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Improvement of phonation and swallowing through lingual frenectomy in an adult: Case Report

Melhoria da fonação e da deglutição pela frenectomia lingual em adulto: Relato de Caso

Mejora de la fonación y la deglución mediante frenectomía lingual en un adulto: Informe de un caso

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Abstract

The lingual frenulum, regardless of age, can hinder physiological processes such as chewing, swallowing and phonation. Lingual frenectomy is the surgical treatment for removing the lingual frenulum when it is very fibrous and persistent. The ideal time for surgical removal is preferably at a young age. However, when this is not possible, frenectomy is necessary in adulthood, under indications that justify it. Conventional, electrosurgery or lasersurgery techniques can be used. The

purpose of this article is to present a case of lingual frenectomy using the conventional technique in an adult patient with phonation and swallowing difficulties. After the procedure, immediate improvements were seen in the phonation and swallowing of the patient.

Keywords: Lingual Frenum; Oral Frenectomy; Surgery; Adult; Dentistry.

Resumo

O freio lingual, independentemente da idade, pode dificultar processos fisiológicos como mastigação, deglutição e fonação. A frenectomia lingual é o tratamento cirúrgico para retirada do freio lingual quando este se apresenta muito fibroso e persistente. O momento ideal à remoção cirúrgica do freio é preferencialmente em idade tenra. Contudo, quando não é possível, a frenectomia se faz necessária, sob indicações que justifiquem a sua realização, na idade adulta. Podem ser empregadas as técnicas convencional, eletrocirurgia ou lasercirurgia. O propósito deste artigo é apresentar um caso de frenectomia lingual empregando-se a técnica convencional em paciente adulta com dificuldades de fonação e deglutição. Após o procedimento, foi observado incremento da deglutição e fonação da paciente.

Palavras-chave: Freio Lingual; Frenectomia Oral; Cirurgia; Adulto; Odontologia.

Resumen

El frenillo lingual, independientemente de la edad, puede dificultar procesos fisiológicos como la masticación, la deglución y la fonación. La frenectomía lingual es el tratamiento quirúrgico para extirpar el frenillo lingual cuando es muy fibroso y persistente. El momento ideal para la extirpación quirúrgica es preferiblemente a una edad temprana. Sin embargo, cuando esto no es posible, la frenectomía es necesaria en la edad adulta, bajo indicaciones que lo justifiquen. Se pueden utilizar técnicas convencionales, electrocirugía o cirugía láser. El objetivo de este artículo es presentar un caso de frenectomía lingual mediante la técnica convencional en un paciente adulto con dificultades de fonación y deglución. Tras la intervención, la deglución y la fonación del paciente mejoraron.

Palabras-clave: Frenillo Lingual; Frenectomía Oral; Cirurgía; Adulto; Odontología.

Introdução

The lingual frenulum is strongly associated with the aetiology of ankyloglossia and can cause various complications, most of them functional. Among the main complications are difficulties with chewing, swallowing and phonation. These alterations can evolve into individual and social psychological functional disorders[1-15].

Lingual frenectomy is the surgical procedure to remove the lingual frenulum when it is too fibrous and persistent, allowing both orthodontic movement to close diastemas in the anterior-lower teeth and the adequate tongue movement necessary for functional activities. In infants, removal of the lingual frenulum is often recommended by the paediatrician or speech therapist to encourage tongue movement during breastfeeding and other appropriate functional activities. When done early, it can prevent or minimise complications arising from the presence of a tongue frenulum. In addition,

orthodontic and speech therapy may be necessary to help restore the normal functional activities of the stomatognathic system (occlusion, chewing, swallowing and phonation)[1-12,14,16-19]. However, in the event of major complaints, frenectomy can be performed in adulthood.

Frenectomy should be performed early, as soon as the diagnosis is made, to prevent or minimise the implications related to poor dental positioning and muscle development, which can be impaired[1-5,11,12,14,19].

Several therapeutic modalities can be used, such as conventional surgery, electrosurgery or lasersurgery. Conventional surgery is still the gold standard. The use of more modern technologies such as lasersurgery is gaining more followers and greater visibility. However, it is a more costly practice, restricting its use. Electrosurgery can also be used, with less investment, although the formation of a hypertrophic scar after its use is very common. Regardless of the age of patient, the use of faster, simpler, more precise and less invasive techniques is always the best option[2-5,12,15,16,19].

The purpose of this article is to present a case of lingual frenectomy using the conventional technique in an adult patient with phonation and swallowing difficulties. After the procedure, immediate improvements were seen in the phonation and swallowing of the patient.

Case Report

A Caucasian female patient, 20-years-old, attended the dental clinic complaining of 'tongue tie'. The patient had phonation difficulties, leading to communication, relationship and bullying complications.

