Lipoblastoma on the posterior side of the neck

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Lipoblastoma is a rare benign pediatric tumor derived from embryonic fat, and only two cases of lipoblastoma located on the posterior side of the neck have been reported in the literature. Here, we present the third case of posterior neck lipoblastoma in a 13-month-old healthy girl, who presented with a firm, posterior cervical mass. The tumor was completely resected following ultrasonography, computerized tomography, and magnetic resonance imaging evaluations. Histological examination of the resected tissue showed the typical characteristics of lipoblastoma. The child's postoperative progress was uneventful and no recurrence was observed 27 months after the operation. The clinical manifestations, radiologic and histopathologic findings, and treatment of this lesion are discussed.

Key words: adipose tumor, childhood, cervical, infant, lipoblastoma, posterior neck.

Lipoblastomas and their multicentric/infiltrative forms, lipoblastomatoses, are rare benign soft-tissue tumors of embryonic lipoid cells. Adipose tumors comprise about 6% of soft-tissue neoplasms that develop in the first two decades of life, of which 94% are lipomas, 4.7% are lipoblastomas, and 1.3% are liposarcomas[1]. Lipoblastoma mainly occurs before the age of three years prevalently in males. This tumor is mostly present in the limbs and trunk, with it rarely arising on the neck[2].

We report herein a 13-month-old girl who presented with a lipoblastoma on the posterior side of the neck. Clinical manifestations, radiologic and histopathologic findings, and treatment of this particular lesion are discussed.

Case Report

A 13-month-old girl presented with a three-week history of a midline posterior neck mass that rapidly enlarged without other symptoms. Her birth and medical history were unremarkable. A physical examination demonstrated a soft, painless, and elastic mass on the posterior side of the neck that measured 5×4 cm. The overlying skin was normal, with no sign of inflammation. An ultrasonography (US) scan showed a homogeneous mass with the density of lipoid tissue that measured 5.9×4.1 cm. The initial diagnosis was a lipoma, and the child was admitted for further evaluation. Cervical computerized tomography (CT) revealed a mass under the trapezius muscle, both to the left and right of the middle line and in contact with the arches of the cervical vertebrae, with the density of lipoid tissue and demonstrating multiple diaphragms. Due to atypical findings and in order to determine the exact relation to the vertebral canal, the patient underwent further investigation with magnetic resonance imaging (MRI), which revealed a large well-encapsulated lobulated fatty lesion that measured 7×6 cm with septa expanding from the first thoracic vertebra to the occipital bulge; it was not related to the vertebral canal (Fig. 1). The mass was completely excised through a posterior transcervical approach without complications. No adhesion to the surrounding tissue was observed. The specimen consisted of a well-circumscribed, yellowish-white soft mass measuring $7.0 \times 7.1 \times 5.0$ cm, the histological

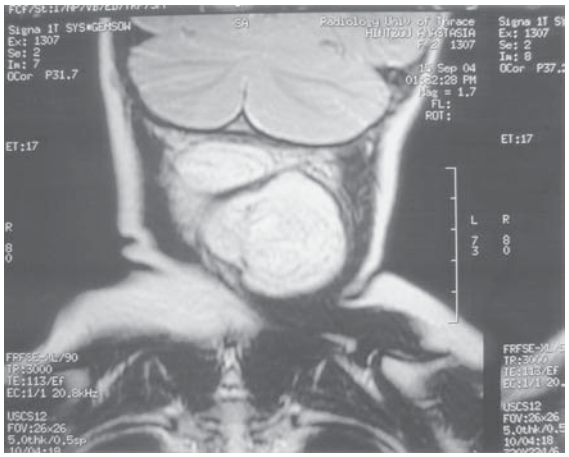

Fig. 1. Magnetic resonance imaging reveals a large fatty lobulated mass well encapsulated with septa.

properties of which were suggestive of a lipoblastoma. Microscopically, the tumor comprised adipocyte nodules separated by distinct connective tissue septa. The adipocytes were at various stages of differentiation, but there was no nuclear atypia or mitoses. Myxoid areas were not found (Fig. 2). The child's postoperative course was uneventful, and she was discharged from the hospital after six days in excellent clinical condition. No recurrence was detected at the 27-month follow-up examination.

