MANAGEMENT OF MANDIBULAR FRACTURE IN PEDIATRIC PATIENT WITH CAP SPLINT: A CASE REPORT
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ABSTRACT
Maxillofacial injuries in children are challenging to manage with its long-term consequences and psychological impact involved. The reported incidence of pediatric injuries accounts for 4-6% of the total injuries. Cap splint is one of the conservative and effective treatment modality for the pediatric mandibular fractures management. This paper reports the Management of mandibular fracture in a pediatric patient with cap splint.

Keywords: Cap splint; Mandibular fracture; Pediatric trauma

Introduction
Maxillofacial injuries in children are challenging to manage with its long-term consequences and psychological impact involved.1 Treating fractures in pediatric patients is difficult due to developing tooth buds. Dental and skeletal growth stages should be considered first and treatment modalities should be flexible to accommodate these stages. Minimal manipulation should be advised in less displaced fractures while rigid internal fixation and open reduction are advised in operative management for severely displaced fractures. Cap splint provides close reduction and stabilization of mandibular fracture and allows hygiene maintenance without disturbing tooth buds. A long-term follow-up is necessary to monitor growth of tooth buds and related abnormalities. This paper reports the Management of mandibular fracture in a pediatric patient with cap splint.

Case Report
An 8-year-old boy was referred to the Department of Prosthodontics with a history of falling from tree, with an impact on left lower region of the face. The patient reported to department 3-4 hrs after the injury. The patient was conscious, well oriented to time, place and person. There was no history of convulsions or vomiting. Extra oral examination revealed diffuse swelling; a step was palpable in the left parasymphyseal region, which was placed in the department of oral surgery on the same day and he was referred for cap splint fabrication. Intra oral examination revealed mixed dentition. Bleeding was seen on the gingiva in relation to 72-73 regions. A stay wire was present on 72. There were no difficulties present during speaking and jaw movement. General condition of patient was debilitated and frail. Several abrasions were present on his hands and feet. His gait was normal. Orthopantomograph revealed fracture line running on left parasympysis between 72-73, extending to the lower border of mandible in a vertically favorable manner. Based on clinical and radiographic findings a provisional diagnosis of simple left parasympysis fracture of mandible was made.

Procedure: Maxillary and mandibular diagnostic impressions were made with irreversible hydrocolloid material. Impressions were immediately poured in dental stone to make cast. Diagnostic casts were obtained on which occlusion was checked. There was absence of proper intercuspation on left side. Cast was split along the fracture line as in patient’s mouth to correct the disturbed occlusion. Mandibular cast was split along the fracture line in between 72 and 73. Keeping occlusion as a guide and maintaining mandibular contour the cast was approximated. Face bow records was made and transferred to an articulator. A cap splint of heat cure acrylic (Heat Cure, DPI, Mumbai) was fabricated on maxillary and mandibular teeth with an extension up to the highest contour of mandibular teeth. Cap splint was properly finished and polished. Cap splint was checked in patient’s mouth for extension. Then it is disinfected by gluteraldehyde solution.

During surgical procedure close reduction of mandibular segments was carried out with hand manipulation of fracture segments. Cap splint was adjusted and placed in position during close reduction. Cap splint was properly seated in patient’s mouth and stabilized with 26-gauge wire to mandibular arch using circum mandibular wiring. Postoperative instructions were given to patient. He was asked to take soft semisolid diet and to maintain oral hygiene.

Follow up: The splint was kept in position for 21 days. Patient was recalled weekly up to 21 days and followed up monthly for another four months. Postoperative radiographs were taken to check the reduction of fracture segments. The segments were properly aligned, and functionally accepted occlusion was achieved. No radiolucency was seen around tooth buds along the fracture line. Patient was recalled after eight months for follow up.

Discussion
Craniofacial traumas are more common in children. The reported incidence of pediatric injuries accounts for 4-6% of the total injuries.2 As compared to adults, facial injuries in children are much less common, specially the first five years of life.3 The accountable reason is they have greater cranial mass to body ratio. At birth, the ratio between cranial volume and facial volume was 3:5, and the mean age was 7 years (SD 4.4).5 The most common causes of fracture in children were falls (64%), followed by traffic (22%) and sports-related accidents (9%).6 The most common facial fracture is mandible (32.7%) followed by nasal (30.2%), and maxillary/zygoma (28.6%).7 Pa-
tients with a fracture of the mandible were most likely to have a dental injury (39.3%). However, a high tooth-to-bone ratio encourages fracture through the developing tooth crypts but it is seldom necessary to remove them. In adults, occlusion is used as guide to re-establish the pre-injury skeletal and dentoalveolar anatomy and function. Compare to this, children have greater rate of growth and faster potential for healing. Therefore, anatomic reduction in children must be accomplished in two weeks as it takes 4-6 weeks in adults. Severely displaced mandibular fractures are treated by open reduction and immobilization. Inter maxillary fixation in children should be avoided due to possibility of TMJ ankylosis. Internal fixation with plates, screws and eyelets may injure growing tooth buds and developing mandible. Closed reduction is advocated in minimally or non-displaced fractures. It restricts the manipulation limited to particular area. Cap splint is one of the conservative and effective treatment modality for the pediatric mandibular fractures management. As splint is fixed to mandible with circum mandibular wiring, patient is able to open his mouth; feeding becomes easy and the patient can maintain proper oral hygiene. Knowledge of the association of dental injuries and maxillofacial fractures is a basic tool for their treatment. The majority of these fractures can be managed conservatively.

Conclusion
In conclusion, cap splint is an effective option for the management of mandibular body, parasymphysis and symphysis fracture in pediatric patients.

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