



Analysis of a Case of Snoring Caused by Ranula

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Abstract

A ranula is a benign, mucous-containing cyst involving a sublingual salivary gland that is caused by rupture or blockage of the salivary duct. Ranulas are usually classified into two types according to the location and extent of the cyst and include oral or non-plunging ranulas and cervical or plunging ranulas. Surgical excision of the sublingual gland and collection duct is a typical and definitive treatment. We present a case of ranula in a 10-year-old boy who suffered conspicuous snoring for a period of one month. Although an otorhinolaryngologist would consider a pharyngeal cyst, a ranula was diagnosed following a computed tomography scan and needle aspiration. It could be concluded that the transudate from the sublingual gland extended backward and swelled into the pharyngeal region. This case provides evidence of the existence of a rare type of pharyngeal ranula with typical symptoms of snoring and sensation of a foreign body, which should be focused on in clinical practice.

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Received Date: 07 Dec 2022

Accepted Date: 19 Dec 2022

Published Date: 26 Dec 2022

Citation:

Ma J, Zhang M, Hu C, Li J, Luo Q, Yang D, et al. Analysis of a Case of Snoring Caused by Ranula. Clin Case Rep Int. 2022; 6: 1441.

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Keywords: Ranula; Sublingual gland cyst; Snoring

Introduction

A ranula is a pseudocyst caused by extravasation of mucous into the surrounding soft tissue on the floor of the mouth and forms as a result of trauma or obstruction to the sublingual salivary glands or the duct itself [1,2]. Although it is commonly seen intraorally, a ranula can also be located extraorally as a submental or submandibular swelling known as a plunging ranula. Plunging ranulas have been shown to have a common trio of mylohyoid defects, sublingual gland herniation, and submandibular space fluid collections [3].

Most ranulas are asymptomatic with little or no associated morbidity or mortality, but when they grow larger, they can affect speech, swallowing, appearance, or breathing abilities. Typical treatments include needle aspiration, surgical excision, and sublingual gland excision along with cyst marsupialization, sclerotherapy, laser excision, or cryosurgery [4-8]. Among these treatments, surgical excision of the sublingual gland together with or without the cyst has been considered the best option given the least recurrence rate [9,10]. However, ranulas rarely extend backward or swell into the pharyngeal cavity. This study reviews our experience with the treatment of cases of snoring caused by a rare type of ranula.

Case Presentation

A 10-year-old boy was admitted to the Department of Otorhinolaryngology for his snoring. His complaints were conspicuous snoring that had occurred for one month and a slight sensation of a foreign body in the throat, both of which had affected his normal life. A physical examination performed with a laryngoscope revealed a hard mass on the base of the tongue near the epiglottis (Figure 1) and there were no signs of a cyst on the floor or exterior portions of the mouth (Figure 2A, 2B). The oral and maxillofacial surgeon suggested that a contrast-enhanced Computed Tomography (CT) scan be performed to assess the origin of the cyst. The CT scan showed a large mass of fluid attenuation enhanced by the rim that occupied sublingual spaces with an anterior connection (Figure 3). Fine Needle Aspiration (FNA) was performed, and the characteristic of the hydatid fluid was amber, melicera, and similar to an egg albumen, which corresponded to the typical manifestations of a ranula.

A ranula was diagnosed and the patient was referred to the department of oral and maxillofacial surgery. Excision of the sublingual gland with cyst was the patient's parents' treatment of choice. Under general anesthesia and with nasotracheal intubation, we excised the sublingual gland and separated the cyst, which was 4.0 cm × 5.0 cm in size because led by a fibrous member (Figure



Figure 1: The cyst on the base of the tongue near the epiglottis by laryngoscope.

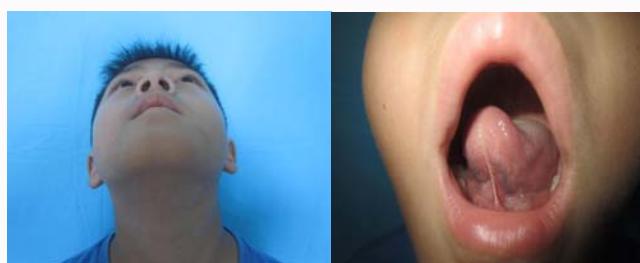


Figure 2: The photograph of the patient. It could be seen neither in the submandibular nor on the floor of the mouth.

