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SYMPATHETIC OPHTHALMIA - A POTENTIALLY BLINDING COMPLICATION FOLLOWING ORBITAL INJURIES

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ABSTRACT

Sympathetic Ophthalmia is a rare but serious complication that can occur following penetrating injuries of the globe of the eye. So far the only known method of preventing this is to remove the injured eye. The purpose of this paper is to make the maxillofacial surgeons to be familiar with this serious complication in order that measures can be instituted early to prevent loss of vision in the uninjured eye.

KEY WORDS: Sympathetic Ophthalmia, Facial Trauma, Complication

INTRODUCTION

Sympathetic Ophthalmia (SO) is a potentially visually devastating auto immune disease in which penetrating injury to one eye causes inflammation in the fellow non injured eye leading to total blindness.

The anterior dimension of the bony orbit is approximately 35 mm high and 40 mm wide. Due to their large size and anatomical location, globe injuries are not uncommon in Maxillofacial trauma and trauma remains one of the leading causes of blindness ¹²³⁴⁵.

Poon et al have noted that 55% of major trauma patients with facial injuries had various degrees of Ocular or Orbital Injuries. Potentially blinding injuries (PBI) were noted in 11% of these major trauma patients with facial involvement. Highest incidence of PBI^s are associated with Road Traffic Accidents and majority of the times wind shield glass was the culprit ⁶. Fig1-3

Pathophysiology

The pathophysiology of Sympathetic Ophthalmia is very interesting. To understand this first it is important to understand the following terms. The injured eye since its triggers the immune reaction is called the Exciting or Initiating eye. The fellow uninjured eye is called the Sympathising eye.

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Certain parts of the eye like the Uvea have a very efficient blood organ barrier and as a result never exposed to the body's immune system. The lack of intraocular lymphatic drainage also helps in maintaining the immune privilege to the eye. Injuries like globe rupture causes leakage of previously sequestrated uveal proteins from these immune privileged areas and these leaked proteins gains access to the systemic circulation via conjunctival lymphatics. These proteins initiate immune response by acting as antigens resulting in the formation of cell mediated immunity to certain uveal proteins of the eye. The activated T Lymphocytes incite a chronic granulomatous uveitis⁶.

Understanding of the above mentioned pathophysiology raises the possibility of SO following any Intraocular Surgery. In fact SO has also been reported as a complication following various types of intra ocular surgery but the incidence is very low at 0.015%.^{11, 12, 13} One of the reasons that were given to explain why this complication is seen at a higher frequency following non surgical trauma compared to surgical trauma is that non surgical trauma like penetrating injuries are associated with bacterial contamination. These microbes could act indirectly as an adjuvant to up regulate the local immunity or may have structural similarities to

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ocular proteins, thus causing cross reactivity with ocular contents through molecular mimicry.



Fig.2.: Example of Potentially Blinding Injury



Clinical features

It has been reported that SO can occur as early as 5 days post injury. Although cases of SO have been reported even up to 66 years following injury, 65% of cases are reported within the first 2-8 weeks^{8,9,10}. Incidence rates of 0.13 to 0.3% have been reported following accidental ocular injury ^{11, 12, 13}.

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Diverse clinical presentations are possible with SO. Any signs of Uveitis in a patient with a history of penetrating Injury to one of the eyes should be treated as SO unless proved otherwise. Early symptoms are floating spots and weakness of accommodation. Reduced visual acuity is always present. The retina is rarely affected but papilloedema and glaucoma may result. Extra ocular manifestations rarely include hearing loss, vitiligo and alopecia.⁷

To prevent the development of SO and to avert damage to the normal eye the only known method is to enucleate or eviscerate the exciting eye. This is to protect the vision in the uninjured eye and to save the patient from long term immunosuppression.

Discussion:

Examination of the eyes in a trauma patient has been given a low priority due to the presence of other life threatening injuries. Often, detailed examination of eyes is not feasible due to several factors like severe periorbital swelling, decreased neurological status or coma, or lack of expertise. Soon after life threatening injuries are dealt with, organ or limb threatening injuries must be attended to. Preserving vision is of utmost importance in any patient. If one eye is already damaged beyond repair, preserving the vision in the fellow eye is even more important to prevent the patient going blind completely.

