Epidermal Inclusion Cyst Presenting as a Large Submental Mass Following Gastric ByPass Surgery

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Citation

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Abstract

Epidermoid cysts infrequently occur in the head and neck region. We report a case of an epidermoid cyst that presented as a large submental mass following significant weight loss as a result of gastric bypass surgery . The mass was evaluated preoperatively by ultrasound and contrast enhanced CT. Sonography revealed a well defined mass containing internal echogenicity. Further evaluation by CT demonstrated a homogenous, fluid attenutaion nonenhancing mass inferior to the mylohyoid muscle.

INTRODUCTION

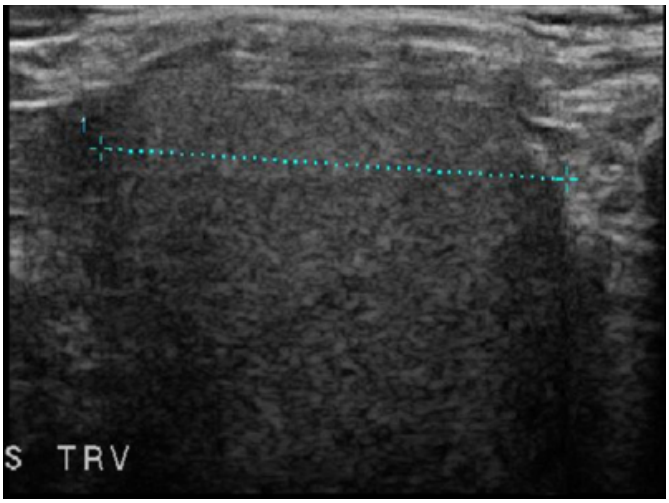
Epidermal inclusion cysts, or epidermoid cysts, are uncommon but not rare lesions when encountered in the head and neck region. They are included in the spectrum of teratomas which also encompasses dermoid cysts and teratoid cysts [1]. Approximately 7% of all dermoid cysts occur in the head and neck with the lateral eyebrow as the most common site , followed by the floor of the mouth[1] . Epidermoid cysts are less common than dermoid cysts; they tend to occur along the midline and may mimic other congenital lesions thereby presenting a diagnostic challenge when encountered on imaging studies. We present a case of a large submental mass that was identified pathologically as an epidermal inclusion cyst.

CASE REPORT

A 23-year-old female presented with dysphagia secondary to a large submental mass. The mass was present for years but became more prominent following weight loss after Roux-en-Y surgery performed for morbid obesity. The mass was evaluated preoperatively by ultrasound and contrast enhanced CT. Sonography revealed a 4.5 x 5.3 x 3.0 centimeter midline, partially lobulated mass superior to the thyroid gland (Figure 1).

Figure 1

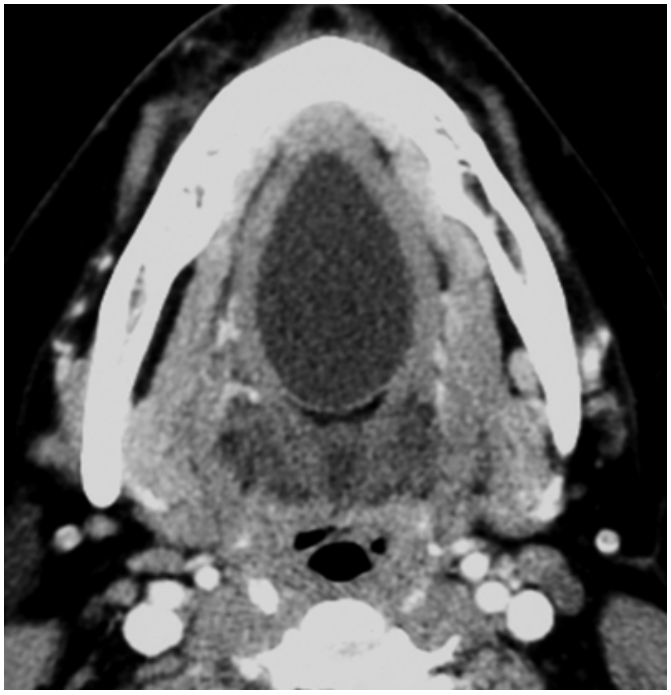
Figure 1: Sonogram showing cystic midline neck mass with internal echogenicity



The mass was compressible, suggesting a cystic nature, and contained internal echogenicity. No internal vascular flow was demonstrated on color Doppler imaging. Differential diagnostic considerations were thyroglossal duct cyst or plunging ranula. A neck CT was recommended for additional characterization of the mass. Contrast-enhanced CT revealed a large hypodense submental mass that was anterior to the hyoid bone and thyroid cartilage (Figure 2).

Figure 2

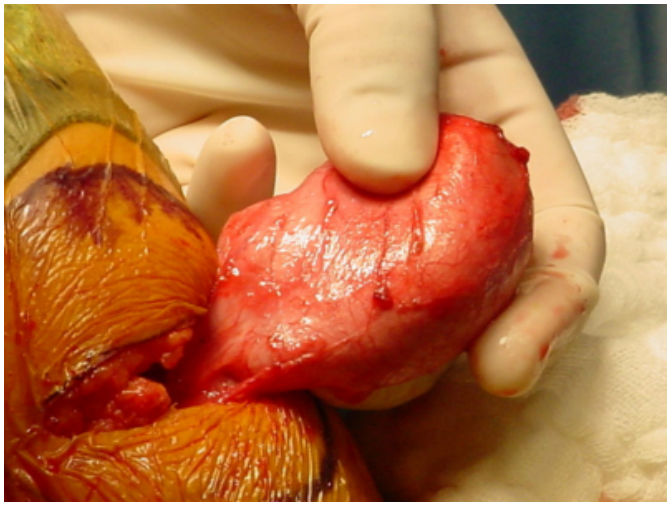
Figure 2: Contrast enhanced CT demonstrates hypodense submental mass with no significant enhancement



There was no contrast enhancement of the wall of the mass and no significant adenopathy was present. The patient underwent surgical removal of the mass via an anterior approach. The mass was confined entirely to the subcutaneous tissues with no attachments to deeper neck structures (Figure 3).

