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CASE PRESENTATION

Lingual frenectomy in a pediatric patient for speech deficit: a case report

Frenectomía lingual en un paciente pediátrico por déficit en el habla: reporte de un caso

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ABSTRACT

Introduction: the lingual frenulum is an anatomical structure that joins the lower part of the tongue to the floor of the mouth, located in the midline between the central incisors. The hypertrophic lingual frenulum decreases tongue mobility and phonetic function, requiring its therapeutic management.
Objective: to report Ankyloglossia and its resolution in a pediatric patient with phonation problems, by means of frenectomy, as part of an interdisciplinary treatment.
Case presentation: an eight-year-old female patient attended a dental center because she presented difficulties in pronouncing words and moving the tongue towards the palate, which affected her social and academic development. After clinical examination, moderate ankyloglossia was diagnosed due to a short lingual frenulum. Treatment was proposed that included a lingual frenectomy with Z-plasty to improve tongue mobility, followed by speech therapy. During surgery, local anesthesia was applied, the Z-plasty was performed and sutured with simple stitches. The patient received postoperative instructions and was prescribed ibuprofen. Stitches were scheduled to be removed in 8 days and speech therapy was recommended to optimize her phonation.
Conclusion: the abnormal insertion of the lingual frenulum limited mobility and pronunciation. A frenectomy with Z-plasty was performed, improving mobility and allowing to continue with speech therapy to optimize pronunciation.

Keywords: Oral Frenectomy; Lingual; Ankyloglossia; Pediatric Dentistry.

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RESUMEN

Introducción: el frenillo lingual es una estructura anatómica que une la parte inferior de la lengua con el suelo de la boca, ubicándose en la línea media entre los incisivos centrales. El frenillo lingual hipertrófico, disminuye la movilidad de la lengua y la función fonéticam requiriéndose su manejo terapéutico.
Objetivo: reportar la Anquiloglosia y su resolución en una paciente pediátrica con problemas de fonación, mediante la frenectomía, como parte de un tratamiento interdisciplinario.
Presentación de caso: paciente femenina de ocho años de edad que acude a centro odontológico por presentar dificultades para pronunciar palabras y mover la lengua hacia el paladar, lo que afectaba su desarrollo social y académico. Tras el examen clínico, se diagnosticó anquiloglosia moderada debido a un frenillo lingual corto. Se propuso un tratamiento que incluyó una frenectomía lingual con plastia en Z para mejorar la movilidad de la lengua, seguido de terapia de lenguaje. Durante la cirugía, se aplicó anestesia local, se realizó la plastia en Z y se suturó con puntos simples. La paciente recibió indicaciones postoperatorias y se le recetó ibuprofeno. Se programó el retiro de puntos en 8 días y se recomendó terapia de lenguaje para optimizar su fonación.
Conclusión: la inserción anormal del frenillo lingual limitaba la movilidad y pronunciación. Se realizó una frenectomía con Z plastia, mejorando la movilidad y permitiendo continuar con terapia de lenguaje para optimizar la pronunciación.

Palabras Clave: Frenectomía Oral; Lingual; Anquiloglosia; Odontología Pediátrica.

INTRODUCTION

The lingual frenulum is an anatomical element located on the underside of the tongue that connects it to the floor of the mouth or the alveolar process. It originates from the underside of the tongue, near the apex, passes through the anterior third of the tongue and heads forward, and is positioned in the midline of the mucosa of the floor of the mouth; the anterior end of this frenulum is fixed on the lingual side of the mandible between the central incisors.[1] It is important to remember that in addition to the muscular structures in the area (genioglossus and geniohyoid muscles), it is also connected to Wharton's duct of the submandibular gland and Rivinus of the sublingual gland.[2]

When the lingual frenulum is short, it can limit normal tongue movements, causing the tip of the tongue to appear short and tense, giving the appearance of splitting, preventing it from protruding and rising. This alteration is called ankyloglossia (AG). It can present itself in different degrees, requiring the presence of a short frenulum and a symptom for its diagnosis, which may be difficulty phonating, feeding, among others.[3]

Whatever the case may be, it can lead to a series of clinical manifestations, the most common and with the greatest impact on child development being difficulty feeding and phonation. The greatest inconvenience can occur when breastfeeding a child with a short frenulum, since cracks occur due to friction and excessive pressure on the nipple, which can cause infections in the mother due to poor drainage. When children suffer from this condition, they do not gain weight due to ineffective suction; and, later in life, they may present phonation problems when pronouncing the consonants "r", "l", "t", "d", "n", "s", "y", "z". [4]

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Once the pathology has been identified and the influence of the lingual frenulum determined, the first step is to release the tongue. The surgical alternatives are: frenotomy, frenectomy, and frenuloplasty. The first is preferably performed on newborns and consists of the cutting or partial removal of the frenulum. The second is aimed at children, adolescents, and adults with total resection of the frenulum, both its superficial and deep fibers. The third consists of tissue replacement by means of a plasty, either Z, V, or Y. [5,6,7,8]

After surgical therapy, adequate speech and orofacial motor therapy should continue. There are reports of results with no difference between a group of children treated surgically without speech therapy, and another in which the frenulum was not operated on, demonstrating the importance of speech therapy after surgery. [9,10,11,12] Taking into account the above, the present investigation was developed, which aimed to present the case of a pediatric patient with AG and phonation problems, and its resolution through frenectomy, as part of an interdisciplinary treatment.

