Clinical Approach of Ankyloglossia in Babies: Report of Two Cases

Robson Frederico Cunha* / Janaína Zavitoski Silva** / Max Douglas Faria ***

Ankyloglossia is a developmental anomaly of the tongue characterized by a short lingual frenum, resulting in restricted movement of the tongue. Its etiology is undefined and there is no gender preference. Few studies are available in the literature and the diagnosis and management of ankyloglossia in infants remains controversial. We report two cases of infants submitted to lingual frenectomy, emphasizing the management of ankyloglossia and its implications in breast-feeding.
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INTRODUCTION

The lingual frenum is a midline tissue fold that connects the ventral surface of the tongue and the floor of the mouth. Ankyloglossia is a developmental anomaly of the tongue characterized by a short lingual frenum, which results in restricted movement of the tongue.[1,2,3,4] In addition, the lingual apex may appear bifid (heart-shaped), especially when the tongue touches the palate.[5] This anomaly can cause articular (linguodental phonemes) and respiratory disorders, can interfere with maxillomandibular growth, and impair swallowing, mastication, suction and dental hygiene.[6] Differences exist among investigators regarding the diagnosis and performance of lingual frenectomy in infants. This fact has clouded the diagnostic assessment of these structures and the establishment of adequate therapies.

The diagnosis of ankyloglossia in infants should be made on the basis of anatomical and functional aspects of the lingual frenum. Anatomically, the insertion of the frenum, normally running from the lingual apex to the alveolar ridge, should be evaluated. Regarding functional aspects, a frenectomy is indicated when the condition negatively interferes with suckling.[2,3,4,7,8,9] In addition, other etiological factors that may interfere with suckling such as insufficient muscle development and respiratory problems should be ruled out.[9]

With respect to the surgical technique, the dissection of the lingual frenum is frequently performed with surgical scissors or a scalpel under local anesthesia.[10] Other researchers[7,9,11] advocate the use of an electrocautery probe because of its efficacy and the safety of the procedure, mild bleeding and absence of postoperative complications. Recently, the use of a CO_2 laser in lingual frenectomies has been reported, as a safe, effective and ideal technique for use in young children.[12,13] In addition, a shorter duration of surgery, simplicity of the procedure, absence of postoperative infection, and the presence of a small or no scar have been reported.

In order to contribute to the advancement of both, the clinical approach and the treatment of ankyloglossia, the objective of the present study is to report two cases of infants with different lingual frenum clinical aspects submitted to frenectomy at the Baby Clinic of the Araçatuba Dental School, FOA/Unesp.

CASE 1

A 9-month-old boy was referred to the Baby Clinic of the Araçatuba Dental School, by his pediatrician with the diagnosis of ankyloglossia. The intraoral clinical examination revealed an edentulous mouth and a short, thin lingual frenum (Figure 1). The mother reported breast-feeding difficulties having to bottle-feed from 4 months of age. On the basis of the clinical assessment, as well as the mother and pediatrician's reports, the diagnosis was established as ankyloglossia.

The infant was in good general health. After explanation of the pre- and intraoperative aspects, the parents sign the informed consent, in order to proceed with the frenectomy, procedure of choice.

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Figure 1. Clinical aspect of short and thin lingual frenum.

Figure 2. Topical anesthesia with Emla ointment.

The infant was placed on a dental chair and the topical anesthetic Emla® ointment (AstraZeneca of Brazil, Cotia) was applied with gauze for 3 min (Figure 2). Emla® (Eutectic mixture of lydocaine and prylocaine) contains the following ingredients per gram: lydocaine (25 mg), prylocaine (25 mg), and excipients q.s.p. (1 g) such as: polyoxyethylene hydrogenated castor oil, carboxipolymethylene, sodium hydroxide and purified water.

During this procedure, it is important to keep part of the gauze outside the child's mouth to avoid accidental slippage. After, the anesthesia, the assistant stretches the lingual frenum using the index finger allowing the surgeon to per-

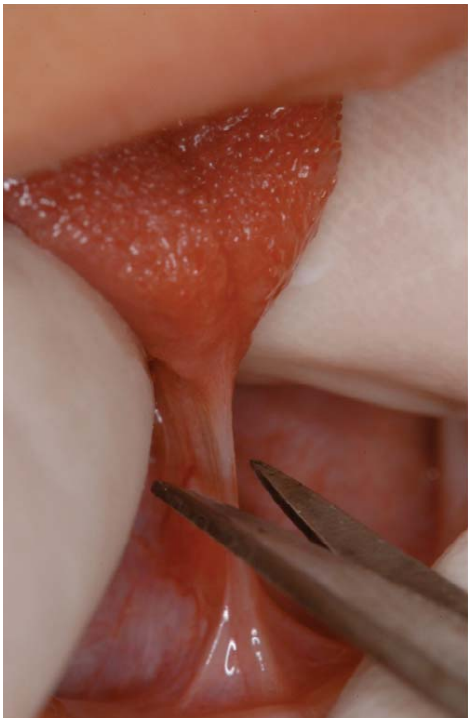

Figure 3. Incision of lingual frenum in the midpoint with the scissors.

