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TREATMENT OF ANKYLOGLOSSIA IN A BABY, NOT JUST A LINGUAL PIC: CASE REPORT

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ABSTRACT

Ankyloglossia is a congenital anomaly that can be corrected through surgical techniques such as: frenotomy, frenectomy or frenuloplasty. The objective of the present study is to demonstrate, through a clinical case report, the importance of care during lingual frenulum surgery in babies. Patient A.L.G., female, 3 months old, was referred by the speech therapist for care, with the diagnosis of ankyloglossia. In the anamnesis, the mother reported difficulty in breastfeeding with breast pain and fissures, in addition to a lot of irritability of the baby when latching on. During the clinical examination, he found a thin frenulum in the most anterior portion and with the thickest posterior portion. Its insertion was in the tip of the tongue and alveolar crest. Then the lingual frenectomy surgery was performed under local anesthesia, using a cold method to remove the frenulum. At the time of the procedure, a well-caliber vessel was identified, which led to the interruption of the surgical procedure, to avoid the risk of abundant bleeding. The patient was referred to speech therapy and after six months returned without any changes and with good language mobility. The clinical and multidisciplinary approach in a responsible way is the main factor for successful treatment of ankyloglossia, minimizing discomfort and risks to the baby. This study reported the importance of a well-employed surgical intervention based on the literature and with a follow-up, which proved the efficacy of the procedure when performed early and prudently.

Keywords: Pediatric dentistry. Ankyloglossia. Newborn.

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INTRODUCTION

The frenulum or lingual frenulum is defined as a dynamic structure consisting of fibro-dense connective tissue, blood vessels, muscle fascia, type I and III collagen fibers, and type III elastin fibers. Located in the midline of the tongue belly and on the oral floor, this diaphragm-like structure suspends the tongue and floor structures of the mouth within the arch of the mandible, creating a balance between mobility and stability. (BRITO ET AL., 2008; GHAHERI ET AL., 2014; BAXTER ET AL., 2018 MILLS ET AL., 2020)

Ankyloglossia is a congenital anomaly commonly known as tongue tie, it is the most common disorder of tongue morphology characterized by inadequately attached lingual frenulum (too short or thick), restricting its movements, often impacting breastfeeding, breathing, chewing, swallowing, phonation and even body posture. (ALMEIDA ET AL., 2018; WALSH; BENOIT, 2019; ZAGHI ET AL., 2019; FIORAVANTI ET AL., 2021; HAND ET AL., 2020) The incidence of ankyloglossia reported in the literature ranges from 0.02% to 10.7% This discrepancy, in part, may be related to different assessment methods and classifications used to diagnose this pathological entity. (BALLARD ET AL., 2002; EDMUNDS ET AL., 2011; OLIVI ET AL., 2021)

Scientific evidence shows numerous classifications for ankyloglossia. (KOTLOW, 1999; MARCHESAN ET AL., 2012) One of the most recognized is the Kotlow classification, which evaluates the length of the free part of the tongue and measures the distance from the tip of the tongue to the place where the drill bit is attached to the tongue. Another, the Coryllos classification, describes the appearance of the frenulum and attachment site. (KOTLOW, 1999; GRIFFITHS, 2006) The Todd-Hogan classification shows division into anterior and posterior brake. The functional classifications were described by Hazelbaker, Amir, Martinelli and Marchesan. Among those listed, Marchesan described the clinically useful classification that measures the difference (given in percentage) between the maximum opening of the mouth with the tongue resting on the back of the mouth and with the tongue touching the palatal papilla. (AMIR ET AL., 2006; MARCHESAN ET AL., 2012; MARTINELLI ET AL., 2012; HAZELBAKER, 2017)

In Brazil, the tongue test (Martinelli Protocol) became Law No. 13,002, on June 20, 2014, with the mandatory application of the lingual frenulum evaluation protocol in all live newborns. (BRAZIL, 2014) The diagnosis of altered frenulums requires an interdisciplinary approach, through qualified health professionals, capable of performing a functional, anatomy, and suction assessment. (MESQUITA NETTO; VIEIRA, 2020)

