



CASE REPORT
RANULA:A CASE STUDY

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ABSTRACT

Ranulas form harmless mucous cysts under the tongue area because of blocked or damaged sublingual salivary gland tubes. The cysts produce problems with movement and feeling which need medical treatment.

This medical illustration shows how doctors treated and healed simple ranulas in a patient through surgery. The doctors diagnosed and removed a problem ranula through surgery from a male patient. During treatment we protected important tissues while removing the simple ranula and the patient recovered quickly without major problems. The operated area shows excellent healing without any signs of infection and the patient will fully heal.

Keywords: Ranula, mucous cyst, sublingual salivary gland, cyst removal, oral surgery

INTRODUCTION

A ranula is a type of mucous cyst that forms in the floor of the mouth, typically resulting from the blockage or rupture of a salivary gland duct, leading to the accumulation of mucus. Exterior cystic formations of ranulas appear in two distinct ranges: tiny clear blotches and noticeably bigger shapes which interfere with communication and produce swallowing and breathing restrictions¹. Medical intervention becomes necessary for ranulas to resolve when such cysts generate functional problems with oral functions or when they persist. The medical term "ranula" comes from Latin roots referring to the condition because this formation resembles the extended stomach of a frog. Ranulas develop mainly within sublingual salivary glands, yet they can appear in either submandibular or parotid salivary tissue². The occurrence of these cysts remains more frequent in adults, while children can develop them too, and their appearance is most typical between the ages 20-40 years. Research shows that the cause of ranulas includes ductal system

blockage or traumatic events, but some cases have no identifiable factor³.

Simple ranulas represent one type of the condition, while plunging ranulas form the other classification. The simplest form of ranulas develops in the floor of the mouth and tends to stay small in size. The swellings of ranulas present as clear or bluish or translucent, and they are often painless or only mildly tender. A plunging ranula advances from the floor of the mouth into the neck so it resulting in enlarged neck tissue which becomes more noticeable⁴. Treatment and diagnosis of plunging ranulas prove highly challenging since these lesions extend deeply while involving important structures near the mouth. The cause of ranulas typically includes ductal obstruction or rupture within the sublingual salivary gland, but any salivary gland can develop a ranula⁵. Ductal obstruction takes place mainly because of trauma and ductal stenosis, or mucus plug formation.

Ranulas develop under extremely rare circumstances from both congenital defects and developmental abnormalities within salivary glands. The risk of developing ranulas has been demonstrated to rise because of dehydration, together with reduced salivary flow⁶. Patients usually experience painless or slightly painful floor-of-mouth swelling while examining a ranula during their visit. The large size of ranulas, together with their mouth location, produces discomfort that becomes most noticeable during eating and speaking, and swallowing. Symptoms of tongue movement limitation lead to speech problems along with difficulties in chewing because of the swelling⁷. The infection of a ranula produces pain that accompanies inflammatory indications, including skin redness, together with pus-tainted fluid. Medical identification of a ranula requires a complete clinical assessment since healthcare providers must distinguish the cyst from both tumors and other oral pathologies, such as cysts⁸. Medical diagnosis of ranulas begins with clinical observations that healthcare providers can confirm using imaging methods such as ultrasound and sialography, as well as magnetic resonance imaging. Visual imaging modalities show the dimensions and exact placement and deep reach extent of the cyst, especially when plunging ranulas spread from oral tissues into neck structures. The diagnostic tool of choice for doctors is generally ultrasound because it delivers cost-efficient, non-invasive examination of soft tissue masses⁹.

Case presentation

A male patient aged 25 years presented with a complaint of a persistent swelling in the floor of the mouth that had been progressively increasing in size since 3 months. The patient felt mild pain only while speaking and swallowing although there was no severe pain or infection detected. The healthcare professional performed an examination that revealed the tongue-shaped tumorous mass to be a translucent smooth lesion under the tongue. A ranula could be diagnosed from intraoral examination because the floor of the mouth contained a visible swelling. The patient's ranula had a translucent appearance with dome shape dimensions that measured about 1 to 1.5 cm within the sublingual region. The cyst presented feel smooth when touched and displayed both non-painful and spongy qualities that help identify this cyst as a mucous retention cyst. The small swelling partially shifted the tongue in position thus creating potential difficulties during speech and mastication functions. At this point the area displayed no evidence of infection together with the absence of erythema.

