

## Case Report

### Modified Micro-Marsupialization: A New and Conservative Treatment for Sublingual Ranula

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#### **ABSTRACT:**

Among the mucous retention phenomena, ranula is an important pathological condition because there is no consensus as to its treatment. These are rare mucoceles found in the floor of the mouth. Ranula is characterized by an accumulation of saliva on the floor of the mouth, so named because of its nodular bluish colour that resembles the aerated vocal sac of a frog. Ranulas are treated by the removal of the sublingual gland, the removal of the sublingual gland and ranula, the removal of only the ranula, marsupialisation, micro-marsupialisation, incision and drainage etc. But these methods have certain drawbacks; therefore this case report will define a modified micro-marsupialization technique for the treatment of ranula with low morbidity and recurrence rate.

**Key words:** Ranula, Modified Micro-marsupialization, 3-0 silk suture etc.

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#### **INTRODUCTION:**

Ranula is characterized by an accumulation of saliva on the floor of the mouth, so named because of its nodular bluish colour (or buccal membrane of similar colour, depending on the depth of the lesion) that resembles the aerated vocal sac of a frog. Among the mucous retention phenomena, ranula is an important pathological condition because there is no consensus

as to its treatment.<sup>1</sup> Hippocrates described ranula as due to chronic inflammation, while Pare` thought ranula represents the descent of the brain and the pituitary matter; and W. Boyd described ranula as a dilatation of the duct of the submandibular gland. Ranulas are rare mucoceles that occur in the floor of the mouth through the mylohyoid muscle dehiscence located at the anterior 2/3 as observed in 45% of

cadavers in a study and usually involve the major salivary glands.<sup>2</sup> Plunging ranula otherwise known as cervical ranula is a non-epithelial-lined salivary gland cyst that forms following mucus escape from sublingual gland and its subsequent herniation via the mylohyoid muscle into submandibular space and beyond.<sup>3</sup> Simple ranula is common during the first and second decade of life while plunging ranula occurs commonly occurs in third decade of life. Females are more commonly affected than males. Ranula if left untreated it can cause difficulty in speech and mastication. In rare instances it may obstruct airway leading to acute airway obstruction.<sup>4</sup> Management of ranulas has been quite controversial, several modalities being applied in management of ranula includes i) excision of the ranula only, ii) marsupialization with or without cauterization of the lesion lining, iii) excision of the oral part of the ranula along with the involved sublingual gland or rarely the submandibular gland, iv) incision and drainage of the lesion via an intraoral approach and v) excision of the lesion via an extra oral approach along with excision of the sublingual gland in certain cases.<sup>5</sup> Marsupialization is associated with high recurrence rate and enucleation of ranula is associated with certain complications like damage to Wharton's duct and possibly lingual nerve. Thereby indicating a need for a less aggressive approach for the management of ranulas, especially in children. Suitable non-invasive alternatives that have been suggested include micro-marsupialization or modified micro-marsupialization.<sup>6</sup> Hence this case report represents the non-invasive technique of upgraded micro-marsupialization for treatment of ranula which is given by sandrini et al in his literature.<sup>7</sup>

**CASE REPORT**

A 35-year male patient reported to the oral and maxillofacial surgery department with a chief complaint of swelling in the floor of a tongue on the right side since four months. The Patient was apparently alright four months back then he noticed small swelling sublingually on the right side (fig 1). Swelling increased gradually and was painless in nature. It was interfering with his speech and movement of the tongue. No change in size during the meal was noticed by the patient. His past medical history and the past habit was unremarkable. On clinical examination, the swelling was compressible and soft in nature. Trans-illumination test was positive. The dimension of swelling measuring approximately 4 cm × 3 cm × 1.5 cm in length, breadth, and depth, respectively. Its anteroposterior extension from a distal surface of mandibular second molar up to the mesial aspect of the mandibular lateral incisor. The mouth opening of the patient was adequate and no abnormality of the temporomandibular joint was noted. No secondary changes such as ulceration, fistula formation,

infection or discharge were observed. The lymph nodes were not enlarged. On Clinical basis, a diagnosis was made as Simple Ranula. The patient was advised routine blood investigation which revealed no abnormality. Then the area was disinfected with 1% povidine iodine and swelling was punctured using 18 gauge needle to drain the thick saliva of ranula (fig.2). Remaining saliva was suctioned and total 3-0 five interrupted silk suture were placed and first suture at the dome of the swelling. To and fro movement of silk suture was made as shown in (fig. 3) in order to enlarge the mechanical pathway. Another four sutures were placed equally on both sides of swelling with to and fro motion as same as the first suture. The knot was tied loosely over the swelling and sutured were maintained for 30 days.



