



Research Paper

## The importance of tongue flaps in restoring endo buccal substance loss

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### Abstract:

*Introduction: The tongue flap is a simple, reliable, but little-used technique, presenting an excellent alternative for reconstruction of oral cavity substance loss.*

*Materials, methods: We carried out a retrospective study over a 3-year period, involving 10 cases of patients presenting with oral substance loss, collated within the maxillo-facial and aesthetic surgery department of the Mohamed VI University Hospital Center of Marrakesh.*

*Results: Our therapeutic approach included tongue flaps with distal, proximal, and ventral pedicles, with indications for several topographical regions. The procedure was well tolerated by our patients, and our results showed excellent short-term healing, as well as the flaps proving viable in the long term.*

*Discussion: The tongue flaps are a simple, reliable and easy technique that has been abandoned in favor of more complex and sometimes more deleterious techniques for the patient. Based on our experience and reviewing the experience of others, it is clear that the tongue flap is a useful and versatile option for the repair of endooral loss of substance (LOS). With longer follow-up, the key patient outcomes will become more evident.*

*Conclusion: The relative simplicity of this technique and its potential advantages over more established techniques make it an ideal solution when resources are more limited.*

**Key words:** reconstructive surgery, flap, tongue, endobuccal loss of substance.

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### I. Introduction:

The repair of endooral substance losses can be difficult due to the different characteristics of the region, the importance of preserving anatomy and function, and the shortage of available donors. According to the literature, the tongue flap is a reliable and effective means of reconstructing this loss of substance, thanks to its central location, mobility and hyper-vascularization. This is in contrast to other, more complex means, which have a higher postoperative morbidity rate, higher overall cost and more severe sequelae (1).

The aim of this retrospective study is to review the technique of the tongue flap, establish its indications, establish a decision-making algorithm governing our conduct and finally propose reliable recommendations.

### II. Materials And Methods:

This is a retrospective study, conducted over a 3-year period from February 2018 to March 2021, on 10 patients with endobuccal substance loss repaired by tongue flap, within the maxillofacial aesthetic surgery and stomatology department of the Ibn Tofail Hospital at the Mohamed VI University Hospital Center of Marrakesh, under the aegis of the "SOS FACE MARRAKECH" association.

Our study parameters were epidemiological (Age, Sex, Number of previous surgeries, Age of loss of substance diagnosis, Age of onset of loss of substance, and its etiology). ) Clinical (Type of LOS, Location, Setback time, Referral mode) Therapeutic (Type of flap with distal or proximal pedicle, Flap size, Weaning time) and Evolutive (Quality of healing, Improvement in phonation, speech and feeding, Disappearance of nasal regurgitation), immediate (infection, hemorrhage, edema, etc. ) and late complications (flap release, necrosis, etc.).

### III. Results:

The mean age of our patients was 43.9 years, with extremes ranging from 1 to 89 years, with a clear female predominance (in our series, 6 of the patients were female versus 4 male, i.e., a sex ratio of 1.5).

The lesion topography was distributed as follows:

Four Palate /Pelvi-labial-anterior mandibular/ Intermaxillary commissure pelvi lingual post/ Intermaxillary commissure internal jugal and floor with extension to pharynx/ Intermaxillary and pelvi mandibular commissure/ Pelvi lingual.

The main etiology was squamous cell carcinoma of the oral cavity, which was mainly represented clinically by a painful ulceration bleeding on contact, and 4 cases of cleft lip and palate. The size of the cleft lip and palate varied in length from 7 to 20 mm, but did not exceed 2 cm in width, and was represented clinically by nasal regurgitation, hypernasality, and swallowing difficulties.

We used a tongue flap:

1-Margino-lingual with distal pedicle for patients with palatal LOS.

2- Margino-lingual with proximal pedicle for patients with maxillary LOS.

3-Ventral for patients with mandibular LOS.

