



## Case report

## Traumatic partial amputation of the tongue. Case report and literature review



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## HIGHLIGHTS

- Tongue Anatomy.
- Traumatic injuries to the tongue.
- Management of tongue amputation.

## ARTICLE INFO

## Article history:

Received 23 September 2015

Received in revised form

4 December 2015

Accepted 17 December 2015

## Keywords:

Tongue trauma

Partial amputation of the tongue

## ABSTRACT

**Introduction:** The traumatic injuries to the tongue can go from section to partial or complete amputation, the latter being a rare presentation in the setting of facial trauma or even in patients with mental illness. **Case report:** We present 25-year-old patient with traumatic partial amputation of the tongue who presented to the emergency department with successful surgical repair with good functional and esthetic outcome.

**Discussion:** The tongue can suffer a broad type of traumatic injuries, in the setting of active bleeding, the muscular planes must be closed with absorbable sutures to stop the hemorrhage and prevent hematoma formation. Tongue surgical repair in the setting of a total section requires integrity of arterial and venous flow, so anastomosis must be executed.

**Conclusion:** Amputation of the tongue can put the patient's life at risk and its management needs to be mastered by the surgeons treating polytraumatized patients.

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## 1. Introduction

Amputation of the tongue present in an ominous fashion, with pain, inability to articulate and intraoral massive bleeding that might jeopardize the patient's life in few minutes due to the difficulty to control hemorrhage, shock and direct threat to the airway. The term partial amputation, may cause some confusion, as defined as the loss of the organ that occurs as the result of an accident or injury; a *complete amputation* means a complete separation of a fragment thereof regardless of the axis of the injury, unlike a *partial amputation* in which the fragment distal to the laceration remains

attached from bands of soft tissue, that is the sense in which we use that term in this article [1].

Partial or complete lingual amputations present in an ominous fashion, with pain, inability to articulate and intraoral massive bleeding that might jeopardize the patient's life in few minutes due to the difficulty to control hemorrhage, shock and direct threat to the airway. With venous compromise massive swelling can predispose oropharynx obstruction with potential threat to the respiratory tract by itself. Prompt recognition with rapid nasotracheal intubation or surgical airway management must be attempted [2–5] Orotracheal intubation with direct laryngoscopy is an ill-advised choice in lesions located in the base of the tongue due to the possibility of clot dislodgment with life-threatening risks of aspiration and iatrogenic injury to the respiratory tract with the inability to visualize the laryngeal aditus. In our patient we decided

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to use nasotracheal intubation. The lacerations of the tongue can be found in patients with oral self-mutilation with neurological conditions such as encephalitis [6], seizures [7], schizophrenia [8], Lesch-Nyhan syndrome [9] or as a result of maxillofacial trauma with tongue bite, like in our patient.

## 2. Case report

25-year-old female presenting to ER with a history of motor vehicle accident receiving frontal impact within the passenger cabin, causing the girl to bite her tongue with enough force to cause partial amputation. She remained conscious after the accident. She was unable to speak but without any respiratory distress or hemodynamic compromise. The physical examination revealed a clot at the dorsum of the tongue, which involved approximately the totality of its surface. CBC with Hemoglobin 14.1 g/dL, Hematocrit 42.3%. The Plastic and Reconstructive Surgery consultation was made and the tongue was exposed under general anesthesia in the operating room. The clot was removed, revealing a transverse partial-thickness laceration of 7 cm involving three quarters of the cross sectional area of the tongue located at the union of its medial and proximal thirds (Fig. 1). The superior longitudinal muscle suffered complete section with only partial section of the inferior longitudinal and transverse muscles and median fibrous septum. Dissection of the muscle was made with mobilization of the distal and proximal parts, with debridement of the necrotic tissue. The tongue was repaired by layers with simple interrupted Polyglactin 910 3-0 sutures (Figs. 2 and 3) with a time of surgery of 65 min.

In the postoperative period, she presented pain during the first 24 hours with tongue mobilization, which disappeared with the administration of non-steroidal analgesia. Important swelling was presented without respiratory compromise. The diet was initiated with rapid progression. She was discharged 72 hours post-operatively. She recovered uneventfully with good functional result.

## 3. Discussion

### 3.1. Tongue anatomy

The Tongue is a muscular unpaired organ, within the floor of the oral cavity. It has a wide range of mobility and its physiological properties allow it to be a central part of speech, swallowing and



Fig. 2. Approximation with deep polyglactin 910 sutures placed in layers.

protection of the upper respiratory airways. Hence its importance in daily life since its damage could cause devastating effects. Surgical attempts to achieve its functional integrity must be executed.

To fulfill its function, the tongue is an organ composed of multiple specific muscle bundles with different origins and specific arrangements. For its study, they have been classified into intrinsic and extrinsic muscle groups whose action allows such complex movements as only the tongue may have. In the setting of trauma, these muscles are hard to identify selectively so when surgical repair is attempted it is not essential to suture them in an individual manner. The repair is done trying not to leave dead space within the tongue.

The tongue receives terminal irrigation from to lingual arteries running along the longitudinal axis. It enters the floor of the mouth between the hyoglossus and the middle constrictor of the pharynx accompanied by the lingual veins. The lingual artery bends dorsally when the anterior border of the hyoglossus is reached, lying between the genioglossus and the inferior longitudinal muscle. The tongue possesses a very dense submucosal plexus and a rich anastomotic network. They supply the precious collateral flow to



Fig. 1. Dorsum of the tongue revealing a transverse partial-thickness laceration involving three quarters of the cross sectional area of the tongue located at the union of its medial and proximal thirds.

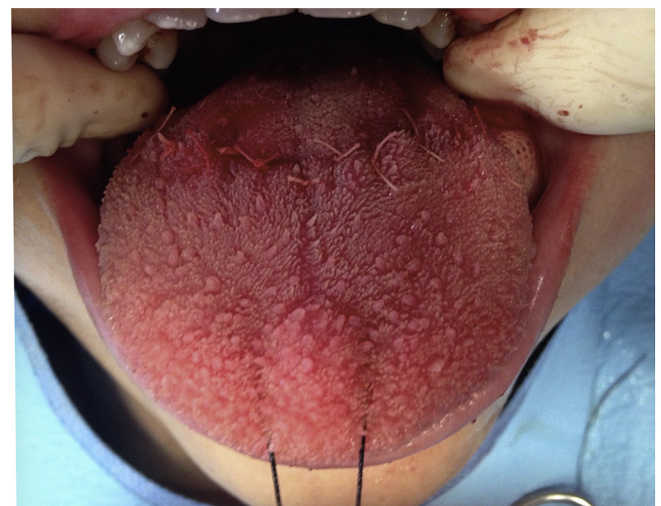


Fig. 3. Complete Repair showing appropriate continuity of the tongue.

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