**Fig.1: Pre Operative Picture**



**Fig. 2: Intra Operative picture**



**Fig.3: Intra Operative Pictures**

The ranula was compressed with finger pressure to drain all the accumulated saliva. The patient was advised application of 0.5% chlorhexidine gel to the area of surgery for 5 days post-operatively to prevent secondary infection. Follow up was made at the 3<sup>rd</sup> day, 7<sup>th</sup> day and 1 month. No recurrence and no infection was inspected in further follow up periods (fig.4).



**Fig.4: Post Operative Picture**

## DISCUSSION

Mucus is the exclusive secretory product of the accessory (minor) salivary glands and the more prominent product of the sublingual (major) salivary gland. The mechanisms for mucus cavity development are extravasation or retention. Extravasation (extra, outside; vasa, vessel) is the leakage of fluid from the ducts or acini into the surrounding tissue, while the much less common retention phenomenon occurs as a result of a narrowed ductal opening that cannot adequately accommodate the exit of saliva produced, leading to ductal dilation and surface swelling.<sup>1</sup> Ranulas develop slowly and typically present in the second and third decades of life or even later in life as in our case.<sup>8</sup> Anatomically ranula are grouped into three different types which are as follows: superficial or oral ranula, which occurs above the mylohyoid muscle, plunging, or cervical ranula which is found beneath the mylohyoid muscle, and mixed type which has both an oral and a cervical component, in our case, it was superficial and above the mylohyoid muscle.<sup>3</sup> The optimal treatment for managing ranula is still controversial; more conservative procedures such as marsupialization are associated with higher recurrence rates, but on the other hand, radical treatments such as excision of sublingual gland and ranula may carry the potential risk of haemorrhage from the lingual and sublingual vessels, lingual nerve, and Wharton duct damage hence in our case we have used upgraded micro-marsupialization technique which is less traumatic and have less recurrence rate.<sup>9</sup> Packiri S et al in her systemic review of 2017 found that there is a requirement of more studies to carried out for the treatment of ranulas.<sup>4</sup> In 1995, Morton and Bartley et al stated that ranula can be treated by placing a silk suture in the dome of the cyst.<sup>10</sup> Delbem

et al perform the micro-marsupialization technique in 38 cases using a topical anaesthetic on the entire lesion for 3 minutes and a single long 4.0 silk suture passed through the internal part of the lesion along its widest diameter. The suture is removed after 7 days.<sup>6</sup> Sandrini et al suggested some modification in micro-marsupialization such as using 3-0 silk suture, removal of sutures at 1 months, Increase in suture thickness and the mechanical enlargement of the pathways facilitated the permanent epithelization of the mucosa around the suture to allow the formation of drainage tracts, increase the number of suture to increase the number of drainage tracts in our case we utilize the same technique.<sup>11</sup> Hegde S et al in her case report, the case was treated using the modified micro-marsupialization technique and no recurrence was observed even 12 months after surgery, in our case also no recurrence was noted in follow up periods.<sup>5</sup> Amaral MB et al had done the series of cases on mucocele and ranula. He treated by new modification of micro-marsupialization stated by Sandrini et al and no recurrence was noted even in a single case.<sup>7</sup> Matondkar SP et al had done the case by modified micro-marsupialization for treating ranula in children no recurrence was noted in follow up period.<sup>12</sup> Zhao FY et al reported the complications arising after surgical management of ranula. He stated that there are minor and self-limiting complication with surgery, no complication was reported in our case.<sup>13</sup>

## CONCLUSION

The micro-marsupialisation technique proved to be a simple, low cost, relatively non-invasive, painless, and effective technique, with no need for retreatment or recurrence in the treatment of Ranulas. It can be concluded that upgraded micro-marsupialisation technique is a viable option instead of more invasive options & can be recommended primarily for the treatment of oral ranulas.

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