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Superficial ranula managed by marsupialization surgical technique

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ABSTRACT

***Background**: Ranula is used to describe swelling that occur on the floor of the mouth. They are usually unilateral and it is typically has a bluish appearance that is compared to a frog's belly, hence the term ranula. Usually it was caused by obstruction or trauma on sublingual gland. Ranulas have been classified as superficial and plunging. **Purpose**: The aim of this study is to report the marsupialization surgical technique in the treatment of superficial ranula. This technique allow the base of the lesion to become mucosal base of floor of the mouth, with the purpose of obtain a spontaneous reduction of the lumen to avoid recurrent salivary duct obliteration. **Case**: A 42 years old male, came to RSCM referred from RSU Jambi with chief complain swelling on the floor of the mouth since a month ago that cause difficulties in speaking. The swelling was growing slowly without pain. On physical examination there were swelling on right lateral floor of the mouth, its about 3 x 3 x 2 cm in size, with blue purplish color, well-defined border, firm consistency, and smooth surface. **Case management:** The superficial ranula were treated by marsupialization surgical technique in general anesthesia. A week post-operative follow up shows good wound healing and patient ability to speaking return to normal. **Conclusion**: The conclusion is superficial ranula can be treated successfully by marsupialization surgical technique.*

***Keywords**: ranula; marsupialization*

INTRODUCTION

Ranulas develop from extravasation of mucous after trauma to the sublingual gland or obstruction of the ducts. It typically has a bluish appearance that is compared to a frog's belly, hence the term ranula.[1,2] This bluish appearance are owing to the Tyndall effect, whereby blue light is reflected more than red light at the interface of soft tissue and cyst.[3]

Ranulas are ranked 41st common oral lesions with a prevalence of 0.2 cases per 1000 people. No racial or sexual tendency has been reported for oral ranulas. They usually occur in children and young adults with a peak frequency in the second decade.[4]

The development of mucoceles depend on the disruption of the flow of saliva from the secretory apparatus of the salivary glands mostly due to a traumatic ductal insult or ductal occlusion.[4,5] The liquid content can be situated underlying to the mucosa of the floor of the mouth, above of the mylohioid muscle, characterizing superficial ranula. But it still can extend itself enters the natural spaces of the muscle, resulting in plunging ranula.[2,5,6] When it is a cervical swelling or mass without a prominent oral swelling, the ranula may be misdiagnosed as thyroglossal duct cyst, dermoid or epidermoid cysts, vascular malformations, and even submandibular sialoadenitis.[2,3]

Most of patient with superficial ranulas are distinguished by the presence of a painless gradually swelling on the floor of the mouth. The swelling were round or oval and fluctuant. In very rare occasions, the mass may interfere with speech, mastication,

respiration, and swallowing due to the upward and medial displacement of the tongue.In extremely rare circumstances, these symptoms become more severe and aggravated if the swelling extends across the midline to the other side.[1,4]

There are several different methods of surgical treatment for superficial ranulas. These include excision of the ranula, marsupialization, intraoral excision of the sublingual gland and drainage of the lesion, and excision of the lesion and sublingual gland.[1,3,4,6]

Most of the author believed that initial treatment for superficial ranula is surgical removal of the sublingual gland intraorally. This removes the secreting source, thereby preventing recurrences, and also avoids progression to become plungging. But this treatment has some difficulties and complication caused by the proximity to important structures like the Wharton's duct and lingual nerve and artery.[2] Contrastly, the marsupialization technique is a simple technique, it's only excised the superior wall to make base of the lession become the new base of the floor of the mouth, it also decreasing the risk of injury to Wharton's duct and the lingual nerve and artery.[2,8]

This study aims to demonstrate the marsupialization technique as an option of a safe and efficient for initial treatment in the cases of superficial ranula.

CASE

A 43 years old male patient came to RSCM referred from RSU Jambi with a chief complain painless swelling on the floor of the mouth since a month ago that cause difficulties in speaking. History revealed that the swelling has gradually increased in size to the present size. About one week ago the swelling push the tongue to the left side that makes difficulties in speaking. No history of pain was reported.

Figure 1. Ranula on the right side of the floor of the mouth.

On examination, a 3 x 3 x 2 cm bluish fluctuant swelling was seen in the right side floor of the mouth. The swelling was well define border, smooth surface, soft in consistency, and no discharge was elicited (Figure 1).

In accordinace with the clinical findings, the case was provisionally diagnosed as ranula. The patient was subjected to radiographic examination, which revealed no evidence of obstruction (Figure 2-a, b).

The proposed treatment for this case was the marsupialization of the swelling under general anesthesia.

