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CASE REPORT

Dermoid Cyst of the Floor of the Mouth: A Rare Case and Transoral Management in an Adult Male: A Case Report and Literature Review

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ABSTRACT

Dermoid cysts are rare masses of the oral cavity derived from ectodermal elements. Histologically, they can be further classified as epidermoid, dermoid or teratoid. We report a case of a 23-year-old male with dermoid cyst presenting with a large submental swelling causing speech and swallowing difficulties. Contrast enhanced computed tomography revealed a well-defined hypoechoic lesion in the sublingual region. The lesion was excised via a transoral approach. Histopathological examination confirmed a dermoid cyst. A review of literature was done. This case emphasizes the importance of imaging in preoperative planning and the role of minimally invasive surgical techniques and the importance of histopathological examination for final diagnosis.

Keywords: Floor of mouth, Sublingual swelling, Transoral surgery, Dermoid cyst

INTRODUCTION

Dermoid cysts are benign, developmental cystic lesions arising from ectodermal tissue, often found along lines of embryonic fusion. They can occur anywhere in the body and have a rare presentation in the head and neck regions. Dermoid cysts in the floor of the mouth account for less than 0.01% of all neck and oral cavity cysts. They predominantly affect young individuals, typically discovered during the second and third decades of life. While they develop slowly, they can reach significant sizes and interfere with functions such as speech and swallowing, and ultimately present respiratory risks for patients. 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. 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 23-year-old male, treated by surgical excision.

CASE PRESENTATION

A 23-year-old male presented with a painless, gradually increasing swelling in the floor of the mouth for six months. The swelling was initially small in the floor of the mouth, gradually increased in size and attained the present



size Fig. 1, which occupies the entire mouth with difficulty in speaking and swallowing. There was no history of dyspnea or snoring. There was no history of trauma, infection, or previous surgeries in the area.

Intraorally, a large, soft, smooth-surfaced, non-tender, well-defined, fluctuant, sublingual swelling noted occupying the entire floor of the mouth. The floor of the mouth appeared elevated. The overlying mucosa was normal. There were no airway issues elicited.

The differential diagnosis included dermoid cyst, epidermoid cyst, cystic hygroma, lymphoepithelial cyst, thyroglossal duct cyst, and ranula.

Contrast enhanced computed tomography revealed a well-defined hypoechoic lesion in the floor of the mouth, suggestive of a cystic swelling Fig. 2, Fig. 3.

The patient underwent transoral excision of the cyst under general anesthesia Fig. 4. A blunt dissection approach was used to avoid injury to surrounding structures, and the lesion was removed intoto without rupture Fig. 5

Histopathological examination confirmed the diagnosis of a dermoid cyst, showing a cyst lined by stratified squamous epithelium with keratinous debris and adnexal structures (hair follicles and sebaceous glands) in the cyst wall.

The postoperative period was uneventful, and there has been no recurrence at 6-month follow-up.



Fig. 1: Intraoral view shows the swelling of the floor of the mouth



Fig. 2: CECT neck oral cavity (sagittal view)



Fig. 3: CECT neck oral cavity [coronal view]



Fig. 4: Intraoperative picture showing the dermoid cyst within the floor of mouth being delivered out



Fig. 5: Excised dermoid cyst *in toto* with cystic wall

DISCUSSION

Dermoid cysts may develop either congenitally or may be acquired. 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 genioglossal 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}.

In our case, the sublingual swelling suggests that the lesion was above the mylohyoid muscle, which is the most common location. When dealing with swellings in the sublingual region, 4 main groups of lesions should be considered: infections, tumours, mucous extravasation phenomena and anatomic abnormalities arising during embryonic development ⁶. They are commonly seen in the age group between 15 and 35 years ⁹. Speech and swallowing difficulties are the most common symptoms ¹². The differential diagnosis of lesions that present as a cyst or pseudocyst of the floor of the mouth includes mucocele, ranula, cystic hygroma, thyroglossal duct cyst, brachial cleft cyst, infectious process, lymphatic malformation, tumors, hemangioma, salivary lesions, and Ludwig's angina only in cases of inflammatory complications ⁸.

Ultrasound imaging is the initial diagnostic modality of choice for oral lesions. Radiological investigations such as USG neck and CECT neck help in the proper assessment of swelling and planning of surgery.

Magnetic resonance imaging (MRI) and computed tomography (CT) allow more precise localization of the lesion and also enable the surgeon to choose the most appropriate approach ⁷. Some authors prefer MRI over CT as a diagnostic tool for dermoid cysts ^{9, 11}, as it is superior in terms of soft-tissue resolution and, thus, better able to depict the internal structure of a mass lesion. Meyer et al suggested that the clinical diagnosis of floor of mouth cysts is unreliable and histologic confirmation is warranted, which is true in this case ².

