ISSN: 2581-5989
PubMed - National Library of Medicine - ID: 101738774

International Journal of Dental Science and Innovative Research (IJDSIR)

IJDSIR : Dental Publication Service

Available Online at: www.ijdsir.com

Volume – 2, Issue – 6, November - December - 2019, Page No. : 637 - 639

Circummandibular Wiring in Growing Mandible - A Case Series

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Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

In pediatric trauma child requires very expedient, careful, and through evaluation and prompt management to achieve good outcomes. Most traumas are due to fall, recreation and sport, and interpersonal violence while playing among group. Highly displaced fractures requires plate fixation with mono cortical screws in the inferior border of mandible to avoid damage to the underlying tooth buds and partially erupting teeth. The purpose of this article is to provide an insight on maxillofacial injuries of paediatric patient and their management with the acrylic occlusal splint & circummandibular wiring.

Keywords: occlusal splint, circummandibular wiring, pediatric trauma

Introduction

Mandibular fractures are the most common facial skeletal injury that is 56% in pediatric patients.1,2 Boys are affected more frequently than girls.2,3 Mandibular injuries are very much important to treat because they are more prone to complications related to tooth eruption, alveolar development, occlusion, and facial growth. In children, condylar, sub condylar, & angle fractures are of 80%, symphysis & parasymphysis fracture are of 15% to 20%, and body fractures are seen rarely.4 Mandibular fracture in children occur most commonly as a result of a fall from bicycle, steps, or climbing apparatus. The history of a mandibular fracture always includes a fall or a blunt injury to the chin along with the laceration or abrasion.

Patients and Methods

Case Reports

General physical examination is carried out and the patient's condition is stabilized as necessary. Maxillofacial examination was done to check for any missing, mobile or chipped teeth and other loose foreign debris. Examination usually revealed limitation of mouth opening because of pain and muscle spasm in all 3 cases.

Case 1

A male patient by aged 9 years reported to us with the history of fall while playing in the school. History revealed bleeding from the mouth, no convulsions, vomiting or bleeding from ear and nose. On Extra oral examination diffuse facial asymmetry is seen over the left side of face was noted. Abrasive wound noted over the left lower border of the mandible with no evidence of active

bleeding. Intra oral examination revealed mixed dentition with displaced fracture at the left parasymphysis region. The occlusion was deranged and patient was unable to close his mouth. Under local anesthesia, bridle wiring done in relation to 31, 32, 33 to stabilize the fracture fragment.

Case 2

A 4.5 year old girl reported to our department with bleeding from oral cavity following fall at house while playing. On clinical examination, open mouth appearance with profuse bleeding from the oral cavity, and derangement of occlusion. Step deformity with tenderness and mobility was elicited along the lower border of the mandible in the left side. Patient had paresthesia in the distribution of left inferior alveolar nerve. Pre-operative orthopantamogram was taken, which confirmed left body fracture. Bridle wiring done under general anesthesia in relation to left C & E.

Case 3

A 12 year old male patient visited to our department with chief complained of pain in left TMJ region. Trauma to the chin producing TMJ injury is a frequent occurrence in childhood. In this case unilateral condyle fracture with jaw deviating towards the fracture side while opening the mouth, usually this happens due to the unopposed action of the lateral pterygoid muscle on the normal condyle. OPG revealed right undisplaced parasymphysis fracture and a left condylar neck fracture. Arch bar and cap splint with circummandibular wiring done. IMF was done by placing guiding elastic for 3 weeks.