CASE MANAGEMENT

Patient in supine position under general anesthesia, mark the border of the lesion with vicryl 5-0 at every side of ranula (Figure 3). The superior wall of the cyst is grasped with a hemostat and a linear incision is made, then make aspiration of the contents (Figure 4). Insert the gauze into

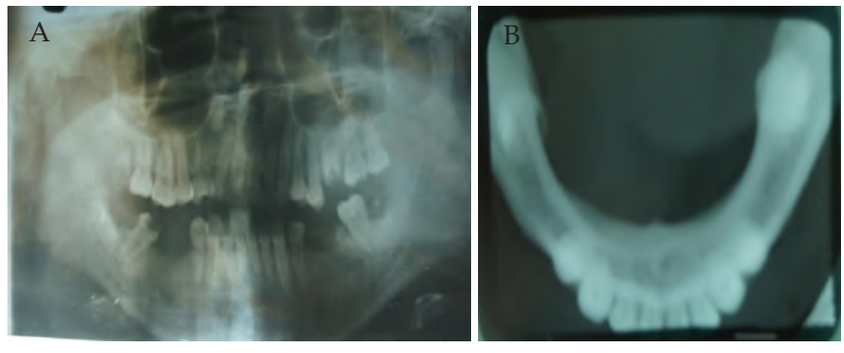

Figure 2. a) OPG; b) occlusal view.

Figure 3. Borders was marked by suture.

Figure 4. Linear incision.

Figure 5. Gauze insertion.

Figure 6. Circular incision.

Figure 7. Removal of superior wall.

Figure 8. Suturing of oral mucosa.

the lesion (Figure 5). A circular incision is made, which includes the oral mucosa covering the lesion together with its superiorwall (Figures 6 and 7). The margins of the mucosa are sutured with the margins of the cyst peripherally with vicryl 5-0 interrupted (Figure 8). The wound remains open, while healing is achieved by secondary intention. The tissue that removed was sent to the pathology laboratory, and confirmed the diagnosis of ranula.

DISCUSSION

Oral ranulas are cystic lesions located on the floor of the mouth that arise from obstruction of the excretory duct of the sublingual gland. This causes an accumulation of mucoid material, leading to a well-circumscribed swelling in the oral mucosa of the floor of the mouth.[5]

A ranula can be classified into two clinical types according to the sites of primary swelling. An oral ranula is located in the floor of the mouth. Clinically, it is dome-shaped with bluish discoloration and may fill the mouth and raise the tongue. It is typically painless and does not change in size in response to chewing, eating or swallowing. A plunging ranula is located near the upper airway and extends into the floor of the mouth. From the submandibular space, it can extend into the submental region, the contralateral side of the neck, the nasopharygeal area and up to the skull base, the retropharyngeal and into the upper mediastinum. [2]

The preferred treatment for oral ranulas still controversial. Therapeutic modalities range from the injection of sclerosing agents to various surgical techniques. One of the most controversial issues is whether the ranula itself requires excision. Although surgery is considered the mainstay of therapy, recommendations for the preferred approach and technique are quite variable.[8]

There are a variety of methods used for ranulas based on the published literature, such as conservative modalities by intra cystic injection with sclera therapy (OK-432), cryosurgery, hydro dissection, and carbon dioxide, or surgical intervention such as: aspiration, marsupialization, ranula excision, sublingual gland plus ranula excision, sublingual gland excision with ranula evacuation.[2,8,9]

Patel, et al on their review of the reported case series, conclude that the definitive treatment yielding the lowest recurrence and complication rates for both oral and plunging ranulas is removal of the ipsilateral sublingual gland with evacuation of the ranula. Excising ranulas is unnecessary because they are not true cysts, and attempts to excise the ranula in conjunction with the sublingual gland likely places the lingual nerve and submandibular duct at even more risk due to more invasive dissection. Alternative first line treatment for oral ranulas is marsupialization, although the recurrence rate is higher.[8]

Patel et al on their review of treatment for ranula alsofound that average recurrence rate after marsupialization of an oral ranula is 19.8%. It is has the lowest recurrence compare to ranula excision (20%), OK-432 (57.5%), and aspiration (81.8%), but still the lowest recurrence was sublingual gland with ranula evacuation (0%). But the last treatment has other complication found, such as lingual nerve damage, wharton duct injury, hematoma, and post-op infection that was not found on others modalities.[8]

Bonet-Coloma *et al*.,[11] on their study said that the recurrence rate of oral ranula is related to the surgical procedure. In their opinion, complete removal of a ranula is technically very difficult to achieve, as it involves an extremely fine mucosa that will usually rupture on excision. The most ideal treatment is therefore marsupialization.

Marsupialization was chosen as treatment in our case as the technique is simple and it not associated with damage to the important anatomic structures in this location. Also, there is enough documentation to support this technique as treatment of choice.

There are a lot of documentation that shows high recurrency after marsupialization, it ranging from 10% until 67%.[1,2,8] But Takimoto *et al*.,[10] believed that the essential treatment of a ranula was meticulous dissection of the thin wall of the cyst in continuity with the sublingual gland of origin. We used an insertion of gauze into the cystic space of the ranula after it had been evacuated by aspiration. The gauze within the cystic cavity prevents collapse of the wall of the cyst during surgery and facilitates and simplifies the surgical procedure by clearly outlining the involved area and by sharply delineating its thin wall.

The conclusion is superficial ranulas is a swelling that occur on the floor of the mouth that develop from extravasation of mucous after trauma to the sublingual gland or obstruction of the ducts. Since injury to the lingual nerve and sublingual duct are potential complications associated with surgical procedures for superficial ranulas, the quest for alternative treatment modalities continues. Marsupialization nowadays was one of the safe technique for superficial ranulas, with relatively easy accomplishment, and presenting a favorable prognostic.

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