

Euro Surgery 2020: Pediatric Maxillofacial Injuries: Etiology, Diagnosis and Management

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Fractures in the facial region is one of the most common during the maxillofacial injuries which involves facial bones and the cranial bones. These fractures cause psychological disturbances and daily routine is hampered. Patients will have to face mental harassment and they think they are socially discarded. Pattern of fracture's nature is similar to children and adult but the incidence is low in case of children [1-3].

Fractures in children are minimally displaced this is because elastic bone is covered by thicker layer of adipose tissue which acts as protective layer and suture lines are flexible. Within last 30 years there is tremendous development in the field of treatment of pediatric traumas due to development in radiological aspect and different surgical materials. With the development of Cone Beam Computerized Technique (CBCT) in radiograph field it has made quite easy for diagnosis of fractures in children. It has not only made easy to do diagnosis but also has helped to choose the type of treatment what we are going to do.

Similarly, it has replaced all the plain films. Treatment is mostly done at the earliest time. Non-displaced fractures are managed just by closed reduction or just observation and soft diet may be more than sufficient. Displaced fractures are treated by open reduction internal fixation. Primary bone grafting is the first choice, if not then only we can think of secondary grafting which may have complications. Pediatric patients are kept under regular follow up as they are growing and there may be potential disturbances in growth abnormalities [4,5].

Due to strict rules of traffic in some countries and

less alcohol use in some countries has decreased road traffic accidents (RTA). In country like Nepal there is total restriction in alcohol use by the person who is driving any kind of vehicles which has significantly reduced the RTAs. CBCT is one of the most advance technique with three dimensional imaging system will provide accurate and precise anatomic landmarks which guides surgeons for accurate placements of mini plates and screws without hampering developing tooth buds in pediatric patients. With the development of internal rigid fixation the pattern of treatment in the field of pediatric trauma has revolutionized by allowing the perfect reduction and fixation of the fractures part of bones making them more stable to the accurate site. Recent development in the field of anesthesia has helped a lot during surgeries.

Swelling of the airway or the obstruction of the airway due to mechanical problem in child patients can quickly compromises the airway. Because of these reasons airway and breathing management, hemorrhage control and prior resuscitation are more critical and time dependent in pediatric patients with maxillofacial trauma than in adult patients.

Depending on the social, cultural and environmental values of different countries the etiology varies in maxillofacial injuries. Age related activities also affect the nature of injuries and pattern of trauma. Falls, sports and RTA is considered the frequent cases for maxillofacial injuries in children. School going children become victims of falls and with increasing age sports cases injuries. Etiology, direction of force and velocity of forces determine the nature, pattern and location of fractures. The unique anatomic nature of

pediatric bone is the other factor which changes the fracture pattern and nature. Mostly the green stick fracture can be seen in pediatric patients [6].

Age plays important role in the fractures in case of children. Below 2 years of age frontal bone is more prone for fractures and older once are more prone for chin and lip regions. Below 3 years of children are more prone for isolated and no displaced fractures due to low velocity forces. Mandibular fractures are common in comparison to midface fractures. Most common fractures in children with maxillofacial injuries are dentoalveolar and nasal fractures.

Condylar fracture is another common fracture in children and if left untreated will result in ankylosis of temporomandibular joint in future. Zygomatic complex fracture is more common than Le fort fractures. Nasal fractures alone make almost 50% of total maxillofacial trauma in children. With the recent advancements in the field of radiology and internal rigid fixation techniques the managements of pediatric

patients have revolutionized a lot.

These all developments have reduced postoperative infections, malunion or nonunion. Due to greater osteogenic potential and faster healing capacity in children, it minimizes the requirement of open reduction and internal fixation. Mostly the nature of fracture in pediatric patients is non-displaced in nature. Preventive measures are most important to reduce the maxillofacial injuries. We have to take care of children. School teachers, sport teachers and parents must be more aware so that we can reduce the injuries.

Preventive measures if followed strictly and regularly we can definitely reduce the pediatric trauma and severity of any kind of injuries. RTA and any kind of road accidents and its severity nature of injuries can be reduced by proper use of seat belts and save drive. Hence education to the society about the accidents and preventing them is most important in reducing the maxillofacial injuries in pediatric patients.