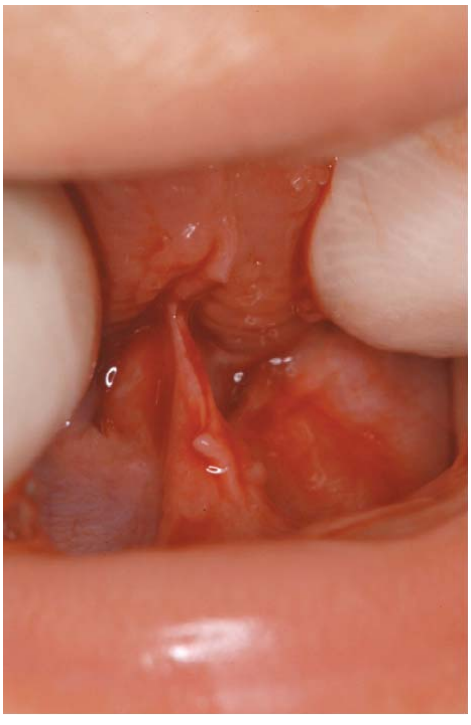

Figure 4. Immediate post surgical aspect of lingual frenum.

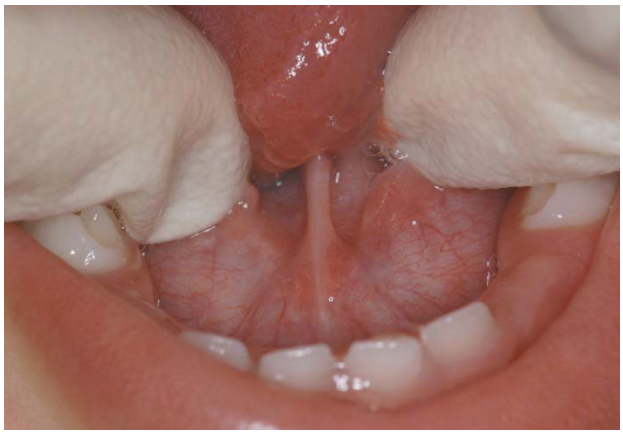

Figure 5. Clinical aspect of lingual frenum after twelve months.

form the incision at the thinnest and most ischemic region, with the midpoint of the frenum serving as a guide. The scissors should be inserted at an angle of approximately 45º and should penetrate until reaching the limit between the lingual frenum and the floor of the mouth (Figure 3). Bleeding is mild due to the poor irrigation of the area and is readily controlled using compression with sterile gauze and without the need to suture (Figure 4).

Suckling is encouraged after the surgical procedure in order to promote hemostasis and wound healing and to provide greater comfort to the child. The postoperative instructions for the parents included observation of the child, who might be upset during the first hours after surgery. No analgesics were required in this case. The follow-up examination performed 7 and 30 days after surgery showed no abnormal characteristics and the mother reported that the child was feeding normally. Twelve months after the surgical procedure, the clinical aspect was within normal limits and the infant presented normal development of both, feeding and babbling of words (Figure 5).

CASE 2

A 3-month-old boy was referred by his physician to the Baby Clinic of the Araçatuba Dental School, FOA/Unesp, because of suckling difficulties and a suspicion of ankyloglossia. During the intraoral examination, an extremely short, thick and fibrous frenum was noticed on the ventral surface of the tongue, forming a strong connection between the lingual apex and the alveolar ridge (Figure 6).

Figure 6. Clinical aspect of thick and fibrous frenum.

Figure 7. Incision of the thick and fibrous frenum with the scissors.

Figure 8. Immediate post surgical. Aspect of lingual frenum with mild bleeding.

Figure 9. Post surgical aspect of lingual frenum after twelve months.

The surgical steps were identical as those described in the previous case. The surgical scissors penetrated the tissue reaching the limit between the lingual frenum and the floor of the mouth (Figure 7). Bleeding was mild and controlled with compression without the need to suture (Figure 8). During the postoperative control visit after 7 days, the mother reported that the infant presented no local or general problems, feeding difficulties or phonetic disturbances. Examination of the patient 12 months after the surgical procedure showed normal characteristics in the surgical area (Figure 9).

DISCUSSION

Several studies have reported a low incidence of ankyloglossia ranging from 0.2 to 4.8%,[7,8,14,15] with pediatricians being the physicians responsible for referral of these patients to the dentist. The lack of consensus regarding diagnostic indicators for surgical intervention may explain such low rates. In order to establish a more precise diagnosis of ankyloglossia the participation of a multidisciplinary team involving pediatricians, dentists and speech therapists is recommended.[16]

Lingual frenectomy is indicated for the treatment of ankyloglossia in infants suffering from sucking[2,3,4,7,8,9] and breastfeeding problems[17,18,19] such as insufficient infant weight gain, reduced maternal milk supply, sore nipples and repeated bouts of maternal mastitis.[10,20] For older children, the indications for frenectomy include articulation difficulties confirmed by a speech pathologist, mechanical limitations such as inability to lick the lips, to perform internal oral hygiene or to play a wind instrument.[18,21] The procedure is simple, safe[2,14,22] and fast and the child can be easily managed. In addition, future complications such as phonetic disorders, diastema and periodontal problems can be prevented. In both cases reported, the indications for frenectomy were breastfeeding and suckling difficulties, noting an immediate improvement in breastfeeding according to the mothers' report.

