Common tumour, uncommon presentation: massive lipoma in the retroperitoneum

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Retroperitoneal masses are notoriously malignant. Although they are seen commonly in adults, they have been known to occur in children as well. A benign mass in the retroperitoneal location in children is uncommon. Here we describe the presentation and management of a rare benign retroperitoneal mass in a 12-year-old boy.
***Ann Pediatr Surg* 14:44–45 © 2018 Annals of Pediatric Surgery.**

Annals of Pediatric Surgery 2018, **14**:44–45

Keywords: abdominal mass, lipoma, paediatric tumours, retroperitoneal mass

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Received 11 July 2016 **accepted** 12 April 2017

Introduction

Although common in adults, the occurrence of lipomas is unusual in any location in children. It is rare for lipomas to develop in the retroperitoneum, even in adults. In a review of paediatric retroperitoneal tumours, Hastings *et al*. [1] found that only 4.2% were benign and only two out of 190 were lipomas. Because of the relative paucity of vital structures and abundance of loose connective tissue, the majority of retroperitoneal lipomas are asymptomatic until they acquire a massive size. An imbalance in the high mobility group A gene and its products can lead to lipocyte proliferation and development of lipoma [2]. Here we detail an uncommon presentation of a giant retroperitoneal lipoma in a child.

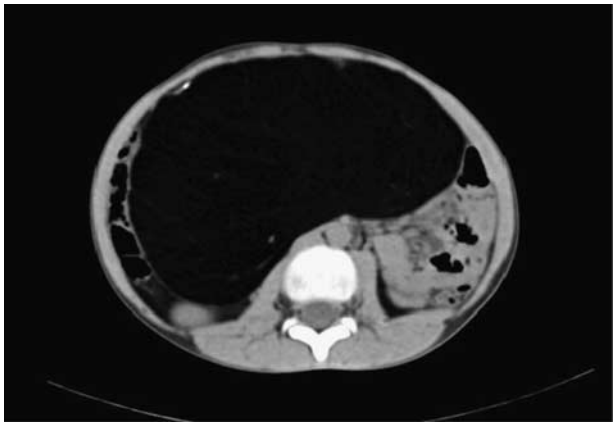
Case report

A 12-year-old boy presented with abdominal pain that had been persisting for 1 month, with no urinary or gastrointestinal symptoms. A detailed examination revealed an ill-defined mass in the abdomen, involving the epigastric and umbilical regions. The mass was firm and had an irregular surface. No other swelling was noted anywhere else in the body. Baseline blood tests, including haemoglobin, were within normal limits. The patient's abdominal sonography showed a partly defined isoechoic to hyperechoic lesion extending from the epigastric region to the lower abdomen, measuring around 14×8 cm. To delineate the mass further, a contrast-enhanced computed tomography (CT) of the abdomen was performed, which showed a mass measuring $16.9 \times 8.8 \times 7.6$ cm arising from the retroperitoneum with fatty attenuation pushing the stomach and transverse colon superiorly and the small bowel inferiorly (Fig. 1). The mass had thin septae and was not compressing the kidneys, ureters or major vessels. As the CT findings were suggestive of a large benign fatty tumour, the patient was considered for surgery after obtaining written informed consent from the parents. Exploratory laparotomy through a supraumbilical transverse incision revealed a large retroperitoneal lipoma of size $15 \times 15 \times 8$ cm, well encapsulated and weighing 1.85 kg (Fig. 2), densely adherent to the parietal peritoneum and with feeding vessels arising from the retroperitoneum near the duodenojejunal flexure. The mesenteric vessels were stretched over the mass. The postoperative period was uneventful. The boy was reviewed in the outpatient department and was doing well at 1-year follow-up. Histopathological examination of the specimen revealed adipocytes with a characteristically clear cytoplasm and peripheral nuclei suggestive of lipoma without any features of malignant transformation.

