A case report of Ranula treated with marsupialization and low level laser therapy

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Abstract- Oral ranula is a retention cyst arising from the sublingual gland on the floor of the mouth as a result of ductal obstruction and fluid retention. There are various techniques to manage ranula in the literature. There is no doubt that excision of the offending sublingual gland will cure all ranulas. Still, some surgeons prefer to initially treat ranulas by marsupialization, perhaps because of the potential surgical complications when removing the sublingual gland, most notably injury to the lingual nerve, injury to Wharton's duct with the possibility of stenosis leading to obstructive sialadenitis, and ductal laceration causing salivary leakage. This paper highlights a case report of ranula in the floor of the mouth which was about 2cm and has been successfully treated by marsupalization and low level laser therapy. (LLLT)

Index Terms- Oral ranula, marsupialization, low level laser therapy, floor of mouth.

I. INTRODUCTION

Oral ranulas are cystic lesions located on the floor of the mouth that arise from obstruction of the excretory duct of the sublingual gland. It is formed by rupture of excretory duct followed by extravasations of the mucus and accumulation of saliva into the surrounding tissue which forms a pseudo cyst that lacks the epithelial lining. There are many methods in the literature for the treatment of ranulas including excision of the ranula only, excision of the ranula and the ipsilateral sublingual gland, marsupialisation and cryosurgery, but the two widely practiced techniques are marsupialisation i.e unroofing of cyst and sublingual gland excision. Recent studies have shown that surgical excision of the ranula along with the sublingual gland excision is a standard method of treatment. By doing these technique there is a risk of damaging the surrounding anatomical structures like lingual nerve and submandibular duct, which are close to the sublingual gland. Hence marsupialisation is still practiced to avoid injury to the surrounding anatomical structures, despite of reported recurrence rates of 61 to 89% . But the recent studies say that, even though there are chances of recurrence, marsupialization followed by low level laser therapy is showing less pain and better healing of tissue. Here with presenting a case report of oral ranula and its management in 22 year old male patient.

II. CASE REPORT

A 22-year-old male reported with a 1-month history of swelling in left submandibular region. The swelling was completely asymptomatic and there was a history of intermittent change in the size of swelling. The patient gave history of surgical intervention and drainage of fluid from the swelling nine months back at his native place, by his family physician. However, the swelling reappeared now after the procedure. The patient was in good health and had no history of any systemic disorder. Family history and personal history were not remarkable. On examination, general condition was good and vital signs were stable. After routine preoperative investigations, as the size of the cyst was small (< 2 cm) and it was superficial in nature, a conservative approach of marsupialization of ranula was planned. Local anesthesia was given. The marking of the cystic swelling of the ranula was done by tacking the edges of the cyst to adjacent surrounding mucosa with resorbable suture, followed by de-roofing of the cystic lesion. The cavity which resulted from marsupialization was packed with betadine gauze (10% povidine –iodine topical antiseptic solution) and the pack size was gradually cut short as per the obliteration of the defect. Low level laser therapy(LLLT) was given to prevent pain and for good post operative healing of the wound. The patient was given LLLT to the area for better healing and has fully recovered. A tissue was sent to histopathology for confirmation. HPE report confirmed the specimen to be ranula. The case was followed up for 6 months at bimonthly interval. There is no reoccurrence of the lesion . Patient is still under follow up.

III. REVIEW OF LITERATURE AND CASE DISCUSSION

Obstruction of excretory ducts or extravasations and subsequent accumulation of saliva from the sublingual gland in the tissue are responsible for the formation of ranulas . Ranula is formed from one of the two processes:

