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Blunt Ocular Trauma Complicated by Hyphema

Made Indah Pramanandari
Rumah Sakit Bhayangkara Denpasar, Indonesia
Email: madespram@gmail.com

ABSTRACT
In this era of industrialization and high-speed traffic, the incidence of trauma is increasing in general. According to research, ocular trauma is also one of the causes of quite high rates of blindness. A male patient, 35 years old, came to the Bhayangkara Denpasar Eye Clinic initially on October 3 2023 with a complaint. The patient complained of pain in the right eye after being hit by a shuttlecock approximately 1 hour before the patient came to the hospital. Complaints are accompanied by red eyes, blurred vision, pain and watering. The patient said he had not received therapy for his complaint. Denied history of complaints of fever, cough, runny nose, shortness of breath. blunt ocular trauma which causes complications of hyphema and secondary glaucoma.
Keywords: hyphema, ocular trauma, blunt ocular trauma

INTRODUCTION

InIn this era of industrialization and high-speed traffic, the incidence of trauma is increasing in general (Pertiwi, 2023). The eye is a part that often experiences trauma, even though this organ is well protected by the eyelids, orbital bones, nose and fat pads behind it. Ocular trauma is a problem with vision and blindness in the eye (Yanto et al., 2020). Ocular trauma is divided into sharp trauma, blunt trauma, chemical trauma, physical trauma, extra ocular foreign body and penetrating trauma (Rani Himayani & Yusran, 2019).

The prevalence of ocular trauma in the United States is 2.4 million per year and at least half a million of them cause blindness (Djelantik et al., 2010; Rachmaningrum et al., 2020). In the world, approximately 1.6 million people experience blindness, 2.3 million experience bilateral visual impairment, and 19 million experience unilateral visual impairment due to ocular trauma.(Akbar et al., 2019). A number of studies on ocular trauma that have been carried out in several countries show that the highest prevalence occurs in young populations with low socioeconomic and educational levels (Pradana, 2017).

Around 55 million of the world's population has experienced ocular trauma which has resulted in disruption of the sufferer's daily life activities. Among these cases, there are 1.6 million patients who experience blindness every day (Hutagaluh, 2019). It

is recommended to examine the eye as soon as possible from the injury, delay will cause the lid to swell, making the examination much more difficult (Winaris, 2018). The incidence of ocular trauma is often found in daily life, but little research has been conducted (Tutik Ekasari & Natalia, 2019). There are two types of removal of foreign objects due to trauma to the eye. The first is evisceration surgery, which is the act of removing the contents of the eyeball only or removing the contents of the orbit due to blindness, trauma and eye disease (Waskitho et al., 2015). This surgical procedure only removes the contents of the eyeball, without removing the sclera, conjunctiva, eye muscles and eye nerves (Soebagjo, 2019). The second is enucleation surgery, removing the entire eyeball along with the sclera by cutting the muscles that move the eye and the optic nerve. Indications for enucleation and evisceration surgery (Nofityari et al., 2019).

CASE REPORT

Identity

Name : Social Sciences
Age :
35 Gender :L
Status : BPJS
Check Date : October 3, 2023

Anamnesis

Main complaint: The patient complained of pain in the right eye after being hit by a shuttlecock approximately 1 hour before the patient came to the hospital.

History of Current Illness:

Patientman– male, 35 years old, came to the Bhayangkara Hospital Denpasar Eye Clinic initially on October 3 2023 with a complaint. The patient complained of pain in the right eye after being hit by a shuttlecock approximately 1 hour before the patient came to the hospital. Complaints are accompanied by red eyes, blurred vision, pain and watering. The patient said he had not received therapy for his complaint. Denied history of complaints of fever, cough, runny nose, shortness of breath.

Past medical history:

Hypertension.

Treatment History:

Not taking medication regularly

Family History:

The patient denied a history of similar complaints in the family. A history of other diseases such as hypertension, diabetes, heart disease or malignancy was also denied.