Discussion

Fat-containing retroperitoneal lesions have only a few differential diagnoses in children: lipoma, lipoblastoma, hibernoma, myolipoma and teratoma [3]. Retroperitoneal lipomas are slow-growing mesenchymal tumours that are rare in children. It is commonly seen in children younger than 8 years of age, and girls are three times more commonly affected than boys [4]. These tumours usually grow to large sizes as they are relatively asymptomatic. Some patients may present with abdominal pain, early satiety, constipation and urinary symptoms mainly due to

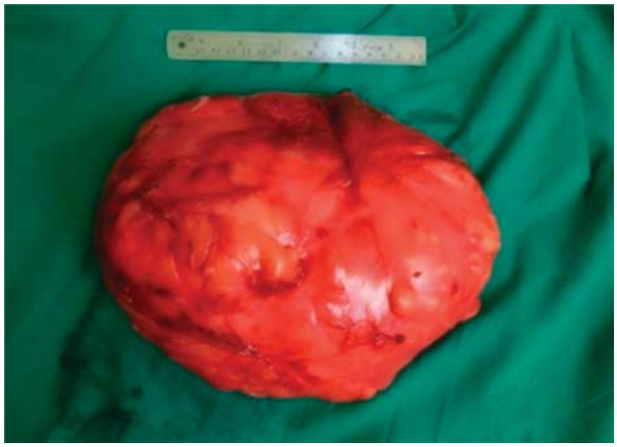
Fig. 1



Computed tomography picture of retroperitoneal mass.

1687-4137 © 2018 Annals of Pediatric Surgery DOI: 10.1097/01.XPS.0000516247.20090.b8

Fig. 2



Specimen excised showing an encapsulated and lobulated retroperitoneal lipoma.

pressure [2,4]. Sometimes retroperitoneal lipoma may be an incidental finding on imaging studies. Kretschmer [5] reported a single case of malignant transformation of lipoma in a 2-year-old child. Retroperitoneal lipoma shows the same radiological features of lipoma occurring at any other region of the body. Contrast-enhanced CT will show a well-circumscribed lesion with fatty attenuation and no enhancement and few if any septations [3]. Excision is the treatment of choice and is possible in almost all cases because of the presence of well-developed capsules.

Differential diagnoses for retroperitoneal lipoma include lipoblastoma, well-differentiated liposarcoma, hibernoma and teratoma. Lipoblastoma is a rare tumour in infants and children that arises from foetal adipose tissues. These may evolve to develop lipoma or may spontaneously regress [3]. A well-circumscribed lesion with a predominant fat content in children when detected on radiology should raise the suspicion of lipoblastoma. Complete surgical excision is the treatment of choice, with a recurrence rate of 12–20% [3]. Well-differentiated liposarcomas, although very rare in children, can mimick lipomas because of the presence of abundant fat tissue. These tumours are locally aggressive, and contrast-enhanced CT and MRI are tools that can help differentiate them from lipomas [2,6]. Liposarcomas have internal septations with enhancement, which can be demonstrated by these studies. Treatment of liposarcoma involves complete resection of the lesion, and decision on chemotherapy will follow the histopathological study.

Hibernoma is a tumour composed of brown adipose tissue that occurs in adolescents and young adults [7]. As these tumours have variable proportions of fat and other connective tissues, imaging findings vary among patients. Surgical excision is the treatment of choice. Retroperitoneal teratoma represents 1–11% of all primary retroperitoneal tumours [3]. These arise from pleuripotent cells and show derivatives of more than two embryonic layers. Teratoma is a slow-growing mass, producing symptoms due to compression, after attaining a large size. Radiological investigations help to identify teratoma by the presence of fat and calcification within the lesion. Excision is necessary for accurate tissue diagnosis and further treatment planning.

Conclusion

Retroperitoneal lipoma is a rare benign tumour that develops during childhood. Imaging studies, especially CT, will help not only in diagnosis but also in surgical planning of these lesions. Complete surgical excision is feasible and provides a potential cure.

Conflicts of interest

There are no conflicts of interest.

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