Flap length was designed so that 1-2 cm of extra tissue covered the posterior edge of the LOS; width was dictated by the width of the defect plus 20%.

In our study, we used tongue flaps 8.4 to 25 mm wide and 3cm to 4cm long.



Figure1: Case 1 shows a 20mm lip and palate cleft covered by a tongue flap: before and after reconstruction.



Figure2: Case 2: Patient with a 10mm lip and palate cleft covered by a tongue flap: before and after reconstruction.



Figure 3: A 12 mm lip and palate cleft in a patient from our training program: before, during and after reconstruction with a distal margino-lingual flap.



Figure 4: A 7 mm lip and palate cleft in a patient from our training program: before and after surgery



Figure 5: Pelvi labial and mandibular LOS ant post-tumor excision for epidermoid carcinoma: before, after removal and reconstruction with a ventral tongue flap





Figure 6: Pelvi mandibular LOS in a patient before tumour removal and after reconstruction by a tongue flap with a margino-lingual pedicle.



Figure 7: PDS internal jugal intermaxillary commissure and floor LOS before excision, intraoperatively and after reconstruction with a proximally-pediced margin lingual tongue flap.



Figure 9: inter maxillary and pelvi mandibular commissure LOS following tumor excision and reconstruction.



Figure 10: Pelvi lingual LOS following tumor exeresis photo before and 6 months after reconstruction.

#### **IV. Discussion:**

The tongue is a musculo-mucosal organ that forms part of the floor of the oral cavity and part of the anterior margin of the oropharynx. Composed of 17 or more muscles and innervated by 5 pairs of cranial nerves, whereas the face is only innervated by 2, it is quite simply an exceptional and organ, as it performs multiple motor, sensitive and sensory functions.

A perfect understanding of its anatomy, biodynamics and growth a better understanding of the etiopathogenesis and processes of maxillofacial deformities, occlusion, elocution, swallowing and orality disorders (2). With its perfectly symmetrical muscular, nervous and vascular lingual component, it is of importance in surgical techniques such as glossotomy, flaps and frenectomy. for example. (3)

In the literature, the age range of substance loss has varied between 6 and 60 years (4). With a clear male predominance (5). In our series, there was a predominance of females, with a sex ratio with a sex ratio of 0.33.

Because of the tongue's rich blood supply and flexible nature, tongue blades can be taken from the dorsal, lateral or ventral surfaces of the tongue.

Numerous authors have proposed different techniques for closure of endobuccal substance loss: composite flaps with bone or cartilage grafts [6], remote flaps (free forearm flap [7], free facial flap [8]) or, more recently, expansion using Foley flap, used by Abram [9].

The advantages of using a tongue flap lie in its simplicity, its effectiveness [10], the reliability of the richly vascularized flap, few after-effects on the tongue, short duration of general anaesthesia, and the possibility of combining it with other reconstruction techniques (bone grafts, etc.).

The disadvantages of these techniques are minimal compared with the advantages, which are: two-stage surgery discomfort for around 2 to 3 weeks, due to limited mouth opening and reduced lingual mobility; the presence of a nasogastric tube for two weeks; and a hospital stay of around

Finally, hospitalization lasts around 3 weeks, with the resulting conflict. This last problem is partially resolved by organizing a day hospitalization or educating the patient and family, enabling them to return home and be monitored on an outpatient basis during the free interval.

This technique appears to be a solution to replace certain more complex methods which morbidity, higher overall costs and more severe after-sequelae.

The marginolingual flap with distal [11] or proximal pedicle is the most widely used, but we should mention the possibility of using other types of tongue flap: the distal bi-pedicled flap, the so-called hammerhead flap dorsal flap [12,13] and the ventral flap.

#### **V. Conclusion:**

The tongue flap technique for closure of endobuccal tissue loss is simple and reliable, with reliable, with satisfactory results. We consider it to be the technique of choice, alternative to more complex techniques that are sometimes more harmful to the patient.

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