Differential Diagnosis: The clinical appearance of the lesion suggested a diagnosis of ranula, a mucous cyst commonly associated with the obstruction or rupture of the sublingual salivary glands. However, other potential diagnoses considered included:

- **Sublingual abscess** – less likely due to the absence of acute pain, fever, or purulent discharge.
- **Dermoid cyst** – could present similarly but is typically firmer and less fluctuant.
- **Lipoma** – often presents as a more solid, yellowish mass, less likely to be translucent.
- **Other types of oral cysts or tumors** – requiring confirmation via imaging.

The patient was referred for further diagnostic imaging to confirm the diagnosis and assess the extent of the cyst. An ultrasound of the lesion revealed a fluid-filled, well-circumscribed mass consistent with a ranula. MRI or sialography may be considered for deeper involvement or if there is suspicion of a plunging ranula extending into the neck.



Figure 1. Pre-operative (clinical appearance of the lesion suggested a diagnosis of ranula)

Intraoperatively, the cyst was carefully removed after making a small incision, with minimal disruption to surrounding structures. The surgical area received closure through non-absorbable stitches which enabled proper wound healing while minimizing recurrence possibilities. The patient received treatment for pain while doctors provided antibiotics together with advice about proper oral hygiene practice. The healthcare providers arranged subsequent appointments after surgery to track the healing progress as well as check for infection development and recurrence potential while teaching the patient about potential risks alongside expected outcomes.

The surgical site appears to be healing well with minimal swelling or erythema. There is no visible active bleeding, and the mucosal tissue is intact, with signs of early healing. The skin shows slight redness because tissue healing is natural during early recovery periods. The patient's recovery will be assessed during

subsequent visits for both infection signs and complications along with recurrence. The healing process will unfold smoothly when patients follow oral hygiene practices along with any provided medications. Additional visits to the healthcare provider will be necessary for cyst resolution confirmation as well as verification that all postoperative problems have disappeared.



Figure 2. Intra operative (cyst was carefully removed after making a small incision)



Figure 2. Intra operative(surgical area received closure through non-absorbable stitches)



Figure 3. Post-operative (floor of the mouth after the excision of the ranula)

DISCUSSION

Ranulas are a common type of mucous cyst that forms in the floor of the mouth, typically resulting from the obstruction or rupture of the duct of the sublingual salivary gland. They are often characterized by a soft, fluctuating swelling beneath the tongue that can cause discomfort, especially when speaking or eating.

The general benign nature of ranulas requires medical treatment because their specific positions and sizes can disturb mouth function. Single and plunging ranulas represent the two primary subdivisions of this condition. Simple ranulas stay within the oral cavity to display small transparent swellings, yet plunging ranulas penetrate the floor of the mouth to reach neck tissues as well ^[10]. The diagnosed ranula presented as a simple form, which remained within the floor of the mouth, thereby enabling easier surgical intervention. The course of therapy for ranulas depends on cyst dimension, along with patient symptom severity and relapse probabilities. The medical procedure of surgical removal stands as the most common therapeutic approach when dealing with both big or causing symptoms of ranulas. Small to recurrent lesions typically require the surgical technique of Marsupialization instead of excision ^[11]. The main purpose of surgery includes complete cyst removal while ensuring no harm comes to the submandibular ducts and lingual nerves to prevent postoperative complications. The presented treatment included ranula excision along with preservation techniques for surrounding tissues. Favorable surgical outcomes become apparent in the postoperative image because the tissue shows minimal swelling along with no indications of infection, thereby indicating that surgical steps were successful. The development of minimal redness at the surgery site is a typical healing response which should disappear when the tissue restores ^[12].

CONCLUSION

It is concluded that ranulas are benign mucous cysts that can be effectively managed with surgical intervention, particularly when they cause discomfort or interfere with normal oral functions. In this case, the surgical excision of the ranula was successful, with favorable postoperative healing and minimal complications. The careful removal of the cyst while preserving surrounding structures ensured a smooth recovery, and the patient is expected to experience a full resolution of symptoms. Early diagnosis, appropriate surgical treatment, and diligent postoperative care are key to preventing recurrence and ensuring optimal outcomes.

DECLARATIONS

Competing interest

The authors declare that there are no competing interest.

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Ethical Approval

“Not applicable”

Consent for publication

“Not applicable”

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