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Research Article

**DIFFERENCES BETWEEN PEDIATRIC PATIENTS WITH
CONGENITAL CATARACT AND THOSE WITH NON-
CONGENITAL CATARACT IN SAUDI ARABIA****Hisham Alghanmi, Abdullah Hefni, Abdullah Azouz, Hussain Iraqi**

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Dr. Wedad Bardisi**Article Received:** October 2021**Accepted:** November 2021**Published:** December 2021**Abstract:**

Purpose: The study aimed to determine differences in age of presentation, unilateral or bilateral disease, gender, and follow-up after surgery between patients with congenital cataract and those with non-congenital cataract.

Methods: This retrospective case series included all children aged 13 years and below, who had undergone cataract surgery between 2015 and 2020 at King Abdul Aziz University Hospital Jeddah, Kingdom of Saudi Arabia. Data were obtained from the medical records of the hospital. Data were entered into Microsoft Excel, while analysis was performed by using SPSS version 19. T-test and Pearson's Chi-square test were used to test associations where appropriate.

Results: 60 children underwent surgery during the 5-year period under review. In all, 36 (73.5%) were male. Congenital cataract was diagnosed in 68.3% and non-congenital cataract in 31.7% children. The mean age at presentation was 4.3 years (\pm SD 3.7) for congenital cataract and 6.4 years (\pm SD 3.9) for non-congenital cataract, 47 (78.3%) children underwent follow-up, while 13 (21.7%) were lost to follow-up.

Conclusions: Congenital cataract was presented at a younger age than noncongenitally cataract, most congenital cataract cases were bilateral, and gender differences were nonsignificant. In Jeddah, congenital and non-congenital cataract present at a later stage and an urgent childhood blindness program is needed and a Child Eye Health Tertiary Facility should be established to diagnose pediatric cataract as early as possible to prevent blindness and visual disability.

Keywords: congenital cataract, surgery, non-congenital cataract, ophthalmology.

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INTRODUCTION:

It is estimated that 1.5 million children experience blindness worldwide, of which 1.3 million live in Asia and Africa. In all, blindness in 75% of the 1.5 million children may be preventable or curable. Studies have shown that blindness is positively correlated with the low socioeconomic status of the country because, first, the incidence of potentially blinding conditions such as vitamin A deficiency, harmful traditional eye remedies, or cerebral malaria are higher in these countries; further, mortality rates of children under 5 years of age with these conditions are high. Blindness is 10 times more prevalent in developing countries than in developed countries.¹

Most blinding conditions in children can be prevented, and cataract is one of the leading causes of treatable blindness in children.^{2,3} Cataract is any light scattering opacity of the lens⁴ that can be classified into congenital, developmental, or traumatic. First, congenital cataract develops since birth or shortly after birth,⁵ and has a global incidence of 1 to 15 per 10,000 births,² while developmental cataract usually refers to cataract that appears after the age of 2 years, and represent 29%-57% of pediatric cataract cases.^{5,6}

Surgery is the only treatment for optimal recovery, for which the following two criteria should be met. First, diagnosing congenital cataract as early as possible is important to prevent amblyopia. Second, the importance of follow-up after surgery should be emphasized to improve the residual refractive error, as well as to detect and manage any postoperative complications⁷⁻⁹ that need to be considered, such as increased postoperative inflammation, axial growth after cataract extraction, implant-power calculation, secondary glaucoma, posterior-capsule

opacification.¹⁰ In all, 22% to 30% of childhood blindness is because of lack of appropriate treatment, delayed presentation to hospitals, and late surgical treatment.^{11,12}

Epidemiology and data on the age of undergoing cataract surgery are critical for improving management strategies for this challenging condition. Because of a lack of studies on pediatric cataracts surgery in the Saudi Arabia population, we conducted this study to determine differences in with regard to age, eye, gender and follow-up after surgery between patients with congenital and those with non-congenital cataract.

METHODS:

This retrospective case series included children aged 13 years and below, who had undergone cataract surgery between 2015 and 2020 at King Abdul-Aziz University Hospital in Jeddah, Kingdom of Saudi Arabia. In all, data for 60 children who had undergone surgery for cataract over the study period were obtained from the medical records of the hospital. The following data were extracted from the medical records: Medical records number, age, sex, diagnosis, nationality, admission, department, date of follow-up, associated syndrome, and data of surgery. Data were entered into Microsoft Excel, while all analyses were performed by using SPSS version 19. Student t-test and Pearson's Chi-square test were used to test associations where appropriate

RESULTS:

In all, 60 children underwent during the 5-year period under review. In all, 36 (73.5%) were boys and 19 (26.5%) were girls. The age and sex distribution is summarized in Table 1

Table 1: Age and sex distribution of the children included in the study

Sex	Number of children	Age (years)
		Mean± Standard deviation
Male	41	4.7±4.1
Female	19	5.5±3.2
Total	60	5±3.8

Congenital cataract was diagnosed in 68.3% and non-congenital cataract in 31.7% children. The mean age at presentation was 4.3 years (\pm SD 3.7) in the congenital cataract group and 6.4 years (\pm SD 3.9) in the non-congenital cataract group. No gender differences were observed for any the type of cataract.

