

GIANT RETROPERITONEAL LIPOMA MIMICKING LIPOBLASTOMA ON ABDOMINAL CT: A CASE REPORT

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ABSTRACT

Rapidly growing abdominal masses in children are highly suspicious for malignant tumors, such as neuroblastoma or Wilms tumor. In the present case, we describe the case of a 3-year-old child who presented with progressive abdominal distension. On examination, a huge abdominal mass was palpable. CT abdomen showed a giant, fat-containing, retroperitoneal mass with no evidence of invasion. Ultrasound-guided trucut biopsy was consistent with a lipomatous lesion. A clinical diagnosis of lipoblastoma was made and patient underwent surgical excision. However, final histopathology showed mature adipocytes with no evidence of lipoblasts. This was an unusual case of a giant lipoma, which mimicked a retroperitoneal lipoblastoma on abdominal CT. This case is instructive to all pediatric radiologists as it highlights the importance of considering benign tumors (such as lipoma) in the differential diagnosis of a retroperitoneal mass in children.

Keywords: Retroperitoneal lipoblastoma, abdominal mass, giant lipoma, retroperitoneal tumors

Introduction

Abdominal masses in young children are frequently noticed incidentally by parents.¹ In some cases, these masses may go unnoticed and continue to grow to such an extent that they result in gross abdominal distension. Malignant tumors are the most important causes of abdominal masses in infants and toddlers.² Although Wilms tumor and neuroblastoma are the most common malignant tumors in children, soft tissue tumors have also been reported.³ As early diagnosis of malignant tumors is inevitable to improving cure and prognosis, all children with an abdominal mass need to be investigated thoroughly.¹ However, in certain rare cases, benign tumors can also grow to alarmingly large sizes and result in undue distress and work-up. Hereby, we report the case of a young child who presented with a huge abdominal mass, but, was subsequently diagnosed with a lipoma.

Case Report

A 3-year-old boy was brought to the out-patient department of our institution with the complaint of progressive abdominal distension over the past 12 months. No change in bowel habits was reported. Child was passing urine normally without any blood or abnormal froth. Appetite and sleep was normal, but, weight was steadily increasing. No abnormal movements of arms or leg were reported. There was no history of loss of consciousness, twitching movements of limbs, rapid movement of eyes or excessive sweating. Child was otherwise active and did not have any other symptoms. Past medical and surgical history was also unremarkable. He was not taking any drugs or supplements. Child was born at 39 weeks gestation by spontaneous vaginal delivery. Antenatal and post-natal history was unremarkable. Child had received all routine vaccinations and his diet consisted mainly

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of fruits, vegetables, meat and milk. Developmental milestones achieved were appropriate for age. He was born to a non-consanguineous couple and he had two elder siblings who were healthy.

On physical examination, vital signs were within normal range, while weight and height were 17 kg and 95 cm respectively. General physical examination was notable for asymmetric abdominal distension; no pallor or icterus was noticed. Chest and cardiovascular examination were unremarkable. On abdominal examination, an asymmetric bulge was appreciable occupying most of the left and central part of the abdomen. No distended veins or scars were noted; umbilicus was normal in position and shape. On palpation, a distinct abdominal mass was palpable measuring 12 cm x 11 cm in size, which was firm in consistency. It had well-defined margins, but, it was not mobile or tender. This lump crossed the midline, did not move on respiration and had no associated lymphadenopathy. Hepatosplenomegaly was not present and ballottement of kidneys was unremarkable. Auscultation was negative for bruits, but, normal gut sounds were audible.

Based on this history and physical examination, an intra-abdominal neoplasm was strongly suspected. A number of laboratory and radiologic investigations were ordered. Hematology profile, coagulation screen and basic metabolic panel along with serum calcium, phosphate, magnesium, albumin, uric acid and lactate dehydrogenase levels were within normal limits.

