

Case Report

A giant dermoid cyst in the floor of the mouth: a case report

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ABSTRACT

Dermoid cysts are slow-growing cystic masses that are lined by stratified squamous epithelium and contain skin appendages. Dermoid cysts in the floor of the mouth account for less than 0.01% of all neck and oral cavity cysts. They can be either congenital or acquired. We report a case of a 25-year-old male, a final-year engineering student, who came to our outpatient department with complaints of swelling in the mouth and weight loss for 4 years. On examination, a large cystic swelling in the floor of the mouth, approx. 5x6 cm, obscuring the oropharynx, was seen. USG and CECT of the neck suggested ranula and plunging ranula in the right submandibular space, respectively. He underwent a combined (debulking and enucleation) submandibular cystic swelling excision through a transoral approach under general anesthesia guided by awake fiber optic nasal intubation. The intraoperative and postoperative periods were uneventful. Histopathologic examination of the resected tissue specimen suggested a dermoid cyst. The patient recovered well during the 1-month follow-up, and he gained weight up to 2.5 kg in a month of treatment. Dermoid cysts are very rare cystic lesions on the floor of the mouth. Surgery is the most curable method of treatment. A proper clinical examination with imaging guidance is necessary for accurate delineation of the cyst. Large submandibular cystic lesions can be excised by combining debulking and enucleation through a transoral approach, with a good cosmetic and functional outcome.

Keywords: Dermoid cyst, Submandibular space, Transoral approach, Enucleation

INTRODUCTION

Dermoid cysts usually occur in midline fusion body regions. They can occur anywhere in the body and have a rare presentation in the head and neck regions. They can grow into spaces in the floor of the mouth. They can also extend up to the parapharyngeal space and neck. Dermoid cysts in the floor of the mouth account for less than 0.01% of all neck and oral cavity cysts.¹ They can be either congenital or acquired. The first and second branchial arch embryonic cells give rise to the congenital form. The acquired type can develop from obstruction of a sebaceous gland duct, trauma, or iatrogenic factors. Radiological imaging will aid in the diagnosis, extension, and planning of surgery. Many benign and malignant lesions arise from the floor of the mouth; hence, histopathological examination helps in the final diagnosis

of the disease. Secondary infection with these cysts is very rare. Surgery is the only curable method of treatment. Complete removal of the cystic wall shows less recurrence. Here we present a case of dermoid cyst in a 25-year-old male, treated by surgical excision (Intraoral approach-enucleation).

CASE REPORT

We report a case of a 25-year-old male, a final-year engineering student, who came to our outpatient department with complaints of swelling in the floor of the mouth and difficulty speaking for 4 years. The swelling was initially small in the floor of the mouth, gradually increased in size since 2 years, and attained the present size, which occupies the entire mouth with difficulty

speaking and breathing, and he has lost almost 6-7 kg of weight, affecting his quality of life.

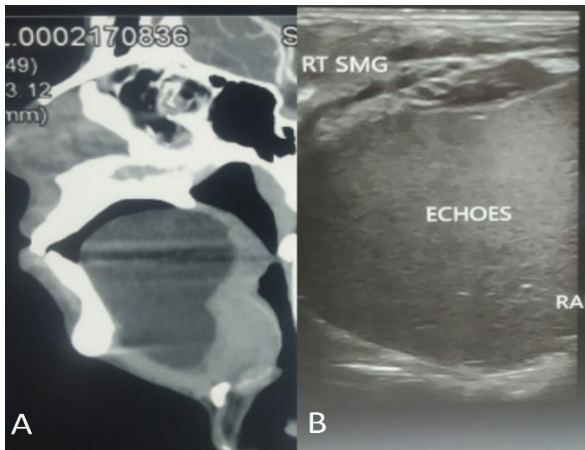


Figure 1: (A) CECT neck oral cavity (sagittal view), (B) USG neck images showing a well-circumscribed cystic size of 7.3x5.6x4 cm in the right sublingual-submandibular space.

There was no history of trauma or surgeries in the mouth previously. He is a non-smoker, non-alcoholic, and non-substance abuser, with no known drug or food allergies. His weight and height were 46 kg and 173 cm, respectively, with a BMI of 15.4 kg/m² (underweight). On examination, a large cystic swelling in the floor of the mouth, approx. 5x6 cm, was seen. It was non-tender, not warm, and fluctuant, obscuring the oropharynx and soft palate and displacing the tongue posteriorly. There were no airway issues elicited.



