

Marsupialization Technique in Sublingual Ranula Treatment: Clinical Case Report

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Abstract

Ranula is a pocket of mucus that forms under the tongue due to blockage of the salivary glands, usually causing swelling and discomfort. Treatment can range from conservative measures, such as hot compresses, to surgical interventions to drain or remove the affected gland. This article reports the case of a ranula in an 11-year-old patient, which was clinically diagnosed and confirmed after the marsupialization technique. The histopathological examination revealed typical characteristics, such as thin epithelial lining and the presence of mucin, proving the diagnostic hypothesis. The treatment was effective, contributing to the clinical and histopathological understanding of this condition. This case report contributes to the existing literature by providing clinical and histopathological insights that can guide healthcare professionals in effectively managing this condition.

Keywords: Ranula; Marsupialization; Salivary pseudocyst; Injury to the floor of the mouth

Introduction

The term ranula was introduced in 1965 and characterizes a pseudocyst resulting from the extravasation of salivary secretion below the mucosa into the soft tissues in the floor of the mouth region [1, 2]. This word derives from the Latin word frog, *rana*, as its clinical appearance resembles the translucent belly of a frog [3].

This pathological process generally begins with trauma or obstruction of the excretory duct of the sublingual gland (SLE), and can also occur due to rupture of the latter [4] or infection of the gland [1], subsequent extravasation of mucin, as well as mucoceles. Even less frequently, it may originate from the minor salivary glands in the mouth floor region or from the submandibular glands [3, 5]. It is also possible to find evidence of a possible congenital origin or even in association with the HIV virus [6]. The literature describes 3 (Three) types of ranula: Sublingual Type characterized by an increase in volume in the floor of the mouth limited to the sublingual space, Diving Type characterized by an increase in cervical volume caused by mucin infiltration through or behind the mylohyoid muscle, not presenting intra-oral involvement generally centered in the submandibular space tending to invade one or more adjacent spaces and may extend to the retropharyngeal region and retropharyngeal spaces and the Sublingual Plunge Type which has Sublingual and Cervical components [2, 4, 6].

Epidemiological studies indicate that the prevalence of ranula varies between 0.2% and 0.3% of the general population. Although it can occur in any age group, ranula is more common in young adults, aged between 20 and 40 years. As for distribution by gender, there is no clear predominance, although some studies suggest a slight tendency towards females. These data highlight the importance of understanding the ranula both in terms of diagnosis and clinical management, especially in young and adult populations [7].

The prevalence of ranula is 0.2 cases per 1,000 people and represents 6% of all cysts related to salivary glands [6]. Ranulas affect more children and young adults with a greater predilection for the second decade of life, while the diving type has a preference for the third decade. The ranula presents clinically as a dome-shaped floating swelling on the floor of the mouth, having a bluish color (Tyndal Effect) or translucent, however, deeper lesions may resemble the normal color of the mucosa, they are usually immobile to the surface. Palpation and are located lateral to the midline [3]. In large lesions, tongue elevation may occur [8]. As with some mucoceles, it can rupture, releasing its contents into the oral cavity, and thus forming again. The main differential diagnoses are the dermoid cyst itself, mucous retention cyst and sialolithiasis.

The histopathological characteristics are similar to mucocele, being an area of extravasated mucin surrounded by reactive granulation tissue, with the presence of numerous foamy histiocytes (macrophages), it is possible to find salivary gland tissue on the periphery of the lesion [3, 8].

The diagnosis of ranulas can be based on clinical presentations, but the use of Ultrasonography, Computed Tomography (CT) and Fine Needle Aspiration Puncture (FNA) and Magnetic Resonance Imaging (MRI) can be used in differential diagnoses, especially when dealing with dipping ranulas. determining the origin of the injury [4]. One of the characteristic signs of plunging ranulas originating from the sublingual gland is involvement within the sublingual space, which on CT and MRI images appears as a “tail sign”, a characteristic image not found when the origin is in the submandibular gland [3].

Ranula treatment ranges from more conservative techniques to different more invasive surgical approaches. The literature provides examples of: Aspiration, complete or partial excision of the ranula and sublingual gland - sometimes involving the submandibular gland -, marsupialization, dissection, cryotherapy and laser excision [4], according to [5] the recurrence rate varies according to the technique used, but when treated with marsupialization or surgical removal of the gland the recurrence rate is 66.7% and 1.55% respectively [1, 8]. The marsupialization technique is best suited for small, superficial glands associated with the Rivinian ducts. In the case of larger glands, such as the sublingual gland, total removal of the gland is preferable, and it may not be necessary to dissect the limits of the lesion for its complete resolution, even in the case of diving ranulas [3].

