

Post-traumatic partial amputation and successful complex surgical repair of tongue: A rare case report

ABSTRACT

Post traumatic partial amputation of tongue is a rare but life-threatening condition as it may lead to active intraoral bleeding. In this article, we present a case in which successful surgical repair with appropriate functional and esthetic results. The patient presented to emergency department with tongue injury due to road traffic accident. On examination patient had laceration in which its distal fragment was attached to proximal with bands of soft tissue. Attempt was made to repair it but no revascularization signs were seen. So dissection was done repair using rotational flap. The tongue was repaired layer wise.

Keywords: Dissection, lacerations, partial amputation, prophylactic antibiotics, rehabilitation, surgical repair, suturing

INTRODUCTION

Tongue is a muscular organ with multiple functions ranging from swallowing, speech, taste, mastication, airway protection, and gustatory stimuli perception. Tongue is a highly vascular unique organ located in the floor of oral cavity. The tongue has a tip/apex, body, and base.^[1-4]

It is a muscular organ and consists of both extrinsic and intrinsic muscles. The extrinsic muscles are styloglossus, palatoglossus, hyoglossus, and genioglossus, which, being the safety muscles of tongue, prevent it from falling behind and obstructing the airway and thus may prevent difficulty in breathing. The intrinsic muscles of tongue are superior longitudinal, inferior longitudinal, verticalis, and transverse muscle, which are all responsible for changing the shape of tongue. All the muscles, being developed from occipital myotomes, are supplied by hypoglossal nerve, except for palatoglossus muscle, which is supplied by vagus nerve. Blood supply of tongue is by the anterior branch of carotid artery named lingual artery and branches of facial artery. The named branches of lingual artery are dorsal lingual, sublingual, and deep lingual arteries.^[2-4] The venous drainage is by lingual vein, which eventually drains into facial and submandibular veins.^[5]

The post-traumatic amputation presents with massive intra-oral bleeding, inability to articulate, pain, swelling, and hematoma formation. This may eventually lead to serious complications like inability to control hemorrhage, shock, and direct danger because of breathing difficulty.^[2,4-9] It is of prime importance to recognize, diagnose, and manage it properly. The laceration of tongue can be found in a variety of patients with road traffic accident victims with mostly maxillofacial trauma like our patient or physical assault victims, with oral self-mutilation under neurological conditions such as encephalitis, seizures, schizophrenia, and Lesch–Nyhan syndrome.^[4,6,7-14]

Tongue can manifest a wide variety of trauma ranging from small hematomas and lacerations to partial or complete

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Received: 06 January 2023, **Revised:** 16 January 2023, **Accepted:** 19 May 2023, **Published:** 30 August 2025

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How to cite this article: Shah K, Fruitwala A, Landge J, Lahoti A. Post-traumatic partial amputation and successful complex surgical repair of tongue: A rare case report. Natl J Maxillofac Surg 2025;16:371-4.

Access this article online	
Website: https://journals.lww.com/njms	Quick Response Code 
DOI: 10.4103/njms.njms_7_23	

amputation.^[8-12] Injury to it can lead to various problems in future; thus, its meticulous surgical repair has an important role so that functions of tongue can be restored.^[4,6,7]

Here, we present a case of 22-year old male who presented to the emergency department with a history of road traffic accidents and had sustained tongue injury.

CASE REPORT

A 22-year-old male patient reported whose consent has been taken reported to our casualty, with his anterior portion of tongue hanging outside the oral cavity. At the time of inspection and primary survey, the patient was stabilized by ABC protocol.^[11] Once the patient was stabilized and was conscious in time, place, and person, further inspection was performed. A significant anterior portion of tongue was detached from the base of the tongue, and only 1/4th portion was attached to the lateral portion [Figure 1]. As 24 hours elapsed, chances of re-vascularization of the remaining portion were doubtful; still, re-suturing of the detached portion of the tongue was attempted and performed meticulously in the hope that it would be re-vascularized in the next few days [Figure 2]. The patient was kept under observation, and vascularity was assessed every day with prick test. After regular follow-up for 4 days, ischemic changes were noticed. No re-vascularity and sensory sensation were observed, so it was decided to surgically amputate the lacerated portion of the tongue [Figures 3 and 4]. The patient was scrubbed and draped as per the surgical protocol. Local anesthesia (2% lignocaine with 1: 100,000 adrenaline) was infiltrated near the surgical site. Amputation of the non-vascularized portion was performed [Figure 5]. It was followed by inducing bleeding in the remaining vital portion by using a scalpel. After satisfactory vascularity was achieved, the proximal viable part of the tongue was rotated and sutured meticulously using 3-0 Vicryl to the vascularized part and floor of the mouth to have collateral blood supply [Figure 6]. Satisfactory mobility of the tongue was seen. The patient was kept on empirical antibiotics and analgesics. The patient was instructed to keep good oral hygiene. The patient was re-assessed post-operatively for the next 5 days. Satisfactory vascularity was seen with prick test. The color of the sutured portion was healthy with good evidence of healing. The tongue movements were well preserved with good speech articulation. The patient was discharged after 5 days and kept on continuous follow-up.

