



Andrew J Tatham

Study shows congenital cataract surgery at a young age does not appear to increase glaucoma risk

Roibeard O'hEineachain
in Barcelona

CONGENITAL cataract surgery during the first six weeks of life does not appear to increase the incidence of glaucoma compared to surgery performed later, according to a retrospective study reported by Andrew J Tatham MRCOphth, Leicester Royal Infirmary, UK at the first World Congress of Paediatric Ophthalmology and Strabismus, which took place in conjunction with the XXVII Congress of the ESCRS.

"Glaucoma is a serious complication which can develop at any time following surgery for congenital cataracts. Previous studies have suggested that surgery early in life is a risk factor but the children in our series had a low incidence of glaucoma even when surgery was performed at a very young age," Dr Tatham said.

The case-note review study included data from 90 children who underwent surgery for congenital cataracts at an age of 14 years or less over a 20-year period from 1987 to 2007. Dr Tatham and his associates excluded patients with pre-existing glaucoma, those with secondary cataracts and those with a follow-up of less than six months. They based a diagnosis of glaucoma on the physician's decision to initiate treat.

Low incidence of glaucoma

Dr Tatham's review showed that over a follow-up period of 5.3 years only one patient developed glaucoma, and that the age of the patient at surgery appeared to have no significant bearing on the incidence of the condition. That is, among 18 eyes

of 13 children who underwent surgery at less than age 50 days, none had developed glaucoma after a mean follow-up period of 7.5 years. Among 28 children aged 51 days to one year at the time of surgery one patient developed glaucoma in both eyes, and among those aged one to 14 years none developed glaucoma.

"The incidence of glaucoma in our series was lower than in previous reports and significantly those children aged less than six weeks at the time of surgery did not appear to be at increased risk. Our study included 44 children who had surgery at less than one year of age and as yet just one has developed glaucoma. None of the 18 eyes undergoing surgery during the first six weeks of life has developed glaucoma"

"Previous series show that when aphakic glaucoma occurs the long term outcome is poor and unfortunately the child in our series was no exception. Also, glaucoma can occur at any time following surgery. Our patient had bilateral lens extractions at age five months and despite regular outpatient visits, intraocular pressure checks and optic disc examinations were not diagnosed with glaucoma until age 12," Dr Tatham said. "It is possible that more of our patients will develop glaucoma with time".

The median length of follow-up in the study was almost five years and there was no difference between the groups in the length of follow-up. Although this was a one surgeon study there was some variation in surgical technique over the study's 20 year duration. The surgical technique also differed depending on the age of the child at the time of surgery, for example, in group one just one eye had

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a primary intraocular lens implantation compared to 86 per cent in group three.

Dr Tatham noted that in 11 recent published series of glaucoma following congenital cataract surgery, the incidence of the complication ranged from 3.7 per cent to more than 50 per cent. The reason for such a large variation in the studies remains unclear, as was the reason for the low incidence in their own study.

"We can think of several possible reasons. We know that glaucoma can develop at any time following surgery so we would expect studies with longer follow up to report higher incidences of glaucoma, however this is not always the case and our own follow-up period compared favourably with other studies. Failure to diagnose glaucoma could be another possibility, but we were able to measure the intraocular pressure in 95 per cent of children and in the remaining five per cent there was a stable refractive error and normal optic disc appearance," Dr Tatham said.

A possible factor may have been the surgical technique used. Children who suffer complications during surgery may be at increased risk of developing glaucoma. He said that in his approach to cataract surgery in very young children he tries to remove as much lens material as possible, without regard for the difficulties that this might create for secondary intraocular lens placement. The elimination of residual lens matter may reduce postoperative inflammation and subsequent glaucoma.

"The findings of our series suggest that factors other than age at surgery are important risk factors for aphakic glaucoma. A key part of the problem is that we don't understand the reason why aphakic glaucoma occurs, perhaps when we have better understanding of the mechanism of the disease we will better understand the risk factors", Dr Tatham concluded.

Possibilities for prevention

In a separate presentation Alex Levin MD, chief of pediatric ophthalmology and ocular genetics at Wills Eye Institute, Philadelphia, Pennsylvania, US, suggested that patient selection and individualised

treatment are key ingredients to reducing the incidence of glaucoma after paediatric cataract surgery.

"I don't think we can prevent paediatric aphakic glaucoma completely, but there are things we can do to reduce the risk to a minimum," he added.

For example, surgeons should be somewhat circumspect regarding the use of IOLs, particularly in cases with iritis, where failures can be disastrous. When a child achieves a satisfactory result with contact lenses, IOL implantation is likely to provide only a modest additional benefit of convenience and cost rather than vision while possibly increasing glaucoma risk.

In the case of persistent foetal circulation (previously PHPV), the lowest risk surgery can be achieved by using ultrasound biomicroscopy, for preoperative evaluation, and intraoperative endoscopy to insure that ciliary process tension is relieved. Moreover, if the posterior capsule is opacified throughout its entirety it may be best to refer the patient to a retinal surgeon.

The utility of peripheral iridectomy in eyes at risk of acute iritis is debatable, Dr Levin said. Where iritis is already present, performing the iridectomy may aggravate the condition, he pointed out. The posterior capsule is best left intact if the child has no contraindications for YAG laser capsulotomy, he advised. He added that he always leaves the capsule intact in iritis cases and they rarely require subsequent capsulotomy.

When despite all precautions glaucoma occurs following paediatric cataract surgery, early detection provides the best means of harm reduction. Patients carry a lifetime risk of the condition and should undergo, at minimum, yearly eye exams, he stressed. The examinations should include IOP measurements (even if sedation or anaesthesia are required), over-refracting patients to detect myopic shifts, and assessment of the cornea for signs of oedema.

"I have seen far too many cases in which the problem was not so much the glaucoma, as the late diagnosis of the disease," Dr Levin said.

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