

## Case Report

# Submental Dermoid Cyst Mimicking Double Chin

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### ABSTRACT

Dermoid cysts are developmental cysts, arising from entrapped midline ectodermal tissue lined by epidermis, with skin appendages present in the fibrous wall when the 1<sup>st</sup> and 2<sup>nd</sup> branchial arches of each side fuse and the entrapped tissues then undergo proliferation and cystic transformation. A 27-year-old male reported with a single large swelling in the submental region of 1-year duration, which was diagnosed as dermoid cyst after surgical excision using extraoral approach.

**KEYWORDS:** *Dermoid cyst, midline swelling, submental region*

## INTRODUCTION

Dermoid cysts of the head-and-neck region are approximately 7%.<sup>[1]</sup> These are slow growing in the midline of submental or sublingual region. Lesions over the geniohyoid muscle region produce a submental swelling over this region, giving the patient a “double-chin” appearance. The cysts tend to be small in infancy and enlarge during adolescence before presenting symptoms. In this article, we present a case of a large dermoid cyst which was successfully treated by surgical excision.

## CASE REPORT

A 27-year-old male presented to the Oral and Maxillofacial Surgical Unit of Saraswati Dhanwantari Dental College and Hospital, Parbhani, in October 2017 with a single large swelling in the submental region. The patient had a history of hematoma due to unknown impact 5 years back, and a painless tiny mass below 1 cm was observed under the chin with gradual progression during 1 year. On examination, the swelling was approximately 4 cm × 3 cm × 2 cm, freely movable without any fixation to the underlying or overlying structures and was nontender and doughy in consistency with no lymphadenopathy on palpation. Intraorally, there were no relevant dental findings, and the tongue movements were normal [Figure 1].

Aspiration cytology revealed 0.5 ml-thick semifluid material, which was fixed with hematoxylin and eosin, PAP, and Giemsa stains. Microscopic examination revealed areas of blood elements, clusters, and singly dispersed benign enucleated squamous cells. These features were suggesting a diagnosis of dermoid cyst. Ultrasonography revealed a well-defined thin-walled homogeneous hypoechoic lesion measuring 25 mm in the submental region. Vascular lesions were excluded on color Doppler study. There was no evidence of any communication with the thyroid gland, and features were suggestive of a benign cystic lesion. Correlating the above findings, a provisional diagnosis of dermoid cyst was established.

The patient was informed about the surgical procedure of cyst enucleation under general anesthesia and the chances of postoperative scar in the submental area. Thereafter, the procedure was carried out with a written consent of the patient.

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Enucleation of the cyst was performed under general anesthesia using transcutaneous approach with a skin incision over the submental region followed by dissection thoroughly over the subcutaneous plane and platysma muscle and protecting the anatomical structures. The capsule of the cyst was completely removed with external traction and blunt dissection, and surgical wound was closed layer by layer with absorbable and nonabsorbable sutures [Figure 2a and b].

Postoperative histopathological examination of the excised specimen showed a fibrocollagenous cyst wall with prominent granular layer along with scattered chronic inflammation, lumen of cyst filled with flakes of lamellated keratin, and occasional giant cells noted within the stroma, supporting a diagnosis of dermoid cyst [Figure 3].

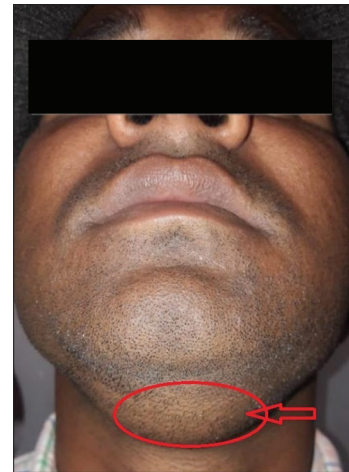
Postoperative recovery was uneventful, and the patient was discharged on the 2<sup>nd</sup> day with oral antibiotics prescribed for 5 days with frequent review. Postoperative 6<sup>th</sup> month review showed no signs of recurrence.

