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Rupture of the Eyeball and Optic Nerve by Trauma Due To Boating Accident

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Abstract

Eye injuries are one of the major causes of vision loss and blindness in the world.

Penetrating ocular trauma, orbital fracture injuries are serious injuries, proposing ophthalmology, complex lesions involving several specialist head face, leaving the poorly aesthetic and functional impairment as well as psychological pressure. Orbital fracture injury accompanying cutting of optic nerve and associating the rupture of internal rectus muscle protruding eyeball pushed forward and temple side is a rare case. Common causes are traffic accidents, domestic accidents, labor accidents and others. This paper presented a case of rupture of the eyeball and cutting out the optic nerve, rectus muscle rupture and fractures to the orbital floor directly in the eye orbit caused by boat cargo transport accident. This case was diagnosed by CT scanner and was treated at the ophthalmology department Provincial Hospital. Some results are discussed and reported herein.

Key words: *eye injuries, rupture of eyeball, cutting of optic nerve, boat cargo transport accident.*

1. Introduction:

Eye injuries are one of the major causes of vision loss and blindness in the world. Eye injury in the United States is the 2nd cause of blindness after cataract. Microsurgical techniques have improved eye injuries bring better results in the last decade. It is estimated that one in 20 patients presenting with one eye, an eye injury [1]. US studies show that the incidence of hospitalization due to eye injury was 13.2 / 1000.000. Men were hospitalized 3 times for women. Penetrating ocular trauma accounted for 44.44% compared with ocular trauma hospitalizations and accounts for 3.57% of hospitalized patients with an eye [2]. Orbital fracture injuries are serious injuries, proposing ophthalmology, complex lesions involving several specialist head face, leaving the poorly aesthetic and functional impairment as well as psychological pressure. Common causes of traffic accidents are 71%, 9% domestic accidents, and labor accidents 6% [3]. Orbital fracture injury accompanying cutting of optic nerve and associating the rupture of internal rectus muscle protruding eyeball pushed forward and temple side is a rare case.

This paper presented a case of rupture of the eyeball and cutting out the optic nerve, rectus muscle rupture, and fractures to the orbital floor directly in the eye orbit caused by a boat cargo transport accident. After a CT scanner, this case was treated at the ophthalmology department, Provincial Hospital.

2. Case Report:

Hospital presentation: A 29- year- old- man, sailor, address: Mekong Delta, Vietnam, was presented. Hospital admission with a chief complaint: Head trauma, eye injury with the bleeding, blind right eye, and painful injury. Patient History: He was a sailor on a cargo transport boat, One previous day, he had an accident causing lesions on his eye with bleeding, pain, and blind. After without amelioration treatment by the local health station of the village and he was referred to a provincial hospital after that.

Examination: Patient with polytrauma of head caused by the ship transportation accident. Right eyes (RE) are swelling eyelid, ruptured eyeball, left optic nerve, rupture of rectus-oblique muscles, protruding eyeballs out of

orbit. Conjunctiva is torn from the upper pole to the lower pole. The opacity of cornea, scleral -conjunctiva hemorrhages is seen. Pupillary dilation 4mm, direct photo motor reflex to pupil is negative (-). Visual acuity: Total blind. Left eye (LE) with eyeball intact and the face wound was sutured with less bleeding. The pupil 4mm, direct photo motor reflex is negative (-). Visual acuity: Counting fingers (CF) 2 meter
Paralclinic: WBC: 18900- N: 79.7%. L: 15.3%. RBC: 4.27 million. Pla: 242,000. Hb: 14.2g / dL. Hematocrit: 38.3%. TC: 6, TS: 2. CT scan: image of leave the optic nerve. Diagnosis: Eye trauma associated with skull forehead trauma.

RE= Rupture of the eyeball and optic nerve. LE: ocular contusion with enophthalmia Indication= Eucleation of RE on the course of hospital admission. LE= follow-up Treatment: The next day: At Provincial Hospital: Pulse = 80 / min Arterial tension = 110 /

70mmHg. EENT and a head trauma specialist for examination are nothing special treatment. He was continued treatment at the Ophthalmology department with collyre Spersadex drops 6 times/daily on both eyes and antibiotic quinolone per oral. The patient is fitted prosthetic eye (artificial eye) in RE after two weeks of eucleation. VA of LE is 6/60.

Discussion:

Gender: According to Cho Ray Hospital: an orbital fracture in men accounting for 85.5% [3]. The age group most patients 21-30 years of age compared with our patients is the same. The age group mainly injured are teenagers and young people years- and a group of other high aspect ratio is 75 or older people.

