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Wound Dehiscence following Cataract Surgery in Children: a Report of Seven Cases

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Summary

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Objective: To determine the incidence and causes of wound dehiscence as well as assess the outcome of management in children who had cataract extraction between July 2002 and June 2005 at the University College Hospital, Ibadan.

Methods: A retrospective review of the operations register and case records of patients aged 16 years and below who underwent cataract surgery was carried out, to identify those who developed wound dehiscence necessitating surgical repair.

Results: Seventy four eyes of 52 children underwent cataract surgery during the study period. Seven eyes (9.5 percent) had post operative wound dehiscence requiring surgical repair. Trauma was responsible for five (71.4 percent) of the cases. Visual outcome was poor following repair, in four of the seven eyes.

Conclusion: Wound dehiscence is not an uncommon complication after cataract surgery in children at the University College Hospital, Ibadan. Special attention should be paid to reducing the risk for ocular trauma in addition to the surgical technique and wound closure. Advice to care-givers on protection of the eyes of these children is a very important part of management.

Introduction

CATARACT blindness in children continues to present an enormous problem in developing countries in terms of human morbidity, economic and social burden.[1] Congenital and traumatic cataracts are the commoner types of childhood cataract in developing countries.[2] Various surgical procedures such as lens aspiration, lensectomy, and extracapsular cataract extraction with or without small incision cataract surgery have been used to treat paediatric cataracts. Intraocular lens implants have become popular and are frequently used with good results in children older than two years.[3-5] Because of the associated systemic problems and the need for general anaesthesia in patients with congenital cataracts, such patients are usually referred to tertiary hospitals.

Post operative wound dehiscence is a known but relatively uncommon complication of present day cataract surgery.[6] It often occurs following trauma,[7,8] severe cough,[9] vomiting[10] or straining during the early post operative period. It has also been reported to occur as a result of poor wound construction or closure when less experienced surgeons perform the surgery. This complication often has an adverse effect on final visual outcome[11,12] while serious damage to intraocular contents may occur. The present case series is reported to highlight some of the factors that may predispose to wound dehiscence in children after undergoing cataract extraction in a tertiary hospital in a developing country. The circumstances leading to ocular trauma after cataract surgery in such settings have not been studied previously; such information would be useful for preventive measures.

Patients and Methods

This was a retrospective review of the operations register and case records of patients aged 16 years and below who underwent cataract surgery between July 2002 and June 2005 at the University College Hospital, Ibadan. The aim was to identify those who developed wound dehiscence necessitating surgical repair. Data abstracted from the case files of the patients with wound dehiscence which included the history and findings on clinical examination, were aimed at identifying the factors that predisposed the children to wound dehiscence.

A total of 74 eyes of 52 children had cataract extraction during this period. All 52 patients

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underwent extracapsular cataract extraction (ECCE) under general anaesthesia; 35 of them had posterior chamber intraocular lens implantation, the other 17 patients did not have any intraocular lens implanted. Midlimbal shelved incisions were made. Wounds were closed with either 10/0 or 9/0 nylon sutures or 8/0 virgin silk sutures. Each surgerywas performed by one of five consultant ophthalmologists employed by the hospital. Follow-up period for these 52 patients ranged from three weeks to twoyears. Repair in those with wound dehiscence was performed as an emergency procedure under general anaesthesia. The area of wound rupture was resutured while reposition or abscission of the iris was done. The anterior chamber was reformed, the damaged intraocular lens was removed and another replaced if the posterior capsule was still intact. Where vitreous was present at the wound, anterior vitrectomywas performed. Post-operative care was with mydriatics, topical antibiotics and topical steroids. Children were usually discharged four to five days post-operatively after wound repair.

. Results

A total of 74 eyes in 52 children underwent cataract surgery between July 2002 and June 2005. Seven eyes in seven children were seen with postoperative wound dehiscence requiring surgical repair. The characteristics of these seven patients are shown in Table I. There were four males and three females. Their ages ranged from eleven months to nine years. Six of these children had bilateral congenital cataracts while one had traumatic cataract. The surgery performed and descriptions of the initial surgical wound are also shown in Table I. Three of the seven eyes had posterior chamber intraocular lenses implanted. Wound dehiscence occurred in three right eyes and four left eyes. All cases of wound rupture except one, presented within three weeks of cataract extraction.

Five of the seven children had eye injuries which occurred between six and 18 days after surgery. The parents of the other two children were not sure if there was any eye injury. The latter two patients presented to the hospital with wound dehiscence at eight days, and six weeks respectively, post operatively. One of these children had defaulted from attending follow up at the hospital prior to presentation with wound dehiscence. Typical events causing wound rupture were accidental throwing of a corn hob at the operated eye (one patient) and elbow injury by schoolmates (one patient). Three patients fell from heights; two of them had been left on adult beds

Table I

Characteristics of Children who presented with Wound Dehiscence after Cataract Surgery

