



EPIDERMOID CYST vs DERMOID CYST : A DIAGNOSTIC BATTLE

Dr Mohammed Danish Afzal*

Post Graduate Resident in General Surgery Osmania General Hospital, Hyderabad, T.S. *Corresponding Author

Dr Koduri Naga Sai Keerthana

Post Graduate Resident in General Surgery Osmania General Hospital, Hyderabad, T.S.

ABSTRACT Dermoid and epidermoid cysts are ectoderm lined cysts with 7% occurring in the head and neck region 3,4 , most often in the submental region. A case of a 24 year old patient with submental swelling , diagnosed as a thyroglossal duct cyst on clinical examination , radiologically and cytology appearing like a dermoid cyst. Excision biopsy was done , showing it to be an epidermoid cyst. Differential diagnosis of these midline swellings is necessary , as there are significant variations on clinical , cytological and radiological assessment , biopsy being the final and confirmatory method of assessment. Therefore, it is considered superior for a confirmatory diagnosis of midline neck swellings.

KEYWORDS :

INTRODUCTION

Epidermoid and dermoid cysts are nonodontogenic inclusion cysts lined by ectoderm^{1,2} They occur anywhere in the body, predominantly in areas where embryonic elements fuse together³. Most cases have been reported in ovaries and the testicles (80%), with 7% occurring in the head and neck area and 1.6% within the oral cavity^{3,4}. They represent 0.01% of all oral cavity cysts^{4,5}. Epidermoid cysts of the neck are much less common than dermoid cysts of the head and neck. Most often they are located in the submental region².

CASE PRESENTATION :

A 24 year old female patient presented with swelling over the upper part of neck for 7 years - gradual onset , progressive increase in size . No History of sudden increase in size of swelling / Discharge from swelling. No History of difficulty breathing or swallowing or change in voice. No History of Trauma / Irradiation / Surgeries to neck. No History of comorbidities. On Examination - a solitary firm , non tender , non warm , spherical swelling of 6x4 cm is palpated in the upper midline of the neck, which moves with deglutition , and has smooth surface and skin over the swelling appears normal. Swelling does not move with protrusion of tongue.



Figure 1 : Clinical presentation of the patient.

CLINICAL COURSE :

BLOOD TESTS	Hemoglobin - 9g% WBC - 11,000/mm3 PLC - 1.61 lakh/mm3 Creatinine - 0.45mg/dl TSH - 1.23 uIU/ml
ULTRASONOGRAPHY OF NECK	A well defined , oval shaped , heterogeneously , hypoechoic lesion measuring 2.5x1.5 cm with multiple rounded hypoechoic area with internal calcification , and posterior acoustic enhancement with no internal vascularity - likely Epidermoid Cyst

FINE NEEDLE ASPIRATION CYTOLOGY OF SWELLING	Cytosmear shows scattered nucleate and anucleate squamous and clusters of basaloid cells , foreign body giant cells and foam cells with foamy vacuolated cytoplasm with background of Keratin debris. - likely Dermoid cyst
COMPUTED TOMOGRAPHY OF HEAD AND NECK	A well defined thick walled cystic lesion noted in infra-hyoid region measuring 3.5x2.5 cm with central fat attenuating areas ; fat planes and adjacent muscles maintained. - likely Dermoid cyst.
GROSS PATHOLOGY	Single gray-white - gray-brown, globular soft tissue mass of 3x2 cms. Cut surface shows pultaceous material.
HISTOPATHOLOGY REPORT	Cyst lined by stratified squamous epithelium with lamellated keratin material ; adjacent tissues show muscle bundles - suggestive of Epidermal cyst

DISCUSSION :

Dermoid and Epidermoid cysts are ectoderm lined inclusion cysts , which differ in their contents . Both dermoid and epidermoid cysts are lined by squamous epithelium with keratinous material seen within it. Epidermoid cyst are classified as congenital or acquired , with no difference in presentation , histological features. Epidermoid cysts lack dermal appendages , are thin walled and contain no calcifications.

In the head and neck region , the incidence of dermoid and epidermoid cysts is 7%. The most common location of these cysts is the lateral eyebrow. 11.5% of all dermoid cysts occurring in the head and neck region are located in the submental region 6. The epidermoid cysts in the neck region are less common than the dermoid cyst and these are located in the submental region.

Diagnosis of these lesions require clinical , histopathological examination , with Imaging studies being complementary to provide precise location of tumor and its relation to adjacent structures 7, thereby aiding surgical planning.

Differential Diagnosis includes (but not limited to) , thyroglossal duct cyst , vascular lymphatic malformation (cystic hygroma) , median neck cysts , lymphadenopathy , thyroid gland tumor , laryngeal cyst , submental abscess .

Treatment consists of complete surgical enucleation ,while taking precautions not to rupture the cyst , as they may act as nidus for irritants to adjacent fibrovascular structures 8. Surgical approach can be

determined by the relationship of cyst to musculature of the neck.

9. Zielinski, Rafal, and Anna Zakrzewska. "Submental epidermoid cysts in children." *Open medicine (Warsaw, Poland)* vol. 10,1 77-81. 11 Nov. 2014, doi:10.1515/med-2015-0013

Table 1 : Differences between Epidermoid and Dermoid cyst ?

PARAMETER	EPIDERMOID CYST	DERMOID CYST
Incidence in head and neck	Less common	More common
Location	Midline and non-midline	Midline
Type of cyst	Inclusion cyst , lined by ectoderm	Inclusion cyst , lined by ectoderm
Wall thickness	Thin lining , because of lack of dermal appendages	Thick lining
Presence of skin appendages	Absent	Present
Contents	Keratinous cheesy material due to squamous epithelium	Keratinous cheesy material due to squamous epithelium , often with cutaneous elements
Treatment	Excision	Excision

Our patient was diagnosed based on clinical examination as thyroglossal duct cyst ; Imaging (sonography) suggested the possibility of epidermoid cyst and Cytological examination suggested the most likely possibility of dermoid cyst. Excisional Biopsy , under general anesthesia was performed and specimen sent for histopathological examination - which confirmed it to be epidermoid cyst , with cyst lined by stratified squamous epithelium with lamellated keratin material.

Patient was followed up for 4 weeks postoperatively and recovered well. Wound was healthy and the patient had no symptoms on follow-up.



Figure 2 : Intraoperative pictures of Excisional biopsy .

CONCLUSION :

The epidermoid cysts in the submental region develop as slow growing masses over the years.

It is therefore illustrated by this case report , that excisional biopsy remains the mainstay of diagnosis of such cysts , with Imaging modalities being complementary for delineating the anatomical relations. Although rare , these cysts should be considered to be a possibility in differential diagnosis of midline neck swellings.

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