

## Case Report

# Bilateral condyle dislocation and parasymphysis fracture of mandible in a child

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## ABSTRACT

Among majority of the pediatric facial fractures, mandibular fractures were located in parasymphyseal region (33.3%). The parasymphyseal fracture has to be treated with closed reduction due to potential harm to the developing canine. The treatment of parasymphyseal fractures is recommended only when the buds of the canines have moved-up from their inferior position at the mandibular border after the age of nine. Those with open bites or limitation of mandibular motion may be treated with closed reduction and a short period of maxillo-mandibular fixation (MMF). A seven-year old girl with parasymphysis fracture treated by closed reduction is described in this case study.

**Key words:**Parasymphyseal fracture, Closed reduction, Maxillo-mandibular fixation

## INTRODUCTION

Maxillofacial injuries in children may affect functioning as well as esthetic appearance. The clinical diagnosis is confirmed by computed tomographic (CT) scan [1]. In pediatric patients, the management of mandible fracture differs due to the changes of anatomy, dentition, and growth. Fracture of mandible during skeletal growth, differing stages of dental eruption, and condylar disruption may translate into long-term growth disturbance. Open reduction and internal fixation provides stable three-dimensional reconstruction, promotes bone healing, and shortens treatment time. The effect of rigid fixation on facial skeleton growth is not completely understood. The treatment of parasymphyseal fractures should be treated with closed reduction because the buds of the canines may be present at inferior position of the mandibular border. This has to be confirmed by the sagittal sections in CT scans. The erupting permanent teeth should not be disturbed during the treatment of fractures in children.

## CASE REPORT

A 7-year old- girl had a fall with open mouth, unable to close her mouth. Lower permanent central and lateral incisors were present and upper central incisor teeth were exfoliated. Condyles were dislocated laterally,

which can be palpated as a bony swelling on both sides above the zygomatic arch [Figure A]. Right parasymphyseal greenstick type of fracture, was without a step deformity in occlusion. CT was taken and report confirmed these fractures [Figure B]. Developing teeth buds were present all respective positions [Figure C]. Patient was taken under general anesthesia and closed reduction was done. Arch bar fixation was done both upper and lower arch after reducing the condylar component to the articulating fossa. Post operatively elastics were given for two weeks and after three weeks arch bar was removed. Patient had a reduced mouth opening and physiotherapy for two weeks regained adequate mouth opening. After one year, the patient was reviewed and found adequate occlusion and mouth opening.

## DISCUSSION

The incidence of facial fractures in the pediatric population is between 1.4 and 15% of all maxillofacial traumas [1]. As much as 41% of pediatric facial fractures involve the mandible. Majority of the mandibular fractures (33.3%) were located in parasymphyseal region. When compared to adults, the pattern of fractures and frequency of associated injuries are similar but the overall incidence is much lower [1] in pediatric patients, the management of

**Figure A:** Post operative photograph showing adequate mouth opening



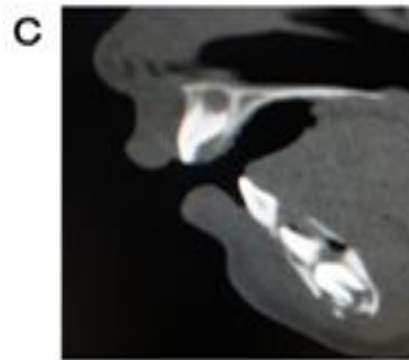
mandible fracture differs due to the changes of anatomy, dentition, and growth. Fracture of mandible during skeletal growth, differing stages of dental eruption, and condylar disruption may translate into long-term growth disturbance [2]. Immature bone has an increased proportion of cancellous bone, which leads to an increased incidence of Greenstick fractures in children. The open reduction and internal fixation is the treatment of choice in mandibular fractures in adults. However, the same may not be true for pediatric population, mainly because of developing tooth bud at inferior border and the potential for inducing growth disturbance. Open reduction and internal fixation provides stable three-dimensional reconstruction, promotes bone healing and shortens treatment time. The use of resorbable plates and screws for fixation of pediatric facial fractures is both well tolerated and effective [3].

**Figure B:** CT scans shows bilateral dislocation of condyle and fracture parasymphysis mandible



Rigid internal fixation must neutralize all forces like tension, compression, torsion, shearing, developed during functional loading of the mandible to allow for immediate function. Champy et al [4] described transoral placement of small, thin, malleable, stainless steel miniplates with monocortical screws has been advocated for osteosynthesis line of the mandible. The effect of rigid fixation on facial skeleton growth is not completely understood [5]. There were thought to be treated best by closed reduction to minimize

**Figure C:** Sagittal CT scans shows tooth buds at inferior boarder of mandible



stripping of the periosteum of small bone fragments. Although, this treatment modality is still used, rigid fixation now enables the clinician to avoid closed reduction there by allowing immediate jaw mobilization. The immobilization times should be shorter i.e. 2-3 weeks. Many authors treat the parasymphyseal fractures by ORIF for immediate treatment outcomes, but careful assessment of the erupting canine have to be done at the time of fixation. This will prevent the long term complication of canine impaction due to trauma. This is a classic example to state that the eruption of the canine is not complicated by the treatment.

The treatment of parasymphyseal fractures with open reduction and internal fixation is recommended only when the buds of the canines have moved up from their inferior position at the mandibular border after age nine. The parasymphyseal fracture has to be treated with closed reduction due to potential harm to the developing canine. It did not markedly alter the occlusion. Ogunlewe et al[6] who found the parasymphyseal region as the most frequently fractured mandibular site. Those with open bites or limitation of mandibular motion may be treated with closed reduction and a short period of MMF.

## CONCLUSION

Majority of the mandibular fractures among pediatric facial fractures, were located in parasymphyseal region. Fracture of mandible during skeletal growth, differing stages of dental eruption, and condylar disruption may translate into long-term growth disturbance. In pediatric population, the developing tooth bud at inferior border of mandible that restricted to do open reduction and internal fixation.

## REFERENCES

1. Pediatric facial fractures: children are not just small adults. AU Alcalá-Galiano A, Arribas-García IJ, Martín-Pérez MA, Romance A, Montalvo-Moreno JJ, Juncos JM SO Radiographics. 2008; 28:441-61.
2. Zimmermann C E, Troulis M J, Kaban L B. Pediatric facial fractures: Recent advances in prevention, diagnosis and management. Int J Oral Maxillofac Surg. 2006;35:2–13
3. Pediatric maxillofacial fractures. AU Spring PM, Cote DN SO J La State Med Soc. 1996;148:99.
4. Champy M, Lodde Jp, Jaeger JH, Wilk A. Mandibular osteosynthesis according to the Michelet technique I. Biomechanical basis. Rev Stomatol Chir Maxillofac 1976; 77: 569-76.

5. Rémi M, Christine M C, Gael P, Soizick P, Joseph-André J. Mandibular fractures in children: long term results. Int J Pediatr Otorhinolaryngol. 2003; 67:25–30.
6. Ogunlewe MO, James O, Ladeinde AL, Adeyemo WL. Pattern of paediatric maxillofacial fractures in Lagos, Nigeria. Int J Paediatr Dent 2006;16:358-62

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