The parents should receive instructions regarding the surgical procedure and pre- and postoperative care measures.[4] Preoperative care includes keeping the infant in a fasting state to prevent problems of regurgitation during surgery. In addition, nursing the child immediately after the surgical procedure is indicated, with a preference for breast-feeding since the components of maternal milk benefit hemostasis and sooth the infant, thus reassuring the mother.[2,4] Postoperative care is fundamental to relieve the parents' tension if the child became irritated. Since the procedure is simple and minimally invasive, and considering the postoperative results observed in our clinical practice, analgesic medication is not required.

The type of anesthesia varies according to the thickness of the lingual frenum and age of the patient. Since the frenum is generally a thin and transparent fold of mucous membrane in infants, only topical anesthesia is indicated through the use of a dermatological anesthetic cream (Emla, AstraZeneca) applied with sterile gauze for 3 to 5 min. The Emla (5%) anesthetic cream consists of lydocaine and prylocaine. It is indicated for superficial anesthesia of the skin and mucosa and it is contraindicated for patients with allergy to lydocaine, prylocaine or any component of the product or to other amide-type local anesthetics. This topical anesthetic was chosen because it causes rapid and effective analgesia of the oral mucosa, a desired feature in interventions involving children of young age. In addition, this anesthetic is safe because low plasma concentrations are reached.[23]

If the frenum is thick and fibrous, a second application of the anesthetic is required. Anesthetic cream is preferred since it is visible to the surgeon and provides greater anesthetic safety. However, other researchers have recommended the use of 0.5% or 1% ophthalmic anesthetic.[24] Some authors do not perform anesthesia before surgery.[2,3,14]

During the surgical procedure, the tongue can be stretched with a specifically designed instrument, called tongue lifter.[10,18,25] In the case of adults or adolescents, a suture line transfixed to the lingual apex might be used.[26] Although no reports are available in the literature, the tongue can be stretched using the index fingers as in the present cases. This approach was chosen because of the ease and safety afforded to the surgeon and the patient during surgery, and because of the limited space available to maneuver, adapt and stabilize a tongue lifter inside the newborn's oral cavity. The assistant stretched the tongue using the index fingers facilitating the incision to release the frenum, with minimal bleeding.

In both cases, the tongue was stretched using the assistant's index fingers.[2,11,27] It is important that the assistant be trained in the management of this structure,[28] especially when the infant has teeth. The incision is made with straight surgical scissors[9,10] under local anesthetic since they provide the surgeon with greater safety and precision. However, other researchers have used the electrocautery.[7,11] When the frenum is thicker, more than one incision may be required,[29] being careful not to damage the surrounding anatomical structures. The procedure involves minimal bleeding and it is a low-risk procedure. The baby can usually breast-feed immediately after the frenotomy, and the mother may notice an immediate difference in the effectiveness and comfort of breastfeeding,[18] If the baby seems to need help sucking properly after frenotomy, the mother may benefit from consultation with myofunctional therapists, speech and/or feeding therapists, or lactation consultants to seek experienced help for these particular situations.[9]

No consensus exists in the literature regarding the incision limit of the lingual frenum. In both cases, the frenum was sectioned until its limit with the floor of the mouth, whereas others indicate a 2 to 3 mm incision in the thinner portion of the lingual frenum between the tongue and lower alveolar ridge.[30]

Neither of the patients submitted to frenectomy presented immediate or late postoperative complications. The guardians reported that the child was a little upset during the first hours, but fed normally and slept well, thus demonstrating the importance of breast-feeding after this surgical procedure since it promotes hemostasis and wound healing and confers comfort to the child.[2,4,25] In addition, the mother

noticed an immediate difference in the movement of the child's tongue.[2] No difference in wound healing was observed between these two patients and their different feeding types, although breast-feeding is always recommended.

Bleeding is generally superficial and is easily controlled by applying pressure with gauze. The incision is not sutured unless a vessel is affected and bleeding occurs.[2,4, 28,31] Literature reports have indicated the possibility of infection, excess bleeding and recurrent ankyloglossia.[9]

Lingual frenectomy in infants is a fast and safe surgical procedure, with uneventful wound healing,[2,14,22] and improves comfort, effectiveness and ease of feeding for the mother and infant.[10] In addition, in the cases studied the parents showed great satisfaction and comfort regarding the surgical procedure, mainly because of the outcomes observed and the immediate recovery of the child's oral functions.

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