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CASE REPORT

Retroperitoneal Intramuscular Haemangioma: Imaging Features

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ABSTRACT

Retroperitoneal intramuscular haemangiomas are quite rare. Interruption of the muscle layer by intramuscular cavernous haemangioma raised the suspicion of a soft tissue sarcoma. We discuss the radiological characteristics of a haemangioma compared to soft tissue sarcoma.

Key Words: *Hemangioma; Muscles; Muscular diseases; Retroperitoneal neoplasms*

中文摘要

腹膜後肌內血管瘤的影像學特徵

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腹膜後肌內血管瘤很罕見。肌內海綿狀血管瘤引致的肌肉層中斷會被懷疑是軟組織肉瘤。本文對比軟組織肉瘤，討論血管瘤的影像學特徵。

INTRODUCTION

Haemangioma is one of the most common soft tissue tumours, accounting for 7% of all benign tumours.[1] Soft tissue haemangiomas are more common in women; they may increase in size dramatically during pregnancy and may be superficial or deep. The deep tumours are usually intramuscular, of which the majority are located in the extremities and the head and neck regions. They are quite rare compared to their superficial capillary type counterparts and are estimated to represent only about 0.7% of all benign tumours.[2,3] Retroperitoneal location of the intramuscular haemangiomas is quite a rare entity, with little mention in the literature. We present a case with a histopathologically proven retroperitoneal intramuscular haemangioma.

CASE REPORT

A 31-year-old woman first presented, at 33 weeks of gestation, with a 3-day history of right-sided abdominal pain. There were associated loin pain and vomiting, but without any urinary symptoms or fever. Physical examination revealed gravid uterus at 33 weeks of gestation, with no other palpable mass. Blood investigations yielded a normal platelet count. Obstetrical findings were unremarkable. An ultrasound of the abdomen was performed and showed a fairly well-defined large soft tissue mass arising from the left psoas muscle extending posteriorly to involve the subcutaneous tissue (Figure 1a). Dilated and tortuous vessels were noted within the mass (Figure 1b).

Magnetic resonance (MR) imaging of the mass showed a large soft tissue mass, with low signal intensity on T1-weighted and high signal intensity on T2-weighted images, situated in the retroperitoneum and involving the left psoas and the left quadratus lumborum muscles, but no clear demarcation was noted (Figure 2). The mass showed marked enhancement post gadolinium in-

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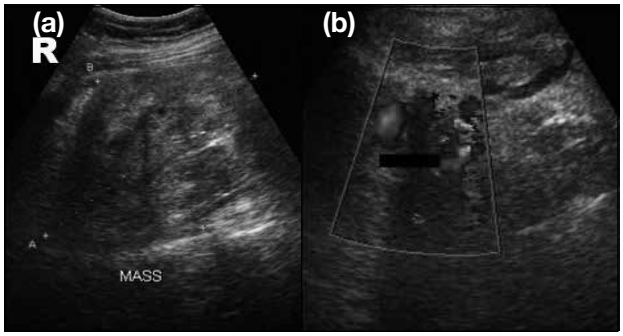

Figure 1. (a) Abdominal ultrasound demonstrating a fairly well-defined large soft tissue mass arising from the left psoas muscle with posterior extension involving the subcutaneous tissue, and (b) colour Doppler demonstrating dilated and tortuous vessels within.

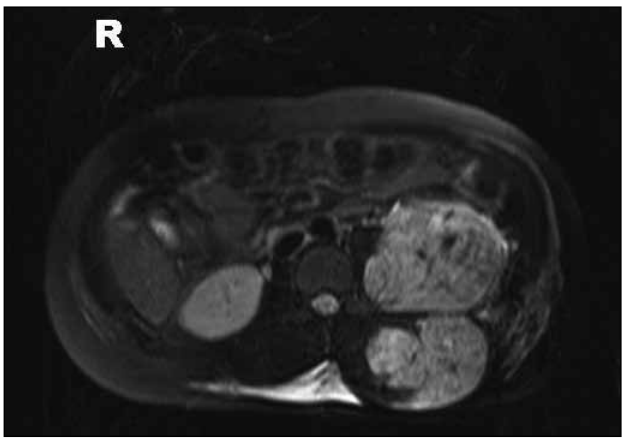

Figure 2. Post-gadolinium magnetic resonance image showing marked enhancement of the retroperitoneal mass involving the left psoas and the left quadratus lumborum muscles with no clear demarcation noted.

Figure 3. Magnetic resonance angiography showing a hypervascular mass with dilated and tortuous vessels within. Feeding vessels came from the left lumbar arteries.

jection. It was seen to extend posteriorly beyond the left lower ribs, and involve the left erector spinae muscles. No clear fat plane was demonstrated between the mass and the lower pole of the left kidney, which therefore appeared to be involved. MR angiography showed a hypervascular mass with dilated and tortuous vessels within (Figure 3). Feeder vessels were seem arising from the left lumbar arteries. In view of the hypervascularity of the mass, an angiogram with embolisation of the feeding vessels was performed prior to surgery. Arterial feeders were seen arising from the left lumbar (L2, 3, and 4) branches of the abdominal aorta. No phlebolith was noted within the mass and feeding vessels. The vessels were dilated proximally and exhibited a pattern of neovascularity distally (Figure 4). Some degree of arteriovenous shunting was evident within the mass.

