Case Report

Epidermoid cyst of the midline neck in an 8-year-old girl: A case report

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Abstract

Epidermoid cysts (ECs) are usually small, benign, keratin-filled cysts, can be congenital or acquired and encountered anywhere in the body. EC and dermoid cyst constitute approximately 7% of all cysts in the head and neck region and tend to occur in areas of embryonic fusion. Neck masses are commonly present in children, and there is often a diagnostic dilemma clinically with common differential diagnoses of this region such as thyroglossal cyst, pre-tracheal lymph nodes, thyroid mass, EC and dermoid cyst. EC is mostly present in middle-aged males, and here, we are going to present an EC of the midline neck in an 8-year-old girl, which is not common.

Keywords: Children, epidermoid cyst, midline, neck

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INTRODUCTION

Epidermoid cysts (ECs) are benign lesions, which are derived from the epidermis and formed by the cystic enclosure of epithelium within the dermis that becomes filled with keratin and lipid-rich debris.[1,2] The head and neck region constitutes 1.6–6.9% of all EC and dermoid cyst.[3] They are classified as ECs when cystic spaces are lined by simple squamous epithelium, 'true' dermoid cysts when containing skin adnexa and teratoid cysts when tissues from all three germ layers are present. ECs can occur at any age but are common in adult men.[3,4] They are commonly included in the differential diagnosis of midline neck masses. Differential diagnosis of midline neck masses in children includes pre-tracheal lymph nodes, thyroglossal cyst, EC, dermoid cyst and inflammatory and malignant swelling.[5,6] ECs are usually asymptomatic and may get infected if left untreated and may mimic other congenital lesions, thereby presenting a diagnostic challenge when encountered in imaging studies.[4–6] We present a case of a midline neck mass in an 8-year-old girl, which turned out to be an EC.

CASE REPORT

An 8-year-old girl came to the department of surgery with a complaint of midline painless neck mass for 5 years. The swelling was initially small and gradually processed to the present size, causing disfigurement. There was no relevant medical family or dental history. There was no history of tuberculosis or thyroid disorders. No history of trauma and previous surgery was associated with the swelling.

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Neck examination revealed solitary midline swelling, 4 × 4 cm in size, located anteriorly on the lower half about 2.5 cm superiorly from the medial head of clavicles. The swelling was mobile, non-tender and soft in consistency with smooth margins and normal overlying skin. It was not associated with movement on deglutition and protrusion of the tongue [Figure 1a and b]. No lymphadenopathy was associated with swelling. Routine blood investigations were within normal limits. Ultrasonography revealed a well-defined hypoechoic cystic mass, 3.7 × 3.7 × 3.2 cm in size, located anterior to the trachea and not invading and adjacent structures or vessels. The thyroid gland was well separated from the cystic mass, and features were suggestive of benign cystic lesion. Fine-needle aspiration was not diagnostic, and a definitive diagnosis is made after post-operative pathological sectioning after complete excision of lesion [Figure 1c and d]. A differential diagnosis of dermoid and ECs was made.

To confirm the diagnosis, the child underwent an excisional biopsy under general anaesthesia. During the procedure, we found soft cystic nodular swelling of 4.0 × 4.0 cm in size, which was completely free from underlying and surrounding muscles and completely excised. Histopathology confirmed it to be an EC lined by keratinised stratified squamous epithelium with keratin debris in the lumen of the cyst without any adnexal structures [Figure 2]. The child is doing well at one year's follow-up.

