



MAXILLOFACIAL INJURIES AMONG THE CHILDREN: A REVIEW

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ABSTRACT

The pediatric population sustains 1 to 14.7% of all facial fractures. The incidence of other systemic injury concomitant to facial trauma is significant (10.4-88%). The management of the pediatric patient with maxillofacial injury should take into consideration, the differences in anatomy and physiology between children and adults, the presence of concomitant injury, the particular stage in growth and development (anatomic, physiologic and psychological), and the specific injuries and anatomic sites that the injuries affect. The greatest concern when treating the pediatric patient is the effect of the injury or treatment on growth and development. This is both anatomically and psychologically important and may have various effects on management for the different stages of psychological development.

KEYWORDS: Soft Tissue Injuries, Maxillofacial Injuries, Pediatric Trauma.

INTRODUCTION

Maxillofacial fractures in the pediatric age group are not so common, yet they are not less important.^[1] The incidence of pediatric facial fractures ranges between 1 and 14% for victims under the age of 16 years and 0.87 to 1% for those younger than 5 years. The incidence of pediatric facial fractures among Indians is 5.5%.^[2] Most frequently boys are involved (53.7-80%). The cause is most often a motor vehicle accident (5-80.2%), violence (3.7-61.1%), falls (7.8-48%), bicycle accidents (7.4-48%), and play (10-42%).^[3] This article aims at eliciting a few common pediatric fractures and their managements.

Soft tissue injuries

Pediatric soft tissue injuries occur in association with facial fractures 29 to 56% of the time. Although, immature collagen in the child's soft tissues provide very good cosmetic results, the vast majority of the time hypertrophic scars and keloids may form in this patient population.^[4] Collagen is to be placed after a thorough debridement and cleaning of the wound, which facilitates growth and also prevents exposure of raw wound to external environment, thereby reducing chances of infection. The healing is uneventful with the placement

being atraumatic. The dressing falls off after the healing is complete and the skin texture and color match is esthetic. Although isolated abrasions, lacerations and contusions may occur with motor vehicle accidents, falls and sports, the most extensive and devastating pediatric soft tissue injuries occur from animal (especially dog) bites. Prophylactic measures for tetanus and rabies must be considered along with antimicrobial skin preparations while treating animal bite cases.^[5]

Fixation considerations

It includes the age of the patient (to maximize growth and development), the anatomic site (to optimize form and function), the complexity of the injury (displacement, comminution and the number of sites), the time elapsed since injury (ideal to treat within 4 days), concomitant injury (fitness for anesthesia and duration of surgery) and the surgical approach (closed versus open). The fixation preference will be dictated by the age, anatomic site, complexity and approach.^[6]

No Fixation

Many authors have suggested that for nondisplaced or greenstick fractures in the pediatric population,

observation alone is adequate.^[7] Fixation of mandibular fracture can be done by.

a. Monomandibular Fixation: In the edentulous newborn with a mandibular body or symphysis fracture, monomandibular fixation by means of an arch bar, acrylic splint (or stent) or thermoplastic material, may be the only acceptable alternative. This technique is particularly helpful for greenstick or minimally displaced fractures when the patient is partially edentulous (ages 5-12).^[8]

b. Maxillomandibular Fixation: Before age 2 and after age 6, missing or resorbed teeth limit this technique. Maxillomandibular fixation (MMF) with closed reduction may not permit anatomic reduction even after 3 to 4 weeks of MMF.^[8]

c. Dental and dentoalveolar injury: Dentoalveolar injuries may be quite dramatic, causing parents to panic and the child to cry uncontrollably. Wire, acrylic splint and arch bars offer satisfactory methods of stabilization. Avulsed primary teeth should not be replaced, whereas avulsed adult teeth should be reimplanted within 2 hours (preferably 30 minutes) and stabilized for 4 weeks. The prognosis of an avulsed tooth is largely dependent on the status of the cells of the periodontal ligament at the time of reimplantation. Alveolar fractures should be anatomically reduced and stabilized for 4 weeks.^[9]

d. Mandibular condyle: It must suffice to say at this point that all children presentation with laceration on the chin must be put on a long-term follow-up to recognize the earliest signs of TMJ ankyloses.

e. Maxillary injury: The maxilla is the least frequently injured pediatric facial bone (1.2-20%). Closed reduction with maxilla-mandibular fixation for 2 to 3 weeks is effective to re-establish the occlusion in minimally displaced fractures. If an open reduction with semirigid internal fixation is chosen, the approach should be made through a circumvestibular incision.^[10]

The other traumatic injuries are though very uncommon like naso-orbital, ethmoidal fracture, zygomatic fracture, and nasal fracture.

CONCLUSION

Facial fractures in children may go unrecognized as a result of incomplete communication with the patient, inadequate radiographic examination in the restless child or late presentation of the patient by the family. A methodical system of surveillance must be applied in every trauma patient to effect favorable outcome, the hard tissue trauma need immediate attention of the involved mandible and in case of dentoalveolar injuries.

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