

Management of Intra Orbital Foreign Body- A Hospital Based Study

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ABSTRACT

Introduction: An intra orbital foreign body is an important cause of ocular morbidity among the population. The term refers to a foreign body that occurs within the orbit but outside the globe. Study aimed to record the management of intra orbital foreign body by different types of surgical procedures.

Material and methods: A total of 6 male patients of intra orbital foreign body were studied during the study period (Jan2015 – May2017) Assam Medical College, Dibrugarh, Assam. 6 male patients were treated in the study period.

Results: All patients underwent exploratory surgery under general anesthesia. Foreign bodies were removed and aspirate sent for culture and sensitivity. Wound sutured after debridement and irrigation. Proper hemostasis was achieved and a drain was left in situ. All patients has received tetanus prophylaxis and antibacterial therapy. Anti fungal therapy was initiated whenever it was necessary.

Conclusion: Proper history taking clinical examination and radiological images are essential aids in diagnosing intra orbital foreign bodies. Timely intervention and skill of surgeon hugely influences the prognosis and reduces the unexpected complications.

Keyword: Intra Orbital Foreign Body

INTRODUCTION

An intra orbital foreign body is an important cause of ocular morbidity among the population. The term refers to a foreign body that occurs within the orbit but outside the globe. They are more commonly observed among the males than in female and in younger populations.¹⁻³

The extent of structural and functional damaged to eye depend upon the size and shape of the foreign body, site of injury and composition of the foreign body. They can be classified according to their composition into

1. Metallic such as iron, copper, steel, aluminum etc.

2. Non metallic which may be

a) Inorganic such as glass

b) Organic such as wood, bamboo, or other vegetable matter

Organic foreign body may cause intense inflammation and complication and urgent intervention should be done to remove it, however despite of modern imaging modality it is often difficult to diagnose organic material.²

Usually intra orbital foreign body cause less damage in comparison to blunt trauma, however a large irregular intra orbital foreign body may cause significant damage.

Study aimed to see the management of intra orbital foreign body of considerable size by different types of surgical procedures.

MATERIAL AND METHODS

The study was a retrospective one done in Department of Ophthalmology, Department of Plastic Surgery and Department of Otolaryngology and Head and Neck Surgery Assam Medical College, Dibrugarh, Assam in Jan 2015 – May2017. The main objective being to highlight the management of intra orbital foreign body by meticulously planned surgical procedures. Method of exploration was planned before surgery depending upon the position and size of the foreign body. Lateral orbitotomy was performed in two cases for methodical exposure of orbit and to prevent injury to the globe and other delicate intra orbital structures during foreign body manipulation. In other cases foreign bodies were removed through the wound itself which was extended according to the need. Intraoperatively great care was taken not to break the foreign body and to avoid any injury to the globe and other delicate intra orbital structures. The wound was irrigated with normal saline and 5% povidone iodine solution after removal of the foreign body.

Surgical procedure was planned based on type, size, shape and position of the foreign body (anterior or posterior / medial or lateral side of orbit). Consideration was taken for associated injuries related to the foreign body in both orbital and periorbital region. All six diagnosed cases were admitted and planned for surgery. Most common cause of injury was a sudden fall down or an accident before a foreign body entered in to the orbit.

Investigations

Orbital x-ray and CT scan were done in all of the cases. However in most of the cases of organic intra-orbital foreign body x-ray was insufficient to clearly demonstrate the object. CT scan proved to be helpful in these cases for exact location and dimension of foreign body. All other investigations were done according to the need for preparation of general anesthesia.

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How to cite this article: Partha Sarathi Barooah, Nabajyoti Saikia, Arup Deuri³, Abhijit Handique, Dhrubajyoti Deka, Pradip Kumar Tiwari. Management of intra orbital foreign body- a hospital based study. International Journal of Contemporary Medical Research 2017;4(7):1624-1626.

| Case no | Age/sex | Type of F B | length of F B | Visual acuity of injured eye (preoperative) | Visual acuity of injured eye (7 days post operative) | Visual acuity of injured eye (1 month post operative) | Surgical procedure |
|---------|---------|---------------------------|----------------------------|---|--|---|---|
| Case 1 | | bamboo | 3.5 cm (two pieces) | FC+ 2M | 6/12 | 6/9 | Exploration of wound |
| Case 2 | | wooden | 15 cm (intra orbital 9cm) | FC+ 3M | 6/18 | 6/9 | Exploration of wound and lateral orbitotomy |
| Case 3 | | bamboo | 5 cm with two small pieces | FC+11/2M | 6/18 | 6/12 | Exploration of wound |
| Case 4 | | iron | 2cm | FC+ 2M | 6/12 | 6/9 | Exploration of wound |
| Case 5 | | Steel and copper aluminum | 2.5cm and 3cm 1.5cm | FC+3M | 6/36 | 6/12 | Exploration of wound and lateral orbitotomy |
| Case 6 | | iron | 4.5 cm | FC+2M | 6/12 | 6/9 | Exploration of wound |