Figure 2: (A) Cystic swelling in the floor of the mouth, obscuring the tongue and soft palate, (B) Whitish-yellow thick fluid drained from the cyst.

A USG neck (Figure 1) was done, which showed a well-demarcated, elongated hypoechoic cystic mass of approximately 7x4.5 cm below the base of the tongue, extending downwards and slightly to the right with slight compression of the right submandibular gland (probably Ranula). A non-ionic contrast enhanced computed tomographic scan of the neck (Figure 1) was done, which was suggestive of a large well-circumscribed thin-walled cystic mass of approximately 7.3x5.6x4 cm seen in the oral cavity floor on the right side, likely in sublingual space between the mylohyoid muscle laterally and the geniohyoid/genioglossus complex medially.

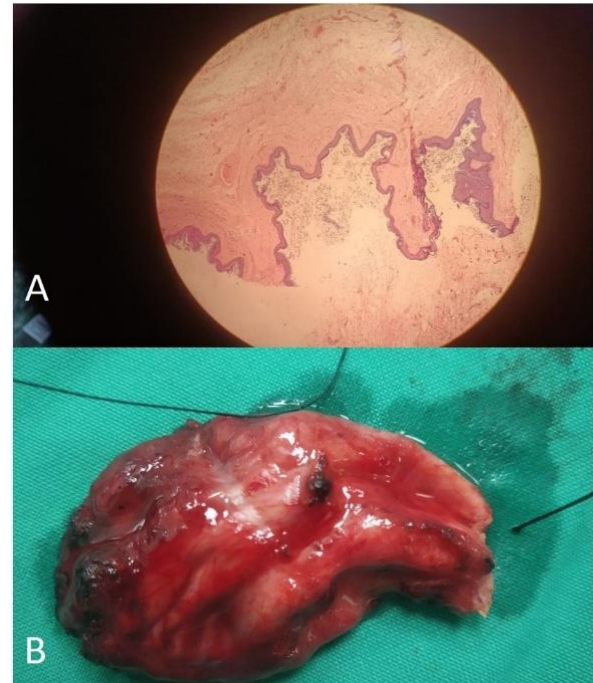


Figure 3: (A) Histopathological image of the dermoid cyst which is lined by stratified squamous epithelium with sebaceous glands, (B) Excised dermoid cyst intoto with cystic wall.

It is extending into submandibular space inferiorly associated with displacing the tongue superiorly, partial effacement of oropharyngeal air spaces are seen with no internal or peripheral enhancement suggestive of retention cyst/plunging ranula. Complete blood count, coagulation profile, ECG, chest X-ray, and 2-D ECHO were found to be normal. A pre-anesthetic checkup was done. Surgical planning through a transoral approach, possible complications of surgery, and alternative options were explained to the patient and their relatives. Informed consent was obtained. Fiber-optic guided nasotracheal intubation (due to difficult airways, receding mandible, swelling blocking the oropharynx, and improper tongue visualization) under general anesthesia was given. A 14-FG nasogastric tube was given and secured. The patient was positioned in the reverse trendelenberg position. Sterile painting and draping were done. patient received dual antibiotics of Inj. Ceftriaxone+sulbactam and Inj. Metronidazole pre-incision. Doyen's mouth gag was

applied, and the oral cavity was exposed. A standard linear horizontal incision was given over the swelling in the floor of the mouth. Submucosal dissection over the cystic wall was done. We identified and preserved sublingual glands, (Wharton's) submandibular ducts, and lingual nerves.



Figure 4: (A) Intraoral surgical site and visualization of tongue and (B) soft palate during 1-month post-operative period.

The cystic swelling was found to be extending inferiorly below the mylohyoid muscle on the right side, lying medial to the geniohyoid muscle laterally on the left side, compressing the right submandibular gland, and extending posteriorly below the tongue base and deeper neck. Due to difficult access in the posterior plane, controlled cystic wall puncturing was done, and the cyst was debulked. A thick whitish yellow fluid was released (Figure 2).

