



Zygomatic complex fracture: Case report

Lucas dos Santos Salles¹; Wellerson Ferreira Brito¹; Vinicius César Barbosa de Menezes^{1*}; Henrique Trindade de Magalhães¹; André Henrique Almeida e Silva²

¹Newton Paiva University. R. Marechal Foch – Grajaú, 30431-189, Belo Horizonte/MG, Brazil

²Private Practice, Rua Araguari 1705, sl801, 30190-111 Belo Horizonte/MG, Brazil

***Corresponding Author(s): Vinicius Cesar Barbosa de Menezes**

Newton Paiva University R. Marechal Foch – Grajaú,
30431-189, Belo Horizonte/MG, Brazil
Email: vcmenezes@hotmail.com

Abstract

Fractures that accompany the zygomatic complex can cause complications such as dystopia, enophthalmos and aesthetic changes if not treated in a timely manner. Current treatments rely on material and diagnostic resources, such as CT scans, to provide excellent aesthetic and functional results. The objective of this work is to present a case of orbital floor fracture and lateral wall of left orbit, showing aesthetic and functional results.

Received: Sep 17, 2019

Accepted: Dec 11, 2019

Published Online: Dec 14, 2019

Journal: Journal of Case Reports and Medical Images

Publisher: MedDocs Publishers LLC

Online edition: <http://meddocsonline.org/>

Copyright: © Menezes VCB (2019). *This Article is distributed under the terms of Creative Commons Attribution 4.0 International License*

Keywords: Orbital fracture; Blowout fracture; Face trauma; Malar fracture

Introduction

The fractures that affect the zygomatic process are extremely complex, and the surgeon's experience is necessary, since they involve orbit floor [1]. The Zygoma is a bone located in the viscerocranium, where it has a joint, through sutures, with bones, such as the maxilla, temporal, sphenoid and frontal, and presents a quadrangular shape [2].

Some fractures are found in the orbit floor, called a blowout fracture, however about 5 to 10% involve the combination of lateral wall flooring, there are rare cases in which fractures can only occur in the medial wall [3]. The fractures of the zygomatic complex are classified into low, medium and high energy, where it requires orbital reconstruction, this usually does not need or-

bital repair because it is less cominutive than the high and the low energy is a minimally displaced fracture, in which the treatment is often conservative [1].

It is well known that in an anamnesis, the skull and face should be carefully inspected for fractures and soft tissue injuries. The patient reports pain, ecchymosis and periorbital edema [1], also associated with subconjunctival and periorbital ecchymosis, diplopia, trismus, enophthalmia, exophthalmia, paresthesia in the affected region orbital margin deformity, epistaxis on the affected side, malar depression and anterior to the tragus (when exclusive zygomatic arch fracture) displacement of the eyelid fissure, altered pupillary level and ophthalmoplegia [4,5].



Cite this article: Santos Salles LD, Brito WF, Menezes VCB, Magalhaes HT, Silva AHA. Zygomatic complex fracture: case report. J Case Rep Clin Images. 2019; 2(1): 1030.

The diagnosis of fracture can be given through the physical examination and anamnesis of the patient, but the imaging examination is indispensable for confirming the fracture, its extension and for medical-legal purposes [1]. The best radiological examination for evaluation of zygoma fractures is Waters Projection, but the gold standard is CT, in which it is possible to obtain more information about the fracture, including assessing soft orbital tissues [1,6].

Thus, through studies on the incidence of facial trauma and better treatments, it has been observed that the open reduction with internal fixation with miniplates and screws is the most common treatment [1,7-9].

The objective of this work is to report a clinical case of orbital floor fracture, as well as its treatment.

Case report

Patient of J.C. 44 years old, male, victim of a cycling accident and taken by the Mobile Emergency Care Service (SAMU) to Santa Rita Hospital, in the city of Contagem / MG. He was hospitalized due to facial trauma, and he was asked for consultation with Buco Maxillo Facial Surgery and Traumatology, where he presented with clinical examination, infraorbital paraesthesia, left subconjunctival ecchymosis (Figure 4) left blepharohematoma, left orbital border step. He also had normal oculomotricity and photoreagent pupils. Patient denies left diplopia. An image suggestive of left zygomatic bone dislocation, left orbital floor fracture, lateral wall fracture and left orbital medial wall fracture was observed in the 3D image reconstruction (Figure 5,6).