Table-1 – case series

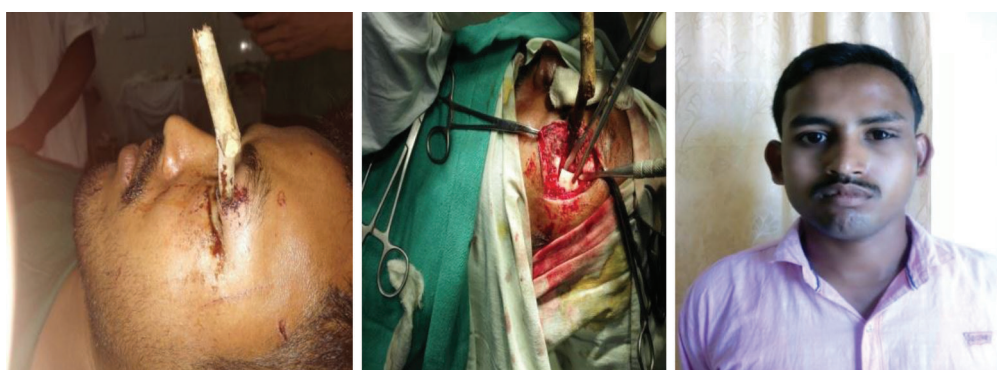


Figure-1 (a, b and c): Showing pre-op, intra-op and post-op pictures of a case of intraorbital foreign body

Three of our cases presented with penetrating eyelid or orbital injury due to high velocity injury with high suspicion of intraorbital foreign body. All are presented with pain, swelling, restriction of ocular movement, double vision etc (table-1).

STATISTICAL ANALYSIS

Descriptive statistics like mean and percentages were used for the analysis.

RESULTS

In almost all of the case, on examination, unaided visual acuity of eye was finger counting positive, lid was swollen, ocular movement were restricted in all direction.

There were marked chemosis of bulbar conjunctiva, cornea was clear, anterior chamber was quiet. Fundus were found to be normal on indirect ophthalmoscopy.

All patients were admitted in the department of Ophthalmology and Plastic Surgery at Assam medical college and hospital and systemic and topical antibiotic therapy was started.

All patients underwent exploratory surgery and removal of foreign body under general anesthesia. In three of the cases foreign body had penetrated beyond the bony orbital wall to reach either nasal/maxillary cavity or ethmoidal region. Aspirate was sent for culture and sensitivity and wound was sutured after debridement. A drain was left in situ for 48

hours in all of the cases.

Post operatively patient were put under antibacterial and anti fungal therapy.

Post operative recovery was uneventful. The conjunctival chemosis, soft tissue edema and limitation of movement of the both ocular and eyelids were subsequently resolved and best correct visual acuity of all patients were within 6/9 – 6/12 of injured eye.

All patients were discharged after 6-8days from the hospital (Figure-1).

DISCUSSION

An intra orbital foreign body is an important cause of ocular morbidity among the population. The term refers to a foreign body that occurs within the orbit but outside the globe. They are more commonly observed among the males than in female and in younger populations.¹ The extent of structural and functional damaged to eye depend upon the size of the foreign body, site of injury and composition of the foreign body. Though Diagnosis of organic intra orbital foreign body is very difficult, but early diagnosis and treatment is very important to prevent its severe complication, especially a bamboo stick that may contain large amount of bacteria and fungus and provides good media for their growth, so organic foreign body like this can cause Panophthalmitis.^{3,4} Periorbital abscess^{5,6} or Fistula.^{6,7} So it is very important to evaluate any penetrating injuries of orbit for intra orbital

foreign bodies. Proper history taking, clinical examination, imaging are essential aids in diagnosing intra orbital foreign bodies. In our study after proper exposure of foreign body we remove it with great care, otherwise pulling out of foreign body through the opening may cause damage of the globe and other intra orbital structures. Sometime while pulling, the organic foreign body may be broken in pieces. The remnant of F B may cause different type of complications. Proper debridement and irrigation was done in all cases. This may be the cause of uneventful post operative period. Furthermore timely intervention, skill of surgeon hugely influences the prognosis and reduces the unexpected complications. X-ray may or may not reveal a FB depending upon whether it is radio opaque or not. In spite of the X-ray being negative and discharge persisting from the area even after antibiotic treatment it is imperative that a surgical exploration must be undertaken carefully.⁸ A retrospective analysis of five cases with intraorbital foreign bodies adjacent to the optic nerve suggests that their retrieval can significantly reduce psychological morbidity.⁹ Ultrasonography may also be a useful adjunct to diagnose or monitor intraorbital foreign bodies.¹⁰

CONCLUSION

Usually intra orbital foreign body cause less damage in comparison to blunt trauma, however a large irregular intra orbital foreign body may cause significant damage. So it is very important to evaluate any penetrating injuries of orbit for intra orbital foreign bodies. Proper history taking, clinical examination, imaging are essential aids in diagnosing intra orbital foreign bodies. Further timely intervention, skill of surgeon hugely influences the prognosis and reduces the unexpected complications.

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Source of Support: Nil; **Conflict of Interest:** None

Submitted: 08-07-2017; **Accepted:** 31-07-2017; **Published:** 18-08-2017