Based on the above, the objective of this work is to report a clinical case of ranula located in the oral cavity region, treated through marsupialization, as well as discuss the relevant literature on the topic.

Case Report

Patient MLVS, female, 11 years old, mixed race, presents to the outpatient clinic of the oral diagnosis discipline, of the Dentistry course, at the Federal University of Sergipe with the main complaint of "increased volume under the tongue", the same noticed the increase in volume approximately 2 months before the consultation and reported not feeling pain or any other discomfort in the region. Family and personal health-related history was mentioned as nothing noteworthy. Upon extra-oral examination of the patient, after evaluation, it was noted that there was no increase in volume and facial asymmetry on both sides of the face and no changes on palpation. On intraoral examination, a circular swelling was observed in the floor of the mouth region on the right side, bluish/translucent in color with normal sensitivity to touch, with clear limits, fluctuating on palpation, measuring approximately 5 cm in diameter, extending from the region of right lower premolars to the midline as shown in figure 1, the location of the lesion and the proximity of the clinical characteristics with the mucocele required a thorough and detailed assessment of the lesion so that it would not be confused and thus provide a diagnosis wrong for the patient and consequently an inefficient treatment. As it was an injury only in soft tissue, it did not require x-ray examinations for the final diagnosis, which was only possible with clinical characteristics and careful assessment.



Figure 1: Image of the floor of the mouth region

The following diagnostic hypotheses were listed: Ranula, Dermoid Cyst and Sialolithiasis. For diagnostic confirmation, the marsupialization process was carried out, being a technique that creates an opening in the lesion (like a bag or "marsupium") to allow communication with the oral cavity, it is not necessary to install a device to maintain the surgical opening, a circular incision was made, creating a wide window in the lesion, which was sutured to the adjacent mucosa, part of the lesion capsule was removed during the procedure in addition to the liquid content (with a cloudy yellow appearance and viscous consistency) internal to the lesion, providing material for histopathological examination, the objective of the procedure was to reduce the internal pressure of the lesion and promote gradual reduction, facilitating subsequent enucleation. (Figure 2, 3, 4 and 5).



Figure 2: Removal of internal fluid from the lesion



Figure 3: Internal liquid from the lesion



Figure 4: Marsupialization



Figure 5: Sutured region

The histopathological examination confirmed that the case was a ranula, demonstrating on the HE-stained slide the typical histopathological characteristics of a ranula, including the presence of a thin epithelial lining that covers the cyst, making it possible to observe intracellular and extracellular mucin and, in addition, the presence of inflammation around the cyst could also be observed in this case. (Figures 6 and 7).

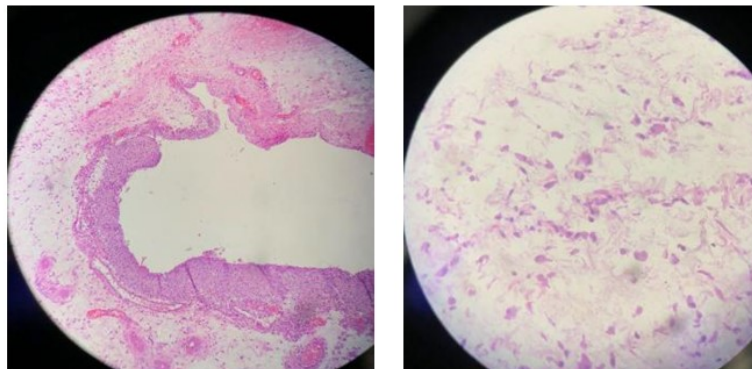


Figure 6: HE 200x **Figure 7:** HE 400

Conclusion

According to the above, the present case was in line with the general characteristics presented for ranulas in the literature, and it is important to know the characteristics of this and the main diagnostic hypotheses to reach the correct diagnosis, making it possible to implement the best treatment and prognosis. for the patient.

Ultimately, detailed analysis and reporting of ranula cases plays a crucial role in expanding our understanding of this condition and improving treatment strategies. These reports not only provide valuable clinical insights but also inspire ongoing efforts to advance both clinical practice and scientific research in this area.

By sharing experiences and discoveries, we are empowering healthcare professionals to provide more effective and personalized care to patients affected by ranula, thus promoting a better quality of life and optimized health outcomes.

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