharge from the hospital. The findings are based on hospital records, no effort to collect new data for this study has been made. No cases with a triple procedure are included in this report.

The surgical method was: general anaesthesia when possible; a corneal incision with a Graefe knife, enlarged with scissors and an iris fixation suture, originally of supramid (nylon 6) later of prolene (polypropylene). The intracapsular extractions were done with a cryoextractor. α-chymotrypsin was used in the earlier cases. The extracapsular extractions were mostly done with aspiration-irrigation technique, phacoemulsification was not used. The lens implant was of Worst Medallion 2-loop type with a standard powere of 20 diopters, except when a greater refractive error was known. Originally nothing was done to protect the corneal endothelium, later air bubble, serum coating and hyaluronic acid were used. The wound was originally closed with 8–0 Virgin silk knots, later with a running 10–0 nylon suture.

The visual results are given as the best post-operative visual acuity with corrective lenses, independent of time lag between operation and acuity determination.

A cystoid macular oedema (CMO) has been diagnosed on a clinical basis and defined as a case with a fall in visual acuity and the typical appearance of the macula by ophthalmoscopy. Fluorescein angiographic finding has not been used as a diagnostic criterion.

Results

Visual acuity

A best visual acuity of ≧ 1.0 (20/20) was achieved in 168 cases (59.6%) and ≧ 0.5 (20/40) in 247 cases (87.6%) of the total material. Eight cases had a post-operative finding inconsistent with a good vision (optic atrophy, senile macular degeneration, macular loch, amblyopia, retinitis pigmentosa or pronounced arteriosclerosis). These cases excluded, a best post-operative visual acuity of ≧ 1.0 was observed in 61.3% and ≧ 0.5 in 90.1%.

The visual acuity was better in the intracapsular cataract extraction group, with 92.1% ≧0.5, compared with 82.9% in the extracapsular group.

Complications

No enucleation was done. One case (0.4%) had a chronic bullous keratopathy, treated with a conjunctival flap. The pre-operative state of the endothelium was unknown. Five cases of mild upper stationary keratopathy (1.8%) were seen. All these cases had an intracapsular extraction (Table 1).

Three lenses (1.1%) were removed, one because of poor visualisation during a detachment operation, one because of biodegradation of the supporting loops, and one in connection with an intractable glaucoma 2 days after the operation. This was apparently a complication of hyaluronic acid. Nine cases of uveitis (3.2%) were observed. Two had a sterile hypopyon. None of the lenses were removed, and the final visual acuity of the 2 patients was 0.5 and 1.1, respectively. One patient contracted severe vitritis, which after antimycotic treatment ended with a final visual acuity of 0.7. Six other cases had a uveitis, 4 of them were cured in less than 3 months with prednisone drops. Two cases of recurrent hyphaemas (0.7%) were elsewhere treated as uveitis. The site of bleeding was in one eye an erosion of an iridal vessel by the lens border, successfully treated with synecchiolysis. In the second case no damaged vessels could be demonstrated. The visual acuity was 1.6 and 1.0, respectively. The incidence of cystoid macular oedema was 6.7% (19 cases). Ten cases of retinal detachment developed later. Because of difficulties at the detachment operation one lens had to be removed, as already described.

Transient and/or moderate pressure increase will not be dealth with here. Three cases (1.1%) had an acute increase of intraocular pressure which needed surgical

Table 1.
Complication rate in own material contrasted with figures in a review of the literature.

Type	Complications				
	Own material		From literature %		
	N	%			
Enucleation	–	–	0.0–0.2		– Worst et al. (1977)
Chr. bullous keratop.	1	0.4	0.4–7.7	Jaffe et al. (1978)	– Binkhorst (1977)
Local keratopathy	5	1.8	–		
Lens removal	3	1.1	0.6–4.3	Kaufer (1981)	– Eriksen et al. (1983)
Uveitis	9	3.2	0.4–20.0	Binkhorst (1977)	– Stark et al. (1982)
sterile hypopyon	2	0.7	0.4–1.5	Kaufer (1981)	– Stark et al. (1982)
Severe vitritis	1	0.4	3.5	Worst et al. (1977)	
Anterior uveitis	6	2.1	–		
Recurrent hyphaema	2	0.7	–0.9		– Baggesen et al. (1977)
Retinal detachment	10	3.5	0.5–5.0	Hurite et al. (1982)	– Stark et al. (1982)
Acute glaucoma+surgery	3	1.1	0.1–3.8	Worst et al. (1977)	– Werner et al. (1977)
Sec. glaucoma	2	0.7	0.0–2.0	Drews (1982)	– Boberg-Ans (1977)
Cystoid macular oedema	19	6.7	1.4–20.0	Jaffe et al. (1978)	– Stark et al. (1982)
Fixation system compl.	44	15.6	–	–	–
Subluxation/Luxation	28	9.9	3.7–14.3	Kaufer (1981)	– Eriksen et al. (1983)
Broken sutures	15	5.3	–30.0	Drews (1982)	
Biodegradation of loops	1	0.4	–	–	–

