

MANAGEMENT OF COMPLICATED MAXILLOFACIAL TRAUMA IN CHILDREN: A CASE REPORT

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ABSTRACT

The purpose of this case report was to describe the management of a trauma-induced maxillofacial fracture in a 6-year-old boy. The child was brought to the hospital in an unconscious state with no response to any commands. After primary management, fractured maxilla with mid palate was noted both clinically and radiographically by CT scan. Open reduction with rigid plate fixation was done under general anesthesia.

KEY WORDS: : Maxillofacial trauma, Pediatric facial injuries, Dento alveolar fracture.

INTRODUCTION:

Pediatric maxillofacial fractures are very uncommon compared to adult fractures due to the elastic nature of bone and its retrusive position relative to prominent Calvaria.¹ Even though trauma to the maxillofacial area is uncommon it mandates special attention, due to its close proximity to the vital structures in the head and neck region. Additionally, the psychological impact of disfigurement associated with facial and maxillary trauma can be devastating.²

Goals in the treatment of facial injuries include a return of normal ocular, masticatory function, restoration of speech, rapid bone healing, and an acceptable dental and facial esthetic. With ever-increasing sophistication in imaging, emergency providers can rapidly diagnose small facial fractures. However, subtle complex facial fractures with CSF leaks, temporal bone fractures, and cranial nerve injuries can remain undiagnosed. These missed or delayed diagnoses can lead to significant morbidity or death. The presence of mind and quick decision of a doctor present at the emergency is important to save the life of an injured person.

The goal of this article is to assist the dentist in the initial management of patients who have sustained a facial injury, in case the emergency physician is unavailable to involve in operative decisions.

Case Report

An 8-year-old boy was brought to the casualty of the OPEC hospital, Raichur, Karnataka, India at around 11:30 pm with a history of fall from the 2nd floor of a building while looking down from the terrace. The boy was unconscious and was not responding to any commands.

The child's complete body was soiled with blood and we noticed profuse bleeding from the face and oral cavity. Large Gauze packs were placed in the mouth to control bleeding. He was then placed on ventilator and tried to arrest the bleeding with pressure pack and 3 units of blood was replaced immediately to maintain the hemodynamics of the patient. We are unable to take initial photographs, because of the condition and emergency of patient.

After the arrest of bleeding, CT scan of the brain and facial bones were done. CT Brain was normal. CT Facial bones revealed fracture of Le Fort I, II and III (**Fig.1a**). Extra oral examination revealed, diffuse facial oedema with skin laceration. Pupillary reflexes were normal. Intra oral examination revealed complete set of deciduous dentition with no injury to any teeth. Hard palate was split in the midline and it was hanging .

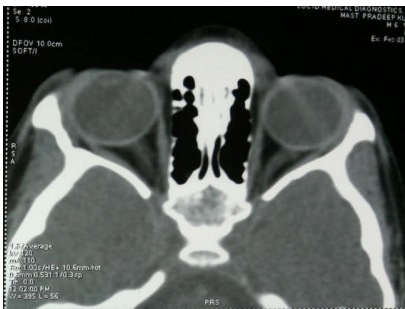
Patient was kept in Neuro Intensive Care Unit for a week and once his vital signs were normal he was taken to operation theater (**Fig.2**). Under general anesthesia, open reduction with Rigid plates and screw fixation was done. Palatal wires were placed in the palate to reduce the mid palatal fracture (**Fig.3**). Patient was shifted to NICU and was there for a week. Patient recovered uneventfully (**Fig.4**).

