

SUBLINGUAL RANULA: CASE REPORT AND REVIEW OF LITERATURE

Karandeep Singh Arora^{1,*}, Prabhpreet Kaur², Richa Modgil³, Lalit Singh Negi⁴

^{1,3}Daswani Dental College & Research Centre, Kota, Raj.

²B.R.S. Dental College & General Hospital, Panchkula, Haryana

⁴Surendra Dental College & Research Institute, Sri Ganganagar, Raj.

***Corresponding Author:**

Email: drkaranarora@yahoo.com

ABSTRACT:

A ranula can be defined as a mucous filled cavity, a mucocele located in the floor of the mouth with the sublingual gland. It resembles a frog's under belly/air sac, which is translucent. Based on clinical features they are of various types. This condition should be accurately diagnosed as it can mimic other potent pathologies. Advanced imaging like CT, MRI are also useful for diagnostic procedures. Surgery and medicine are the treatment options available, more commonly opted is the surgical treatment because with the medical treatment there are chances of recurrence. Through this paper we highlight a case on ranula in the floor of the mouth with a review of literature emphasizing the use of the advanced imaging diagnostic methods and updated medical line of treatment.

Keywords: Ranula, Sublingual gland, pseudocyst

INTRODUCTION

Ranula was first described by Hippocrates.¹ Formation of the ranula is due to rupture of the excretory duct which is followed by extravasation and salivary accumulation into the surrounding tissue which forms a pseudocyst that lacks epithelial lining.²⁻³ Clinically ranula is of three types. Most common of which is the "Sublingual ranula" which presents as an intraoral sublingual swelling. The second commonest is the "Plunging ranula" which is located cervically and extend beyond mylohyoid muscle, and those having both cervical and oral component is known as "sublingual plunging ranula".⁴ It has an unknown etiology but it may be seen in association with congenital anomalies, trauma, and disease of sublingual gland.⁵ The basic purpose of this article is to report a case of ranula and update the medical treatment for the same.

CASE REPORT

A 6 year old girl was brought to the out patients clinic of the Department of Oral Medicine & Radiology with a complaint of a growth in the floor of the mouth, since 1 month, that was interfering with mastication and speech. History further revealed that the growth was gradual on onset and progressive in size and was painless throughout its course. History of a similar growth but smaller in size when compared to the present growth, is also reported 6 months back which regressed on itself.

On clinical examination a bluish dome shaped swelling (Fig. 1) was seen on the left side of floor of mouth adjacent to 74, 75 measuring 2 x 2 cm in size which was soft in consistency, compressible, reducible and fluctuant. After correlating the history and clinical findings, case was provisionally

diagnosed as "ranula". The patient was referred for radiographic examination, which showed no signs of obstruction. After all clinical and preoperative evaluations excision of ranula along with the sublingual gland was done and patient follow up was done every week. The excised sample was sent for histopathological examination, which revealed predominance of histocytes in the cystic space and on the pseudocystic fibrous connective tissue wall and further the central cystic space and the walls composed of loose and vascularized connective tissue with the sublingual gland. (Fig. 2)