In view of the clinical picture, it was decided to reduce the fracture and rigid internal fixation with mini-plates, screws and titanium 2.0 system in a surgical block under general anesthesia. The proposed surgical access was through infraorbital access (Figure 7) and left zygomatic frontal (Figure 8) for exposure, reduction and rigid fixation of the fracture with mini plates and titanium screws system 2.0 (Figure 9,10). The infraorbital and left frontozygomatic access sutures were performed by planes with vicryl 4-0 and mononylon 5-0 (Figure 11,12). Patient was discharged after 1 day of hospitalization, remaining with left infraorbital nerve paraesthesia, absence of diplopia, normal oculomotricity and photoreactive pupils, followed for 15 days, during 03 months. At the moment the patient evolves with excellent esthetic, functional result and improvement in paresthesia after 8 months. **Discussion**

Zygomatic complex fractures are common relativization, leading to important functional alterations due to the displacement of the zygomatic bone [7,10], but orbital floor fractures without the involvement of other facial injuries, are considered rare and very uncommon [11]. Orbital floor fractures, also called blowout fractures, are characterized by the involvement of orbital walls, without fracture or displacement of adjacent bones [12]. Isolated orbital floor fractures represent approximately 21.4% of fractures of the middle third of the face, necessitating reconstruction in most cases [13].

The reconstruction of the orbit floor can be done through alloying materials; alloplastics, as titanium screens, for primary reconstructions, aiming at restoring the contour of the orbital walls and Porous Polyethylene, for secondary reconstructions in which they have abnormal tissues, enophthalmos and has a need for reconstitution of lost volume (Figure: 1). In the present study, it was found that the presence of the cartilage of the auricular shell, as well as the symphysis, body, branch, coronoid

process of the mandible and even cartilage of the auricular shell, taking into account the surgeon's experience, time, cost. In the clinical case described, we chose alloplastic material, titanium screen, in which there is less postoperative complication and better results, since it does not allow bone detachment and has cicatrization by first intension [1].

Conclusion

Anamnesis, clinical and imaging examination are primordial for the choice of the best surgical technique and surgical material, minimizing possible complications, favoring aesthetic and functional rehabilitation. In the clinical case in question, the material used was paramount for the final aesthetic and functional results. In cases of zygomatic complex fracture, surgical planning is essential for the final result.