Discussion

The treatment choice of fractures in the pediatric mandible depends on the age and the state of tooth development. The majority of symphysis, parasymphysis & body fracture in children are mostly undisplaced because of the elasticity of the jaw and the tooth buds which will hold the fracture fragments like “glue”.5,6 Childs jaw will be filled with tooth buds and teeth in various stages of development, and has to be considered while deciding on a closed reduction with intermaxillary fixation verses open reduction with rigid internal fixation. Management of the mandibular fracture in children differs from that of adults due to anatomic variation, rapidity of healing, degree of patient’s co-operation, and the potential for changes in mandibular growth. The main sites of growth are the condylar cartilage, the posterior border of the ramus, and the alveolar ridge. These areas of bone deposition are responsible for increase in the height, length, and width of the mandible. In condylar fracture force impact drives the mandibular condyle posterosuperiorly in the joint, against the skull base. Two main critical goals of treatment are considered in these patients are preservation of function and maintenance of normal ramus height. Bone fragments in children becomes partially united as early as in 4 days and it becomes difficult to reduce the fracture fragment by 7-8 days, so it has to be treated as early as possible.5 Trauma to developing tooth buds and partially erupted teeth may occur when placing intra osseous wires or plates and screws. This will result in the failure of eruption in the permanent teeth and a narrow atrophic alveolar ridge. So to avoid this kind of complication we have treated our cases with circummandibular wiring with the help of acrylic gunning splint. In all three cases OPG and occlusal radiograph was advised, and in one case which had condylar fracture TMJ view was advised. All 3 cases were treated under general anesthesia, an impression for splint was obtained under local anesthesia and splint was constructed. Mandibular and maxillary dental cast is prepared, mandibular cast is cut and reoriented into proper alignment by occluding with maxillary cast. An occlusal acrylic splint in fabricated on the mandibular cast. Under general anesthesia fracture is reduced and the splint is

fixed in place with circummandibular wires. 2 to 3 wires are placed to secure the splint and sawing of wire was done to avoid loosening of the wires. Splint was left in place for 3 weeks in all the cases, and antibiotics, analgesics were prescribed for 7 days. Post operatively patient was advised to have only liquid and soft diet for 4 weeks. Parents had been educated of patient's good oral hygiene to avoid infections, and thorough mouth wash after each meal until the splint is removed. In 3rd case of condylar fracture patient was given guiding elastics for I week as IMF and after the removal of IMF elastics and splint mouth opening exercise has been advised. All the patients were reviewed every week and, on the third postoperative week occlusal splint along with circummandibular wire is removed. Immediate postoperative recovery was uneventful and occlusion achieved was satisfactory. The patient was reviewed monthly for 6 months and had perfect occlusion and good masticatory efficiency.

Conclusion

Circummandibular wiring with occlusal cap splint for mandibular fracture in growing children is a definitive treatment modality. Treatment should be usually performed without delay and can be limited to observation or closed reduction in non-displaced or minimally displaced fractures, but in case of displaced fractures it is always better to perform open surgery. Tooth buds within the mandible do not allow internal fixation with plates and screws, this can be achieved with occlusal acrylic splint fixed with circummandibular wires or a single resorbable plate in lower border of the mandible.

References

1. T.B. Dodson, "Mandibular fractures in children, "OMS Knowledge Update, vol.1, part II, pp.95 107,1995.
2. S. Iida and T. Matsuya, "Paediatric maxilla facial fractures: their aetiological characters and fracture patterns, "Journal of Cranio Maxillofacial Surgery, vol.30, no.4, pp.237–241,2002.
3. J. C. Posnick, M. Wells, G. E. Pron, and B. Alpert, "Pediatric facial fractures: evolving patterns of treatment, "Journal of Oral and Maxillofacial Surgery, vol.51, no.8, pp.836–845,1993.
4. Kaban L. B: facial trauma II. Dentoalveolar injuries & mandibular fractures. ; pediatric oral and maxillofacial surgery, Philadelphia, 1990,pp 233-260.
5. Kaban L. B, mulliken JB, murray JE: facial fractures in children: an analysis of 122 fractures in109 pateints, plast recon surg 59:15-20, 1977.
6. James D: maxillofacial injuries, Edinburgh, 1985, Churchill Livingstone, pp 538-559.
7. Shrutha S P, Vinit G B: circummandibular wiring in pediatric maxillofacial ltrauma :acase report; Annals and Essences of Dentistry Vol - III Issue 4 Oct – Dec 2011.
8. Yadav S, Tyagi S, Kumar P, Sharma N. Circummandibular wiring: An absolute answer to paediatric maxillofacial trauma: An unusual case report. SRM J Res Dent Sci 2012;3:268-70.