Cause: Traffic accidents account for 71%. In the United States, it causes ranked in descending order: air guns, car accidents, foreign objects, assault surgical complications, the fire service

...Most eye injuries are limited to the outer membrane of the eyeball. Only 5% of these injuries affect deep structures such as rupture of the eyeball, eyeball foreign bodies, broken orbital bone, face ... All kinds of injuries are occurring in young people of working age action. About 80% of eye injuries occur in men, including 50% in the industrial environment. Approximately 25% of injuries in the accident are in living.

...Mechanism of nerve rupture: This nerve may be tugging on the tube behind whites in some situations include: 1 Eyeball excessively rotated and displaced forward makes the optic nerve cut off after being pulled out. 2. Penetrated eyeball injury causes the optic nerve to be pulled back. 3 Increased sudden pressure causes tearing eyes. Vision is often reduced to loss completely in case of optic nerve lesions contained 67% and 33% open eyeball. Permanent nerve damage associated with orbital fractures accounted for 33-79% [3]. In the opened eyeball injuries with 100%, direct photo motor reflex to pupils is negative (-). The percentage of complete loss of vision in the eye injury is 65%, open eyeball contained 3.3% [6]. In this case damage to the optic nerve contusion injury, vision can be the perception of light to darkness at hospital admission. According to the literature, the high-dose corticosteroid therapy in these cases except for broken optic nerves has the ability to improve vision by 38%. Treating broken orbital floor surgery indicated when large rupture > 50% cause anophthalmia, diplopia... Autologous graft in these conditions is bone, implant ...

For diagnosis: CT is indicated for routine diagnostic value highly positive 91% [3]. Diagnosis of eye injuries is performed by means such as X-ray, CT scanner. MRI is contraindications with magnetic property foreign bodies that can move from one to other making a lesion for the eye.

For finding the causes and identify eye injuries, the ultrasound can be help [4] [5]. Some forgotten foreign body in the eyeball, eye orbit caused impairment vision, sometimes blindness and eucleation are also indicated. Eucleation: Surgery to remove the eye more than 400 years ago. The first was taken eyeball since 1800. Some authors have put an iron ball on the course of removing eyeball [7]. mage. Morphological nerve injuries: broken close to the eyeball extension. Orbital fracture is often a bottom. Injury fracture combined ocular.

The artificial eye will help maintain an active part of the muscles surrounding the eyeball less dystrophy, improved aesthetics for the patient. Generally, after 2 weeks artificial eye is fitted for patients. In the literature, we found a similar report a 17-year-old boy crashed a car completely off the optic nerve and the eyeball pushed out of the eyeball is diagnosed with a CT scanner, measurement visual acuity, and visual field both eyes. The

recommendation of this report is to consider both eyes and direct light reflects with pupils. This research is announced by the British New England Journal in 1987 [8].

This case is a man with complex and serious injury by ship transport accidents. His age group is 21-30 years old. This case may be coordinated all 3 mechanisms. A patient with a right eye is a ruptured eyeball, cutting off optic nerve 2cm from the eyeball, muscle rupture completely in orbital floor fracture combined push eyeballs bulge out totally causing disability and blindness. So the enucleation is indicated for RE. The patient's RE was removed on the course of hospitalization and fitted artificial eye on the hospital discharge in helping well functional eyeballs as well as to get aesthetic contributed minimize stress for patients. With artificial eye will help patients better in quality of life [9]. The left eye is enophthalmic, blind, and follow-up vision with steroid treatment. Preserve right eyeball could be done if it did not rupture of the optic nerve.

Prevention: Most eye injuries can be prevented by wearing protective glasses at work as reducing eye injury because of risk factors but it is small users for protection especially in developing countries. This case is waterway traffic accident-a popular means of transport in the Mekong Delta. Many positive waterway traffic measures from Government should have been applied to minimize these accidents.

