

## MULTIPLE CYSTIC SWELLINGS IN THE FLOOR OF THE MOUTH – A CASE REPORT

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### Abstract

Oral ranula is a type of mucocele occurring in the lateral side of the floor of the mouth which is closely related to vital structures like the sublingual gland & lingual nerve. While diagnosing, careful differential diagnosis should be carried out to rule out the other lesions occurring in the floor of the mouth like the lipoma, dermoid cyst, abscess, salivary gland lesions and vascular lesions. Treatment by incision, simple marsupialization, and excision of the ranula alone have a high recurrence rate, whereas excision of the sublingual gland with or without the ranula is almost always successful. Here we report a case of a 17-year-old female patient who presented with a cystic swelling in the floor of the mouth that was documented to be oral ranula. Following excision, another cystic swelling developed on the contralateral side that was diagnosed as oral ranula, and subjected to excision.

**Key words:** Ranula, mucocoele, cystic swelling, mucus extravastion phenomenon, mucus retention cyst

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### Introduction

Mucoceles are one of the most common benign soft tissue masses present in the oral cavity. By definition, mucoceles are cavities filled with mucus.<sup>1</sup> They are characterized by single or multiple, spherical, fluctuant nodules which are generally asymptomatic.<sup>2</sup>

When located on the floor of mouth, mucoceles are termed as 'ranula', the name derived from the typical swelling that resembles the air sacs of the frog 'ranatigrina'. Ranulas usually arise in the body of the sublingual gland and occasionally in the ducts of Rivini or in the Wharton's duct.<sup>3</sup>

Mucoceles are believed to result from mechanical trauma to the excretory duct of the

salivary glands, causing duct transection or rupture, with consequent extravasation of mucin to the connective tissue stroma (mucus extravasation phenomenon, MEP). In addition, mucus might be retained in the duct and/or acinus as a result of duct obstruction (mucus retention phenomenon, MRP).<sup>2</sup>

### Case Report

A 17 year old female reported to the outpatient department with a chief complaint of painless swelling below the tongue on the right side, for the past one month. History revealed that the swelling has gradually increased in size to the present size. No history of previous trauma or surgery in the area present. She reported history of mild dull pain during food intake since 3 days. There was no

history of fever, xerostomia, upper respiratory tract infection, or any difficulty in swallowing, speech or mastication.

On examination, a 3 x 2 cm bluish fluctuant swelling was seen in the floor of the mouth on the right side, extending across the midline (Fig. 1).

**Fig 1: Fluctuant swelling in the floor of the mouth -right side**



The swelling was non-tender, soft in consistency and no discharge was elicited. The tongue was displaced superiorly (Fig. 2).

**Fig 2: Superiorly displaced tongue**



Based on history and clinical findings, a provisional diagnosis of “ranula” was given. Radiographic examination revealed no evidence of obstruction or calculi. FNAC of the cystic swelling yielded mucus. After

preoperative investigations, surgical excision of ranula along with the right sublingual gland was carried out under general anaesthesia. Sutures were placed (Fig. 3). Patient was kept under observation

**Fig 3: Immediate post surgical view**



Four weeks later, a 1cm x 0.5 cm bluish cystic swelling was noted in the floor of the mouth on the left side. Swelling was not associated with any pain (Fig. 4). Plain radiography revealed absence of calculi or obstructions. FNAC revealed presence of mucinous content within the swelling, confirming the diagnosis of ranula.

**Fig 4: Ranula on the left side**



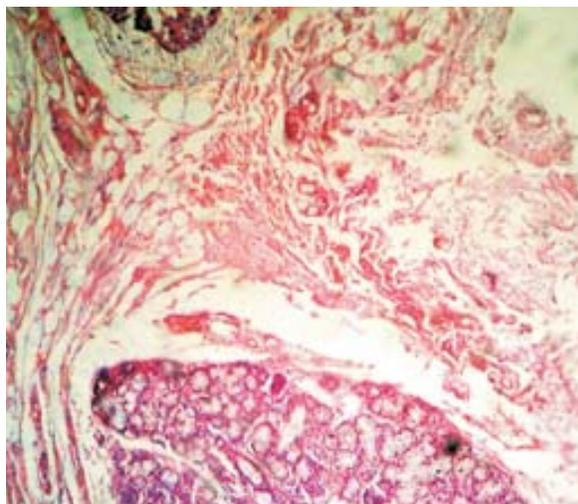
Surgical excision of the second ranula was done under general anesthesia, along with removal of ipsilateral sublingual salivary gland and duct, which were sent for histopathological examination (Fig. 5).

