British Journal of Medicine & Medical Research
11(4): 1-5, 2016, Article no.BJMMR.20419
ISSN: 2231-0614, NLM ID: 101570965

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A Large Superficial Dissecting Sublingual Ranula Crossing the Midline: Our Experience

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Authors' contributions

This work was carried out in collaboration between all authors. Author AK designed the study, wrote the protocol, wrote the first draft of the manuscript and managed the literature searches. Authors YI and MSI supervised and analysed the study. Author TP processed the histopatholgical slides and provided his expertice in the pathological part of the article. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/BJMMR/2016/20419
Editor(s):
(1) Gauri Mankekar, ENT Department, PD Hinduja Hospital, Mumbai, India.
Reviewers:
(1) Abrao Rapoport, Sao Paulo University, Brazil.
(2) Divya Gopinath, University of Hong Kong, Hong Kong.
(3) Fawzia Butt, University of Nairobi, Nairobi, Kenya.
(4) Gülsen Meral, Kagithane State Hospital, Istanbul, Turkey.
Complete Peer review History: http://sciencedomain.org/review-history/11545

Case Study

Received 26th July 2015
Accepted 8th September 2015
Published 27th September 2015

ABSTRACT

Ranula is a cystic lesion arising in the oral cavity in relation to the sublingual gland. Typically ranulas are unilateral although there has been a report of superficial dissecting ranula crossing the midline thus presenting as a bilateral lesion. This article is about our experience with a similar large right sided sublingual ranula crossing the midline in a 17 year old female who underwent a complete excision of the lesion along with removal of ipsilateral sublingual gland which is the accepted treatment at present.

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Keywords: Ranula; crossing midline; sublingual gland; excision.

1. INTRODUCTION

Ranula is a cystic lesion arising in the oral cavity in relation to sublingual gland. The name ranula arises from a Latin word “Rana” meaning frog. It is named so due to its resemblance with the underbelly of the frog [1]. Ranula appears as a cystic fluctuant tense swelling mostly in the floor of mouth on either side of midline.

There are three types of ranulas. The “sublingual type” which is the commonest type presenting as an intraoral sublingual swelling. “Plunging ranula” presents as a cervical swelling crossing beyond the mylohyoid muscle. The third type is a “plunging sublingual ranula” which has both sublingual and cervical component [2].

This article is about our experience with a large superficial dissecting sublingual ranula crossing the midline in a 17 year old female who underwent a complete excision of the lesion.

2. CASE REPORT

A 17 year old female came to our department with chief complaint of swelling in the right floor of mouth since 5 months. The swelling gradually increased in size and had ruptured twice, only to recur to the present size. It was associated with difficulty in swallowing for a duration of 15 days. On intra-oral examination, there was a 4cmX2cm cystic swelling in the right sublingual region extending around 1 cm beyond the midline anteriorly and upto the angle of mandible posteriorly. It was soft, fluctuant and non-tender with a bluish tinge. On extra-oral examination, there was no evidence of any palpable neck swelling.

Fig. 1. Clinical photograph of superficial sublingual ranula on the right side just crossing the midline

Ultrasonography of the neck was performed. It revealed a 46 mm by 12 mm cystic lesion in the right floor of mouth extending upto the right submandibular gland.

Under general anaesthesia, the cyst was excised with an intra-oral approach. Doyen’s mouth gag was used and a tongue stitch was taken to retract the tongue. The mucosa overlying the ranula was incised taking care not to enter the sac. Dissection was carried out in a submucosal plane using fine dissecting scissors and mosquito forceps. Haemostasis was achieved using bipolar cautery especially during dissection in the midline. Complete excision of the ranula along with removal of sublingual gland was done taking care not to damage the submandibular duct and the lingual nerve. The specimen was sent for histopathological examination. Incision was closed with 3-0 vicryl suture. Patient was on antibiotics and anti-inflammatory drugs for 5 days and discharged thereafter.

Fig. 2. Superficial incision over the mucosa taking care not to enter the sac

3. DISCUSSION

Ranula is a pseudocyst since it does not contain an epithelial lining. It is essentially a mucous filled cavity (mucocoele) in the floor of mouth. It mainly occurs due to rupture or damage to the sublingual ducts leading to extravasation of mucous or dilatation of sublingual duct.

The prevalence of ranula is about 0.2 cases per 1000 persons and accounts for 6% of all oral cysts related to salivary glands. Ranula usually occurs in children and young adults with the peak frequency in the second decade of life. The

plunging variant tends to occur a little later in the third decade [3].