On clinical examination intraoral and extraoral, the presence of a short inserted lingual frenulum was observed when opening the mouth, limiting elevation of the lingual apex and lingual movement (Figure 1). When asked to protrude the tongue out of the oral cavity, a characteristic 'heart-shaped' tongue was observed due to the insertion of the lingual frenulum (Figure 2).

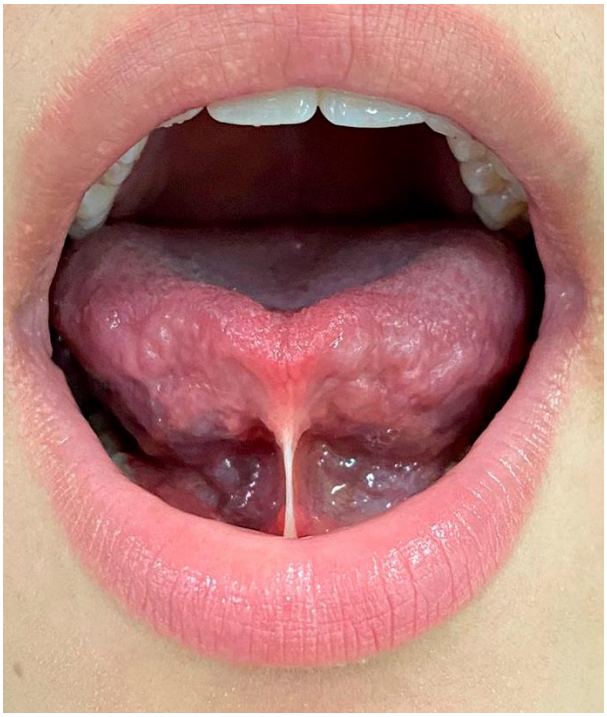

Figure 1: Elevation limited of the lingual apex and lingual movement.

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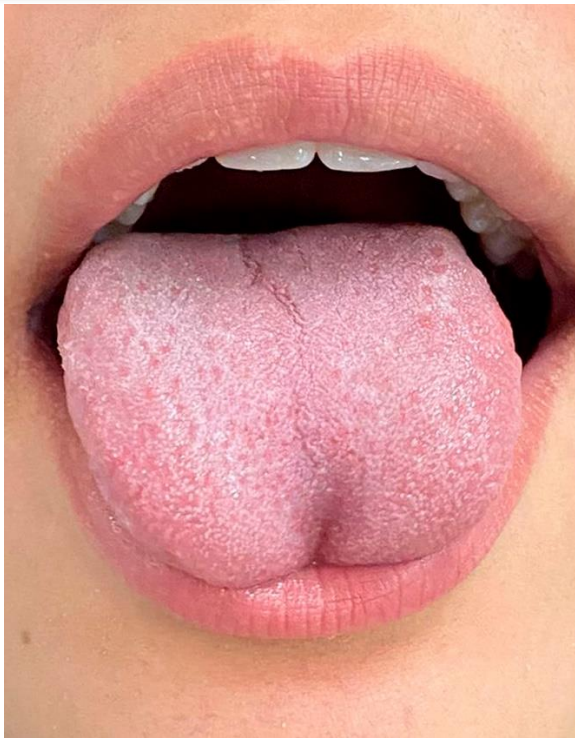

Figure 2: 'Heart-shaped' tongue caused by lingual frenulum.

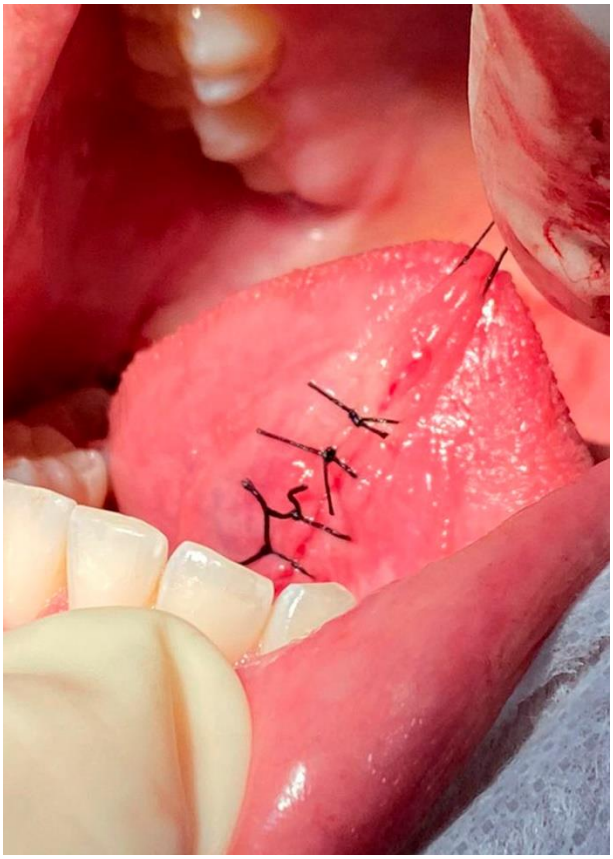

Figure 3: Immediate post-surgical after sutures performed.

