


# Clinical management of self-mutilation in a neurologically compromised patient under intensive care: A case report

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## Abstract:

**Introduction:** Muscular control is a challenging task for neurologically compromised patients. In certain circumstances, tongue protrusion combined with trismus may lead to severe intraoral injuries. **Objective:** To report a case of self-mutilation of the tongue in a patient with cerebrovascular accident. **Case Report:** A 60-year-old female patient under treatment in the intensive care unit presented a lesion on the lower surface of the tongue caused by the adjacent teeth. A low-cost intraoral device was developed using thermoplastic (70°-75°C) impression material (Aquaplast 3.2 mm, Aquaplast Corp. Wyckoff, NJ, USA). In general, this material is used to build orthopedic appliances and may adapt to the patient with no need for laboratory procedures. Additionally, the material has moderate resistance, full-memory and good remodeling for dynamic conditions. **Conclusion:** The device developed in the present case was very effective to protect the teeth and avoid further episodes of self-mutilation. Other studies are necessary to test this device and alternative materials for the protection of intraoral hard and soft tissues.

**Keywords:** Bite; Injury; Intensive Care; Neurological Disorders; Tongue.

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## INTRODUCTION

Neurologically compromised patients have functional limitations that often involve the muscles of mastication and result in self-mutilation. Usually, oral and perioral soft tissues are affected. Injuries on the tongue and lower lip are the most prevalent<sup>1,2</sup>.

The lack of muscular control may lead to tongue protrusion and trismus. Clinically, the combination of both is manifested with the occlusion of the maxillary and mandibular teeth on the tongue. Injuries on the tongue may progress to necrosis.

Patients under treatment in Intensive Care Units are frequent victims of self-inflicted injuries on tongue and lips. Unfortunately, these injuries are diagnosed late due to the high pain threshold in these patients and their limitation to communicate<sup>1,3,4</sup>.

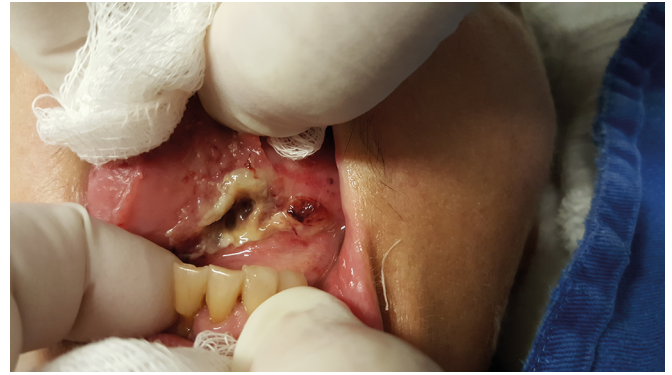
The therapeutic alternatives to avoid new episodes of oral trauma and to enable local healing include pharmacological and surgical approaches as well the use of intraoral devices<sup>1,2,5,6</sup>.

The present study aimed to report a case of self-inflicted tongue injury in a patient with cerebrovascular accident under treatment in the Intensive Care Unit. Apart the injury, this study highlights the therapeutic approach using a low-cost intraoral device specifically designed for the patient.

## CASE REPORT

A 60-year-old female patient was admitted for treatment in the Intensive Care Unit for 30 days. The medical history of the patient included hypertension, diabetes and cerebrovascular accident (stroke). The patient was in coma, but her general health status was regular. Hemodynamic tests were normal and spontaneous breathing was observed. The patient was under parenteral diet and tracheotomy. Blood pressure and glucose levels were controlled. During the routine procedures for oral hygiene, the medical team noticed that the patient was biting her own tongue. A lesion was observed on the tongue adjacent to the teeth in occlusion.

The maxillary arch of the patient was edentulous, while the mandibular arch had the following teeth: #31, 32, 33, 34 and 44. Adjacent to these teeth was an ulcer measuring 1.5 cm, surrounded by erythema and a yellowish pseudomembrane with necrotic areas in the center (Fig. 1). Considering the lesion and the adjacent teeth the diagnosis of traumatic ulcer was established.