The mylohyoid muscle separates the sublingual from submental and submandibular spaces and is a key landmark used to determine whether an intraoral or cervical approach is most appropriate during surgery ¹⁴. Surgical approaches, such as transcutaneous, extended median glossotomy, median glossotomy and midline incision, may be performed ⁷. In our case, excision was achieved without major complications by employing intraoral access under general anesthesia. This approach is supported by Akao and colleagues ¹² who state that intraoral access must be attempted first, even if dealing with a large cyst. The intraoral approach leads to good cosmetic and functional results ^{12, 7}. Marsupialization has also been proposed as a treatment alternative in cases of giant cysts ⁷. 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. When intraoral access is complicated, a combined intraoral and extraoral approach should be used ¹². Extraoral incision is mandatory only when the cyst lies under the geniohyoid muscle. Surgical excision is normally achieved without major complications and prognosis is very good ^{12, 7}. However, it should be kept in mind that surgery on the floor of the mouth may damage structures in the sublingual space, leading to potentially life-threatening complications. Hemorrhage and hematoma formation may ensue and could lead to significant swelling and edema of the floor of mouth and tongue, resulting in respiratory distress and airway obstruction from elevation of the tongue against the palatal vault ¹³.

Usually, the cause of recurrence was damage to the cystic wall and the leaving of a remnant cystic wall during excision ^{13, 8}. In our case, the cystic wall was removed without any damage or remnant and sent for histopathological examination which showed simple squamous epithelium with skin appendages, confirming the diagnosis of dermoid cyst. The intraoral approach has

better cosmetics, faster recovery, fewer hospital stays, fewer complications, and an improved quality of life.

REVIEW OF LITERATURE

A literature review was conducted. We identified multiple case reports and case series on epidermoid/dermoid cyst which have been summarized in Table. 1. Patient demographics revealed a varied age range from 15 years to 32 years, with predominant being male. Patients most

commonly presented with sublingual swelling causing difficulty in speech and swallowing. Surgical excision, primarily via intraoral approaches, was the prevailing management strategy, but in CASES where the cyst was too large or difficult to excise *in toto*, cervical approach was done. The overall prognosis was favorable, with no recurrence and most patients experiencing an excellent recovery, marked by a swift postoperative period, as reported in follow-up periods.

Table 1: Patient demographics

Authors	Age	Presentation	Management	HPE report
Jham <i>et al.</i> ³	25 years	Sublingual swelling, speech and swallowing difficulties	Intraoral approach	Epidermoid cyst
Thirunavukarasu <i>et al.</i> ¹⁵	25 years	Sublingual swelling, speech and swallowing difficulties	Intraoral approach	Dermoid cyst
Hibelot <i>et al.</i> ¹⁹	15 years	Submental swelling	Intraoral + cervical approach	Epidermoid cyst
Patel <i>et al.</i> ²⁰	17 years	Submental swelling	Cervical approach	Dermoid cyst
Vieira <i>et al.</i> ²¹	29 years	Sublingual swelling	Intraoral approach	Dermoid cyst
Makos <i>et al.</i> ²²	21 years	Submental swelling	Cervical approach	Dermoid cyst
Makos <i>et al.</i> ²²	17 years	Sublingual +submental swelling	Intraoral approach	Dermoid cyst
De Ponte <i>et al.</i> ⁵	18 years	Sublingual swelling	Intraoral approach	Epidermoid cyst
Dillon <i>et al.</i> ¹⁴	19 years	Sublingual swelling	Intraoral approach	Dermoid cyst
Giarraputo <i>et al.</i> ²³	12 years	Submental swelling	Cervical approach	Dermoid cyst
Basumatary <i>et al.</i> ²⁹	32 years	Sublingual swelling	Intraoral approach	Epidermoid cyst
van Orsouw <i>et al.</i> ²⁸	17 years	Submandibular swelling	Cervical approach	Dermoid cyst
Grenness <i>et al.</i> ²⁴	30 years	Submental swelling+ Sublingual swelling, speech and swallowing difficulties	Cervical approach	Dermoid cyst
Baliga <i>et al.</i> ²⁷	26 years	Submental swelling+ Sublingual swelling, speech and swallowing difficulties	Intraoral approach	Epidermoid cyst
Le <i>et al.</i> ²⁵	15 years	Sublingual swelling speech and swallowing difficulties	Intraoral approach	Dermoid cyst
Ohta <i>et al.</i> ³⁰	21 years	Sublingual swelling, speech and swallowing difficulties	Intraoral approach	Dermoid cyst
Boko <i>et al.</i> ²⁶	23 years	Submental swelling+ Submandibular swelling+ Sublingual swelling, speech and swallowing difficulties	Intraoral approach	Dermoid cyst

CONCLUSION

Diagnosing and treating floor of the mouth lesions present challenges. A wide spectrum of lesions, from mucocele to

malignancy, can occur in this region. All swellings in the floor of the mouth must be addressed with proper clinical examination and radiological imaging for accurate



delineation. Using modern imaging modalities is crucial for accurate diagnosis before a surgical treatment. Depending on the size and extension of the swellings, surgical planning (either a transoral or extraoral approach) will be made. 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. Transoral excision offers an effective and cosmetically favourable method when feasible.

Disclosure

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Conflict of Interest: None

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