CASE REPORT

Intisari Sains Medis 2022, Volume 13, Number 3: 599-601
P-ISSN: 2503-3638, E-ISSN: 2089-9084

Intisari Sains Medis

Published by Intisari Sains Medis

A neglected case of blunt eye injury leading to pediatric cataract: a lifetime consequence case report

Jelly Vianti Fransisca Oeiyano[1*], Raymond Oliver Mantu[2], Samuel Samatara[3]

[1]Medical Doctor Intern at Ophthalmology Division, Tobelo Regional Public Hospital, North Halmahera, North Maluku, Indonesia;
[2]Medical Doctor in Paniai Regional Public Hospital, Papua, Indonesia;
[3]Ophthalmologist at Ophthalmology Division, Tobelo Regional Public Hospital, North Halmahera, North Maluku, Indonesia;

*Corresponding author:
Jelly Vianti Fransisca Oeiyano;
Medical Doctor Intern at Ophthalmology Division, Tobelo Regional Public Hospital, North Halmahera, North Maluku, Indonesia;
oeiyanojelly@gmail.com

Received: 2022-08-28
Accepted: 2022-10-11
Published: 2022-11-02

ABSTRACT

Background: A pediatric traumatic cataract is one of the children's main causes of unilateral visual impairment. It is defined as a permanent opacification of the lens caused by penetrating or blunt trauma to the eye, which might damage the vision. A traumatic pediatric cataract is preventable and treatable. This case study aims to evaluate a neglected case of blunt eye injury leading to pediatric cataracts.

Case Description: A 15-year-old boy came with chief complaints of decreased visual acuity in his left eye for the last 2 years. He has a history of blunt eye injury around 3 years prior in the left eye but left untreated. The patient's visual acuity was 1 per light perception in the left eye. An ophthalmologic examination of the left eye showed an opacity in the lens. The posterior segment cannot be examined. The patient was assessed with a traumatic cataract and was planned to be operated on, but the parents refused.

Conclusion: Prompt first aid and timely surgical intervention are necessary for optimal results. Parents play a critical role in the patient's prognosis by observing closely after eye trauma and bringing their children to the right medical facility.

Keywords: Pediatric Traumatic Cataract, Ocular injury, Visual Outcome.

Cite This Article: Oeiyano, J.V.F., mantu, R.O., Samatara, S. 2022. A neglected case of blunt eye injury leading to pediatric cataract: a lifetime consequence case report. *Intisari Sains Medis* 13(3): 599-601. DOI: 10.15562/ism.v13i3.1480

INTRODUCTION

A pediatric traumatic cataract is one of the children's main causes of unilateral visual impairment.[1,2] The incidence of pediatric cataracts ranges from 1.8-3.6/10.000 per year and about 12-46% of all pediatric cataracts are caused by ocular trauma.[3] In the United States and other developed countries, the incidence rate of ocular trauma was around 1 to 10 per 10.000 children.[4] According to the previous study, the incidence of ocular trauma was estimated to be 46,488 cases per year among 34 provinces in Indonesia.[5]

Children in rural areas are more likely to be affected by ocular trauma while playing without supervision and most of the incidence occurred in boys.[1] A Pediatric traumatic cataract is defined as a permanent opacification of the lens caused by penetrating or blunt trauma to the eye.[6,7] According to Birmingham Eye Trauma Terminology (BETT) System, ocular trauma was divided into close and open-globe trauma. Both open and closed-globe trauma can lead to traumatic cataracts.[3]

Pediatric traumatic cataracts can cause blindness in children, which in turn will affect their socioeconomic aspect.[3] It is a preventable and treatable condition.[6] Knowledge about etiology, treatment, and the impact of eye trauma in pediatric eyes have significant roles in preventing blindness which interferes with their learning process.[2]

Based on those mentioned above, the author intended to report a case about a neglected case of blunt eye injury leading to pediatric cataracts as a lifetime consequence due to lack of knowledge.

CASE REPORT

A 15-year-old boy was brought to the ophthalmologic clinic by his parent with chief complaints of decreased visual acuity in his left eye for the last two years. He has a history of blunt eye injury while playing football around 3 years ago. At the time of injury, the patient reported having no complaints of dizziness, blurred eyes, bleeding in the eye, and vomiting. After the incident occurred, the patient did not have a further ophthalmic examination. The patient had no medical history, prior ocular disease, or surgery. On admission, the patient was afebrile and his vital signs were within normal limits, with a blood pressure of 100/70, a pulse of 78 beats per minute, and a respiratory rate of 20 breaths per minute.