Discussion

Facial fractures in children are uncommon, but occur more frequently in major trauma. To start with the management, airway remains the first priority in treatment



A.. Pre Operative



B. post operative

Fig.1 CT scan showing fracture



Fig.2 Child during observation

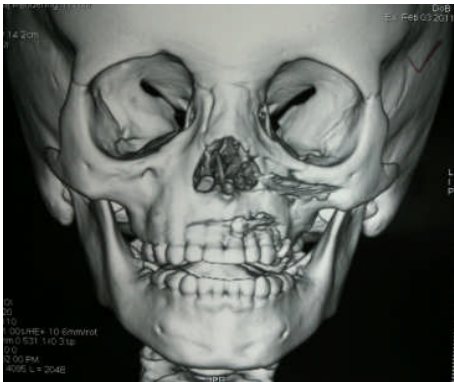


Fig.3 Post surgery 3D CT scan

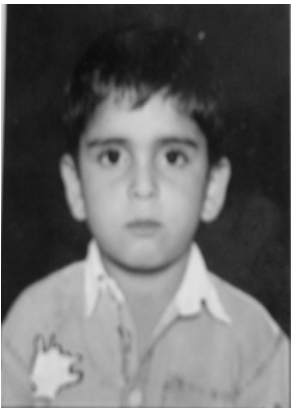


Fig.4. Child photo before trauma and after treatment

of the trauma patient. Modest mucosal edema causes substantially more difficulty in the smaller airway of a child. Carefully suction blood and debris from the oropharynx. Any obstruction caused by the retracted tongue can be managed with positioning or a traction suture. Orotracheal intubation may be necessary and is preferred over an emergent surgical airway. Control of hemorrhage is the next priority. The face and scalp are quite vascular, and blood loss is proportionally greater in a child. Direct pressure on the site of injury usually controls bleeding.

The secondary examination is more difficult in a child. The patient is fearful after the accident and apprehensive of the hospital environment. Children frequently anticipate additional pain and are less able to articulate concerns. Older children may report abnormalities of occlusion and visual symptoms. A thorough examination begins with inspection of the face. Swelling, ecchymosis, and asymmetry are clues of underlying fractures. Next, systematic palpation of the face reveals most extra oral and intra oral fractures.

Fractures of the pediatric facial skeleton have special characteristics, and specific knowledge is necessary for their diagnosis, management, and follow-up. The interpretation of facial radiographs is difficult, especially with regard to features of the midface, and radiography may be most useful for the initial evaluation of low-energy trauma. For the assessment of major facial injuries, especially in patients in whom central nervous system trauma is believed to be present, CT should replace radiography as the initial diagnostic study because it provides the best depiction of facial fractures and because it is mandatory for the evaluation of patients with neurocranial trauma.³ The paranasal sinuses are often undeveloped or poorly pneumatized in the pediatric skeleton, the maxilla and mandible are full of tooth buds that often obscure ideal visualization, and patient positioning for different views requires more cooperation than often is practical. All of these factors and the widespread availability of CT scanning have made this the choice for imaging.⁴

To allow appropriate surgical management of facial fractures, the radiologist must accurately interpret and report the anatomically relevant details, because therapeutic management is tailored to the individual patient. The effect of treatment on long-term growth and development must be the cornerstone when choosing the optimal therapeutic option.⁵ The rule is simple: Be conservative to prevent growth disturbance and use minimal manipulation. Treatment should be noninvasive whenever possible and when surgery is necessary, the least invasive procedure and least intrusive devices (eg, the fewest and smallest plates) should be used.^{5,6} If fractures are displaced and a stable reduction cannot be achieved, perform a surgical reduction with rigid fixation. Plating systems provide the most common method of rigid fixation. The goals of treatment are accurate reduction, esthetically pleasing reconstruction and functional restoration.

Complications

Complications of pediatric facial fractures are rare overall and occur mainly in cases of severely comminuted and displaced fractures.⁷ The pediatric facial skeleton has great potential for growth and this capability may help improve the long-term outcome of facial fractures.⁷ Nonunion and fibrous union are almost never seen, because of the greater osteogenic potential and faster healing rate, the more conservative therapeutic procedures used and the more minimal displacement of fractures in children.⁷ Facial fractures in children may be complicated by a disturbance of normal dental development, especially during the deciduous and mixed dentition phases.⁵ However, a spontaneous correction of occlusal malalignment may occur in children as the deciduous teeth are shed and replaced by permanent teeth.⁷

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