Intraoperative findings showed a vascular mass with 2 lobulations, deep and superficial. The superficial lobule was located within the paravertebral muscle, while the deep lobule extended anteriorly into the retroperitoneal area. A subtotal resection was performed in view of its close proximity to the neurovascular bundle of the left lower ribs. Histopathologically, the lesion was consistent with an intramuscular cavenous haemangioma with dilated thrombosed vessels.

Follow-up contrasted computed tomography (CT) of the residual tumour revealed a markedly enhancing lobulated lesion (Figure 5), which had remained unchanged for 2 years.

DISCUSSION

The differential diagnoses for retroperitoneal masses include: haemangioma, angiosarcoma, epithelioid haemangioendothelioma, Kaposi's sarcoma, and leiomyosarcoma.[4] It is quite difficult to differentiate between the benign and malignant lesions. In this particular case,

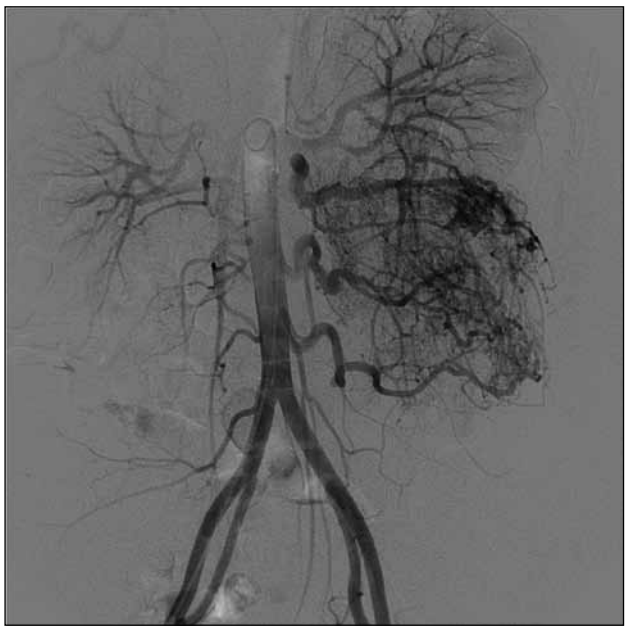

Figure 4. Angiogram demonstrates the arterial feeders arising from the left lumbar (L2, 3, and 4) branches of the abdominal aorta. These vessels were dilated proximally and had a pattern of neovascularity distally.

Figure 5. Post-excision contrasted abdominal computed tomography showing markedly enhanced lobulated residual tumour which has remained stable for 2 years.

MR images of the lesion showed an ill-defined demarcation from the left psoas muscle raising the suspicion of a malignant lesion. A diagnosis of retroperitoneal intramuscular haemangioma can only be made radiologically, if there is a high index of suspicion. A few characteristics have been listed as favouring diagnosis of a haemangioma rather than a soft tissue sarcoma.

Both haemangioma and soft tissue sarcoma have low signal intensity on T1-weighted images. The frequency of lobulation, septation, and central low intensity dots on T2-weighted images are reported to be much higher in haemangiomas than in the malignant soft tissue sarcoma.[5] The central low intensity dots will fill up on contrasted images, suggesting that the lesion is originated from vessels. Haemangiomas are also noted to enhance markedly by gadolinium compared to soft tissue sarcomas.[5] In our case, the lesion showed lobulation, septation, and central low intensity on T2-weighted images. Some of the central low intensity, however, did not enhance post contrast (due to thrombosed vessels).

Further descriptions of haemangiomas have been reported in literature with a view to distinguishing venous from cavernous and capillary types of haemangiomas; the venous types show interruptions in the muscle layer.[4] Interruption of a muscle layer was also seen in this case though it was cavernous in type. As haemangiomas are highly vascular, MR angiography may help determine the feeding vessels. Prior to excision of a haemangioma, in most instances embolisation is deemed necessary to prevent heavy bleeding during resection. Despite the value of MR angiography, conventional angiography plays a bigger role in identifying the feeding vessels when embolisation is intended.

CT images of a haemangioma show a lobulated enhancing mass with bony involvement as depicted in this particular case, in which there was destruction of the left posterior 12th rib. Ultrasound may be of benefit in confirming the presence of a retroperitoneal mass. The flow in a haemangioma is usually too slow to be picked up by Doppler ultrasound, except in arteriovenous types. In this particular case however, Doppler sonography revealed a highly vascularised lesion.

Despite all the diagnostic radiological clues, when it comes to retroperitoneal masses, we can only come up with haemangioma as one of the radiological differential diagnoses. A definite diagnosis and further subtyping of the haemangioma can only be made histologically.

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