CLINICAL CASE REPORT

In this clinical case, we describe the oral status of an eight-year-old female patient who attended the Corona Gómez Armijos PHD Dental Specialty Center in Ambato for dental treatment. During the clinical history, her mother mentioned difficulty pronouncing certain words and moving her tongue toward her palate, which was affecting her social development and academic performance. Upon examination, the patient's difficulty pronouncing words such as "dog" and "run," among others, was noted.

An intraoral clinical examination revealed a short lingual frenulum, and according to the Kotlow classification, the patient had moderate ankyloglossia. A treatment plan was proposed to the patient's legal representative, beginning with a lingual frenectomy with plasty (Z-plasty technique). The patient was then referred to a speech therapist to improve her phonation, which would directly impact her social and academic performance. (Figure 1)

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Fig. 1 Intraoral clinical examination, in which the lingual frenulum is observed.

Extra and intraoral antisepsis is performed, and then the implant is placed. local infiltration anesthesiausing 2 % lidocaine + epinephrine 1:80,000, along the entire length of the frenulum on the tongue, both bilaterally and at the tip. The t is then carried out Tongue transfixation using 3-0 silk at the tip of the tongue to maintain tongue tension and make the surgical procedure easier to visualize (Figure 2). Two mosquito forceps are then used to secure the frenulum and perform the Z-plasty.

Fig. 2 Transfixation at the tip of the tongue.

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A Z-plasty incision was then made along the entire length of the frenulum using a No. 15 scalpel blade, and it was subsequently removed (Figure 3). The frenulum was completely excised with straight iris scissors and a No. 15 scalpel blade, as was all residual fibrous tissue.

Fig. 3 Incision and cutting of the frenulum.

Once it is confirmed that the patient has a successful lingual projection (Figure 4), He proceeded to dry it with sterile gauze, suture it with simple 5-0 Nylon stitches, and check hemostasis, completing the surgical procedure without complications.

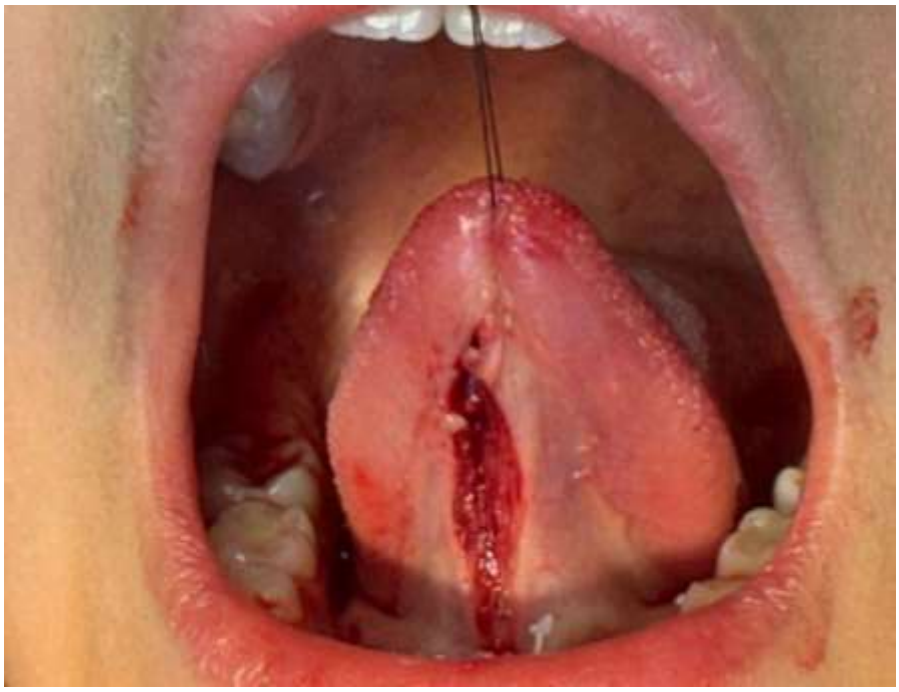

Fig. 4 Successful tongue pull test.

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The patient's legal representative was informed of postoperative care verbally and in writing. She was prescribed 100 mg of ibuprofen suspension in 5 ml (12 ml every eight hours for three days). She was given an appointment in eight days for suture removal and was also informed that the patient would need to attend speech therapy (Figure 5).

