

## Case Report

# Surgical Management of Orofacial Extensive Laceration: Case Report

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**OPEN ACCESS****Abstract**

Soft tissues injuries in orofacial region resulting from high-energy impacts are frequent records in the emergency services. They have varying degrees of complexity and are treated according to their extent, depth, etiologic agent and degree of contamination. This article is a case report of an adult male patient with orofacial transfixing laceration after an accident with a barbed wire fence. He underwent surgery under general anesthesia and it was performed aesthetic and functional rehabilitation of the lesion. The aim of this article is to discuss the steps involved in the management of extensive wounds, based on the knowledge of the surgical principles related to the adequate treatment of these lesions. It is essential that the oral and maxillofacial surgery team launches a well-founded protocol that assists in the orientation of an efficient treatment in order to minimize sequelae and to enable a satisfactory aesthetic and functional result.

**Keywords**

- Lacerations
- Wounds and Injuries
- Maxillofacial Injuries
- Oral and Maxillofacial Surgeons

**INTRODUCTION**

Oral and maxillofacial traumas occur frequently as a result of falls, physical assaults and traffic accidents, generating facial lesions with variable patterns, which almost always result in considerable damage to important structures of the face, compromising muscles, vessels, and hard and soft tissues [1-3]. Indeed, soft tissue orofacial injuries are frequent clinical evidences in trauma, being the third most found problem in emergency services and, when poorly approached, they leave sequels that can bring functional and aesthetic damages, compromising the social interaction of the individual [1,4]. Usually, extra oral lacerations mainly happen in the upper third of the face, affected by forehead and eyebrow protrusion, followed by the mental region. Among intra oral lacerations, the labial region is the most vulnerable because it is a protruding structure and it is close to hard structures such as the tooth [1,5].

Facial injuries should be treated properly by assessing location and extent of injured area, depth, degree of contamination, etiologic agent, and time of trauma in order to avoid aesthetic and functional sequelae [1,6]. Thus, the complete anatomical recovery of the patient depends on effectiveness of the measures introduced during his rehabilitation [4].

Possible complications may be related to wounds with longer tissue exposure, irregular shapes, presence of foreign bodies, or the need of special procedures so that infections, tissue necrosis and even dehiscence may occur [4,6]. These situations can be isolated or associated, having reciprocal influences in their development [4].

The management principles of complex and extensive lacerations involve the clinical condition evaluation of the patient and wound itself, early surgical intervention, the provision of broad-spectrum antibiotic therapy when it is necessary, a good surgical technique, and the planning and execution of surgical therapy, including establishing a clean bed and reconstructive strategies [2-4]. Rapid and thorough assessment and timely operative management are critical for the optimal treatment of these injuries [3].

One of the essential basic measures in surgical treatment of a complex wound is the establishment of a clean wound through the debridement, which can avoid infections besides providing a good healing [2,3]. Moreover, among technical factors employed, we can highlight the stage of tissue synthesis. It is recommended that it be carried out with delicate material and adequate the resistance of the local tissue and the least number of possible stitches for total cooptation of the edges [2,4,6].

Therefore, the involved steps in the management of complex and extensive wounds should be approached based on the knowledge and evidences of surgical principles, so that they are treated appropriately preserving the function, maximizing the results and, thus, offering a better prognosis to the patient. However, to the best of our knowledge, most of studies of maxillofacial trauma have been limited to facial or dentoalveolar fractures. Thus, the aim of this paper is to report a case about the approach of extensive lacerations in the orofacial region caused by motorcycle accident, discussing the chosen maneuvers to avoid complications and to obtain the best possible functional aesthetic results.

## CASE PRESENTATION

A fifty four years-old man, a countryside resident of Araci-BA, a victim of a motorcycle accident arrived at the emergency room of the State General Hospital in Salvador, Bahia, under the influence of alcoholic beverages with face trauma, whose motive would be a shock with a barbed wire fence.

The patient was promptly treated according to Advanced Trauma Life Support (ATLS) protocols, being lucid and oriented in time and space, without episodes of emesis or post-traumatic syncope, bearing the Glasgow Coma Scale 15. After the systemic evaluation, he was sent to the care of the team of Oral and Maxillofacial Surgery and Traumatology of the same hospital.

Maxillofacial physical examination revealed a transfixing blunt wound in the lower third of the face, in both sides, involving the buccal mucosa and the labial region as well as extensive tongue laceration (**Figure 1**).

Imaging tests such as computed tomography of the face and preoperative laboratory tests were ordered. Based on the physical and imaging exams, it was concluded that the patient did not present fractures in bones of the face (**Figure 2**).