DISCUSSION

Tongue is a unique muscular organ with multiple functions. It is highly vascular and thus may lead to profuse



Figure 1: Picture of a patient showing tongue



Figure 2: Resutured detached tongue portion hanging outside the mouth



Figure 3: Dorsal surface of tongue showing no signs of vascularization

bleeding.^[4,6,9-13] The healing of tongue is also rapid because of the same reason. Tongue injuries should be treated as early as possible as they may have serious effects on the day-to-day life of patients because of the functions like swallowing, mastication, airway protection, and speech.^[3,5]

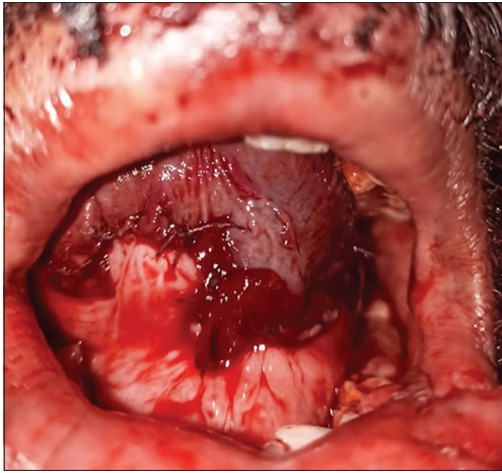


Figure 4: Ventral surface of tongue showing no signs of vascularization

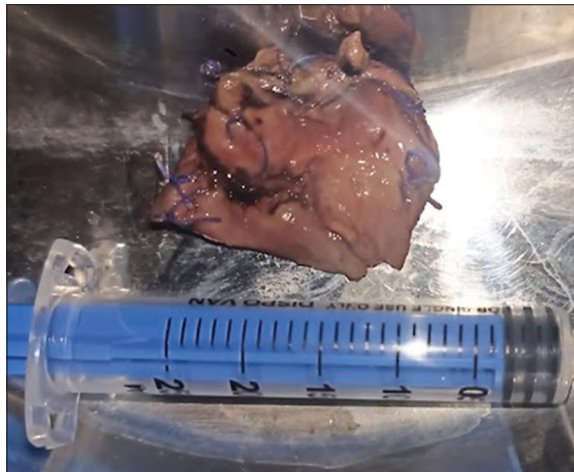


Figure 5: Amputated non-vascularized tongue portion



Figure 6: Surgical repair of tongue

Tongue injuries are very common because of a variety of causes like seizures, self-inflicted injuries, blunt force trauma to face, and iatrogenic trauma during intubation and child abuse.^[7-10] Tongue injury can have a great impact on quality

of life. Tongue lacerations should be irrigated thoroughly, and hemostasis achievement is of prime importance before repair and rehabilitation.^[1,2] Appropriate anesthesia and aseptic protocols should be followed, and silk suture was used to hold the tongue outside the mouth so as to manipulate the tongue during its repair. Then the laceration must be closed with absorbable sutures to stop the hemorrhage and reduce the possibility of hematoma formation.^[1,2,12-14] The surgical repair of tongue requires adequate arteriovenous circulation for which anastomosis must be executed.^[1] Then post-operative care antibiotics must be given to the patient, and the patient should be instructed maintenance of oral hygiene so as to prevent infection. A similar protocol was followed in this case as well, and results were seen to be good as proper tongue functions and movements were achieved.^[13] Meticulous surgical repair is thus very important for restoration of this normal function.^[11-14] Thus, tongue amputation is a rare entity which is difficult to treat but may give very good surgical repair outcomes if operated with due care and on proper timing. Such cases are usually performed under general anesthesia; this is a case where the entire procedure was performed under local anesthesia.

CONCLUSION

The following case depicts that there is rapid and good wound healing of tongue. The rehabilitation of tongue is achieved successfully by early diagnosis, treatment, and repair of it. This can lead to proper rehabilitation and restoration of its esthetic shape, form, and eventually function. Thus, it is necessary for a surgeon to master its management while treating polytraumatized patients.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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