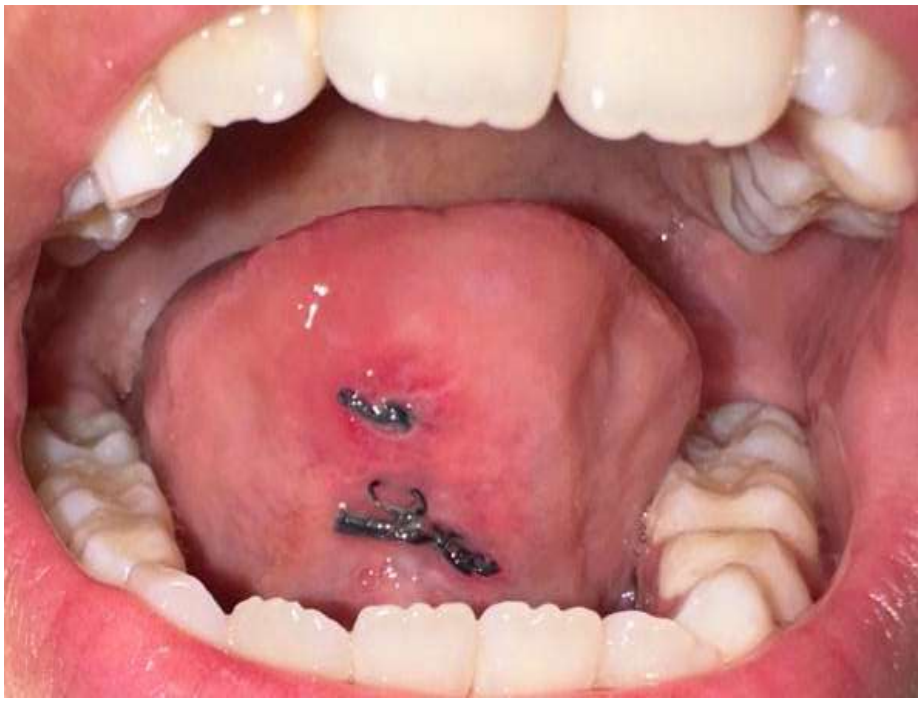

Fig. 5 Postoperative period at eight days.

DISCUSSION

Early correction of lingual ankylosis decreases the risk of complications in patients, so a frenectomy should be performed when the patient has problems swallowing and speaking. Babies with changes in the frenulum may have difficulty keeping the breast in place, which causes problems sucking milk and affects weight gain.[13] If surgical release of the frenulum is performed carefully, this function can be improved. Inostroza et al.,[14] determine the importance of referring patients after the surgical procedure to complement it with speech therapy.

Authors Hatami et al.,[1] determined that frenectomy is very important in infants to improve breastfeeding and speech. However, it is unclear whether severity ratings on the Treatment Rating Scale correlate with surgical success. There are inconsistencies regarding the use of pre- and post-treatment assessment tools, so most of these disadvantages are due to a lack of consensus among clinicians. Recommending that future studies include validated measures of individual tongue-tie severity and breastfeeding (or speech) outcome measures.

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According to the author, Protásio et al.,[2] research shows that lingual frenulum resections performed with a high-intensity surgical laser are faster and have better results in terms of pain and discomfort when speaking and chewing than lingual frenulum resections performed with a traditional scalpel. However, these results should be viewed with caution due to the severity of the condition that can occur during the surgical procedure. Therefore, there is still no way to prove that using a laser is a better option than using a conventional scalpel during frenectomy. Further randomized trials of both techniques are needed to allow practitioners to have a clear idea of the most appropriate technique to use for each patient depending on their level of difficulty.

The author, Costa-Romero et al.,[3] determined that the surgery carries minimal risk and has many benefits for patients and their families. The consequences of this lingual frenulum can cause oral hygiene problems, aesthetic problems, bilabial articulation, or caries symptoms. However, the author Baxter et al.,[5] determined that a short frenulum or ankylosis can cause problems during breastfeeding, affect the baby's development, damage the mother's nipples and cause malnutrition. Approximately 50 % of babies with a lingual frenulum do not have breastfeeding problems or these problems can be solved surgically and with the support of parents in the recommendations after its removal.

Likewise, it is advisable to perform this treatment at an early age, starting at a very young age. This treatment is less invasive and low-risk, using local anesthesia. This restores tongue mobility, thus benefiting the patient in eating properly and, at later ages, even in being able to articulate words correctly for proper pronunciation. Furthermore, in this case, the patient was unable to access dental treatment at an early age because the mother was unaware of her daughter's condition. However, at eight years old, as soon as the pathology was identified, it was determined that immediate treatment was necessary for the patient's benefit.

CONCLUSION

In the case report presented, the abnormal tongue insertion impeded tongue mobility and the correct pronunciation of certain words. Therefore, the decision was made to surgically remove the lingual frenulum (frenectomy). This procedure demonstrated improved tongue movement, and by recommending that the mother attend speech therapy, the patient's pronunciation of certain words that were difficult for her to pronounce at the beginning of the consultation was also seen. This improved her lifestyle and performance at school, as she was able to express herself more effectively. Speech therapy is essential to improve speech outcomes in patients who have undergone lingual frenectomy.

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