## DISCUSSION

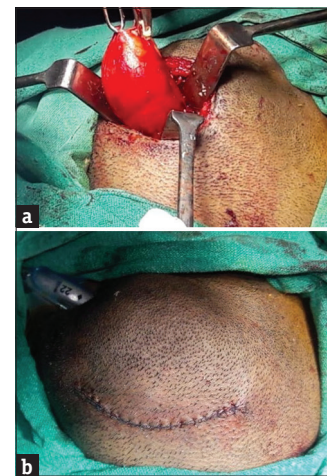
The term “dermoid cyst” is a generic term used to describe three different histological varieties by Meyer, namely epidermoid (lined with simple squamous epithelium without any skin appendages), dermoid (lined with keratinized squamous epithelium with skin appendages), or teratoid (lined with epithelium ranging from simple stratified, keratinized stratified squamous to stratified columnar epithelium with the involvement of three germ layers).<sup>[1,2]</sup> The etiology of dermoid cysts may be mostly congenital, acquired, or it occurs from the rest of totipotent cells displaced from the blastomere.<sup>[3,4]</sup> Congenitally, it originates due to entrapped midline embryonic cells of the 1<sup>st</sup> and 2<sup>nd</sup> branchial arches (dysontogenic hypothesis) or it may develop from the tuberculum impar of His. Acquired cysts occur due to traumatic epithelial cell implantation as a result of accident, surgery, or from the occlusion of a sebaceous gland duct. There is no sex predilection, and dermoid cysts are commonly affecting people between the ages of 15 and 35 years, during a period of maximal epithelial activity.<sup>[5]</sup>

Anatomically, the cysts of the floor of the mouth are classified into three groups according to their relation to the muscles of the floor of mouth as follows:<sup>[6]</sup> sublingual cysts seen above the geniohyoid muscles, median geniohyoid cysts seen in the submental region, and lateral cysts seen in the submaxillary region.

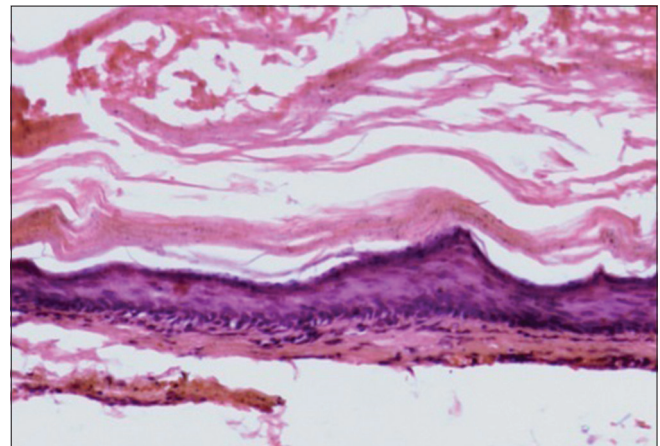
Clinically, there will be long duration of slow-growing, single, localized, mobile, soft, firm or doughy, usually



**Figure 1:** Single large swelling over the submental region (preoperative)



**Figure 2:** (a): Intraoperative enucleation of the cyst. (b) Skin closure of the wound



**Figure 3:** Histopathology: Flakes of lamellated keratin, fibrocollagenous layer with prominent layer noted (microscopy image)

well-circumscribed, asymptomatic mass located in the midline, above or below the mylohyoid muscle.<sup>[1]</sup>

It may present later in life as it is slow growing and become evident only after reaching an appreciable size

due to increase in the secretion of sebum from sebaceous glands, which causes dysphagia, dyspnea, dysphonia, and upward displacement of tongue respiratory distress, which may require tracheostomy.<sup>[7]</sup> Sometimes, it gives rise to a characteristic “double-chin” appearance.

Clinically, dermoid cysts may present in the form of cystic hygroma or lymphangioma, plunging ranula, lipoma, vascular and lymphatic malformation, salivary gland neoplasm, and thyroglossal duct cyst.

Histologically, dermoid cysts are lined by epidermis with the contents of keratinous, caseous, dermal appendages like sebaceous, or purulent with hair, nails, sweat glands, fat globules, and even cartilage.<sup>[8]</sup> The abovementioned features differentiate ranula on fine-needle aspiration cytology. In this case, we noticed keratinized squamous cells with dermal appendages. Ultrasonography, computed tomography (CT), and magnetic resonance imaging are other diagnostics aids apart from the conventional radiographs and bimanual palpation. In our case, ultrasonography represents the first choice as it is reliable and economical. Rarely, dermoid cysts (midline dermoid in this case) may extend through bone to communicate with a cyst in the anterior fossa of the skull and to rule out, CT scan is recommended. The cyst wall should be sent for frozen section to verify the absence of the malignancy.

Treatment is total excision (enucleation) through intraoral or extraoral approach or a combination of both. An intraoral approach is recommended in cases of cysts above the mylohyoid muscle. In this case, transcutaneous approach over the submental region was done as it was a median geniohyoid cyst. If not operated, it may affect the submandibular region and in the situations of infection process, it may interfere the patient’s airway.<sup>[8]</sup> Caution should be taken not to rupture the cyst, as cystic contents may act as irritants to fibrovascular tissues, causing postoperative inflammation. Malignant transformation, though rare, has been reported in 5% of cases.<sup>[2,9]</sup>

## CONCLUSION

Dermoid cyst in this case clinically gives a double-chin appearance and was surgically treated through extraoral

approach. After postoperative period of 1 year, the review at the moment concluded that the patient does not have any complications except a negligible scar.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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