Table 2: Different cataract types

	Cataract		Total
	Congenital	Non-Congenital	
Bilateral	21	2	23
	42.9%	4.1%	46.9%
Unilateral	14	12	26
	28.6 %	24.5%	53.1%
Total	35	14	49
	71.4%	28.6%	100%

Table 2 shows details of the children with cataract; 23 (46.9%) children had bilateral cataracts, 26 (51.3%) had unilateral cataract, and the affected eye was not documented in 11 children (1.8%). In all, 21% (42.9%) patients had bilateral cataract and congenital cataract, while 2 (4.1%) had non-congenital cataract. Further, 14 (28.6%) patients had unilateral and congenital cataract, while 12 (24.5%) had non-congenital cataract. The difference statistically was significant ($P = 0.004$).

Table 3: Admission department types

	Nationality		Total
	Saudi	Non-Saudi	
Outpatient clinic	14	18	32
	23.3%	30%	51.7%
Emergency room	3	16	19
	5,%	26,7%	32.8%
Day Care	6	3	9
	10%	5%	15,5%
Total	23	37	60
	38.3%	61,7%	100%

Table 3 shows that most children were admitted through the outpatient department (51.7%) followed by emergency department (32.8%), and day care (15.5%). Most children who were admitted through the emergency department were not from Saudi (84.2%). The differences in admission department types was statistically significant ($P = 0.023$). Children underwent follow-up were younger (mean age, 4.6 years, \pm SD 3.7) than children, who were lost to follow-up (mean age, 6.2 years, \pm SD 4.2). The difference in follow-up periods was not statistically significant.

Table 4: The number of patients who underwent follow-up depending on whether they were or were not from Saudi Arabia

	Nationality		Total
	Saudi	Non-Saudi	
Yes	14	33	47
	23.3%	55.0%	78.3%
No	9	4	13
	15.0%	6.7%	21.7%
Total	23	37	60
	38.3%	61.7%	100.0%

Table 4 shows that 47 (78%) underwent follow-up and 13 (21.7%) did not. Most children (70.2%) who underwent follow-up were non-Saudi, while most children (69.2%) who were lost to follow-up were Saudis. The differences in nationality were not statistically significantly related to the follow-ups. ($P = 0.012$)

DISCUSSION:

In this study, the mean age of patients who had congenital cataract was 4.7 years in comparison to Koreans in whom the mean age was 3.17 years¹⁵ and to Iranians in whom the mean age was 3.2 years.¹⁶ We believe that these differences are due to the lack of a standard evaluation method for diagnosing congenital cataract at an early age. Compared to other developing countries such as Nepal (mean age 6.2 years)¹⁷ and India (9.56 years),¹⁸ our mean age is much lesser owing to better health care services in Saudi. The best age for cataract surgery is in the first year of life.⁵ Overall, the diagnosis of congenital cataract is difficult, as most children with mild congenital cataract will not have any major interference with their daily life until they face problems in reading and learning at school age.¹⁹

We found that patients with acquired cataract had a mean age of 6.4 years, which is similar to that noted in Guatemala (mean age, 76.6 months [6.3 years]),²⁰ and

children at this age perform outdoor activities that increases the risk of trauma. The most common cause of acquired cataract is trauma.²¹ No gender differences were observed for any type of cataract, which is similar to a UK study.²²

The results show that more patients had bilateral congenital cataract than bilateral acquired cataract (42.9% and 4.1% respectively), which is similar to studies from Guatemala and Spain.^{20, 21} We believe that this finding is based on the mechanism of both types of cataracts. Congenital cataract may be caused by a systemic-like infection whereas non-congenital may be caused by trauma. Unilateral cataract may occur because of both reasons.

Most cases were admitted through the outpatient clinic (51.7%). In addition, 32.8% patients were admitted through the emergency department, as they had experienced trauma. We should mention that the WHO has recommended establishing a Child Eye

Health Tertiary Facility for 10 million people by 2020,²³ which could help decrease the mean age of congenital cataract diagnosis and other congenital eye diseases.

Fortunately, 78.3% patients underwent follow up, which indicates that awareness of the importance of follow-up. As there are complications that associated with cataract surgery, for example, aphakic glaucoma, as reported by Parks *et al.*²⁴ in 54% of patients who underwent cataract surgery.

CONCLUSIONS:

Congenital cataract was presented at a younger age than noncongenital cataract, congenital cataract cases were mostly bilateral, and gender difference was nonsignificant. Further, most patients underwent follow-up in our study. There is an urgent need to establish a childhood blindness program and a Child Eye Health Tertiary Facility to diagnose pediatric cataract as early as possible to prevent blindness and visual disability and spread awareness of the follow-up.

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