Figures



Figure 1

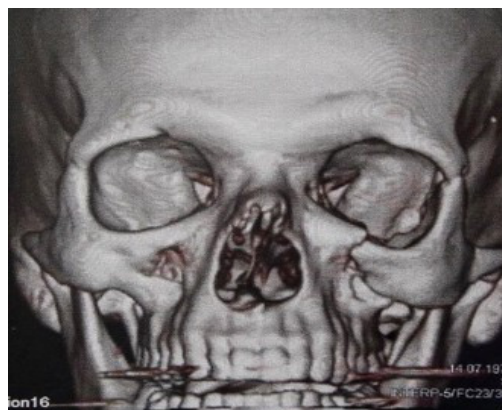


Figure 2

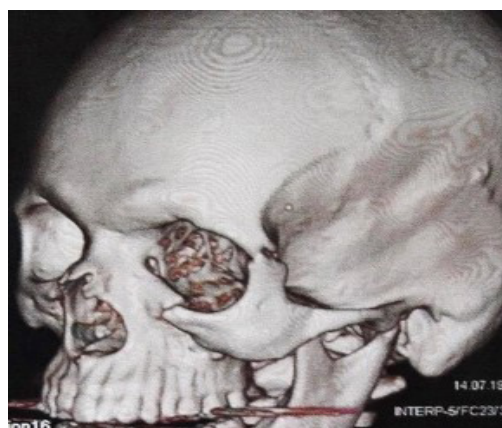


Figure 3



Figure 4

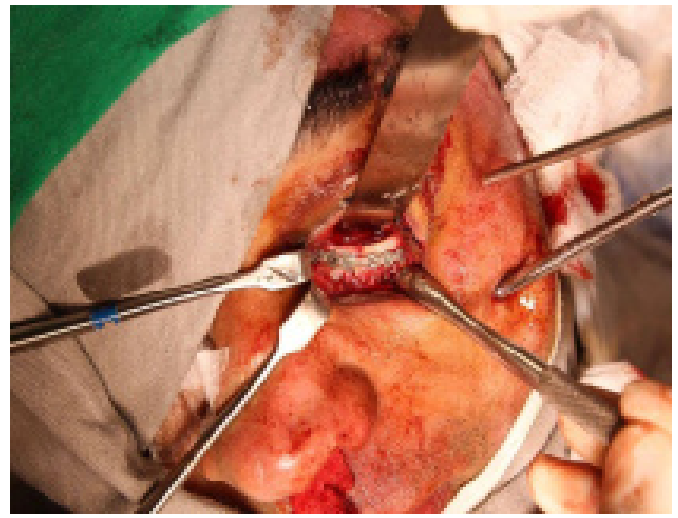


Figure 7



Figure 5



Figure 8



Figure 6



Figure 9

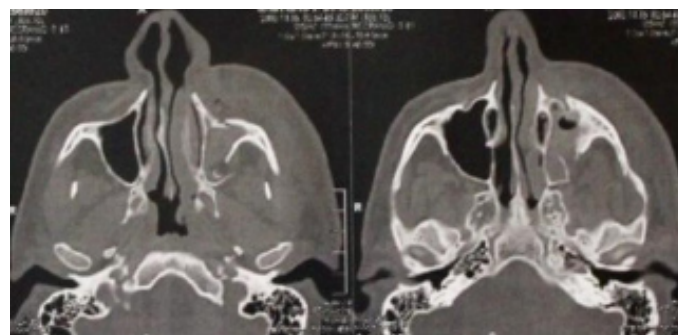


Figure 10



Figure 11



Figure 12

References

- Miloro. *Princípios de cirurgia bucomaxilofacial de Peterson*. 3. ed. Rio de Janeiro: Guanabara Koogan. 2012; 2407.
- Sobotta J. *Atlas de Anatomia Humana*. 21. ed. Rio de Janeiro: Guanabara Koogan. 2000; 1.
- Tanaka T. et al. Evaluation of coronal CT findings of rare cases of isolated medial orbital wall blow-out fractures. *Dentomaxillofac. Radiol. Tokyo*. 2003; 32: 300-303.
- Ellis E.III, Hupp J.R, Tucker M.R, *Cirurgia oral e Maxilofacial Contemporânea*. 5.ed. Rio de Janeiro: Elsevier. 2009; 719.
- Fonseca R.J, Walker R.V.W. *Oral and maxillofacial trauma*. 2nd ed. St. Louis: WB Saunders. 1997. 2980.
- Tanrikulu R, Erol B. Comparison of computed tomography with conventional radiograph for midfacial fractures. *DentomaxillofacRadiol. Diyarbakir*. 2001; 32: 141-146.
- Chrcanovic B.R, Freire-Maia B, Souza L.N. Facial fractures: a 1-year retrospective study in a hospital in Belo Horizonte. *Brazilian Oral Research, São Paulo*. 2004; 18: 322-328.
- Moreira R.O.M, Freire-Maia B. Management of Fractures of the Zygomaticomaxillary Complex. *Oral Max. Surg. Clin*. 2013; 25: 617-636.
- Vriens. Infraorbital nerve function following treatment of orbitozygomatic complex fractures a multitest approach. *Int J Oral Maxillofac Surg. Utrecht*. 1998; 56: 1223.
- Oliveira. Use of Different Reconstruction Materials in Fractures of the Floor of the Orbit: a Report of Six Cases. *Rev. Cir. Traumatol. Buco-Maxilo-Fac., Camaragibe*. 2005; 5: 43-50.
- Swinson B. Isolated bilateral orbital floor fractures: a series of 3 cases. *J. oral maxillofac. Surg. Philadelphia*. 2004; 62: 1431-1435.
- Wolfe S.A. Footprints of the globe: a practical look at the mechanism of orbital blowout fractures, with a revisit to the work of Raymond Pfeiffer. *Discussion. Plast. reconstr. surg. Baltimore*. 1999; 103: 1317-1319.
- D'ávila. Treatment of blow-out fracture with cartilage of the auricular shell autogenous graft. *Rev. Cir. Traumatol. Buco-Maxilo-fac. Camaragibe*. 2009; 9: 9-14.
- Teixeira L.M.S, Reher P, Reher V.G.S. *Anatomia aplicada à odontologia*. Rio de Janeiro: Guanabara Koogan. 2001; 372p.
- Hosal B.M, Beatty R.L. Diplopia and enophthalmos after surgical repair of blow-out fracture. *Orbit, Pittsburgh*. 2002; 21: 27-33.