Figure 3

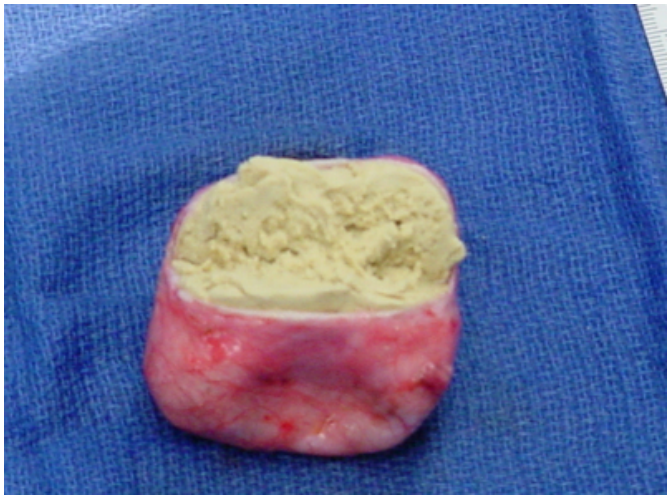
Figure 3: Intraoperative image showing partial removal of a large anterior neck mass via an anterior approach



The specimen was bisected in the operating room and contained fluid and sebaceous appearing material (Figure 4).

Figure 4

Figure 4: Intraoperative bisection of the mass which contained fluid and sebaceous material



Pathologic analysis confirmed the diagnosis of epidermal inclusion cyst.

CONCLUSION

Epidermal inclusion cysts (epidermoid) and dermoid cysts are frequently discussed together in the literature because of their similar histology. Both lesions are lined by ectodermally derived squamous epithelium [2]. A true dermoid cyst contains skin appendages (apocrine glands, sebaceous glands, hair follicles) within its epithelial lining which accounts for the various ectodermal contents encountered within its lumen including keratin, sebum, and occasionally hair [1]. Epidermal inclusion cysts, in contrast, do not contain skin appendages and their luminal contents are derived from desquamation of the squamous epithelial lining . They contain primarily keratin and some cholesterol which gives them their characteristic pearly appearance at gross inspection [2].

Although epidermoid cysts can be congenital, they can also be the sequelae of trauma or surgery in which skin elements are implanted into the subcutaneous tissues [2]. Congenital submental epidermoid lesions are thought to arise from sequestration of epithelial cells during closure of the fetal structures that give rise to the mandibular and possibly the hyoid branchial arches [2,3]. They are frequently located along the midline and may mimic other cystic congenital anomalies. Congenital epidermoid cysts may also arise from failure of separation of surface ectoderm from the underlying neural tube [2].

Clinically, epidermoid cysts generally present as painless,

slowly enlarging masses that are usually asymptomatic. Many are diagnosed in the second or third decades of life with some lesions presenting in infancy [2]. They may reach substantial sizes and cause symptomatology related to mass effect such as dysphagia or dyspnea [4]. When epidermal inclusion cysts occur along the midline neck, they present a diagnostic dilemma. The most common cause of a midline neck mass, particularly in the pediatric population, is a thyroglossal duct cyst [5]. Differentiating an epidermal inclusion cyst from a thyroglossal duct cyst is important because each requires a different surgical approach. While an epidermal inclusion cyst may be removed by simple excision, the standard surgical treatment for a thyroglossal duct cyst is the Sistrunk procedure which requires partial excision of the hyoid bone and base of tongue [5]. The diagnosis can be made intraoperatively at which time the excised mass can be bisected; if keratinaceous material is encountered, an epidermal inclusion cyst is likely. If, however, mucinous maternal is expressed, a thyroglossal duct cyst should be suspected and a Sistrunk procedure undertaken [5].

Ultrasound evaluation of epidermoid cysts is helpful in establishing their cystic nature. Confusion arises when these cysts contain a large amount of keratin debris which may produce internal echogenicity or may give the appearance of a solid mass [6]. Pancholi et al. reported a case of an epidermoid cyst that appeared as a cystic lesion containing solid echogenic nodules by sonography [7].

CT and MR are useful adjuncts to sonography in the imaging of epidermoid cysts and play a role in preoperative planning. Epidermoid lesions are usually fluid attenuation on CT and do not enhance following contrast administration [1]. CT may help to differentiate dermoid from epidermoid cysts with the former containing true fat attenuation Hounsfield Units, small amounts of calcium, or the characteristic “sack-of-marbles” appearance produced by fatty nodules [7]. On MRI, epidermoid cysts tend to follow fluid signal intensity and are generally hypointense on T1-weighted sequences and hyperintense on T2-weighted sequences [1]. Both imaging modalities can establish the relationship of the mass to the mylohyoid muscle which in turn determines surgical approach.

The mainstay of treatment is surgical excision. Cysts occurring superior to the mylohyoid muscle are removed via an intraoral approach while those located inferior to the mylohyoid muscle tend to produce obvious submental masses that can be removed via an external approach [7].

CONCLUSION

Epidermoid cysts can mimic other congenital cystic masses that occur in the midline neck region and therefore should be considered in the differential when a patient presents with a large submental cystic neck mass. Preoperative imaging by ultrasound, CT, and MRI aids in the diagnosis and plays a role in surgical planning.

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