Ophthalmologic examination showed that both eyes are fixed and followed the objects, the ocular movement is normal, and the uncorrected visual acuity is 6/6 in the right eye and 1 per light perception in the left eye. Intraocular pressures measured in both eyes were within the normal limit, 14 mmHg. The anterior segment examination of the left eye was within normal limits, except for an opacification in the lens (Figure 1). The examination

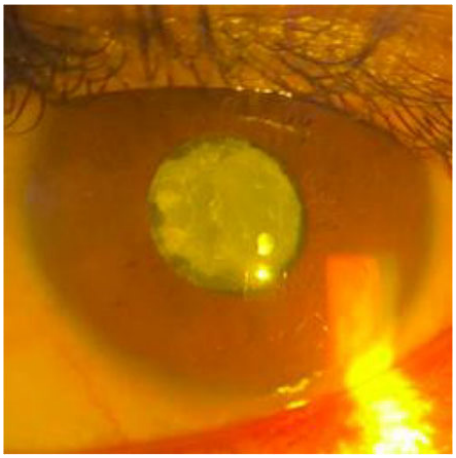

Figure 1. Slit Lamp photograph showing white opacity in the lens.

of the right eye is within normal limits. A posterior segment examination was not done due to tools limitation. The patient was then diagnosed with a traumatic cataract in the left eye and was planned for surgery, but the parent refused.

DISCUSSION

Pediatric traumatic cataracts are the most common causes of both acquired cataracts and also cause of blindness in children.[1] It can occur spontaneously or up to years after the trauma.[8] Memed FK et al., showed that pediatric eye trauma occurred most frequently in boys.[8] In addition, a previous study by Puodziuviene E et al., also suggested that boys are more prone to eye trauma.[9] The high number of cases may be due to curiosity to explore objects and activities such as sports without adult supervision, making them more vulnerable to trauma.[1,7,9] The study also showed that the incidence was higher in the oldest age group, around 13-18 years.[9] The incident happened when the age of patient is 12-year-old and while he was playing football in this study.

Ocular trauma is the major cause of pediatric traumatic cataracts. The BETT system classified the terms ocular trauma and has divided it into closed and open globe trauma. The closed globe trauma mechanism is subdivided into contusion caused by blunt trauma and lamellar laceration caused by the sharp object that results in partial thickness laceration.[1]

In closed globe injury, coup, coup-contrecoup, and equatorial expansion types of injury are considered responsible for traumatic cataract formation. The blunt trauma results in anteroposterior compression and equatorial expansion of the globe, which may damage the lens–zonule complex resulting in the varying extent of zonular dialysis and lens subluxation, capsule, the root of the iris, angle, and retina damage. A cataract may also cause by microtears of the capsule near the zonular attachment. There may be characteristic morphologies associated with blunt trauma; for example, post-blunt trauma usually forms a stable or timely progressive rosette-shaped lens opacity. The impact site might be observed by an anterior lens capsular scar or fibrosis white anterior lens capsule.[3] In this case, after 3 years of trauma, we can appreciate anterior lens capsular fibrosis in the entire part of the lens.

A detailed patient evaluation is necessary and one of the most important steps in treating ocular trauma. During an initial assessment, it is crucial to record the exact history and focus on the etiology of the trauma. Evaluating the patient's visual acuity (VA), eye fixation, ocular misalignment, extraocular motility, pupillary reflex, and intraocular pressure must be performed to evaluate any injury in the extraocular muscles and involvement of the optic nerve. A thorough slit lamp examination should be performed to assess the anterior segment.[1] In this patient, the anterior segment of the left eye is within normal range except for the lens. The left eye's lens showed white opacification due to a traumatic cataract affecting the patient's visual acuity. Statistically, children with blunt eye injury have a better visual outcome than penetrating injury. However, traumatic cataract caused by penetrating injury in children deteriorates visual acuity instantaneously and is easier to be noticed by the parents resulting in immediate response to healthcare facilities. On the other hand, visual acuity deterioration due to blunt trauma often occurs gradually, risking delayed proper treatment and undesirable prognosis in some children.[10]

Posterior segment examination using an indirect ophthalmoscope should be performed to investigate abnormalities resulting from trauma. This can only be done if media clarity allows. However, if the media is unclear, an eye ultrasound should be done to find any other abnormalities due to blunt trauma, including cyclodialysis, subluxation of the crystalline lens, and the presence of a foreign body. An ultrasound is also necessary before further eye surgery. Information gathered can help the physician decide immediate priorities, further investigations, further courses of action, and the prognosis.[1] In this patient, we did not perform a posterior segment examination and eye ultrasound due to tools limitation.