intervention. Two patients developed a secondary glaucoma successfully controlled by drops.

A subluxation of one loop, or a luxation of both loops in front of the iris was seen in 28 eyes (9.9%), usually occurring several times in the same eye. Of these eyes with a malposition of the lens, 2 had upper local corneal keratopathy, not situated in front of the luxated loop. The fixation suture was broken in 15 eyes (5.3%) because of biodegradation. Five of these eyes had a subluxation of the lens. No local corneopathy could be registered in front of the broken suture end.

A 3-year old boy had an implant in his traumatised eye for 5 years. The lens had to be removed because of biodegradation of the loops. The optic part was found at the bottom of the anterior chamber. This case has been mentioned in connection with removed lenses.

One patient expelled his lens implant during sleep 2 weeks after the operation. Two other patients had lens-related problems connected with perforating corneal injuries. The final visual results for these patients without removing the lens were 0.9 and 0.6, respectively.

Discussion

The visual acuity reported in this paper is within the range of other similar series, (Baggesen et al. 1977; Boberg-Ans 1977; Stark et al. 1977; Jaffe et al. 1978; Kersten & Kolder 1982) where iris-fixated lenses and intracapsular technique have been used.

The observed incidence of complications, 34.8%, seems high at a first glance. It is often forgotten, however, that routine cataract extraction has a high rate of complications as well, 33.5% in patients less than 60 years as reported by Meredith & Maumenee (1979), Jaffe et al. (1978) have reported that the complication rate is the same in implant and non-implant eyes.

The insufficiency of the fixation system is demonstrated by the fact that 44.9% of all complications are related to the fixation suture or malpositioning of the lens. The use of prolene for suturing the lens to the iris mainly decreased the problem of biodegradation. Additionally, the last 75 cases in my series have not had any subluxation, showing that surgical refinement plays a part as well. A subluxation rate of 14.3% has been reported with iris fixated lenses by Eriksen & Nielsen (1983) and 12% by Kaufer (1981), but Worst et al. 1977) had only 4.3%. Repositioning is in most cases easy by combining mydriatics and miotics. In one case vitrectomy was necessary for repositioning. Drews (1982) has shown that about 30% of the fixation sutures break with time. The protruding end of the broken suture can easily be bent away from the cornea with a laser beam.

Despite these on problems, only one chronic corneal decompensation (0.4%) and 5 local corneal corneopathies (1.8%) occurred, indicating that the fixation-releated complications are apparently not always very serious. Additionally, the corneal reaction may be surgically induced as well. The figures of bullous keratopathy in non-implant eyes are 0.4–1.4% (Jaffe et al. 1978; Meredith & Maumenee 1979), but for implant eyes values of 0.9% (Kaufer 1981) with Medallion lens and 7.7% (Binkhorst 1977) with Binkhorst type lens have been reported.

The Medallion lens gives a visual acuity comparable with other intraocular lens implants. It has no specific complications, and the total complication rate is not higher than with other iris-fixated lenses. The biodegradation of the fixation sutures cancels the initial feeling of secruity. A change to other suture materials has solved this problem. The subluxation incidence can still be depressed by surgical measures. One advantage is the possibility of using the same lens type both in intra- and extracapsular extractions. In reconstructive surgery of the anterior chamber, often including iridoplasties, it is almost natural to use the iridal suture for the fixation of the lens implant. As with other irisfixated lenses, the Medallion lens is connected with a marked endophthalmodonesis, which may be responsible for the continuous endothelial cell loss described by by Rao et al. (1981) and Stark et al. (1982). Its use still seems to be justified in certain cases, as in old patients when a rapid visual rehabilitation is desirable.

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