

**CASE REPORT**

## Radiologic findings of a congenital suprasternal dermoid cyst

### Radyolojik bulgularıyla suprasternal yerleşimli dermoid kist: Olgu sunumu

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A congenital cystic mass was detected at the suprasternal notch of a seven-month-old male infant. After radiologic examinations including ultrasonography, computed tomography, and magnetic resonance imaging, the cyst was excised and diagnosed as a dermoid cyst. Dermoid cysts of the head and neck are rare lesions, but a midline location is characteristic for these congenital masses. To our knowledge, only two reports have been published, which were similar to our case in localization. Dermoid cysts should be included in the differential diagnosis of midline cysts.

**Key Words:** Dermoid cyst/congenital/radiography; head and neck neoplasms/congenital; infant, newborn.

Yedi aylık bir erkek bebekte suprasternal çentikte yerleşim gösteren doğuştan kistik kitle saptandı. Ultrasonografi, bilgisayarlı tomografi ve manyetik rezonans görüntülemeyi içeren radyolojik incelemeler sonrasında kitle cerrahiyle çıkarıldı. Histopatolojik incelemede dermoid kist tanısı kondu. Baş-boyun yerleşimli dermoid kistler nadir olmakla birlikte, orta hat yerleşimi bu doğuştan kitleler için karakteristik bir özelliktir. Literatürde olgumuzdaki yerleşime benzeyen sadece iki olguya rastlandı. Orta hat yerleşimli kistlerin ayırıcı tanısında dermoid kistler de yer almalıdır.

**Anahtar Sözcükler:** Dermoid kist/doğuştan/radyografi; baş-boyun neoplazileri/doğuştan; bebek, yenidoğan.

Dermoid cysts are found as a result of the sequestration of skin along the lines of embryonic closure. This results in a cystic mass lined with stratified squamous and respiratory epithelia as well as dermal elements. Congenital dermoid cysts of the head and neck usually occur at the characteristic locations related to embryogenic fusion lines such as the mid-ventral-suprasternal fusion line. We reported clinical and radiological imaging findings of in a case of suprasternal dermoid cyst.

### CASE REPORT

A seven-month old male patient presented with an asymptomatic mass at the base of the neck just

above the sternal notch. The mass was nontender and soft on palpation. Transillumination was positive. The mass was present at birth, but its dimensions were smaller.

On the ultrasonography (US) examination the dimensions of the cystic mass was 5x4x3 cm. There were echogenic particles at the base of the cyst (Fig. 1). Computerized tomography (CT) images revealed a low-attenuated mass at the suprasternal notch (Fig. 2). The mass was well defined and contained no septation or calcifications. The internal contents were homogeneous. The density of the internal content was measuring 5-10 Hounsfield Unit (H.U.)

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◆ Received - March 5, 2004 (Dergiye geliş tarihi - 5 Mart 2004). Request for revision - June 24, 2004 (Düzeltilme isteği - 24 Haziran 2004). Accepted for publication - August 21, 2004 (Yayın için kabul tarihi - 21 Ağustos 2004).

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*Fig. 1 - Sonographic appearance. The cystic mass with some moving echogenic particles at the base of the cyst.*



*Fig. 2 - Axial CT scan disclosed a low-attenuation mass at suprasternal notch.*

which was consistent with a cyst. No enhancement of the mass occurred following the intravenous administration of nonionic iodinated contrast medium. There was no extension to adjacent soft-tissue structures or periosteum in three plans confirmed in magnetic resonance (MR) images. MR examination showed the cystic nature of the mass (Fig. 3).

The mass was resected intraoperatively. Grossly the external surface was smooth (Fig. 4). The mass

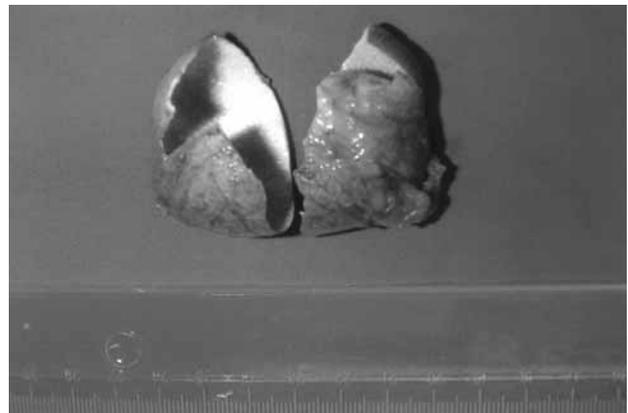
contained serous fluid and the inner surface was smooth. Histopathologic examination identified a cyst lined by multilayer flat epithelium containing keratinous material in the luminal surface. Beneath the epithelium, in the fibrous stroma of the cyst, only eccrine glands were seen (Fig. 5).