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The treatment of ankyloglossia is through surgical intervention performed on the structures that build the lingual frenum, always associated with myofunctional exercises performed before and after the procedure. (ZAGHI ET AL., 2019; FIORAVANTI ET AL., 2021; TRIPODI ET AL., 2021). Other complementary medical treatments include craniosacral therapy, orofacial myofunctional therapy, chiropractic care, and naturopathy. (WALSH; BENOIT, 2019)

The most common surgical procedures for the treatment of ankyloglossia are frenotomy, frenectomy, and frenuloplasty. (ZAGHI ET AL., 2019; KIM ET AL., 2020) It can be performed by the conventional method with scissors/scalpel, electrocautery, or laser. (OLIVI ET AL., 2021; OLIVI ET AL., 2012)

In view of all the anatomy and structures that make up the lingual frenum, surgery presents reduced risks, but even though it is a quick procedure, it cannot be relativized, especially when it comes to babies who still have a physiological immaturity of the organs and systems. Postoperative complications may occur, such as pain, excessive bleeding, edema, inflammation and in some cases infection. In addition to the possibility of injuring neighboring structures, if the technique is performed incorrectly. (AMABLE, 2020)

Thus, the objective of the present study is to demonstrate, through a clinical case report, the importance of care during lingual frenulum surgery in babies.

CASE REPORT

After signing the Informed Consent Form (ICF) by the person in charge, and approval by the Research Ethics Committee (CEP) of CEUMA University, the patient A.L.G., female, 3 months old, born in a maternity hospital in São José de Ribamar, weighing 2,110kg, was referred by the speech therapist for care at the Ana Lúcia Chaves School Clinic of CEUMA University, with the diagnosis of ankyloglossia. During the anamnesis, the mother reported difficulty during breastfeeding, with pain and breast fissures, in addition to milk flowing through the lip commissures. During the sucking evaluation, a slow rhythm was observed with few suctions and long pauses, in addition to tongue clicking, duration of breastfeeding.

To evaluate the frenulum, the Martinelli protocol (MARTINELLI ET AL., 2012-APPENDIX 1) was applied, where the presence of a thin lingual frenulum was observed in the most anterior portion and a thick one towards the posterior. The frenulum was inserted in the lingual apex and anterior alveolar crest, which, when projected, formed a

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heart-like aspect, which was visualized with the maneuver (Figure 1). Soon after the evaluation of the frenulum, the presence of a white blanket on the tongue was observed (Figure 2).

Figure 1 - Initial aspect of the lingual frenum

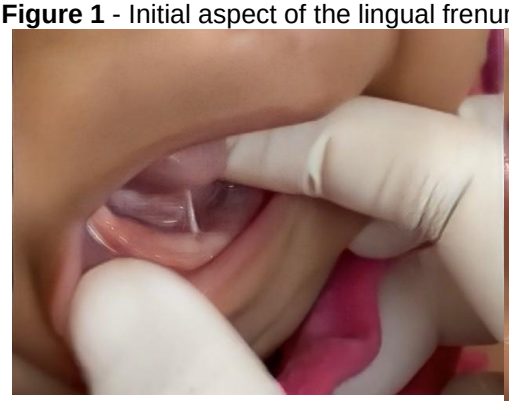

Figure 2 - Presence of white blanket

After anamnesis and clinical examination, surgical treatment for ankyloglossia was initiated, and frenectomy was the most appropriate technique. Thus, infiltrative anesthesia was performed with a 2% lidocaine anesthetic with 1:100,000 vasoconstrictor epinephrine. After desensitization of the region, the tongue was immobilized using the tentacannula (Figure 3). And then the incision was made using straight Iris scissors. At the time of the procedure, a well-caliber vessel was identified, which led to the interruption of the surgical procedure, to avoid the risk of abundant bleeding. (Figure 4).

