

Craniofacial trauma of 3-year-old child—Acritical case report

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Abstract

Craniofacial Trauma in pediatrics and adults shows almost similar pattern of injuries. Incidence and prevalence of pediatric craniofacial trauma is comparatively less than adults. In pediatric trauma craniofacial injuries are much observed due to the large cranium is to body ratio. Management of pediatric trauma case becomes more difficult due to obvious reasons as there is less incidence of pediatric traumas which indeed lacks our experience to manage it. Pediatric craniofacial trauma requires a multidisciplinary team approach for the better management. In this case report we present a 3-year-old male child with a craniofacial trauma due to natural disaster of wall collapse.

Keywords: Pediatric, Craniofacial, Trauma, Management, Multidisciplinary.

Introduction

History and published literature gives us an ample amount of data to diagnose and treat craniofacial trauma promptly.¹⁻³ But still during a pediatric case when compared to adult case is unamenable. In the past decades there is significant advances in pediatric craniofacial trauma management.^{4,5} Management of these cases are troublesome because pediatric fractures are very easily over looked due to the smaller size than adults.⁶ Craniofacial surgeons stuck up in dilemma to choose between the different reduction and fixation techniques.⁷ Three-dimensional computed tomography is a viable imaging technique to rule out the hard tissue injuries. In craniofacial region the cranial base fracture and naso-orbito-ethmoid fractures creates a challenging scenario. Due to their certain anatomical and physical factors like growth and timing of treatment the surgical approach differs among surgeons.⁸ Trauma causes deleterious effect in the craniofacial structures. The primary goal of management of such craniofacial fractures is to restore the function, form and achieve esthetics.⁹ Management of injuries in children has significant implication in future due to craniofacial growth and development.¹⁰ In every six months due to growth and morphological variations carries a huge impact in child's life which makes surgeons management sensitive.¹¹

Case Report

A 3-year-old baby boy came to the emergency department of the hospital with history of natural disaster of wall collapse in a very critical situation with Glasgow Coma Scale of 6/15. Eye opening was 2/4 i.e. opens eye in response to pressure, Verbal response was 2/5 i.e. makes sounds, Motor response was 2/6 i.e. extension to painful stimulus (decerebrate response). Patient was having the difficulty in breathing which

was suggestive of airway compromise. So, immediate endotracheal intubation was done. On monitoring pulse oximeter vitals were unstable so intravenous fluid was started to avoid hemorrhagic shock. Initial physical examination showed as extensive through and through contused lacerated wound from the lateral crux and ala of the nose on left side travelling through the philtrum area and base of the nose disrupting minor and major cartilage of the right side extending towards right side of cheek till the posterior part or ramus region of mandible on face. Skin, subcutaneous tissue, superficial muscular aponeurotic system, muscles and maxillary vestibule were completely obliterated. Abrasions near by the contused lacerated wound superiorly on the nose, toward the cheek, infraorbital region, zygomatic region and pre-auricular region was present. Inferiorly complete upper lip, corner of the mouth on the right side till the base of the body and angle region of mandible was present. Soft tissue hematoma was present on the above-mentioned areas. (Fig. 1) Bilateral epistaxis and otorrhea was present. There was swelling on the hands and legs on the right side. On fast track basis due to critical situation of child a computed tomography of brain and Three-dimensional computed tomography scan of craniofacial region was taken including chest X ray, ECG, right hand and right leg radiograph was taken. As this case needs multidisciplinary approach so maxillofacial surgery, neurosurgery, pediatric surgery, plastic surgery, orthopedics and ENT were advised for consultation. Computed tomography scan of brain showed occipital fracture and temporal fracture with mild pneumocephalous on right temporal region. Three-dimensional computed tomography scan of craniofacial region elicited bilaterally displaced sub condylar fracture and angle fracture on right side of mandible. (Fig. 2) It also showed occipital fracture running from

foramen magnum posterosuperiorly towards sagittal suture. (Fig. 3). Also, there was a fracture of temporal bone and infratemporal fossa. (Fig. 4) Due to lack of availability of ventilator bed patient was referred to higher center with complete investigation and diagnosis for better treatment as the patient compulsory needs ventilation.



Fig. 1: Facial photograph of the patient



Fig. 2: 3DCT Scan of Mandible

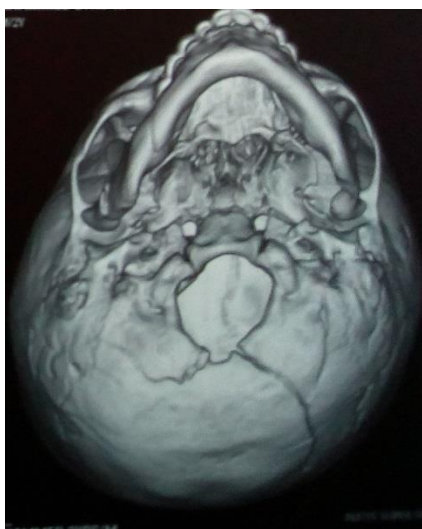


Fig. 3: 3DCT Scan of Base of skull



Fig. 4: 3DCT Scan Lateral view of craniofacial region

Conclusion

Diagnosis and management of pediatric craniofacial trauma is a challenging task which needs extra careful evaluation and methodology. Higher diagnostic imaging are viable options for diagnosis. Management is always debated between open and closed reduction in which bioresorbable plates are eminent option for rehabilitation. Multidisciplinary team approach must be considered for craniofacial trauma cases to increase the quality of life of patient.

References

1. Craig R. Dufresne. Pediatric Craniofacial Trauma: Challenging Pediatric Cases—Craniofacial Trauma. *Craniofacial Trauma Reconstruction*. 2011;4:73–84.
2. Sumit Verma. *IOSR Journal of Dental and Medical Sciences*. 2016;15(4):80-86.
3. Waknis PP, Sabhlok S, Dolas RS, Limaye G. Evaluation of facial trauma in pediatric population. *J Dent Res Rev*. 2014;1:10-3.
4. C. E. Zimmermann, M. J. Troulis, L. B. Kaban: Pediatric facial fractures: recent advances in prevention, diagnosis and management. *Int J Oral Maxillofac Surg*. 2006;35:2–13.
5. Kumaraswamy SV et al. Pediatric injuries in maxillofacial trauma: a 5 year study. *J Maxillofac Oral Surg*. 8(2):150–153.
6. DAS U. M. Management of facial trauma in children: A case report. *J Indian Soc Pedod Prev Dent*. 2006;161-163.
7. Andrea Alcalá-Galiano. Pediatric Facial Fractures: Children Are Not Just Small Adults. *Radio Graphics* 2008;28:441–461.
8. M. Zerfowski A. Bremerich Facial trauma in children and adolescents. *Clin Oral Invest*. 1998;2:120–124.
9. Yeliz Guven. A Complex Facial Trauma Case with Multiple Mandibular Fractures and Dentoalveolar Injuries. *Case Reports in Dentistry*. Volume 2015;1-6.
10. D.M. Smith, M. R. Bykowski, J. J. Cray. 215 mandible fractures in 120 children: demographics, treatment, outcomes, and early growth data,” *Plastic and Reconstructive Surgery*. 131(6):1348–1358.
11. N. Lekven, E. Neppelberg, and K. Tornes. “Long-term follow-up of mandibular condylar fractures in children.” *Journal of Oral and Maxillofacial Surgery*. 2011;69(11):2853–2859.