Social History:

Have a good social history with the surrounding environment

Physical examination

Present Status
General Condition:
good
Awareness :compos mentis (GCS E4V5M6) Blood Pressure: not evaluated
Blood pressure : 120/80mmHg
Pulse : 85x/i
Respiration : 20x/i
Taxes : 36 C
Saturation : 98%

Generalization Status

Eye :anemia -/-, jaundice -/-
Neck : gland enlargement (-)
ENT : within normal limits
Cor : S1 S2 singleregular, murmur (-)
Pulmo :Ves +/+, RH -/-, WH-/-
Abdomen :distension (-)
Extremities: warm +/+, edema -/-

Ophthalmology Status

Anterior Segment OD
Palpebra :spasm
Conjunctiva : CVI+, PCVI+
Cornea : edema
BMD :anterior 1/3 hyphema
Iris : Regular
Pupil : round
Lens : clear
VOD : 1/300
VOS : 6/12f2
IOP OD : 29
IOP OS : 24

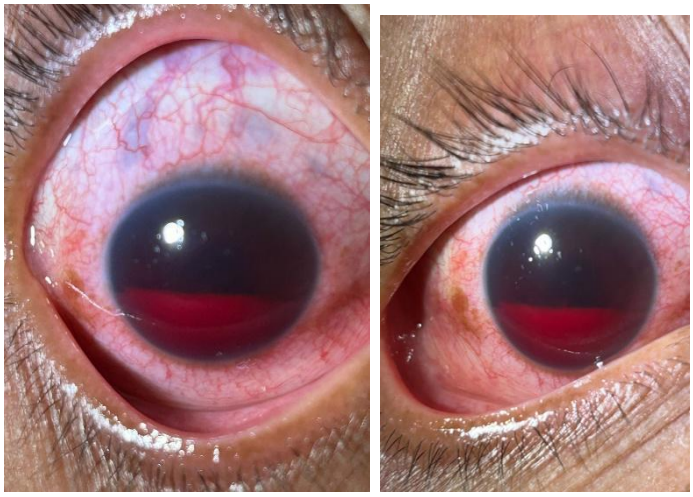

Figure 1. Ocular Trauma

Diagnosis

OD Blunt Trauma complicated by hyphema

Differential Diagnosis

Dextra Ocular Trauma
Corneal abrasion
Corneal ulcer

Management

1. Report to DPJP IGD Dr. Yenita, Sp.M
2. MR
3. Tropin ED 3x1 tts OD
4. Xitrol ED 6x1 tts OD
5. Tranexamic Acid 3x1 tab
6. Sumagesic 4x1 tab
7. Semi-Fowler sleeping position.

Prognosis

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Ad Functionam : dubiusad bonam
Ad Sanationam : dubiusad bonam

Follow Up

Table 1. Follow Up

Date	S	O	A	P
10/3/23 21.56 (Dr. Yenita, SpM)	The patient complained of blurry vision in the right eye, pain on a scale of 6/10.	BP: 120/80 mmHg HR: 85x/minute RR: 20 x/minute Temp: 36 C SpO2:98% VOD: 1/300 VOS: 6/12f2 IOP OD: 29 OS IOP: 24	OD Blunt Trauma complicated by Hyphema	- MRS -tropin 3x1 tts OD -xitrol 6x1 tts OD - Tranexamic acid 3x1 tab -Sumagesic 4x1 -Fowler's sleeping position
4/10/23 08.45 (Dr. Yenita, Sp.M)	The patient said his right eye was still blurry but better than yesterday and complaints of eye pain had decreased	BP: 100/70 mmHg HR: 67x/minute RR: 20 x/minute Temp: 36 C SpO2:98% VOD: 3/60 VOS: 6/12 f IOP OD: 10 OS: 14 OD: PCVI AC inside, coagulum 1/3 AC Fibrin+, cell flare+ Mydriatic pupil on atropine Clear lens Posterior detail sde	OD Blunt Trauma complications Hyphema day 2	-BPL 3 day control to evaluate bleeding and inflammation in the right eye -tropin 3x1 tts OD -xitrol 6x1 tts OD -P-pred 6x1 tts OD - Tranexamic acid 3x1 tab - Methylprednisolone 2x16 mg -Sumagesic 4x1
7/10/23 09.50 (Dr. Ratna Suryaningrum, SpM)	The patient stated that his right eye was still blurry and dazzling and he was looking a little	TD: 100/60mmhg HR: 64x/minute RR: 20 x/minute Temp: 36 C SpO2:98% VOD: 6/38 ph 6/30 VOS: 6/7.5 IOP OD 23 / OS 18 Anterior segment OD	OD Secondary Glaucoma+ Coagulum	- STOP xitrol -P-pred ed @2 hours OD -Tranexamic acid 3x500 mg - Sumagesic k/p -Glauseta 1x250 mg -KSR 1x600 mg

	Cornea: minimal edema BMD: coagulum>1/3 AC, fibrin++ Pupils: pharmacological dilation Lens: visible fibrin and coagulum in the anterior capsule	- Methylprednisolone 2x 16 mg - CITO hyphema irrigation pro