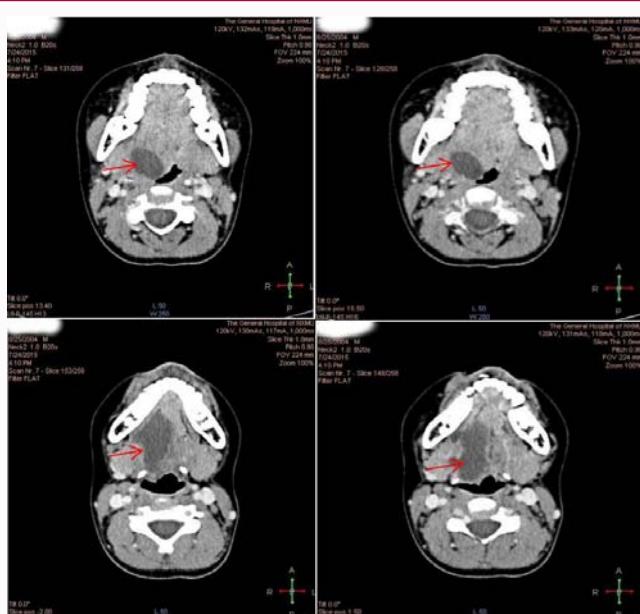


Figure 3: Initial contrast-enhanced Axial Computed Tomography of Siemens 64 rows spiral CT (KV 120, mA 118, slice thickness 1 mm). Enhanced CT showed the lesion with low-density shadow at different levels as the fluid of sublingual gland cyst extending into the sublingual, parapharyngeal spaces.

4). As the pseudocyst reached the right edge of the vallecula, it was challenging to dissect the entire cyst. The cyst was ruptured and most of the capsule wall was excised (Figure 3C). Pathology confirmed that the capsule wall was a fiber tissue without epithelium (Figure 4). The capsule wall was left intact to avoid perforation into the pharyngeal cavity during excision. This technique was performed following the therapeutic principles of the ranula. After the operation, the symptom

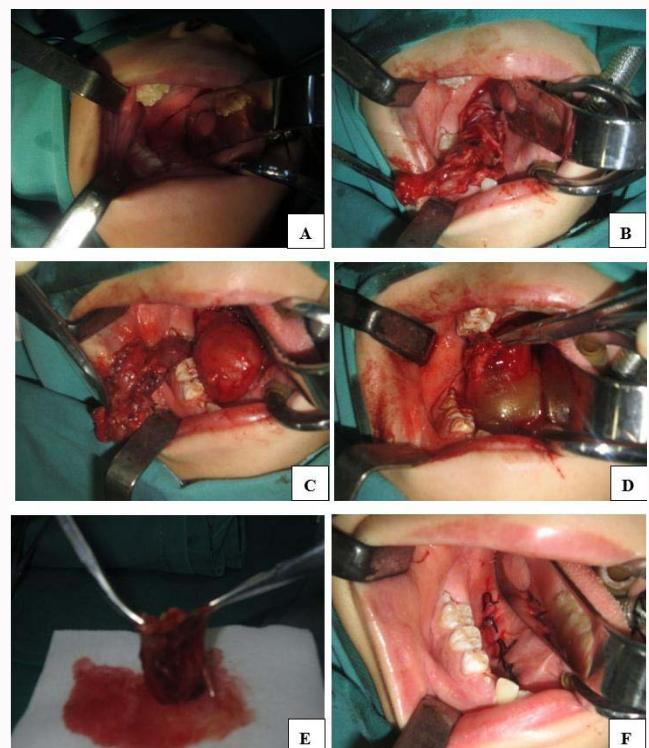


Figure 4: Sublingual gland and the cyst excision. A) The vision of the oral floor. B) The excision of the sublingual gland. C) The mass emerged. D) The cyst was ruptured and the liquid flowed out. E) Fibrous capsule of the ranula. F) View of the sewed incision.