No systemic alterations or diseases were reported.

Conventional frenectomy was recommended.

Under bilateral inferior alveolar nerve block anaesthesia, the lingual apex was transfixed with suture to facilitate handling and lingual traction. The lingual frenulum was grasped with haemostatic forceps, delimiting the cut. The frenulum was incised with a No. 15 scalpel blade, sliding parallel to the section of its lower portion. The submucosal divulsion of the adjacent tissues was carried out with Metzembaum scissors curved, with the aim of bringing the edges of the surgical wound closer together and improving synthesis. The sutures were made using 3.0 Nylon thread (Figures 3 and 4).

Figure 4: Immediate post-surgical after sutures performed. Observe the sutures on the oral floor.

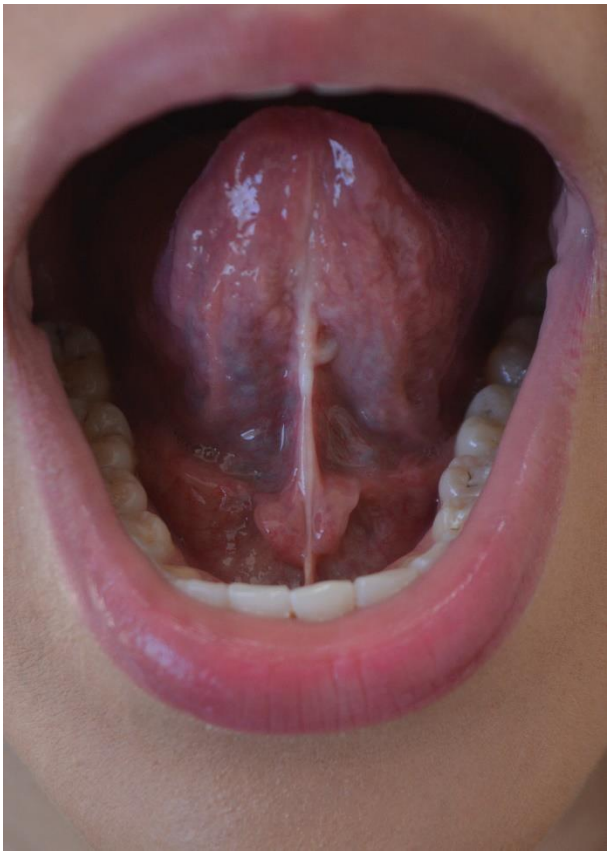

Figure 5: Complete healing of the surgical. Note the elevation of the lingual apex.

The surgery was uneventful. To control inflammation and pain, Nimesulide 100mg every 12 hours for 3 days and Dipyrone Sodium 1g every 8 hours for 3 days were prescribed.

After 15 days, the patient was assessed and the remaining sutures were removed. No complaints or complications were reported. The patient reported improved phonation and swallowing.

After 30 days, the patient was reassessed. Complete healing of the surgical site was observed (Figure 5). Tongue movements were assessed as lingual elevation (Figure 5) and lingual protrusion (Figure 6).

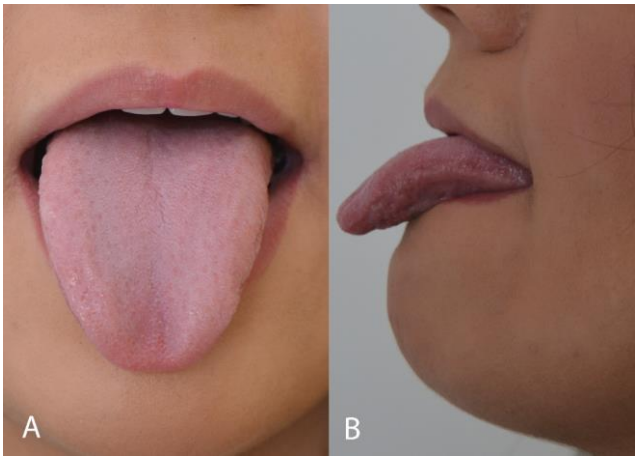

Figure 6: Lingual protrusion (A: frontal view; B: lateral view).