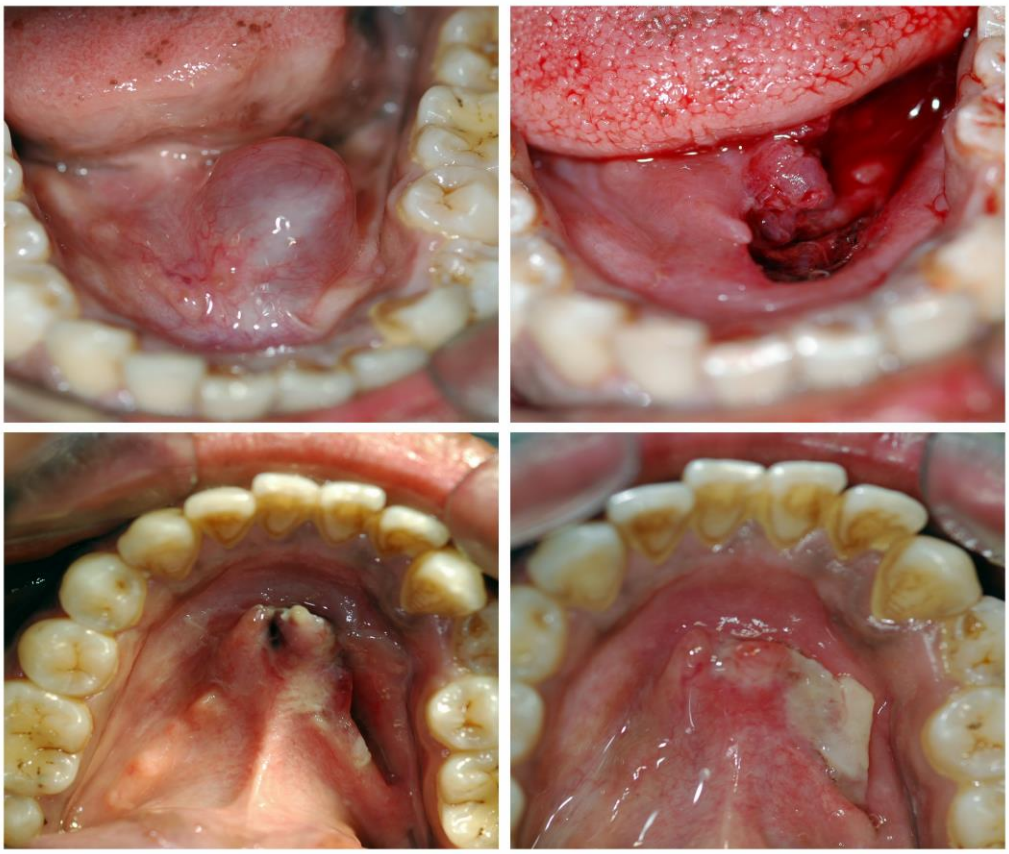
Partial obstruction of a sublingual duct can lead to formation of an epithelial-lined retention cyst which is unusual, occurring in less than 10% of all ranula.

Trauma can lead to formation of ranula. If a duct is obstructed, there is build up of secretory back-pressure leading to salivary duct rupture with mucus being forced into the surrounding tissues. Alternatively, trauma causes direct damage to the duct or acini, leading to mucus extravasation and forms a pseudocyst.

Based on the formation ranula can be classified into two groups, simple (intraoral)) and the plunging (cervical) type. Simple ranulas are more common than plunging type. A simple ranula are formed by localized collection of mucus within the floor of the mouth and may arise from the submandibular duct or from the body of the sublingual gland . In plunging ranula, ranulas will attain sufficient fluid pressure as to herniate through the mylohyoid muscle and produce swelling within the neck.

Differential diagnosis of ranula should include dermoid cyst, teratid cyst, lymphangioma, mucocele of the minor salivary gland, lymphoma and HIV- related lymphadenopathy. CT and MRI imaging studies can be helpful in supporting a diagnosis of and in determining the origin of the lesion .

With this literature background marsupialization was opted as treatment choice in our case as this technique is simple, conservative and is not associated with damage to the important anatomic structures in this location . With the simple addition of packing the entire pseudocystic cavity with betadine soaked gauze after the deroofing of the cystic lesion, the rate of recurrence is minimized . The patients were irradiated with a 660-nm continuous wave from an indium-gallium-arsenide-phosphorous (InGaAsP) diode laser, at 100 mW, with a spot size on the tissue. Irradiation was carried out immediately following marsupialization treatment, as well as at 24, 48, and 72 hour post marsupialization and after a week. Also, there is enough documentation to support this technique as treatment of choice . There is a need to do marsupialization for several times to resolve a large ranula. If ranula in oral cavity does not resolve after marsupialization, then surgical removal of the sublingual gland and pseudo cyst is recommended.



IV. CONCLUSION

Though sublingual gland excision is considered as the most effective treatment for ranula, this procedure is very difficult as it involves an extremely fine mucosa that may rupture on excision also there is risk of injury to the lingual nerve and sublingual duct. Hence marsupilization is suitable and effective treatment for intraoral ranula. Low level laser therapy is the most effective treatment for a painless and better healed tissue.

V. REFERENCES

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