A tongue-tie suture was given. Traction and countertraction were carried out, and the cystic wall was completely detached from the base of the tongue and the deeper (infero-lateral) aspect of the neck, and the cystic wall was excised in toto. The specimen was sent for histopathological analysis (Figure 3). The surgical cavity was washed with betadine. Hemostasis was achieved with bipolar cautery and surgical (oxidized regenerated oxycellulose) packs. The mucosal incision was closed with a simple interrupted 3-0 vicryl suture. We have kept the tongue tie and nasogastric tube until the acute phase of wound healing. The patient tolerated the procedure well. He was extubated successfully. The post-operative period was uneventful. Nasogastric tube feeding was initiated on postoperative day 1. Chlorhexidine mouth wash was started on postoperative day 1. The patient was discharged on pod-4 with a tongue tie and a nasogastric tube, with proper follow-up advice and medications.

During the 1-week follow-up, we found a healthy surgical site with good tongue and salivary gland function (Figure 4). The tongue tie and nasogastric tube were removed during the first follow-up. Strict oral hygiene was advised. Histopathological examination of the resected tissue confirmed the diagnosis as a dermoid cyst (Figure 3). After a 1-month follow-up review, a satisfactory outcome was achieved without neck or intraoral swelling, with a weight gain of up to 2 kg.

DISCUSSION

Dermoid cysts may develop either congenitally or acquiredly. Although the cyst's precise pathophysiology is unknown, recommendations including dysontogenic and thyroglossal anomalies are postulated.^{1,2} Epidermoid cysts, dermoid cysts, and teratoid cysts are lined with squamous epithelium and are classified based on their histological features, such as simple squamous epithelium (epidermoid), skin adnexa in the cystic wall (dermoid), and other tissues such as bone, cartilage, and muscle (teratoid).¹⁻⁴ Dermoid cysts of the floor of the mouth comprise only 1.6% to 6.5% of all body dermoid cysts and account for 23% to 34% of head and neck dermoids.^{5,6} They represent less than 0.01% of all oral cavity cysts.^{1,5} Anatomic classification divides the cysts of the floor of the mouth into three groups according to their relation to the muscles of the floor of the mouth: sublingual or median geniohyoid cysts, located above the geniohyoid muscles; median geniohyoid cysts, located in the submental region between the geniohyoid and mylohyoid muscles; and lateral cysts, located in the submaxillary region.^{7,8} The clinical diagnosis of cysts in the floor of the mouth remains diagnostically unreliable, and the final diagnosis must be certified by histopathologic investigation.² They are commonly seen in the age group between 15 and 35 years.⁹ Burger et al and Iseri et al in their studies, found a slight male preponderance, which was similar to our case study.^{10,11} Speech and swallowing difficulties are the most common symptoms.¹² Radiological investigations such as USG neck and CECT neck help in the proper assessment of swelling and planning of surgery. Meyer et al suggested that the clinical diagnosis of floor of mouth cysts is unreliable and histologic confirmation is warranted, which is true in our case: CECT suggested a plunging ranula, USG suggested a ranula, and HPE revealed a dermoid cyst.² Iseri et al suggested that a large cystic lesion in the oral cavity can be excised by downsizing the cyst with needle aspiration first and then giving a small mucosal incision for complete excision and better cosmetic purposes.¹¹ The cause of recurrence was damage to the cystic wall and the leaving of a remnant cystic wall during excision.^{13,14} In our case, the cystic wall was completely removed without any damage; hence, we considered that it would not increase the risk of recurrence. The intraoral approach has better cosmetics, faster recovery, fewer hospital stays, fewer complications, and an improved quality of life. In our case, the patient was underweight with a BMI of 15

kg/m² before surgery, and he gained approximately 2.5 kg with improved quality of life post-surgery during the 1-month follow-up period.

CONCLUSION

Dermoid cysts are very rare cystic lesions on the floor of the mouth. All swellings in the floor of the mouth must be addressed with proper clinical examination and radiological imaging for accurate delineation. Depending on the size and extension of the swellings, surgical planning (either a transoral or extraoral approach) will be made. Large submandibular cystic lesions can be excised by combining debulking and enucleation through a transoral approach, with a good cosmetic and functional outcome. Incomplete enucleation will result in a recurrence. A final diagnosis of cystic swelling in the floor of the mouth will be made upon the histopathological analysis.

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