Histopathology revealed presence of salivary gland tissue and in between connective tissue, showing eosinophilic area resembling mucin with few mucinophages (Fig. 6). Patient was kept under observation, and no new lesion was noted postoperatively.

**Fig 5: Surgical removal of the second ranula**



**Fig 6: Histopathology**



## Discussion

Oral mucocoeles can affect patients of all ages, with the highest incidence in the second decade of life. No gender predilection has been reported.<sup>3</sup>

Oral mucocoeles located on the floor of the mouth are termed ranulas. A ranula manifests as a cup-shaped fluctuant bluish swelling on the floor of the mouth.<sup>2</sup> The characteristic deep blue color results from tissue cyanosis and vascular congestion

associated with the stretched overlying tissue and the translucent character of the accumulated fluid beneath. The intensity of color depends on the size of the lesion, its proximity to the surface, and the elasticity of the overlying tissue.<sup>1</sup>

Ranulas tend to be larger than mucocoeles located in other regions of the mouth, growing to some centimeters in diameter. Depending on size and location, patient may present external swelling and relate discomfort, interference with speech, mastication, and swallowing.<sup>2</sup>

According to sites of the primary swelling, ranulas may be classified into 3 clinical types: oral ranula (intraoral swelling only), plunging ranula (submandibular and/or submental swelling without intraoral swelling), and mixed ranula (intraoral and extraoral swelling).<sup>4</sup>

Ranulas commonly originate from the deeper areas of the body of the sublingual gland, followed to a lesser degree by the retention cysts from the ducts of Rivini. Less often, retention cysts of the opening of Wharton's duct have been reported.<sup>1</sup>

Mucus extravasation triggers a secondary inflammatory reaction predominantly consisting of mononuclear cells in surrounding connective tissue, followed by a granulation tissue-type reaction that culminates in the formation of a fibrous capsule around the mucin deposit, conferring a cyst-like appearance to the lesion.<sup>2</sup>

The causes of ranula formation were thought to be trauma or surgery to the floor of the mouth, neck region which may be a cause for the rupture of the sub lingual gland acini or cause obstruction of the sublingual gland ducts which results in mucous extravasation.<sup>5</sup>

The sublingual salivary gland, being aspontaneous secretor, produces a continuous flow of mucus even in the absence of nervous.

In a case of ranula, a balance exists between sublingual secretory activity and the attempts of the body to limit the extravasation by inflammatory fibrosis and by removal of mucus by macrophages.<sup>6</sup>

Thorough history taking and examination of the lesion is crucial for diagnosing oral mucoceles correctly. Diagnosis may require routine radiographs, ultrasonography or advanced diagnostic methods computed tomography and magnetic resonance imaging for better visualizing the form, diameter, position and determination of the origin of the lesion. Fine needle aspiration is a useful diagnostic technique, especially when differential diagnosis of angiomatous lesion is involved. High amylase and protein content may be revealed by the chemical analysis.<sup>3</sup>

Histopathology of ranula ranges from acute inflammation intermingling with the mucus collection to patterns of mature lesions with scarce amounts of mucus and connective tissue fibrosis. The lesion may show hyperplastic parakeratinized stratified squamous epithelium, small cystic spaces containing mucin and mucusfilledcells, areas of spilled mucin surrounded by a granulation tissue and sebaceous cells in the connective tissue. Presence of salivary gland tissue and sialomucin is diagnostic.<sup>3</sup>

Oral mucocele shall be differentiated from lipoma, oral hemangioma, oral lymphangioma, benign or malignant salivary gland neoplasms, venous varix, irritational fibroma, orallymphoepithelial cyst, gingival cyst of adults, soft tissue abscess, cysticercosis, and pyogenic granuloma.<sup>7</sup> The treatment shall be either complete excision, marsupialization, dissection, cryosurgery, carbon dioxide lasers, electrocautery, intralesional injection of sclerosing agent OK432 or steroid injection. However, recurrence can occur and a further surgical intervention becomes necessary.<sup>3</sup>

## Conclusion

Effective treatment of salivary gland disorders requires accurate diagnosis of the specific disease. Newer advancements in the field of imaging, aid the clinician in making a proper diagnosis. The key to understanding the ranula and its management is to understand the complex anatomy of the floor of mouth and the balance that exists therein.

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