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## Plunging Ranula: A case report

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### Abstract

This case report discusses a slowly growing painless swelling in left side of the mouth with extension onto the neck in a 9 year-old male child. Following detailed clinical examination, radiological and histopathological interpretation, a diagnosis of plunging ranula was made. Ranula is a retention cyst of the sublingual gland which enlarges progressively and extends into the surrounding soft tissues. Surgical excision was performed along with the involved sublingual gland. The patient was followed up on a regular basis and showed no recurrence.

**Keywords:** Ranula, salivary gland, sublingual gland, plunging ranula

### 1. Introduction

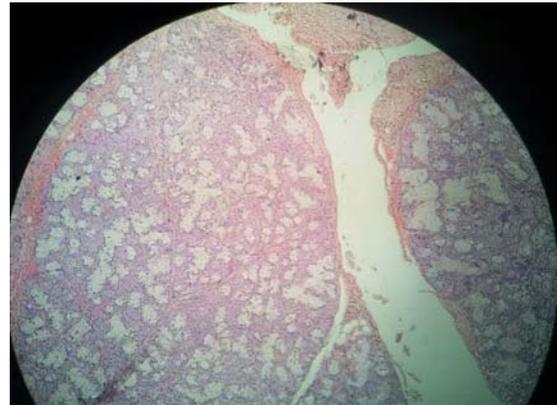
Ranula, a retention cyst of the sublingual gland, enlarges progressively and extends into the surrounding soft tissues [1]. Two variants are discussed: a superficial or oral ranula and a cervical or plunging ranula. Simple ranula remained confined to the sublingual space, whereas plunging ranula extend to surrounding tissue. Ranula superior to the mylohyoid muscle appear as a translucent bluish swelling under the tongue. Primary aetiology is the partial obstruction of a sublingual duct which leads to the formation of an epithelial-lined retention cyst [2]. Other etiological factors include congenital anomalies such as hypoplasia of the sublingual gland, duct agenesis, and trauma to the duct or deeper areas of the sublingual gland. Correct differentiation of plunging ranula is critical as it extend posteriorly beyond the free edge of the mylohyoid muscle and sometimes encroaches the submandibular and parapharyngeal spaces. This poses diagnostic challenge to differentiate from other neck swellings especially from cystic hygroma [3, 4]. This case report presents a slowly growing painless ranula involving floor of the mouth with extension onto submandibular region in a 9 year-old male patient which was successfully excised along with the involved sublingual gland.

### 2. Case Report

An otherwise healthy 9 year old male child reported with complaint of chronic swelling in the floor of the mouth since 3 years with slowly growing painless extraoral swelling in left side of the neck for 2 years. On clinical examination, a cystic dome shaped swelling on the floor of the mouth of size approx 3.5x4x4cm occupying most of the floor on the left side and crossing over to the right side partially. (Figure 1) A cystic mass in left submandibular region, painless in nature, of size 3x4 cm. (Figure 2) Patient complaints difficult mastication and swallowing due to the large size of the swelling obstructing tongue movements and displaces tongue towards the right side. Careful examination of the left submandibular ducts revealed patency. Bimanual palpation of the left sublingual gland revealed slight tenderness as compared to the right one. Mucosa over the swelling was normal with absence of any ulcerations or sinus discharge. (Figure 1) There were no other secondary changes involved like paresthesia or cervical lymphadenopathy. On ultrasonography of neck, a unilocular, well defined cystic lesion on left sublingual space, extending posteriorly over the free edge of the mylohyoid muscle to the left submandibular area. FNAC of the swelling revealed mucous with predominance of histiocytes. Based on the clinical, ultrasound findings treatment was planned for ranula excision along with sublingual gland.

Under general anaesthesia, via an intraoral approach, a mucosal incision made over the ranula. A Careful blunt dissection done along the walls of the pseudocyst and dissected off the surrounding tissues.

(Figure 3) Dissection of the body of the sublingual gland done. Attachment of the duct of the sublingual gland duct confirmed and gland excised. The submandibular and sublingual ducts were separated from the dissection plane. Complete hemostasis was achieved and primary closure was performed. The excised specimen was sent for histological examination which confirmed the diagnosis and showed macrophages laden mucous with dilated, damaged sublingual salivary gland ducts in the connective tissue. Remaining normal mucous acini and chronic inflammatory cells are also seen. (Figure 4) No specific complaints post-operatively were noticed and discharged three days post-operatively. The patient was asymptomatic without any recurrence during the follow-up period of 1 week followed by 3 week. (Figure 5, 6).



**Fig 4:** Histopathological Findings.



**Fig 1:** Clinical Presentation of Intraoral Dome Shaped Swelling.



**Fig 5:** Intraoral View: Post Operative Follow-up 3 Weeks.



**Fig 2:** Clinical Presentation of Extraoral Swelling in Submandibular Region.



**Fig 6:** Extraoral View: Post Operative Follow-up 3 Weeks.



**Fig 3:** Incision and Dissection of Exposed Ranula.

### 3. Discussion

A ranula represents 6% of all oral sialocysts (with prevalence is around 0.2 cases of 1000) and 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. The peak age of occurrence is second decade and found in children and also young adults. There is no specific sex predilection for ranula, although some case reports and review of literatures stated occurrence more common in females [2, 3]. The pathophysiology involved in extravasation is hypertension in the duct due to obstruction leading to acinar rupture in the salivary gland and followed by extravasation of the mucus. More recently

3 mechanisms have been discussed for the origin of ranula in the neck that may be as follows: Sublingual gland projecting through the mylohyoid or an ectopic sublingual gland may exist on the cervical side of mylohyoid; 2) Dehiscence in the anterior part of the mylohyoid muscle providing a path for ranula into the floor of the mouth; 3) A duct from the sublingual gland may join the submandibular gland or its duct, allowing ranulas to form in continuity with the submandibular gland<sup>[5]</sup>.