DISCUSSION

Neck masses in children can represent a diagnostic dilemma. ECs are usually small benign cysts, can be congenital or acquired and can be in midline or lateral. They can occur in all age groups and in all areas of the body and are frequently found on the head and neck, trunk and genitalia. Their presence is also documented in rare locations such as oral mucous membrane and internal organs including the cerebrum.[4,6] The most common differential diagnosis of anterior neck mass in children includes thyroglossal cyst, thyroid mass, dermoid cyst and EC, cystic hygroma, bronchogenic cyst and ectopic thymic mass.[7,8]

The exact pathogenesis of EC is still unclear; however, congenital or posttraumatic theories have been described. EC and dermoid cyst are known to result from the defective separation of ectoderm from mesoderm during 3rd to 5th weeks of gestation, resulting in the inclusion of skin with or without accessory appendages, which are lined by keratinised stratified squamous epithelium. However, they are mostly located in the head and neck region followed by the trunk, upper and lower extremities and genitalia. Multiple ECs are also seen with the association of genetic syndromes such as Gorlin syndrome or Garber syndrome.[4,6] The role of the human papillomavirus has also been suggested in the pathogenesis of ECs.[6]

ECs are the most frequently occurring cysts among all cutaneous cysts with adult male predominance.[1,3,4] In our case, the patient was a young-aged girl.

They are mostly slow-growing, asymptomatic and usually found when they assume large size, mostly in adults, so relatively rare in children as in our case.[3,4,6] A single-centre study of 432 cases of ECs showed that there were only two (0.5%) cases in children and 34 (7.9%) cases in the neck.[4]

The rapid growth of the cyst may indicate either malignancy or infection. They are generally benign with the rare exception of 10 cases of squamous cell carcinoma arising from the EC. The recurrence rate of EC is low (<3%), and the prognosis is good.[8,9]

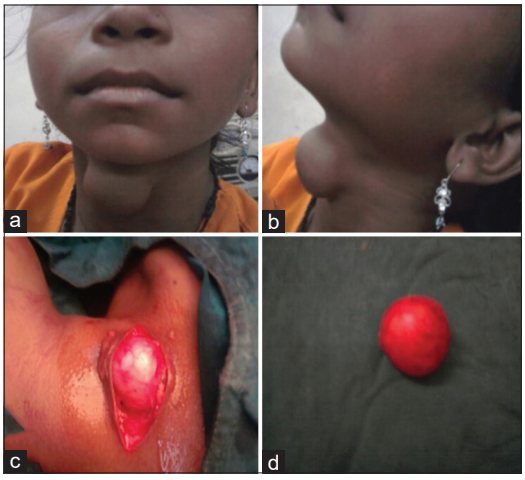

Figure 1: Epidermoid cyst. (a) Preoperative appearance of the cyst (frontal view). (b) Preoperative appearance of the cyst (lateral view). (c) Intraoperative appearance of the cyst. (d) Gross appearance

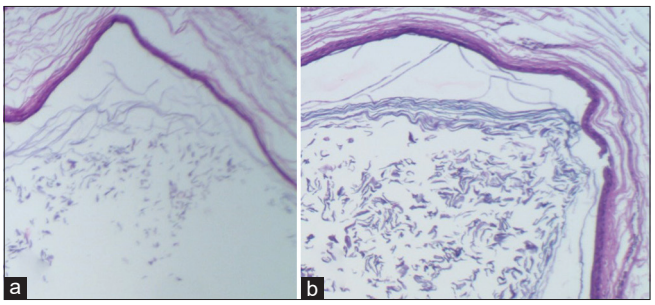

Figure 2: Photomicrograph shows stratified squamous epithelium, without skin appendages, with keratin in the lumen. (a) Original magnification H&E-4X and (b) H&E-10X

The diagnosis of an EC can be performed by history and physical examination of the cyst alone. Radiological modalities will aid in the diagnosis. By ultrasonography alone, the diagnosis can be performed in most of the patients. The contrast-enhanced computed tomography (CECT) and magnetic resonance imaging provide a supplementary role in doubtful patients with rare sites of presentations.[6] A definitive diagnosis is achieved only by histopathological evaluation. A complete surgical enucleation was performed, and a diagnosis of EC was made.

CONCLUSION

Midline ECs of the neck are quite rare in children and hence usually misdiagnosed, often mistaken with thyroglossal cyst clinically. The possibility of all common and uncommon diagnoses should be kept in mind by the clinician, particularly in the paediatric age group. Radiological modalities do aid in the diagnosis, but each and every specimen should be submitted for histopathological evaluation for confirmation of diagnosis.

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 initial s will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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