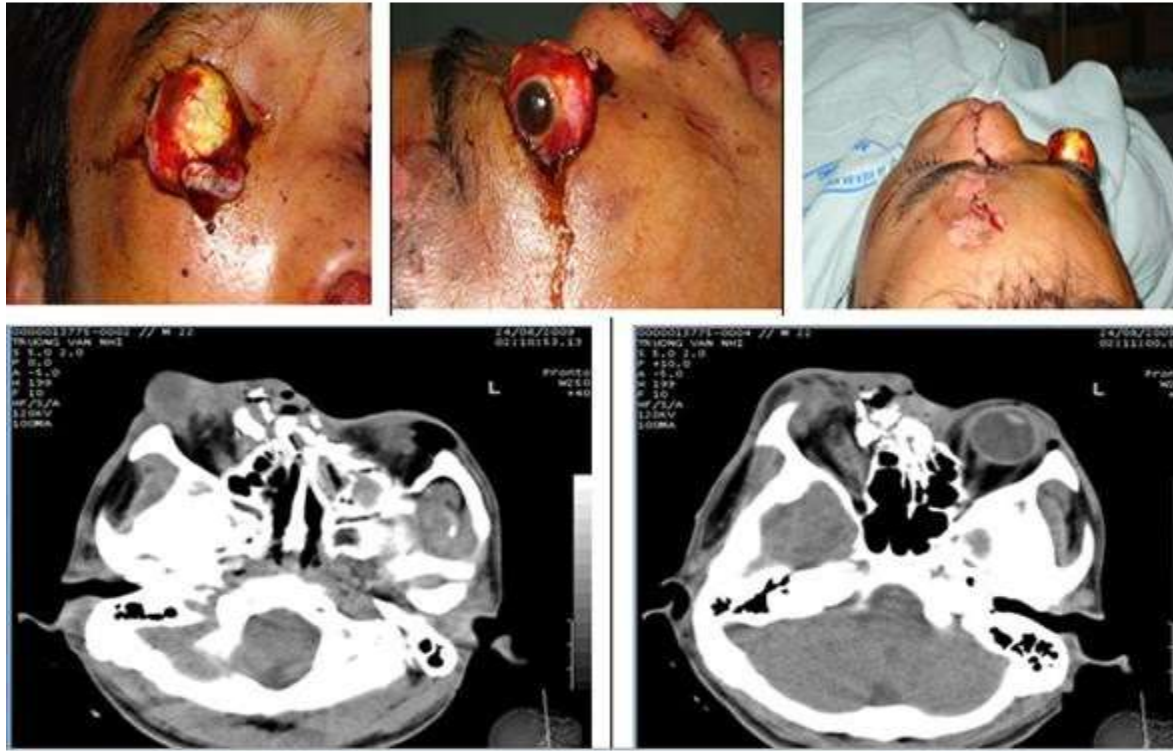
3. Conclusion:

This is a severe rare case of trauma by boating transport accident. It is a polytrauma of the head and eye that caused blindness and disability for patient. Despite the patient was diagnosed and treated suitable but the results are still poor. So the prevention in labor activity is very important and necessary to decrease the damage for workers.

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References:

- i. American Academy of Ophthalmology. Basic and clinical Science Course 1996
- ii. Nguyen Quoc Viet et al: Studies clinical characteristics and treatment outcomes penetrate ocular trauma at Hue Central Hospital ophthalmology. Vietnam Ophthalmology Journal. Hanoi Eye Institute 2008, 10: 70-76.
- iii. Le Minh Tuan et al: Research characteristics orbital fracture in head injuries at Cho Ray Hospital. Vietnam Ophthalmology Journal Hanoi Eye Institute 2008, 10: 77-83.
- iv. Duong Dieu: Case Report: An orbital foreign body. Vietnam Ophthalmology Journal- Hanoi Eye Institute 2003, 10: 90-92
- v. Tran Dinh Lap et al: Reviews initially on diagnosis and management of plant foreign bodies in the orbit- Hue Central Hospital/ Ophthalmology Department. Vietnam Ophthalmology Journal. Hanoi Eye Institute 2005, 4: 31-37
- vi. Van Quynh Dinh Huu: Research characteristics eye injury due to traffic accidents at Cho Ray Hospital, Medicine Master Thesis 1999, and MOET HCMC: 50-56
- vii. Myron Tanenbaum: Enucleation, evisceration, and exenteration. In Myron Y. Ophthalmology, chapter Orbit 1990:161-163.
- viii. Pillai, M A Mahood, and S R Limage: Complete evulsion of the globe and optic nerve, Bri. J. Ophthalmology 1987 71:69-72
- ix. Robin B Rome, Hillary H Luminais, RN, Deborah A. Bourgeois, and Christopher M Blais, The Role of Palliative Care at the End of Life. Ochsner Journal. 2011 Winter; 11(4): 348–352



Up= On hospital admission RE rupture eyeball+optic nerve – Down= CT Scan images



On hospital admission

RE=Enucleation

RE=Artificial eye

Author Profile



Duong Dieu received the MD (1978) and PhD (2003). He was chief of Ophthalmology Department for over 30 years with clinician/surgeon. From 2010 to now he is vice dean of Faculty of Medicine of Nguyen Tat Thanh University in HCM city- Vietnam