	Patients Identification Number						
Characteristics	1	2	3	4	5	6	7
Age	9 years	2 years	11months	17months	9 years	5 years	3 years
Sex	M	M	F	F	M	F	M
Diagnosis	Bilateral Congenital Cataracts	Bilateral Congenital Cataracts	Bilateral Congenital Cataracts	Bilateral Congenital Cataract	Bilateral Congenital Cataracts	Traumatic Cataracts	Bilateral Congenital Cataracts
Surgery	LEECE + PCIOL	LECCE	LECCE	RECCE	RECCE + PCIOL	RECCE+ PCIOL	LECCE
Initial surgical wound	≈8mm 2 plane Mid-limbal	≈5mm 2 plane Mid-limbal	≈5mm 2 plane Mid-limbal	≈5mm 2 plane Mid-limbal	≈8mm 2 plane Mid-limbal	≈8mm 2 plane Mid-limbal	≈5mm 2 plane Mid-limbal
Sutures used at initial surgery	9/0 Nylon	9/0 Nylon	8/0 Silk	8/0 Silk	8/0 Silk	8/0 Silk	8/0 Silk
Affected eye	Left	Left	Left	Right	Right	Right	Left
Trauma	Com hob injury thrown by mate	Fall from height	Fall from bed	Mother unsure	Mother unsure	Fall	Elbow injury by school mate
Time of dehiscence after first operation	12 days	18 days	6 days	8 days	6 weeks	15 days	11 days

LECCE = Left extracapsular cataract extraction
RECCE = Right extracapsular cataract extraction
PCIOL = Posterior chamber Intraocular lens

without protective guards and the children fell off while attempting to climb out of bed.

Primary cataract surgical wound was closed with 9/0 nylon sutures in two patients, while 8/0 silk sutures was used in five others. None had suture removal prior to presentation with wound dehiscence. Visual acuity after the repair of wound dehiscence was 6/18 or better in two eyes, worse than 3/60 in four eyes and in one patient, the visual acuity was not recorded (Table II).

Table II

Best Visual Outcome after Repair of Wound Dehiscence

Best Corrected Visual Acuity	*Number of Patients*
$\geq 6/18$	2
$6/24 - 3/60$	-
$< 3/60$	4
Not available	1

Complications observed after repair of the wound dehiscence included aphakic glaucoma (three patients), dense posterior capsule opacities (three patients), phthisis bulbi (three patients), and ciliary staphyloma in one patient (Table III). One patient defaulted from follow up three weeks after the wound repair.

Table III

Post-operative Complications after Repair of Wound Dehiscence

Complications	*Number of Patients*
Aphakic glaucoma	3
Dense post capsule opacities	3
Phthisis bulbi	3
Ciliary staphyloma	1

Discussion

Wound dehiscence has been reported as a post operative complication of cataract surgery in adults and children.[11-14] Values ranging from zero to three percent have been reported in previous studies.[13] The wound dehiscence rate of 9.5 percent observed within the study period in the present series was much higher than that reported in Caucasian[13] and Asian[14] populations. This may reflect differences in the medical, socio-cultural, and behavioural factors, as well as the level of understanding of parents or caregivers in the different populations. It is even possible that wound dehiscence occurred in more than 9.5 percent of the children in the present series, but were not identified because there was a high follow-up default rate. A previous study has reported the poor follow-up observed in paediatric patients in our environment.[15] Another possibility is that wound dehiscence may be missed during follow-up because of difficulties encountered while attempting to examine children post operatively.

In the present series, there was a definite history of trauma post-operatively in five children. Thus, trauma is a common cause of post-operative wound dehiscence among the study population. Children may be more prone to trauma than adults[16] especially when they return to day-care or school soon after surgery. In addition, because of improvements in vision after surgery, patients tend to make more attempts to move around unguided. This predisposes them to falls and other forms of trauma. This was the case in two of our patients. Parents and caregivers of children undergoing cataract surgery should be educated about the need for protective eyewear and close supervision while at home, school or at play.

Initial wound closure was achieved with 8/0 silk in five children, while 9/0 nylon was used in two others. Previous studies have shown that nylon sutures are preferred to silk sutures.[17,18] This suggests that the use of 8/0 silk may be a risk factor for post operative wound dehiscence. Wound dehiscence in our patients occurred within the first month of surgery and this is the highest risk period when wound strength is dependent almost entirely on the sutures. Furthermore, it has been advocated that emphasis should be given to wound construction and closure during surgical training, with extra diligence when operating on paediatric patients. The operations on all our patients were carried out by experienced surgeons. Another risk factor may be the technique of topical administration of post operative drugs by caregivers. With the tendency for the child to squeeze the lids during drug administration, there is a definite risk of interference with the wound if the upper lid is forcefully retracted; such a manoeuver would certainly increase the risk of wound dehiscence.

Four of the five patients in whom an objective visual acuity test was performed, had a visual outcome worse than 3/60 after repair of wound dehiscence. This is a poor outcome and emphasises the need to prevent wound dehiscence after cataract surgery. Two of the children with poor visual outcome developed phthisis bulbi (shrunken globe). Visual outcome in the majority of patients with wound dehiscence following cataract surgery has previously been

reported to be good[19,20] but in this series, as has been observed by others,[12] the influence of pre-existing ocular factors could contribute to the poor visual outcome. Furthermore, the severity of wound dehiscence and late presentation may be additional factors to poor visual outcome. Those eyes with poor outcome had expulsion of intraocular contents with vitreous loss. Complications such as posterior capsule opacities and aphakic glaucoma increase the morbidity and further reduce visual outcome, thereby increasing the burden on caregivers.

Conclusion

Wound dehiscence after cataract surgery in children was not uncommon among the series of children operated within the study period. Visual outcome was poor after repair. Special attention must be paid to reducing the risks for ocular trauma, surgical technique, and wound closure. Advice to caregivers on the protection of the eyes of these children must be emphasized. Early return to school should be discouraged and the use of protective spectacles should be emphasized at the time of discharge.

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