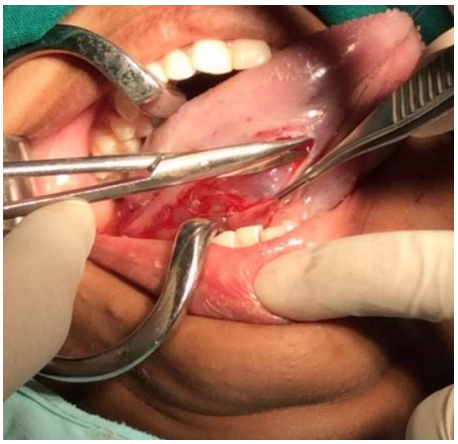

Fig. 3. Dissection in the submucosal plane

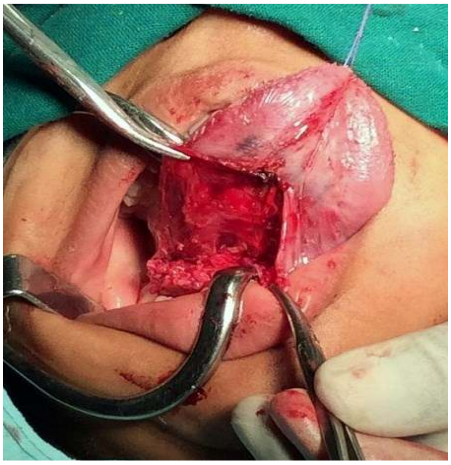

Fig. 4. Complete excision of the ranula with exposed sublingual gland

Certain studies suggest a possibility of congenital origin of ranula [4,5]. An association with HIV has also been documented [6,7,8,9,10].

The diagnosis of ranula and its extension beyond the mylohyoid muscle is of a clinical importance. A few lesions such as neoplastic lesions of sublingual and submandibular salivary glands, cystic hygroma, lymphangioma and dermoid cysts can mimic a ranula. Several minor cystic lesions and retention cysts at Wharton's duct are small (0.5 cm to 1.5 cm) and superficial. On the contrary, ranula arising from the sublingual gland is usually large (>2 cm) and can extend up to or beyond the mylohyoid muscle. Typically ranulas are unilateral although there has been a report of superficial dissecting ranula crossing the midline thus presenting as a bilateral lesion. Similarly, in our case the ranula extended just beyond the midline [11].

Fig. 5. Fifth post-operative day clinical photograph

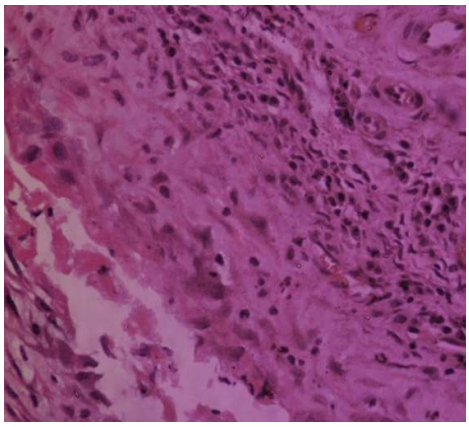

Fig. 6. High power (40x) photomicrograph showing attenuated lining beneath which are seen macrophages, plasma cells and few neutrophils with no evidence of malignant cells in the lining epithelium

Though there are no specific diagnostic tests for ranula, ultrasonography can be of certain help in the diagnosis. However, a magnetic resonance imaging (MRI) has emerged as the most sensitive diagnostic tool for evaluation of sublingual gland [12].

Histopathological examination of the ranula shows a central cystic space containing mucin and a pseudocyst wall which is composed of loose, vascularized connective tissues. The mucous which escapes from the pseudocyst

reveals areas devoid of mucin on histopathological examination. In addition, there is an intimate association of the sublingual gland with ranula [13]. Biopsy of the cystic wall is recommended for histopathologic diagnosis to rule out the presence of squamous cell carcinoma arising from the cyst wall and papillary cystadenocarcinoma of the sublingual gland, which may present as ranula [14].

Various treatment options have been experimented over the past. These include incision and drainage, marsupialization and simple excision of the ranula. However, excision of the ranula along with the underlying sublingual gland has been the most accepted treatment modality with minimum recurrence rate [15].

Kaneko recommended removal of sublingual gland via intra-oral approach which is the natural access rather than external approach since there a minimal chance of damage to the marginal mandibular nerve and absence of external scar. In addition, the access to sublingual gland is much better via intra-oral approach [16].

Recurrence rates vary with different techniques. Incision and drainage has the maximum recurrence rate of 70% to 100% whereas with marsupialization it is 36.4% to 80%. Excision of the ranula has a recurrence rate of 18.7% to 85%. However, with removal of sublingual gland the recurrence rate falls down to 0% to 3.8% [3,15,17,18,19].

Newer modalities of treatment of ranulas include use of lasers, cryotherapy and radiotherapy. Sclerotherapy using agents like OK-432 has been reported to be highly effective in the management of intraoral ranulas. The overall recurrence rate after each injection was 47% and the recurrence rate after the last sclerotherapy was 14% [20]. Intra-cystic injection of Botulinum Toxin Type A has been used successfully in treatment of ranula [21].

4. CONCLUSION

Although unilateral ranulas are comparatively common, this case report highlights the lesion crossing the midline which is unusual. Diagnosis is mainly based on clinical findings. MRI is the most sensitive imaging technique for differentiating ranula from other cystic lesions. Although newer conservative modalities of treatment are now available, excision of the ranula with ipsilateral sublingual gland excision is the most accepted treatment at present. Histopathological study is essential to rule out the presence of squamous cell carcinoma arising from the cyst wall which may present as ranula [22].

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
http://sciencedomain.org/review-history/11545