

Pediatric Maxillofacial Injuries with Special Attention to Fracture Condyle

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Received: September 08, 2017; **Published:** September 29, 2017

Maxillofacial injuries of pediatrics is quiet interesting, the middle third of facial skeleton consist of fifty small bones articulating like a pyramid the top is the nasal tip and rarely bone fractured alone, these bones work as a cushion to absorb the trauma and also the force of masticatory process, these small bones absorb the force of mastication, transmitted to the base of skull and work as shook absorber for the severe impact to protect the underlying vital structures concern with vision, smell, taste, sensation, mastication, swallowing and hearing. In children the growth of the face not completed except the orbit, once trauma occurred the impact displaced the middle third in 45o, downward and backward obstructing oral airway and nasal airway obstructed by profuse bleeding from the nose. This situation might be life threatening especially once associated with head injuries and the main cause is road traffic accident. Once child survived but with mistreatment they end with severe deformity of the face with open bite, this situation quiet obvious in children because the growth of the face is not completed. The priority of management based on Kummoona, 4 golden C as (lifesaving steps),

1. Control breathing and maintain patent airway
2. Control circulation and manage shook
3. Control bleeding by cauterization of small vessels and ligation of large vessels
4. Control soft tissue laceration and bony fragments.

Serious cases with head injuries and chest injuries required admission to intensive care unit, treatment of maxillofacial injuries might delay for few days till recovery from head injuries and chest injuries. The incidence of pediatric maxillofacial injuries is quiet rare, we does reported 678 patients with maxillofacial injuries through 8 years and they are 535 male and 143 female, age ranged from 4 - 76 years (mean 40 years) and children cases were represent only 4.01% of total cases and they are very small number of 27 cases, 17 boys and 10 girls and the majority of the cases with fracture mandible, 6 cases with fracture maxilla and dento-alveolar fracture. The mandible and maxilla characterized by presence of mixed dentition making the bony structures very weak due to high content of cancellous bone and more liable to fracture. Primary teeth usually small with short neck and wide roots, buds of permanent teeth scattered in the body of the mandible and maxilla. Fractures of maxilla and mandible usually treated by conservative technique by making an acrylic splint covering all teeth upper and lower, each splint carry 2 hooks in each side for IMF, the splint reinforced by 2 stainless steel soft wire of 0.5 mm for circummandibular with trans alveolar for the maxilla, IMF elapsed for 2 - 3 weeks, the complication of this technique is irregularities of teeth can be managed by orthodontist.

Nasal ethmoidal injuries is very serious injuries to children, featured as flat nose and nasal bridge due to fracture nose and medial wall of the orbit with dislocation of medial canthus ligaments and displacement of nasal septum once child recovered from the impact, within next two days should be the nasal bones reduced by wilsham forceps and nasal septum reduced by Ash septal forceps and the medial canthus reduced with medial wall of the orbit by two plastic kidney shape with two holes , a wire of stainless steel of 0.25 mm passed to hold and reduced the ligaments with upper hole, another wire passed through the lower hole to hold the nasal bones and the two wires twisted together after fixation of medial canthus ligaments and reduction of nasal bones and reduction of the septum to prevent future deformity and dish face.

Major problem arise due to trauma to the mandible might end with ankyloses of the Temporomandibular Joint (TMJ). Injuries to the condyle in children required urgent attention by doing tomography of TMJ and CT scan to exclude the type of injury, extra capsular treated by IMF (Inter maxillary fixation) or intra capsular which is more serious, the immediate management by few drops of intra capsular injection of hydrocortisone with immediate mobilization of the TMJ. The mechanism of ankyloses occurred by trauma to the chin transmitted along the long axis of ascending ramus to the condyle, the condyle is spongy and highly vascular, heamarthrosis occurred associated with pain and swelling in the joint, the child showed difficulty in opening and closing the mouth, this condition lead to fibrosis and callus formation. Ankyloses proceeded by effect of trauma fragmentation of the meniscus and the cartilaginous part of the joint. More severe injuries effecting and penetrating the glenoid fossa and petrous bone in the base of the skull, severe bleeding might occur due to rupture of the tympanic membrane and the bleeding come out from the ear it might be associated with CSF (Cerebra Spinal Fluid) and the case should be treated as head injury.

The managements of Ankyloses of the TMJ required major surgical operation for excision of ankylosed joint with resection of the coroid process, through Kummoona pre auricular temporal of full thickness fascial cutaneous flap ? Type with sub mandibular incision used as an access for insertion and fixation of Kummoona Chondro-Osseous graft, harvested from iliac crest of 1cm width and 4-5cm length of bi cortical and covered by muscle to act as meniscus, the graft inserted up to glenoid fossa from sub mandibular incision and fixed to outer surface of the ramus. No IMF been used, the patient advised to move his joint freely within the fallowing days based on functional demand of periosteal matrix of facial skeleton to enhance the growth of the graft and the head of the graft act as condyle growth center for restoration not only growth but also remodeling and repair of TMJ, due to presence of the mesenchymal stem cells with endogenous growth potential in the graft. The time of reconstruction of the joint at age of 5 - 6 years before going to school to improve their mastication and aesthetic appearance, I am presenting my long precioueses' experience of worldwide.

Volume 5 Issue 6 September 2017

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