It is important that all maxillofacial surgeons are aware of this potentially blinding complication and all patients with facial trauma should have their eyes examined properly. The chances of loss of vision should be kept in mind in all PBI^s injuries like fractures involving the orbit, evidence of eye lid injury and fractures involving the base of skull. Lacerations in the circumorbital region increase the likelihood of globe injury. If the tarsal plate is disrupted the chances of damage to conjunctiva and sclera are very high and this warrants proper assessment by ophthalmologist. Small perforations of the globe are often difficult to diagnose. (Fig No 4). When a perforation of the globe is suspected, the affected eye should be protected with a shield and sedation may be required to prevent a valsalva manoeuvre and

Patients with penetrating globe injuries and globe rupture should be seen by an ophthalmologist promptly and the possibility of Sympathetic Ophthalmia should be discussed with the ophthalmology colleagues. If there is

extravasations of ocular contents'.

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little prospect of it recovering vision in the injured eye, it may be removed to help reduce the likelihood of sympathetic ophthalmia. This need to be done within two weeks of injury. (Fig No. 5)



If enucleation or evisceration is indicated, breaking of this bad news to the patient should be done carefully as the patient has already been depressed and angry following loss of vision in one eye. Issues to consider and discuss are the irreversibility of loss of vision in one eye, need for removal of the damaged eye and the eventual prosthetic replacement. Assessment by a psychologist following loss of an important organ of sense may be required. It is also very important to emphasize the need for wearing safety glasses to protect the uninjured eye. Plans should be made for the eventual rehabilitation of the removed eye and maxillofacial technicians should be alerted early.

References:

1. George A. Wessberg, Larry M. Wolford, John W. Zerdecki, Bruce N. Epker: Ophthalmologic considerations in maxillofacial trauma Anatomy and diagnostic evaluation. Int J Oral Surg. 1981;.10:236-46.

2. Rontal E, Rontal M, Guilford FT: Surgical anatomy of the orbit. Ann Otol. 1979;88:382-386.

3. Sicher H, Dubrul EL: Oral anatomy, 5th edition. CV Mosby Co, St Louis 1970, pp. 60-63.

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4. Yanoff M: Anatomy of the eye. In Scheie HG, Albert DM (eds): Textbook of Ophthalmology, 9th edition. WB Saunders CO, Philadelphia 1977, pp. 45-120
5. Sastry SM, Paul BK, Bain L, Champion HR Ocular trauma among major trauma victims in a regional

trauma centre. J Trauma. 1993; 34: 223-226 6. Poon A, McCluskey P J, David A: Eye injuries in patients with major trauma; J trauma, 1999;

46(3):494-99 7. Boyd S, Young S, Lightman S; Immunopathology of the non infectious Posterior and Intermediate Uveitides; Survey of Ophthalmology 2001 ;46(3):209-33

8. Goto H, Rao NA: Sympathetic Ophthalmia and Vogt –Koyanagi- Harada Syndrome. International Ophthalmology Clinics 1990; 30: 279-85.

9.Lubin JR, Albert DM, Weinstein M; Sixty five years of sympathetic ophthalmia; A Clinicopathologic review of 105 Cases; Ophthalmology 1980;87, 109:21.

10. Zaharia MA Lamarche J, Laurin M: Sympathetic Uveitis 66 years after injury; Canadian Journal of Ophthalmology,1984 :19:240-243.

11. Allen JC. Sympathetic Ophthalmia: A disappearing disease. JAMA. 1969; 209: 1090. 12. Liddy BSTL, Stuart J. Sympathetic ophthalmia in

Canada. Can J Ophthalmol. 1972; 7; 157-159 13. Gass JD. Sympathetic Ophthalmia following

13. Gass JD. Sympathetic Ophthalmia following vitrectomy. Am J Ophthalmol. 1982; 93:552-58

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