Hong Kong J Radiol. 2019;22:64-6 | https://doi.org/10.12809//hkjr1916865

CASE REPORT

Cervical Intraspinal Lipoblastoma in the Cervical Spinal Canal: A Case Report

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ABSTRACT

Lipoblastoma is a rare benign soft tissue tumour that presents in early childhood. It is an encapsulated tumour arising from embryonic white fat. Lipoblastoma is composed of an admixture of mature and immature adipocytes, and usually has a myxoid appearance with fine vascular network. Although benign, lipoblastoma has a tendency to recur, and complete excision with follow-up is essential. Lipoblastoma usually presents as a painless enlarging mass in the extremities and trunk. We herein present a case of lipoblastoma in a rare location—within the cervical spinal canal.

Key Words: *Infant; Lipoblastoma; Spinal cord neoplasms*

中文摘要

頸椎管內脂肪母細胞瘤：病例報告

陳沛君、石家偉、謝健燊

脂肪母細胞瘤是一種罕見的良性軟組織腫瘤，多於兒童早期出現。它是由胚胎白色脂肪產生的包囊腫瘤，由成熟和未成熟脂肪細胞的混合物組成，且通常具有精細血管網絡的粘液樣外觀。雖屬良性，脂肪母細胞瘤有復發傾向，完全切除後進行隨訪是必要的。脂質母細胞瘤通常表現為四肢和軀幹出現無痛擴張性腫塊。本文報告一例位於頸椎管內罕見位置的脂肪母細胞瘤。

CASE REPORT

Lipoblastoma is a rare benign tumour in early childhood. It commonly presents as an extremity or trunk mass. We herein present a case of lipoblastoma in a rare cervical intraspinal location.

A 1-month neonatal girl presented with reduced movement of the bilateral upper limbs. Physical examination showed hypotonia of both upper limbs and minimal spontaneous finger movement. Magnetic resonance imaging (MRI) examination of the spine

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Submitted: 23 Mar 2017; Accepted: 6 Apr 2017.

Disclosure of Conflicts of Interest: All authors have disclosed no conflict of interest.

Funding/Support: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Ethics Approval: The patient was treated in accordance with the Declaration of Helsinki. The patient provided informed consent for all procedures.

revealed a well-defined circumscribed mass within the cervical spinal canal. This mass was extramedullary, with compression onto the cervical spinal cord. It showed predominantly T1-weighted (T1W)–hyperintense signal which was suppressed on fat-suppression sequence, suggesting lipomatous nature (Figures 1 and 2). Linear T1W-hypointense septations were present within this mass. Post-gadolinium images showed no solid nodular contrast enhancement in the centre of the mass, with a rim enhancement noted at the periphery (Figure 3).

Decompression laminoplasty at the cervical spine was performed. Pathological analysis revealed tumour tissues composing of lobules of mature adipocytes, lipoblasts, myxoid matrix, and plexiform vessels. Pathological diagnosis of lipoblastoma was made.

The postoperative course was uneventful. The movement in the patient's upper limbs improved significantly.

DISCUSSION

Lipoblastoma is a lobulated lipomatous tumour arising from embryonic white fat.[1] It typically presents in early childhood, usually before age 3 years. The extremities are the most common sites of involvement. Other reported sites include the mediastinum, the head and neck region, the retroperitoneum, and the trunk.[2] Lipoblastoma usually presents as a slow-growing painless mass. Additional symptoms may be present, depending on the size and location of the tumour.

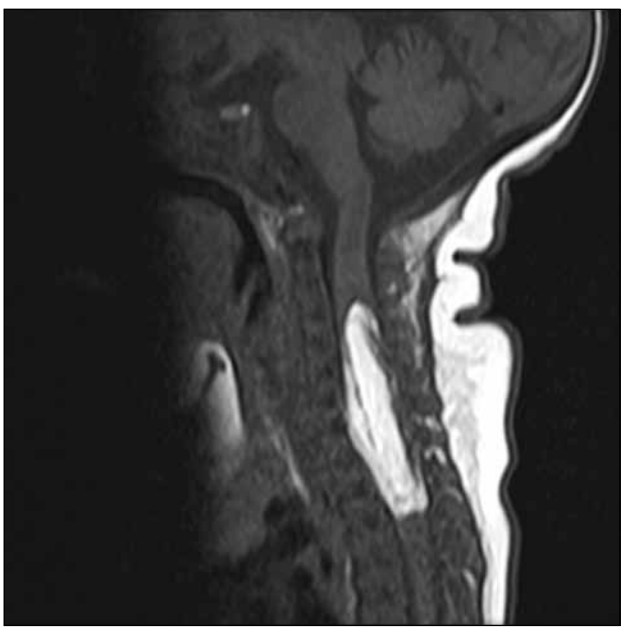

Figure 1. T1-weighted sagittal magnetic resonance image showing a T1-weighted hyperintense mass in the cervical spinal canal.