Figure 3 - Use of the tentacannula to immobilize the frenulum

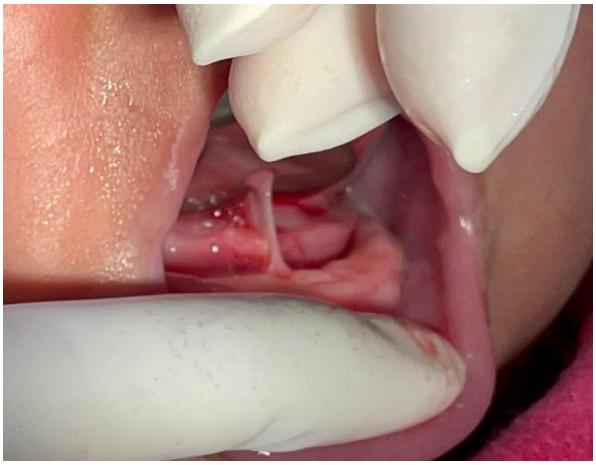

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Figure 4 - Presence of the caliber vessel

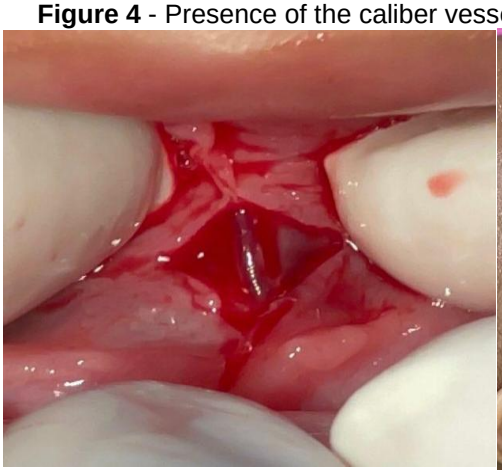

Figure 5 - Immediate postoperative

At the end of the procedure (Figure 5), the patient was consecutively taken to the mother's care, and the mother observed the difference in the effort of sucking the breast, which attested to the success of the surgical intervention. After the surgery, the mother received postoperative recommendations, and in case of pain or fever, she was instructed to intervene with analgesics.

The patient was referred to speech therapy. After 7 days, a follow-up visit was made to evaluate the evolution of the case, and a thin whitish film was observed, a common characteristic during the healing process (Figure 6). After six months, the baby returned without any changes and with good tongue mobility.

Figure 6 - 7-day postoperative period

The postoperative period was 6 months (Figure 8). Satisfactory tongue mobility is observed, whereby the mother reported that the baby is feeding with fruits and vegetables.

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Figure 7 - 6-month postoperative period

After 6 months, a reinsertion of the frenulum more posterior to the lingual belly was also observed, without compromising mobility and function (Figure 8).

Figure 8 - Reinsertion of the posterior frenulum of the lingual belly

DISCUSSION

During the evaluation of the newborn through the protocol proposed by Martinelli, it was necessary to perform the surgical intervention, since ankyloglossia causes several factors that directly affect the baby's health, which is why maternal complaints are observed in relation to pain, interruption of breastfeeding, lack of milk, weight loss by the baby and other problems such as difficulties in oral hygiene. Thus, the need for integrative attitudes for the correct diagnosis and early surgical decision aiming at the quality of life in the mother-baby binomial is evidenced. (MESQUITA, NETTO and VIEIRA, 2020).

The presence of an altered lingual frenulum will have consequences in important periods of the individual's development. A poorly positioned tongue does not allow the dental arches to form properly, limits the growth of the jaw and during the introduction of food the baby may choke and have food selectivity. In the future, it may impair speech,

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body posture and even affective relationships. (PANTANO, 2017; MAZZONI ET AL., 2021; SCOPPA; PIRINO, 2019).

Because of this, the main objective of the tongue test is currently to identify ankyloglossia in newborns early through the protocol proposed by Martinelli. In the maternity ward, this evaluation is carried out in the first 24 hours of the baby's life, this evaluation is mandatory according to Law No. 13,002/2014. Associated with the exam, the evaluation of breastfeeding is indicated, considering that the tongue anomaly is capable of leading to difficulties in latching on, thus causing weight loss of the newborn in addition to the factors that contribute to early weaning. (MARTINS, 2016). In the case presented in this study, the baby underwent the tongue test only 2 months after birth, which already had an impact on breastfeeding and the child's weight. After applying the protocol of Martinelli et al. (2013), a high score was observed, considering interference of the frenulum in tongue movements, thus leading to the diagnosis of ankyloglossia. It was also observed, through the protocol, that the patient had difficulty holding the nipple during breastfeeding, and clicked due to interference caused by the frenulum.