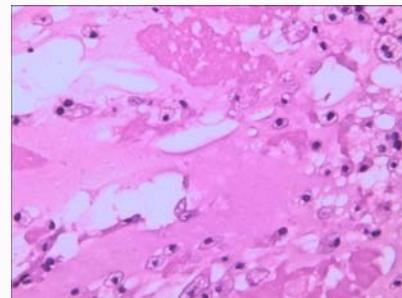


Figure 5: Histopathology shows a cystic cavity structure. There is no covering epithelium in the inner wall of the cyst, and the content of the cavity is homogeneous. The lymphocyte, monocyte, and foam cell are found in the cyst wall.

of snoring improved. A CT scan showed that a small mass of fluid attenuation enhanced by the edge remained after one week after the operation (Figure 5).

Discussion

Ranulas are retention collections of extravasated sublingual gland secretions that form unilocular pseudocysts and are not lined with epithelium. The nature of ranulas was unknown until Bhaskar's report in 1956[1]. The occurrence of ranula is 0.2 cases for every 1,000 people, and the reported male-to-female ratio is 1:1.3, without significant lateral preference [12,13].

Ranulas are often classified into simple (intraoral) ranulas and plunging (cervical) ranulas according to their anatomical characteristics. Simple ranulas are confined to the floor of the mouth and are much more common. The diagnosis of simple ranulas is

usually clinical due to their characteristic appearance and location. The pathogenesis of ranulas was confirmed as the leakage of excess fluid from the sublingual gland ducts into the surrounding soft tissues, and if the fluid remained above the mylohyoid compartment, the overlying stretched tissue is pale in appearance and bluish in color due to mucus accumulation [14]. However, if the fluid extends below the mylohyoid compartment, it will present as swelling of the neck called a plunging ranula [15].

The case reported here suggests another rare type of ranula: Complicated (pharyngeal) ranulas. Excess fluid leakage from the sublingual gland extended backward to the base of the tongue and swelled into the pharyngeal region. This swelling likely caused a series of symptoms associated with a cyst of the base of the tongue, such as snoring and foreign body sensation. Patients with these indications should be referred to an otorhinolaryngologist. In the present case, the cyst was difficult to diagnose without the aid of CT scanning or magnetic resonance imaging and fine-needle aspiration. These types of symptoms are not typically associated with ranulas, making them more likely to be diagnosed as a tongue cyst, a dermoid cyst, or hemangioma. Each of these shows a large fluid attenuation mass enhanced by the rim on CT imaging. A typical fluid like that found in a cyst can be found using fine-needle aspiration. The fluid obtained in this case resembled albumen upon visual inspection, and biochemical analysis showed high protein and amylase content. The biopsy showed mucus with inflammatory cells.

Snoring is typically a rare complaint in patients with ranulas. Due to this, we made it a point to provide a thorough and detailed examination. Management was a world of difference between ranulas and another kind of cyst. Ranulas are usually treated by excision of the sublingual salivary gland and cyst, but may also include mucus aspiration, incision and drainage, marsupialization, injection of sclerosing agents, and excision of the ipsilateral sublingual gland with or without the ranula. In the present case, we excised the right sublingual gland and most of the cyst. Although a small part of the cyst was left intact, the snoring symptom disappeared after treatment.

In summary, we present a case of ranula with snoring as the first complaint, which is rarely encountered in clinical practice. This evidence suggests that a complicated (pharyngeal) ranula should be included as a third type of ranula.

Acknowledgment

We are grateful to all those who made this study possible, especially the family of the patient who voluntarily cooperated with us.

Ethical Approval

The study was approved by the Ethics Committee of the General Hospital of Ningxia Medical University, and the patient provided written informed consent to participate in the study.

Funding

This research was supported by the National Natural Science Foundation of China (81600853 and 81960197), Key Research and Development Plan of Ningxia Hui Autonomous Region (2021BEG02043 and 2022CMG03159).

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