RESULTS AND DISCUSSION

Blunt eye trauma can cause unilateral blindness in children and young adults(Dhamasari et al., 2022; Nofityari et al., 2019). Based on Schein's study at the Massachusetts Eye and Ear Infirmary, 8% of the population who experienced severe blunt eye trauma were children under 15 years of age.(Friedman et al., 2019). Blunt ocular trauma is trauma to the eye caused by a hard object or non-hard object with a blunt tip, where the object can hit the eye quickly or slowly resulting in damage to the tissue of the eyeball or the surrounding area.(Aji & Ns, 2019). Blunt trauma can be counter coupe, that is, the pressure caused by the trauma is transmitted in a horizontal direction on the opposite side so that if the pressure of an object hits the eyeball it will be transmitted to the macula.

Ocular trauma is the leading preventable cause of monocular. Blindness and visual impairment in the world due to eye injuries cause vision loss from data on the magnitude and risk factors for eye trauma accidents, especially from developing countries 16 . The incidence of industrial eye injuries is higher in men. Vulnerability of gender males in exposure to outside work activities in agriculture and industry.

In this case the patient was diagnosed with blunt ocular trauma. This diagnosis is made based on

history, physical examination Eyelids: spasm, Conjunctiva: CVI+, PCVI+, Cornea: edema, BMD: anterior 1/3 hyphema, Iris: Regular, Pupil: round, Lens: clear, VOD: 1/300, VOS : 6/12f2, IOP OD : 29, IOP OS : 24.

The medical therapy of choice is topical antibiotics which are used for prophylactic purposes to prevent superinfections in patients, apart from that its moisturizing properties can support the healing process. The next drug therapy is the use of topical analgesics to increase patient comfort by reducing pain in the eyes. The use of topical analgesics is not recommended because it can inhibit epithelial growth. This patient was

given treatment with Tropin ED 3x1 drops OD, Xitrol ED 6x1 drops Od, Tranexamic Acid 3x1 tab, Sumagesic 4x1 tab, Semi-Fowler sleeping position.

Prevention that can be done is as follows:

1. Provide eye protection.
2. Excessive manipulation and pressure on the eyeballs should not be carried out.
3. Giving broad spectrum antibiotics
4. Administer antiemetic, analgesic and sedation drugs as indicated
5. Abnormalities of the eyelids and conjunctiva due to blunt trauma, such as edema and bleeding do not require special therapy
6. Cold compresses can help reduce edema and relieve pain, followed by warm compresses in the following period to speed up blood absorption.
7. any injury severe enough to cause intraocular bleeding thereby increasing the risk of secondary bleeding and glaucoma requires serious attention, namely in the case of hyphema.
8. blood has filled 5% of the anterior chamber, so the patient must be on bed rest and given steroid and cycloplegic drops to the affected eye for 5 days. The eyes are checked periodically to look for secondary bleeding, glaucoma, or blood spots on the cornea due to hemosiderin pigmentation.
9. any injury severe enough to cause intraocular bleeding thereby increasing the risk of secondary bleeding and glaucoma requires serious attention, namely in the case of hyphema.
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In general, the prognosis for cases of eye trauma is good if treated properlyquickly and does not cause post-traumatic complications. This patient had evisceration performed to prevent complications. The impact of trauma on the human eye can change every minute if subconjunctival hemorrhage occurs. Outcomes are generally poor in patients with too much bleeding so that visual acuity may decrease on presentation. Ophthalmological examination of all patients was performed with a Snellen chart to record visual acuity.

Complications that can occur in patients are that blunt trauma can result in tears at the base of the iris so that the shape of the pupil changes. The patient will see double with one eye. In iridodialysis the pupil will appear oval. Usually iridodialysis occurs together with the formation of hyphema. If this is the case, the patient should undergo surgery by repositioning the detached base of the iris. 20 All ocular structures are susceptible to injury, but this often depends on the cause and mechanism. Eye injury The anterior segment of the eye, which consists of the cornea, conjunctiva, trabecular meshwork, anterior chamber, iris, and crystalline lens, is vulnerable to direct trauma.

CONCLUSION

Ocular trauma is one of the main causes of visual impairment and blindness in the eye, which can take the form of injury or eye injury from blunt to sharp trauma, which can result in decreased vision or blindness. Ocular trauma occurs through four main mechanisms, namely coup, countercoup, equatorial, and global repositioning. Management of ocular trauma focuses on improving vision, preventing infection, and maintaining ocular architecture. To reduce the incidence of ocular trauma, the public needs to be educated about the importance of using eye protection when working.

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