Exceptionally, ranula may mimic some benign and malignant lesions, so the clinical diagnosis of ranula is must. At times it present as a cystic fluctuant lesion, which gradually increases in size with time. The ranula contents are usually composed of salivary amylase and proteins. This indicates ranula originates from sublingual gland as it produces highly protein saliva in contrast to submandibular gland<sup>[6-8]</sup>. Sometime, a giant ranula of the neck that significantly involves the parapharyngeal space in addition to the submandibular space which makes differentiation from other cystic neck masses, particularly cystic hygroma, thyroglossal duct cyst, intramuscular hemangioma, cystic/neoplastic thyroid disease, branchial cyst, submandibular sialadenitis, laryngocele, dermoid cyst and other conditions must be ruled out in before confirming plunging/diving ranula<sup>[7]</sup>. Many reported cases of cervical cystic hygroma in male child and discussed cystic hygroma as congenital malformations of the lymphatic system with most of them being diagnosed within the first 2 years of life with majority noted within the posterior triangle of the neck<sup>[4, 9]</sup>. Other reported a case of giant sublingual dermoid cyst in the floor of the mouth and elaborated dermoid cysts as congenital lesions covered with epithelium showing keratinization with identifiable dermal appendices<sup>[6]</sup>. The most sensitive and conclusive examination for the sublingual salivary gland is magnetic resonance imaging (MRI), the appearance of which is dominated by its high water content. Histopathologically, ranula discussed as a central cystic space containing mucin. It carries a pseudocyst wall (absence of epithelial tissues) with loose and vascularized connective tissues. A histopathological examination of the cystic wall is must, to differentiate ranula from any cyst wall malignant carcinoma and/or papillary cystadenocarcinoma of the sublingual gland. Hence, a detailed history, clinical examination and histology are imperative to differentiate ranula.

There are several methods for the treatment of ranula. These include excision of the lesion via intraoral or cervical approach, marsupialisation, intra oral excision of the sublingual gland, drainage and excision along with sublingual gland<sup>[1-3]</sup>. Other discussed treatment are: orally administered Nickel Gluconate-Mercurius Heel-Potentised Swine Organ Preparations D10/D30/D200 for resorption of ranula and salivary gland repair without surgery<sup>[10]</sup>, CO2 laser as a treatment modality (to vaporize ranulas), OK-432 (lyophilized mixture of a low virulence strain of *Streptococcus pyogenes* incubated with benzylpenicillin) sclerosis<sup>[11, 12]</sup>.

#### 4. Conclusion

In this case the floor of the mouth is involved due to its unusually large size and the complete excision was planned and rendered excision along with the involved sublingual gland and the subsequent confirmation with the histopathological findings was achieved.

#### 5. References

1. Kalra V, Mirza K, Malhotra A. Plunging Ranula: Case Report. *Radiology Case*. 2011; 5:18-24.
2. Suresh BV, Vora KS. Huge Plunging Ranula. *Journal of Oral and Maxillofacial Surgery*. 2012; 11:487-490.
3. Arunachalam P, Priyadarshini N. Recurrent Plunging Ranula. *Journal of Indian Association of Pediatric Surgeons*. 2010; 15:36-38.
4. Guruprasad Y, Chauhan DS. Cervical Cystic Hygroma. *Journal of Maxillofacial and Oral Surgery*. 2012; 11:333-336.
5. Harrison JD. Modern Management and Patho Physiology of Ranula: Literature Review. *Head and Neck*. 2010; 32:1310-1320.
6. Jain H, Sing S, Singh A. Giant Sublingual Dermoid Cyst in Floor of the Mouth. *Journal of Maxillofacial and Oral Surgery*. 2012; 11:235-237.
7. Macdonald AJ, Salman KL, Harnsberger HR. Giant Ranula of The Neck: Differentiation From Cystic Hygroma. *American Journal of Neuroradiology*. 2003; 24:757-761.
8. Batsakis JG, Mcclatchey KD. Cervical Ranulas. *Ann Otol Rh Inol Laryngol*. 1988; 97(5 Pt 1):561-562.
9. Guruprasad Y, Chauhan DS. Cervical Cystic Hygroma. *Journal of Maxillofacial and Oral Surgery*. 2012; 11:333-36.
10. Garofalo S, Briganti V, Cavallaro S, Pepe E, Prete M, Suteu L *et al*. 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):247-255.
11. Fukase S, Ohta N, Inamura K, Aoyagi M. Treatment of Ranula with Intracystic Injection of the Streptococcal Preparation OK-432. *Ann Otol Rhinol Laryngol*. 2003; 112(3):214-20.
12. Rho MH, Kim DW, Kwon JS, Lee SW, Sung YS, Song YK *et al*. OK-432 Sclerotherapy of Plunging Ranula in 21 Patients: It Can Be a Substitute For Surgery. *American Journal of Neuroradiology*. 2006; 27:1090-1095.