Urinalysis was also performed, which was unremarkable. Plain radiograph of the abdomen showed a large, left-sided, soft-tissue density within the abdomen with no evidence of calcifications (Fig. 1). No other abnormal findings were noted on this radiograph. A CT scan of the abdomen and pelvis with intravenous contrast was also obtained. This examination revealed a large (15.7 cm x 14.3 cm x 11 cm), well-circumscribed, retroperitoneal mass consisting predominantly of fat (Fig. 2). No calcification was seen within this mass and no definite evidence of invasion of surrounding structures was noted.

Based on laboratory investigations and radiologic work-up, provisional diagnosis of a lipomatous neoplasm (most likely lipoblastoma) was made; teratoma was also considered in the differential diagnosis. In order to establish a tissue diagnosis, an ultrasound-guided trucut biopsy was performed, which revealed



Figure 1: Plain radiograph of the abdomen showing a large, left-sided, soft-tissue density within the abdomen that is displacing bowel loops to the right of the midline; this is suggestive of an abdominal mass. No evidence of any calcification is noticed on this radiograph.



Figure 2A: Sagittal view of contrast-enhanced computed tomography of the abdomen demonstrating a large, well-circumscribed, encapsulated, heterogeneous mass consisting predominantly of fat and occupying most of the abdomen. No evidence of invasion of any surrounding structures is appreciated.



Figure 2B: Coronal view of contrast-enhanced computed tomography re-demonstrating a large, fat-containing mass, which is displacing bowel loops and major abdominal vessels to the right and is devoid of any calcifications.

normal-looking adipocytes with no evidence of atypia. Parents were explained regarding their child's condition and surgical excision of the lesion was advised. After preoperative anesthesia work-up and optimization, child underwent surgical excision of the mass via a retroperitoneal approach. A large, tan-brown, lobulated mass was excised, which measured 28 cm x 18 cm x 7 cm in size. Final histopathology of the mass revealed lobules of mature adipocytes separated by a fibromyxoid stroma and devoid of any lipoblasts. Based on these gross and microscopic features, a final diagnosis of lipoma was made.

Discussion

Although malignant tumors in children are the most important causes of abdominal masses,¹ benign tumors may also present in a similar manner. Retroperitoneal lipoma in young children is a unique tumor, which has been linked to characteristic chromosomal

abnormalities, including the "lipoma chromosome" i.e. t (3;12) (q27;q14-15). This translocation results in the formation of HMGA2-LPP fusion gene.⁴ Lipoblastoma, another rare tumor, arises from embryonic white fat and resembles lipoma in being encapsulated and well-circumscribed; however, it frequently recurs after excision while lipoma usually does not recur.⁵ Thus it is of considerable interest to differentiate between these two tumors.

Children with lipoma or lipoblastoma are frequently asymptomatic and usually the mass grows to a very large size before it is noticed⁵ (as in this case). Radiographic appearance of both of these tumors is characteristic in that the mass has a typical fat density on plain radiographs.⁶ Ultrasonography may show areas of lipomatous echogenicity and can be a useful modality for investigating such patients, given its low cost and widespread availability.⁷ On computed tomography, both tumors characteristically have hypodense appearance (between -65 and -120 Hounsfield units). Absence of calcification is an important sign in differentiating this tumor from teratoma and other malignant tumors.⁸ On magnetic resonance imaging, these tumors appear hyperintense on T1-weighted images due to their high fat content. Lipoblastoma generally tends to encroach upon nearby structures, such as neural foramina or intercostal spaces, without any evidence of infiltration.⁹ However, lipoma generally does not exhibit such features on radiologic imaging. Moreover, in some cases, lipoblastoma may have well-developed, myxoid components that show up as enhancing areas on contrast-enhanced scans.¹⁰

Based on the distinct appearance of these tumors, excessive work-up in such patients is unjustified. However, due to little awareness regarding these tumors and a ritualistic exercise of subjecting all children with an abdominal mass to a battery of investigations, such patients often end up being unnecessarily subjected to extensive work-up.⁶ Moreover, the possibility of cancer and its attendant consequences result in undue distress, both for the parents as well as for pediatricians. Therefore, all pediatric radiologists and surgeons should consider this rare benign tumor in the differential diagnosis of children with a giant retroperitoneal mass, in order to avoid excessive work-up and undue distress.

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