The team of Oral and Maxillofacial Surgery and Traumatology of the hospital unit performed surgical approach of the wound at the surgical center, under general anesthesia. Thus, orotracheal intubation and the following sequence were chosen: abundant irrigation with saline 0.9% in the form of a jet in order to remove clots and foreign bodies, asepsis and antisepsis with 2% chlorhexidine, placement of operative fields, oropharyngeal capillary infiltration, infiltration with lidocaine 2% and

epinephrine 1:200,000, wound inspection, lesion debridement, beginning of synthesis by tongue with simple stitches using the Vicryl 4-0 absorbable suture yarn, sequencing the transfixing wounds beginning with the buccal mucosa, respecting the reference structures beginning with the labial commissure, followed by suturing by planes towards the skin using the Vicryl 4-0 absorbable suture yarn and Mononylon 5-0 non-absorbable suture yarn for the skin region, respectively (**Figure 3**). Finally, copious irrigation with serum saline solution 0.9% was performed and the surgery was concluded without complications.

The patient underwent Cephalothin antibiotic therapy, pre and postoperative as well as tetanus prophylaxis. After 20 postoperative days, the patient was discharged in good general condition with stomatognathic system functions reestablished; wound healing, clean and occluded sutures, and without signs of dehiscence or infection. Currently, he continues to be followed up, without compromising the stomatognathic system functions.

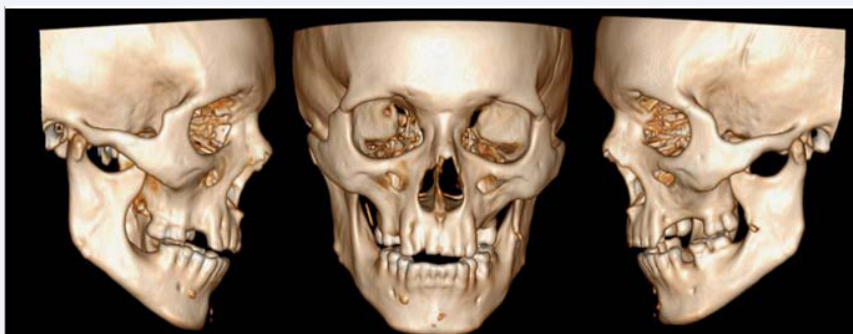
## DISCUSSION

The proportion of hospitalized due to external causes has steadily increased in Brazil in recent years as well as in other developing countries [7]. Oral and Maxillofacial trauma are responsible for 5% of hospitalizations caused by trauma, where the main cause is traffic accidents [8]. Most of these accidents involve motorcycles, a common and cheap means of transport [9]. This high rate can be explained by the inherent instability of motorcycles, the low level of protection they offer compared to cars and the non-use of helmets by the driver and passenger [8].

Most of the victims are males occurring predominantly between twenty one and thirties years old. This prevalence



**Figure 1** Extensive transfixing injury in face.



**Figure 2** Imaging test revealed no suggestive signs of fractures in bones of the face.



**Figure 3** Suturing by planes towards the skin.

among young adults can be attributed to their less careful or inexperienced driving as well as greater involvement with social activities [8,10]. This fact disassociates from this report since the patient was a mature adult. Also, these accidents occur more frequently on weekends, due to risk behavior in traffic such as exceeding the speed limit and driving under the influence of alcohol [11]. In this report, the male patient suffering from motorcycle accident does not corroborate the literature since he was fifty-four years old and the accident happened during the week. Treatment should initially prioritize patient stabilization with evaluation and maintenance of the upper airways, followed by hemodynamic control and neurological evaluation. It is important to respect the initial care of the polytrauma patient, prioritizing injuries that may cause death risk [1]. Thereby, after the priorities were established, the Oral and Maxillofacial Surgery and Traumatology team was called after the evaluation and stabilization of the patient's general condition.

There are many types of lesions that can occur in a traffic accident. Head and face injuries are common and range in severity from scratches and bruises to lacerations and fractures [11]. According to Christensen et al., the extent of facial tissue damage is directly related to the mechanism of injury and factors such as speed, impact direction, and collision force and impact interface geometry of opposing surfaces are crucial in the pattern of injury [2]. In the present case, the individual collided with a barbed wire fence causing a transfixing blunt wound in an orofacial region, extending from the labial commissure towards the tragus of the ear bilaterally besides a lacerating wound on the tongue; however, without facial bone fractures.

These lesions usually cause long-term disability and deformity and may have social, psychiatric, and quality of life consequences, which may prevent the patient from performing his daily activities and also decrease his mood and sense of self-esteem [11].

Acute complex injuries present themselves as a challenge to surgeons and should not be neglected [3]. It is known that it is essential to obtain the establishment of a clean wound to obtain a good healing and prevention of infections [3,6]. As a result, debridement is one of the fundamental steps in the surgical treatment of a wound, aiming at the removal of non-viable tissues and the regularization of wound edges, reducing wound tension [2,3,6]. In addition, copious washing with saline has an efficient mechanical effect on wound disinfection compared to the antibacterial activity of any more potent solutions such as dilute iodine, chlorhexidine or hydrogen peroxide [3,4,6]. Thus,

as described, all such steps were performed systematically and washing prior to and following the surgical approach of the present patient with saline, 0.9% sodium chloride.