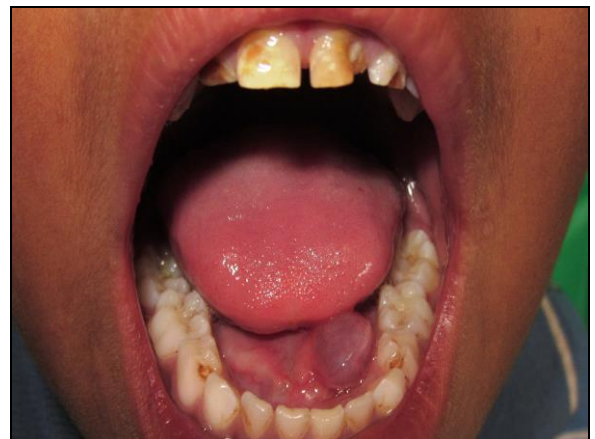


Fig. 1: Bluish Dome shaped swelling

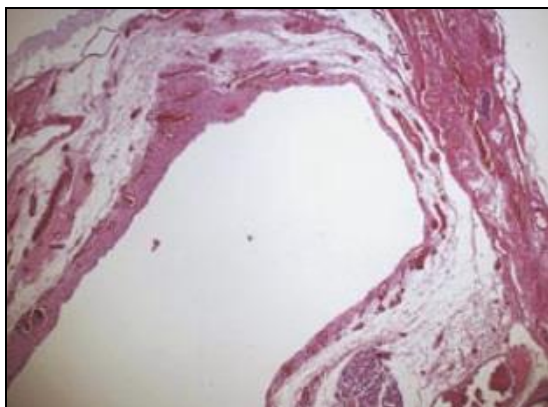


Fig. 2: Central cystic space and wall composed of loose, vascularized connective tissue with the sublingual gland

DISCUSSION & REVIEW

The name "ranula" is derived from the Latin word "rana" which means "frog" which resembles translucent underbelly/air sac of frog. It is defined as a mucus filled cavity in relation to sublingual gland present in the floor of mouth. It appears as tense, dome-shaped vesicle, which is fluctuant and characterized by size larger than 2 cm and sometimes may present with a bluish hue.⁶⁻⁷

Ranula accounts for around 6% of oral sialocysts and its prevalence is around 0.2 cases of 1000. Out of all the cases diagnosed as ranula only 1 - 10% are truly retention cysts. The peak age of occurrence of ranula is second decade and normally found in children and also young adults.⁸

Two theories have been proposed regarding the development of ranula. According to the first theory it develops as a consequence of mucus extravasation, whereas the second theory proposes mucus retention, both due to rupture or damage of a duct of salivary gland.⁹ But the current review and opinions support mucus extravasation secondary to developmental factor as ranula are devoid of lining epithelium.¹⁰

Sometimes ranula may mimic some benign and malignant lesions, so the clinical diagnosis of ranula is very important. The differential diagnosis of all the clinical types of ranula includes inflammatory, neoplastic lesions of major salivary glands except the parotid gland, of the lymph nodes, granulomatous diseases, diseases of the adipose tissue, thyroglossal duct cysts, cystic hygroma, dermoid, epidermoid cysts and laryngocele.¹¹

No specific diagnostic tests are there for ranula. At times it present as a cystic fluctuant lesion, which gradually increases in size with time. The fluid contents of ranula are composed of salivary amylase and protein in higher contents when compared to serum. This indicated that ranula originates from sublingual gland as it produces highly protein saliva in contrast to submandibular gland.¹²

More often, due to location of the sublingual gland the ultrasonographic examination is inconclusive. Computed Tomography examination of a simple ranula reveals a cystic lesion which may be rough and ovoid in shape, with a central attenuation of 10 to 20 HU. The sublingual ranula is located above the mylohyoid muscle and just lateral to genioglossus muscle. Anteriorly, it may or may not extend behind the symphysis, above the genioglossus muscle and geniohyoid muscle. The most conclusive and sensitive examination for the sublingual salivary gland is magnetic resonance imaging (MRI), the appearance of which is dominated by its high water content. Thus, T1-weighted intermediate proton density is low and T2-weighted signal intensity high.¹³⁻¹⁴

Histopathologically, ranula consists of a central cystic space, which contains mucin and a pseudocyst wall and is composed of loose and vascularized connective tissues. Predominantly there is presence of histocytes within the pseudocyst wall, which decrease in number over a period of time. There is absence of epithelial tissues in the wall of ranula. A histopathological examination of the cystic wall is mandatory, to rule out the presence of malignant carcinoma arising from the cyst wall and papillary cystadenocarcinoma of the sublingual gland, which may mimic ranula.¹⁵

There are several different methods for the treatment of ranula. These include excision of the lesion via an intraoral or cervical approach, marsupialisation, intra oral excision of the sublingual gland and drainage and excision along with sublingual gland.