**Figure 1.** Clinical aspect of the lesion on the lower surface of the tongue.

In order to have a better view of the oral cavity, 200 mg of propofol were administered. The patient underwent mechanical ventilation. Additionally, 5 ml of lidocaine with epinephrine 1:200.000 were injected in the lower surface of the tongue. The necrotic tissue was removed with surgical blades #15. Suture was performed with polyglactin 910 (Fig. 2).

Thermoplastic material (Aquaplast 3.2 mm at 75° C, Aquaplast Corp. Wyckoff, NJ, USA) was used to take impressions of the mandibular teeth (Fig. 3). Once the device was designed, it was perforated to allow a safer installation (Fig. 4). In specific, the perforation was used to attach the device in the tracheotomy tube in the patient (Fig. 5). Twenty-one days later, the tongue tissue healed and no signs of self-mutilation were detected (Fig. 6).

## DISCUSSION

In the present study a case was reported involving a female patient victim of cerebrovascular accident admitted in the Intensive Care Unit. The patient presented a traumatic ulcer in the lower surface of the tongue cause by self-mutilation (biting). Similar cases are reported in the scientific literature<sup>2,4,7</sup>. These cases include patients under intensive care, with neurological disorders and traumatic ulcers caused by biting. In all the cases, intraoral devices were designed and installed to ulcers.

These devices act like physical barriers to avoid self-mutilation. Especial traits are required prior to designing intraoral devices, such as the ability to separate the soft tissue from the adjacent teeth (in order to avoid new injuries). Moreover, they must not aggravate an existing lesion; must allow mandible movements; must allow proper hygiene; must be easy to install; and must resist to occlusal forces<sup>5</sup>.



**Figure 2.** Clinical aspect of the lesion after removal of necrotic tissues and suture.



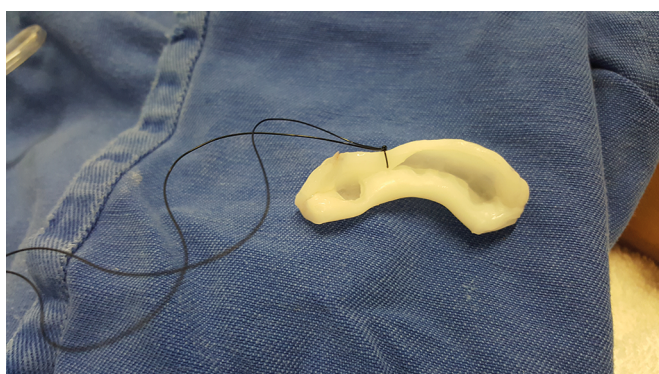
**Figure 5.** Intraoral device installed in the patient and attached of the tracheotomy tube.



**Figure 3.** Dental impression taken with thermoplastic material.



**Figure 6.** Clinical aspect of the tongue 21 days after the intervention.



**Figure 4.** Clinical aspect of the intraoral device designed for the patient.

In the present case, a thermoplastic impression material normally used to build orthopedic appliances was selected. Besides the low cost, this material is known for optimally fitting to the anatomy of the patient - eliminating laboratory procedures. Additionally, the material has moderate resistance, full-memory and good remodeling for dynamic conditions<sup>8</sup>. Initially, this material was used in medicine to treat patients severely burned<sup>9</sup>. The current scientific literature describes several types of materials that may be used for designing

intraoral devices, such as the ethylene vinyl acetate (EVA) 2, the polyvinyl chloride (PVC) 4 and the acrylic resin 5, 6. However, comparisons between materials were not performed up to now.

## CONCLUSION

The installation of an intraoral device was very effective to prevent new episodes of self-mutilation in a patient victim of cerebrovascular accident. The thermoplastic impression material was an optimal alternative to protect teeth and soft tissue. Low-cost, quick and simple procedures were necessary to design the device. Further studies are encouraged to test different materials and their effectiveness as devices to protect intraoral soft and hard tissues.

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