Antibacterial solutions have cytotoxic effects on viable tissues hindering the reepithelialization process of the region and promoting a delay in wound healing, greater susceptibility to infection and, consequently, elevation in necrosis rate. This discourages their use both in primary care and in subsequent care, and it must be used with caution [4]. Thus, such solutions were not used for wound cleaning.

Furthermore, an extensive wound has a greater risk of complications because of a large volume of material that may serve as contamination focus [4,6]. Also, tissue tension, postoperative edema and swelling lead to increased ischemia in the suture lines, resulting in necrosis and dehiscence [3]. In the present case, antibiotic therapy was initiated and performed only with the use of first generation cephalosporin in the pre and postoperative period. The lesions healed as expected, with no signs of infection and/or dehiscence.

When the wound is potentially contaminated and with high risk of infection, as in this case, another condition to be evaluated is the patient immunization against tetanus. Tetanus is caused by a Gram positive bacillus (*Clostridium tetani*), found in soils, for example. The disease affects the neurological system, which can cause spasms and stiffness in the musculature of the chewing, neck and abdomen, in addition to fever, sweating, hypertension, tachycardia and even death [2,4,6]. Because of that tetanus toxoid should be administered if the patient's immunization history is unknown or is not current, so that, after five years or more of the last dose, booster vaccination should be given [3,6]. This was done in this case because the patient reported during anamnesis that his last dose of the vaccine was performed more than five years ago.

## LIMITATIONS

Although laceration is a frequent clinical problem, most studies related to oral and maxillofacial trauma have been limited to fractures of facial or dentoalveolar bones, which were not diagnosed in this report.

## RECOMMENDATIONS

It is essential that the Oral and Maxillofacial Surgery team launches a well-founded protocol that assists in the orientation of an efficient and adequate treatment in order to minimize sequelae and to enable a satisfactory aesthetic and functional result.

## CONCLUSION

Lastly, soft tissue injuries play an important role in facial trauma, since, when poorly approached; they leave aesthetic, functional and even psychological sequelae in the patient, leading him to problems including social life. The sum of the knowledge about the tissue repair and healing processes, as well as the understanding and development of the techniques reported and performed by the Oral and Maxillofacial Surgery and Traumatology team of the State General Hospital in Salvador - Bahia, contributed to the surgical approach of this patient and were fundamental to the success of the final result.

## REFERENCES

1. Park KH, Song JM, Hwang DS, Kim YD, Shin SH, Kim UK, et al. A clinical study of emergency room visits for oral and maxillofacial lacerations. *J Korean Assoc Oral Maxillofac Surg.* 2015; 41: 246-250.
2. Christensen J, Sawatari Y, Peleg M. High-Energy Traumatic Maxillofacial Injury. *J Craniofac Surg.* 2015; 26: 1487-1491.
3. Park H, Copeland C, Henry S. Complex Wounds and Their Management. *Surg Clin North Am.* 2010; 90: 1181-1194.
4. Clivatti GM, Cavichiolo FA, Teles FB, Nasr A. Feridas superficiais: Fatores técnicos associados a complicações locais. *Rev médica da ufpr.* 2015; 2: 8-16.
5. Roccia F, Boffano P, Bianchi FA, Zavattero E. Maxillofacial Fractures due to Falls: does Fall Modality Determine the Pattern of Injury? *J Oral Maxillofac Res.* 2014; 5: e5.
6. Segundo AVL, Gondim D, Gondim DGA. Tratamento dos ferimentos faciais. *Rev Cir Traumatol. Buco-Maxillo-fac.* 2007; 7: 9-16.
7. GBD 2015 Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet.* 2016; 388: 1545-1602.
8. Mosaddad SA, Gheisari R, Erfani M. Oral and maxillofacial trauma in motorcyclists in an Iranian subpopulation. *Dent Traumatol.* 2018; 34: 347-352.
9. Anjos KC, Rezende MR, Mattar RJ. Social and hospital costs of patients admitted to a university hospital in Brazil due to motorcycle crashes. *Traffic Inj Prev.* 2017; 18: 585-592.
10. Guedes OA, de Alencar AH, Lopes LG, Pécora JD, Estrela C. A retrospective study of traumatic dental injuries in a Brazilian dental urgency service. *Braz Dent J.* 2010; 21: 153-157.
11. Pita Neto IC, Franco JMPL, Junior JLA, Santana MDR, Abreu LC, Bezerra ÍMP, et al. Factors associated with the complexity of facial trauma. *J Craniofac Surg.* 2018; 29: 562-566.

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