The most common techniques for frenulum repair are frenotomies, frenectomies or frenuloplasties, by which they differ in their extension. Frenotomy is the small cut with scissors or a scalpel, while frenectomy is the physical removal of tissue by excision, ablation or vaporization. Frenuloplasty is the multi-slice technique, in which two triangular flap areas are rotated and sutured to form the Z. They can be performed using an electric scalpel, scissors, electrocautery, or lasers. The lingual frenulum is a membranous fold of mucosal tissue, which connects the ventral surface of the tongue to the floor of the mouth on one side and the basal bone of the jaw on the other side. In some individuals, the frenulum fibers are attached to the tip of the tongue, thus restricting their physiological movements and for this reason it is necessary for their surgical intervention. (VARANDAN ET AL., 2019; BAXTER, 2018)

Because it is a very delicate area, where important salivary glands, well-calibrated vessels, arteries and nerves are found, responsible and careful intervention is necessary in order not to expose the baby to great risks and discomfort. In view of this, postoperative complications can occur, which are classified as follows: complications that arise immediately within a few hours after lingual frenectomy (intraoperative or immediate complications) and complications that arise a few days to weeks after frenectomy (postoperative or late complications). Among them are hemorrhages, formation of salivary

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retention cysts (ranula, mucocele), fibrosis, hematomas, tongue paresthesia, infections in the submandibular space, etc. (VARANDAN ET AL., 2019)

The main etiology of excessive intraoperative bleeding after frenectomy is due to accidental injury to the larger or smaller blood vessels (submental or sublingual artery) during frenulum excision. About 3-8% of bleeding episodes are observed in clinical practice during or after frenectomy (BALLARD; CHANTRY; HOWARD, 2004; MARCHESAN ET AL., 2004; OLIVI ET AL., 2012). Injury to the anastomosis of the sublingual artery with the terminal capillaries of the inferior alveolar artery on the other side of the lingual frenulum is the most frequent injury during lingual frenectomy (KHAN ET AL., 2017). Accidental injury to the superficial and deep lingual veins (lingual varices) can also induce bleeding during surgery. Therefore, a deep, long incision extending beyond the tongue into the gingival or mucosal tissue on the lingual aspect of the anterior mandible should be avoided to avoid injury to the branches of the inferior alveolar canal and its anastomosing plexus (KLEPÁCEK; SKULEC, 1994; ROSANO ET AL., 2008). Intraoperative bleeding during lingual frenectomy should be treated by first identifying the source and type of bleeding (arterial, capillary, or venous). Initially, hemostasis should be immediately attempted by applying pressure using local hemostatic agents, such as an absorbable collagen sponge, oxidized cellulose, hemocoagulase, topical thrombin, among others. If a medium- or large-sized blood vessel is cut, surgical sutures on the ventral surface of the tongue should be performed immediately (MARCHESAN ET AL., 2004; OLIVI ET AL., 2012). Adjuncts such as electrocautery, chemical cauterization with silver nitrate packs, and lasers can also be used to control bleeding.

In the present case, during the surgical intervention, a large vessel was observed shortly after the rupture of the frenulum, which led to the interruption of the procedure to avoid the risk of abundant bleeding. Although lingual frenectomy is a common and relatively simple surgical procedure, the lingual frenulum is inserted in a very delicate region, which makes the site vulnerable to various intra- and postoperative complications. Therefore, comprehensive knowledge and understanding of the various etiologies of complications associated with lingual frenectomy are of paramount importance to provide optimal postoperative care and achieve good clinical outcomes and overall patient satisfaction. (VARANDAN ET AL., 2019)

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CONCLUSION

The clinical and multidisciplinary approach in a responsible way is the main factor for successful treatment of ankyloglossia, avoiding discomfort to the baby and leading to an increase in their quality of life. This study reported the importance of a well-employed surgical intervention, based on the literature and with a follow-up, which proved the efficacy of the procedure when performed early and prudently.

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