Surgery by removing the cloudy lens and replacing it with an intraocular lens is one of the main treatments for pediatric traumatic cataracts. The surgical strategy may vary depending on the trauma type and injury duration.[1] A previous study by Kedwany SM et al., showed that early intervention of cataract surgery with implantation of IOL has improved visual acuity and can avoid amblyopia. On the contrary, delayed intervention in one eye can be led to irreversible amblyopia.[11] The management of pediatric traumatic cataracts is complex due to the ongoing development of the eye and brain and the risk of amblyopia.[10] After the surgery, visual rehabilitation is necessary to lower amblyopia risk. In this case, the visual acuity of the unaffected eye is still normal. However, if left untreated, this can lead to another complication. Our patient's mother refuses to perform cataract surgery. Understanding the risk of complications in the future is important for every parent. Sometimes parents did not receive enough information about the possibility of improving the vision with the existing management. The best approach is to undergo surgery which the patient refused. There is no medication proven to cure traumatic cataracts. We also emphasize the importance of comprehensive treatment options and possibilities of visual improvement after proper treatment, including rehabilitation post-surgery. Untreated pediatric traumatic cataracts can face a lifetime of blindness and affect their quality of life.[10]

Pediatric traumatic cataracts play a role in visual impairment and psychological stress in children and their guardians. It also can affect a further socioeconomic

aspect of the patient. Up to 90% of ocular trauma cases are preventable and treatable. The parents, teachers, and people are responsible for supervising and observing their child while playing and bringing the child to the proper health center if trauma occurs, like in this case.

This case report discussed a case of a neglected case of blunt eye injury leading to pediatric cataracts as a lifetime consequence. The limitation of this case is the absence of complete tools to carry out further examinations, such as funduscopic and eye ultrasound for further examination.

CONCLUSION

Prompt first aid and timely surgical intervention are necessary for optimal results in the case of pediatric traumatic eye injury. Parents play a critical role in the patient's prognosis by observing closely after eye trauma and bringing their child to the right medical facility.

CONFLICT OF INTEREST

The author stated there is no conflict of interest in this study.

ETHICAL CONSIDERATION

Patient approval was obtained in this study before the study was conducted. The patient has received informed consent according to COPE and ICMJE protocols.

FUNDING

None.

AUTHOR CONTRIBUTION

All of the authors equally contributed to this case study.

REFERENCE

1. Khokhar SK, Pillay G, Dhull C, Agarwal E, Mahabir M, Aggarwal P. Pediatric cataract. Indian J Ophthalmol. 2017;65(12):1340-1349.
2. Du Y, He W, Sun X, Lu Y, Zhu X. Traumatic Cataract in Children in Eastern China: Shanghai Pediatric Cataract Study. Sci Rep. 2018;8(1):2588.
3. Mickler C, Boden J, Trivedi RH, Wilson ME. Pediatric cataract. Pediatr Ann. 2011;40(2):83-87.
4. Zimmermann A, Magalhães IH, Tanaka HA, Zimmermann IT, Arieta CEL. Pediatric traumatic cataract review: Origin of the trauma. Rev Bras Oftalmol. 2019;78(2):103–106.
5. Widjaja SA, Hiratsuka Y, Ono K, Yustiarini I, Nurwasis N, Murakami A. Ocular trauma trends in indonesia: Poor initial uncorrected visual acuity associated with mechanism of injury. Open Access Maced J Med Sci. 2021;9(B):903–908.
6. Jinagal J, Gupta G, Gupta PC, Yangzes S, Singh R, Gupta R, et al. Visual outcomes of pediatric traumatic cataracts. Eur J Ophthalmol. 2019;29(1):23-27.
7. Muhiddin HS, Amalius AA, Sitanaya GA, Windy DA. Rapid action to avoid cataract blindness in South Sulawesi. Bali Medical Journal. 2018;7(2):302-307.
8. Memed FK, Mariska D, Wahyu MS, Irfani I, Oktarima P, Caesarya S. Pediatric Traumatic Cataracts at a Tertiary Eye Center in Indonesia. Open J Ophthalmol. 2020;10(4):332–340.
9. Puodžiuvienė E, Jokūbauskienė G, Vieversytė M, Asselineau K. A five-year retrospective study of the epidemiological characteristics and visual outcomes of pediatric ocular trauma. BMC Ophthalmol. 2018;18(1):10.
10. Günaydın NT, Oral AYA. Pediatric traumatic cataracts: 10-year experience of a tertiary referral center. BMC Ophthalmol. 2022;22(1):199.
11. Kedwany SM, Saleh MGA, Tohamy D, Mostafa MM. Outcome of Pediatric Traumatic Cataract in Upper Egypt: A Tertiary Center Study. Clin Ophthalmol. 2021;15:1583-1589.