Cataract extraction and intraocular lens implantation in children with uveitis

Anna Lundvall, Charlotta Zetterström

Abstract

Aim—To evaluate the long term results of cataract surgery with intraocular lens implantation (IOL) in children with uveitis.

Methods—The study included 10 eyes in seven children (age 3.5–10 years, mean 6.5 years). The cataract surgery included capsulorhexis of the anterior and the posterior capsule, anterior vitrectomy in some eyes, and implantation of a heparin surface modified (HSM) poly(methyl methacrylate) (PMMA) IOL into the capsular bag.

Results—Follow up periods ranged from 1 to 5 years. Best corrected visual acuity after surgery reached 20/50–20/20 in all but two eyes. Opacities or membranes requiring reoperation developed in seven eyes. Glaucoma developed in three eyes after the cataract operation.

Conclusion—These results suggest that implantation of a HSM PMMA IOL is an alternative to correct aphakia also in children with uveitis.

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Patients and methods

Seven children have undergone cataract surgery with IOL implantation in 10 eyes. They were 3.5 to 10 years old (mean age 6.5 years) at the cataract operation (Table 1).

The uveitis was typical of that associated with juvenile rheumatoid arthritis (JRA); all eyes had band keratopathy and extensive posterior synechiae. All children had a positive test for antinuclear antibody but only three had mild joint involvement, which had been symptomatic before uveitis diagnosis in one child only. In no child were there signs of other systemic diseases.

The uveitis had been under control for several weeks at the time of surgery. Corticosteroids orally, in doses of 20–40 mg/day, and topically were used before and after surgery. Some patients were taking systemic methotrexate and corticosteroid treatment for long before surgery and received lower doses of steroids preoperatively. In one patient (patient 4), however, neither oral steroid treatment nor methotrexate was given before surgery. Topical corticosteroids were adjusted for each eye on an individual basis. Postoperatively, dexamethasone was given eight times a day and a combination of cyclopentolate and phenylephrine three times a day followed by a slow taper on an individual basis.

One surgeon (CZ) performed all surgery. A 3.2 mm scleral pocket incision was used. Posterior synechiae were lysed under viscoelastic control (Healon GV 14 mg/ml) and an anterior capsulorhexis was performed. Iris hooks were used to enlarge small pupils. After hydrodissection, mechanised irrigation/ aspiration of the nucleus and cortex was carried out. Posterior capsulorhexis was performed and the wound enlarged to the diameter of the IOL optic for implantation of a heparin surface modified (HSM) PMMA IOL (Pharmacia Upjohn type 808 C, or 809 C) in an individual basis. Postoperatively, dexa methasone was given eight times a day and a combination of cyclopentolate and phenylephrine three times a day followed by a slow taper on an individual basis.

Table 1 Preoperative characteristics

<table>
<thead>
<tr>
<th>Patient No</th>
<th>Sex</th>
<th>Eye</th>
<th>Age (years) at surgery</th>
<th>Age (years) at diagnosis of uveitis</th>
<th>Glaucoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>RE LE</td>
<td>6.75</td>
<td>3</td>
<td>+ –</td>
</tr>
<tr>
<td>2</td>
<td>F</td>
<td>RE</td>
<td>4</td>
<td>4</td>
<td>– –</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>LE</td>
<td>7.5</td>
<td>4</td>
<td>– –</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>LE</td>
<td>3.5</td>
<td>2.5</td>
<td>– –</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>RE</td>
<td>10</td>
<td>8</td>
<td>+ –</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>RE LE</td>
<td>8.5</td>
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<td>7</td>
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</table>
Although the diagnostic criteria for JRA according to ILAR were not met in the present patients—only three had mild arthritis symptoms—the uveitis was of JRA type and all children had antinuclear antibodies. It is not uncommon that the uveitis antedates the arthritis and it has been reported that the visual prognosis is poor in these cases, probably due to delay in the diagnosis of the uveitis.  

Apart from single patients with JRA associated uveitis included in the different published series treated with IOL implantation there is only one study addressing IOL in this type of uveitis. This study comprised seven patients with JRA (eight eyes). A visual acuity of 20/40 or better was attained in all eyes; however, only two children under the age of 10 years were included. Complications in children with uveitis treated with IOL have been reported and in some cases removal of the IOL has been necessary. However, the surgery was not standardised, different IOLs were used, and the surgery was performed in several hospitals.

Membrane formation and posterior capsule opacification were common complications in our series but did not constitute a serious problem except in one patient requiring several reoperations and developing glaucoma and poor VA. Membranes also develop in uveitic eyes not undergoing surgery.  

IOL implantation has been reported to decrease the PCO tendency in adults, and in animal experiments. A decreased tendency to recurrences and inflammation in uveitis after IOL implantation has also been reported. It is possible that anterior vitrectomy diminishes PCO in children operated for cataract; of the three eyes not developing membrane formation in the present series, two had dry anterior vitrectomy at cataract surgery. Glaucoma is a common complication of JRA associated uveitis and in this series glaucoma had developed preoperatively in three eyes. Glaucoma evolved in three eyes 3–14 months after surgery. Two of the latter have successfully received a Molteno implant. The follow up period is short so it is possible that glaucoma may develop in more eyes in the future.
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Conclusion
Though negative experiences with IOL in children with uveitis have been reported in many occasional cases, the present results indicate that cataract extraction with a heparin coated IOL implantation is an alternative in children with uveitis, provided that the uveitis is inactive and treated with steroids topically and systemically.


The authors have no proprietary interests in the products mentioned in the article.

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