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Discussion

Lingual frenectomy is frequently indicated in several clinical cases to treat ankyloglossia in patients who have significant interference in stomatological functions such as chewing, swallowing and phonation, as observed in the present report. A lingual frenulum that is abnormal in terms of length, volume and insertion is considered pathological and can result in reduced or absent lingual mobility, justifying surgical intervention[2-5,11,12,14,15,19].

Particularly in neonates and infants, ankyloglossia can cause breastfeeding difficulties, leading to choking and feeding problems. It is not uncommon for paediatricians to recommend frenectomy for young children (newborns)[5]. In these cases, frenectomy provides a significant improvement in sucking and feeding, as well as preventing future problems such as obstructive sleep apnoea[6,11,12,14,15,17,18].

Frenectomy can also help to manage social articulation and communication disorders, since limited tongue mobility directly affects phonation. In addition, frenectomy can also help to improve oral hygiene, preventing caries and periodontal disease in patients with restricted tongue movement, in cases of lingual bridle with ‘crow's feet’ insertion in the mandibular symphysis[1,2].

As far as contraindications are concerned, systemic conditions should be assessed and patients should only undergo the surgical procedure if the systemic alteration is controlled or compensated for[12]. Frenectomy should not be performed in cases of mild ankyloglossia, which does not significantly interfere with stomatological functions, as the surgical procedure would not benefit the patient[18]. Myofunctional therapy may be more appropriate, particularly when surgical intervention cannot be carried out, or in cases where the benefit of the result does not justify the surgical procedure, or considering the risks and complications arising from the surgical procedure[13].

The technique of surgically removing the lingual frenum can be labelled in different ways, based on the techniques - frenotomy, frenulotomy, frenectomy or frenuloplasty[12,14-16,19].

Lingual frenectomy techniques include conventional methods, electrosurgery or lasersurgery. Conventional surgical removal can be carried out by simple release (tissue divulsion) or by using sutures. As reported in this case, due to the size of the surgical wound, the use of sutures is always recommended.

Frenuloplasty is the technique that, in addition to removing the frenulum, also repositions the adjacent tissues to increase tongue functionality, and is particularly effective in correcting articulation disorders in children. However, as it is a more complex technique, it requires greater surgical skill and takes longer to perform[14].

The conventional technique, which involves tissue excision of the lingual frenulum using a scalpel, is widely used due to its simplicity and effectiveness. However, this approach can result in greater bleeding and a longer recovery time[15]. In the present case, using this technique, no complaints or post-surgical complications were reported.

The conventional surgical technique, using VYZ plasty, has been advocated as being effective in various interventions due to its versatility and simplicity,

especially in cases involving the reconstruction of areas with tissue loss. This technique offers significant advantages. Reduced tension on wound edges; improved tissue vascularization; lower risk of necrosis; better aesthetic and functional results[16].

In addition to the conventional technique, surgical removal of the lingual frenulum can also be carried out using electrocautery or a surgical laser[2-5,7-10,12].

The use of electrocautery is associated with better control of trans-surgical bleeding due to the immediate cauterization of blood vessels, which reduces the risk of haemorrhagic complications. On the other hand, a disadvantage is the risk of causing greater thermal damage to adjacent tissues, resulting in greater post-surgical discomfort and slower healing, compared to the surgical laser which tends to be more precise and less invasive[12].

The use of surgical lasers in cases of lingual frenectomy has been reported to have several advantages and benefits. Greater cutting precision, reduced trans- and post-surgical bleeding, improved trans-surgical visibility of the operative field and reduced pain symptoms have all been reported[2-5,7-10,12,16]. However, the use of surgical lasers is still expensive, requiring greater investment and the need for specialized equipment, which are disadvantages of their use[12,16].

The main complications associated with lingual frenectomy, both in conventional and unconventional techniques, although relatively rare, encompass a variety of post-surgical problems. Infection; bleeding; sublingual haematomas; lingual paresthesia; recurrence of frenal fixation; hypertrophic scarring; lingual dysfunction; restriction of lingual movements; injury to the Wharton's duct; formation of ranulas or mucus retention cysts; phonation disorders; and airway compromise have all been reported[12,19]. In myofrenuloplasty, in particular, there is a risk of damage to critical anatomical structures such as the lingual nerve, deep lingual veins, sublingual duct and sublingual caruncula[11].

Conclusions

Frenectomy is the surgical procedure indicated for the management of persistent or bulky lingual frenulum. Regardless of the therapeutic modality, it should ideally be performed as soon as possible, from birth or at a young age. When performed in adulthood, it also brings benefits to the patient in terms of swallowing and phonation, as seen immediately after surgery in the case presented.

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