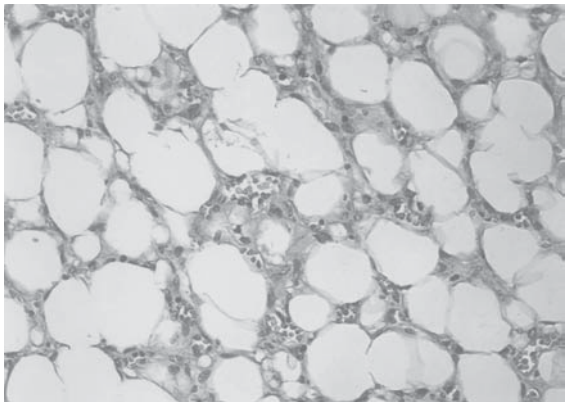

Fig. 2. Microscopic appearance of the lipoblastoma (hematoxylin and eosin, x 200) shows adipocytes with mature nuclei and well-formed fat vacuoles separated by fibrous septum.

Discussion

The terms lipoblastoma and lipoblastomatosis were first used by Jaffè[3] and Vellious[4], respectively. Less than 200 cases of lipoblastoma and lipoblastomatosis at various locations have been reported in the literature[5]. Cervical lipoblastomas are rare and represent about 10-15% of all lipoblastoma cases[6]. The majority of the reported cervical lipoblastomas are located on the left or right side of the neck, with only two cases reported on the posterior side of the neck[2,5]. The present case represents the third patient of this type, who was younger than the previous cases (Table I).

Table I. Case Reports in Infants with Lipoblastoma on the Posterior Side of the Neck

Author	Age	Sex	Size (cm)
Jung 2005[6]	49 mo	M	2.0x1.5x0.5
McVay 2006[5]	12 y	M	not stated
Presented case	13 mo	F	7.0x7.1x5.0

mo: Months. y: Year. M: Male. F: Female.

Accurate clinical diagnosis of lipoblastoma is difficult, with imaging investigations being crucial, although these are not suitable for precise evaluations of the nature of a fatty tumor such as a lipoma or liposarcoma. Plain X-rays and CT can suggest the fat density of the tumor. The results of US examinations can be confusing, as seen in our case. Reiseter et al.[7] reported that MRI is the most reliable method, with US and CT having complementary roles. The present case illustrated these features of the imaging modalities, since MRI showed the exact location and size of the tumor and revealed its mass character.

The differential diagnosis of neck masses in children should include hemangioma, cystic hygroma, sizeable dermoid cyst, benign tumors (lipoma, fibroma, lipofibroma, neurofibroma, lipoblastoma, teratoma, hibernoma) and malignant tumors (lymphoma, rhabdomyosarcoma, neuroblastoma, liposarcoma)[8,9].

The only definitive procedure for diagnosing a soft-tissue mass is a histological analysis. Nevertheless, differentially diagnosing between a lipoblastoma and liposarcoma may be difficult, especially in the myxoid variant. If the pathologist is unable to differentiate lipoblastoma from myxoid liposarcoma, a cytogenetic analysis should be done. The typical chromosomal abnormality associated with lipoblastomas is breakpoints in the long arm of chromosome 8 (area 8q11-13),

whereas myxoid liposarcomas typically show translocation t(12,16) (q13;p11)[10]. The youngness of the patient, the tumor lobulation, its well-circumscribed nature, and the typical histological findings of our case made cytogenic investigations unnecessary[6].

Lipoblastomas exhibit rapid growth and are frequently asymptomatic, except when they impinge on surrounding structures, causing symptoms via a mass effect[11,12]. The treatment of choice is complete resection with a negative margin. The prognosis is good. A recurrence rate of 15% has been reported for cervical lipoblastoma[13]; hence, careful surveillance is essential for a minimum of 24 months[5].

In conclusion, a lipoblastoma is a rare cause of cervical swelling, but it must be included in the differential diagnosis. A high level of alertness facilitates early identification of such masses, with the resulting early surgery preventing the mass from reaching a size that would make its complete resection very difficult and increase the probability of recurrence.

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