#### DISCUSSION

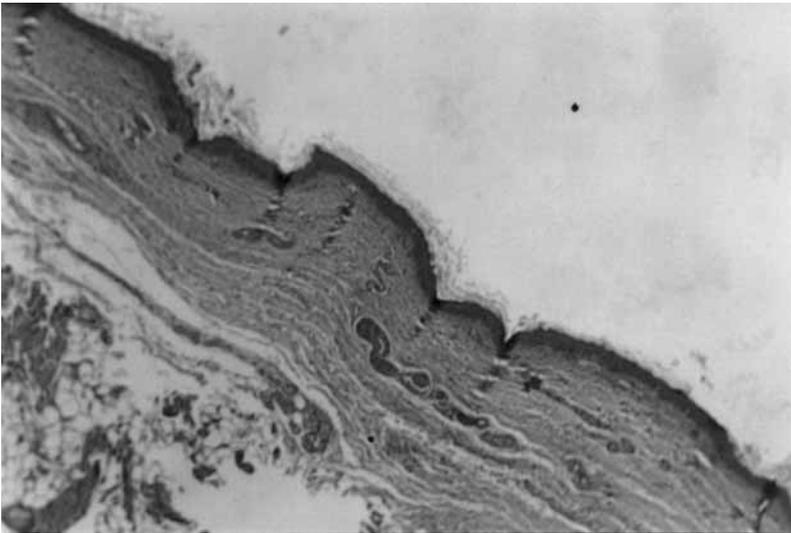
Dermoid cysts results from sequestration of ectodermal tissue.<sup>[1]</sup> Although there is no consensus in the literature as to the etiology of dermoid cysts, the most popular theory, that of totipotential rests, is that dermoids arise from totipotent cells derived from two germinal layers, ectoderm and mesoderm, which have become isolated anatomically. There they exhibit benign, disorganized growth. The theory of congenital inclusion postulates that dermoids result from the inclusion of germ layers into deeper



*Fig. 3 - MRI examination in T1W sagittal plan. Hypointensity reveals there is no fatty component.*



*Fig. 4 - Excised mass grossly seen. The external surface was seen smoothly.*



*Fig. 5 - Histopathologic examination identified a cyst lined by multilayer flat epithels beneath fibrous stroma includes eccryn glandular contents.*

tissues along embryonic fusion lines that have failed to undergo complete closure.<sup>[2]</sup>

Dermoid cysts are circumscribed, encapsulated lesions. They occur when skin and skin structures become trapped during fetal development. They are lined with ectodermally derived squamous epithelium that contains a variable number of skin appendages (sebaceous glands, hair follicles and sweat glands). In this respect, the lumen of dermoid cyst is filled with a mixture of keratin, sebaceous material and occasionally hair.<sup>[1]</sup>

Cervical congenital cystic masses constitute an uncommon group of lesions usually diagnosed in infancy and childhood. Floor of the mouth is the most common location in neck.<sup>[1]</sup> Approximately 7% of dermoids are found in the head and neck.<sup>[2]</sup> There is no obvious gender predilection.<sup>[3]</sup>

The essential difference between a dermoid cyst and an epidermoid cyst lies in the presence of skin appendages (eg, sebaceous glands, hair follicles) within the wall of the dermoid cyst and the absence of these features in the epidermoid cyst.<sup>[4]</sup>

The radiologic diagnosis of dermoid cysts can be readily made on the basis of US, CT, or MRI. On CT scans, the central cavity is usually filled with a homogenous, hypoattenuating fluid material. The material within the cyst usually has the attenuation of fat. However, some dermoids will have attenuation similar to water.<sup>[5]</sup> MRI with its better soft tissue contrast and multiplanar imaging capacity has advantage over US and CT. MRI is particularly help-

ful in diagnosing intracranial or intramedullary dermoid cysts and in assessing the dissemination of fatty masses or droplets. Dermoid cysts have variable signal intensity on T1 weighted images. They may be hyperintense (because of the presence of sebaceous lipid) or isointense relative to muscle on T1-weighted images. They are usually hyperintense on T2-weighted images. MRI is helpful in planning surgical procedures and in assessing therapeutic success.<sup>[1]</sup> Presurgical imaging of these lesions is important to evaluate of extension to periosteum or adjacent structures that may impact on surgical removal.<sup>[6]</sup> The most common clinical appearance of a dermoid cyst in the neck is a midline, suprahyoid, slowly growing mass.<sup>[7]</sup> We found only two case reports like ours in English literature.<sup>[6,8]</sup> In an article,<sup>[6]</sup> dermoid cyst in a female infant was on the same localization. In the other case<sup>[8]</sup> dermoid cyst was found in a 21-year-old man. MRI examination wasn't used in either case. However in our case additional MRI revealed detailed information including cyst content. So we recommend using MRI in diagnosing such masses located in the neck.

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