Garofalo S et al. in a study evaluated the effectiveness of orally administered Nickel Gluconate-Mercurius Heel-Potentised Swine Organ Preparations D10/D30/D200 for treatment of ranula without surgery. The mechanism of action of which is to stimulate pseudocyst reabsorption and glandular repair thus improving the physiologic functioning of the gland. They concluded that this is an effective treatment for ranula and oral mucoceles.¹⁶

A study conducted by Fukase S. et al. showed a disappearance or marked reduction in ranula size with injection of OK-432. In their study only half of the patients experienced local pain or fever which resolved within several days. Intra-cystic injection therapy with OK-432 is relatively safe and can be used as a substitute for surgery in the treatment of ranula.¹⁷

Sialoendoscopy holds a promising future as a new and better method for diagnosis, treatment and postoperative management of sialadenitis, sialolithiasis and other obstructive salivary gland diseases.¹⁸

CONCLUSION

Accurate diagnosis is important for the effective treatment of ranula. With the introduction of advanced imaging techniques like CT and MRI, helps the clinicians in making proper diagnosis and treatment planning. During surgery there is threat of injury to the lingual nerve thus surgical approach should be prevented and the latest medical management techniques should be advocated.

REFERENCES

1. Cedric A. Quick, Seth H. Lowell. Ranula and the Sublingual Salivary Glands. Arch Otolaryngol. 1977; 103(7):397-400.
2. Morton RP, Bartley JR. Simple sublingual ranulas: pathogenesis and management. J Otolaryngol. 1995;24(4):253-4.
3. Bronstein SL, Clark MS. Sublingual gland salivary fistula and sialocele. Oral Surg Oral Med Oral Pathol. 1984;57(4):357-61.
4. Horiguchi H, Kakuta S, Nagumo M. Bilateral plunging ranula: A case report. Int J Oral Maxillofac Surg 1995;24(2):174- 5.
5. Davison MJ, Morton RP, McIvor NP. Plunging ranula: Clinical observation. Head Neck. 1998;20:63-8
6. Langlois NEI, Kolhe P, Plunging ranula: a case report and a literature review. Hum Pathol 1992;23(11):1306-8.
7. de Visscher JG, van der Wal KG, de Vogel PL. The plunging ranula: Pathogenesis, diagnosis and management. J Cranio maxillofac Surg 1989;17(4):182-5.
8. Zhao YF, Jia Y, Chen XM, Zhang WF. Clinical review of 580 ranulas. Oral Surg Oral Pathol Oral Radiol Endod 2004; 98(3) :281-7.
9. Brunner H. Pathology of ranula. Oral Surg Oral Med Oral Pathol 1949;2(12):1591-8.
10. Mizuno A, Yamaguchi K. The plunging ranula. Int J Oral Max illofac Surg 1993;22(2):113-5.
11. Engel JD, Ham SD, Cohen DM. Mylohyoid herniation: gross and histologic evaluation with clinical correlation. Oral Surg Oral Med Oral Pathol 1987;63(1):55-9.
12. Roediger WE, Kay S. Pathogenesis and treatment of plunging ranulas. Surg Gynecol Obstet 1977;144(6):862-4.
13. Charnoff SK, Carter BL. Plunging ranula: CT diagnosis. Radiology 1986;158(2):467-8.
14. Som PM, Brandwein MS. Head and neck imaging, Salivary gland: anatomy and pathology, Mosby, St Louis, Mo, USA, 2003 pp 2067-76.
15. Batsakis JG, McClatchey KD. Cervical ranulas. Ann Otol Rh inol Laryngol 1988;97(5 Pt 1):561-2.
16. Garofalo S, Briganti V, Cavallaro S, Pepe E, Prete M, Suteu L, Tavormina P. Nickel Gluconate-Mercurius Heel-Potentised Swine Organ Preparations: a new therapeutical approach for the primary treatment of pediatric ranula and intraoral mucocele. Int J Pediatr Otorhinolaryngol. 2007;71(2):247-55
17. Fukase S, Ohta N, Inamura K, Aoyagi M. Treatment of ranula wth intracystic injection of the streptococcal preparation OK-432. Ann Otol Rhinol Laryngol. 2003;112(3):214-20
18. Nahlieli O, Nakar LH, Nazarian Y, Michael DT. Sialendoscopy: A new approach to Salivary gland obstructive pathology. J Am Dent Asso. 2006;137(10):1394-400.