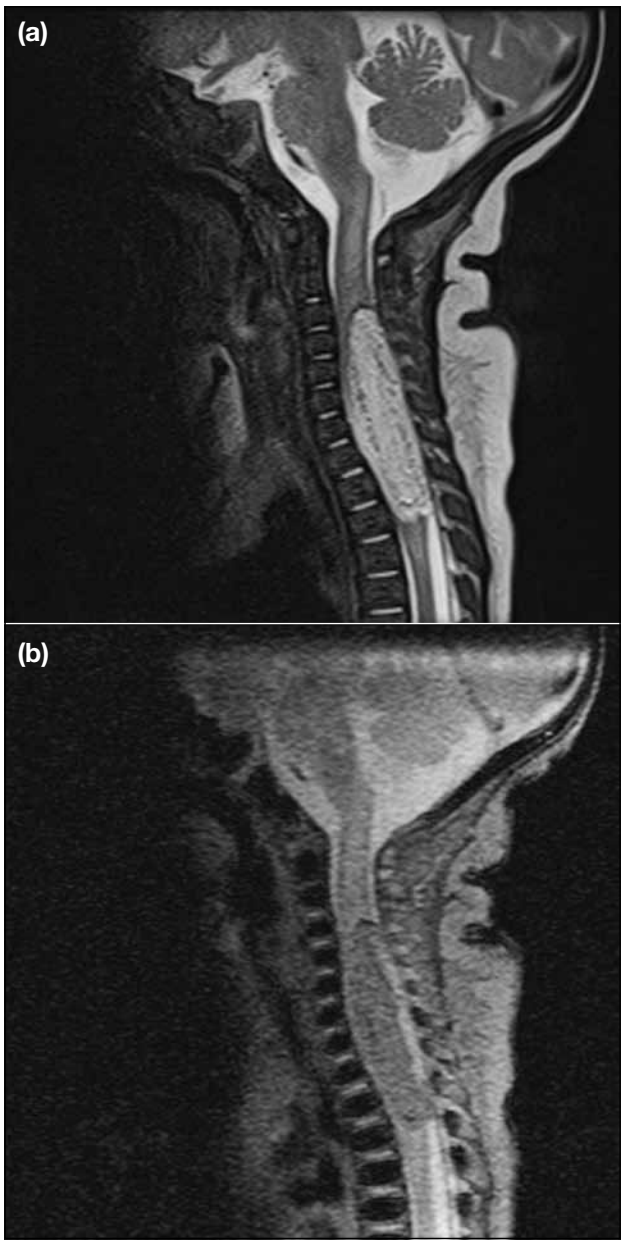

Figure 2. (a) Comparing T2-weighted sagittal magnetic resonance image and (b) fat saturation images showing that the hyperintense signal of the mass was suppressed on fat-saturation images, indicating lipomatous nature.

According to our literature search, lipoblastoma arising from and affecting only the intraspinal canal has not been previously reported. There are several case reports of extradural or extraspinal lipoblastoma or infiltrative lipoblastomatosis in the cervical region with intraspinal canal extension through the intervertebral foramina,[3-5] but no reports with solely intraspinal canal involvement.

MRI is the choice of imaging evaluation for lipoblastoma because it is radiation free and gives excellent contrast

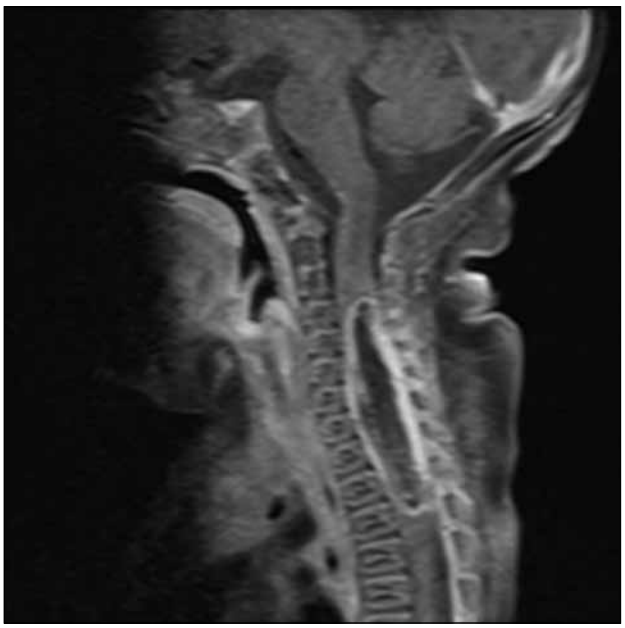

Figure 3. Post-gadolinium magnetic resonance images showing rim enhancement in the periphery.

resolution of soft tissues, enabling tissue characterisation. The fat saturation technique confirms the lipomatous nature of these tumours, which is essential for making the diagnosis. Cystic components, vascularity, and contrast enhancing myxoid components may also be present in lipoblastoma, and these can also be well assessed on MRI. These MRI features correlate well with pathological findings,[6] and are also observed in our case.

The main differential diagnoses of lipomatous lesions in the cervical spinal canal include lipoblastoma, lipoma, liposarcoma, and intraspinal teratoma. A lipoma at this location is not a true neoplasm but is considered a hamartoma or malformation. Non-fatty components are rarely seen in lipomas,[7] unlike other differentials. Significant non-fatty components such as cystic components and calcifications are usually seen in intraspinal teratoma, which help to differentiate them from lipoblastoma.[8,9]

Differentiation of lipoblastoma from liposarcoma by imaging features alone is impossible, in particular for cases of myxoid liposarcoma with presence of T2-hyperintense 'cystic' components. However, liposarcoma is exceedingly rare in children younger than 10 years.[10] A lipomatous lesion with non-fatty component in early childhood would therefore most likely be a lipoblastoma, rather than a lipoma or a liposarcoma.[11] Age reference is the key in suggesting the most likely diagnosis. The final diagnosis must be made pathologically.

CONCLUSION

Lipoblastoma is a rare, benign soft tissue tumour predominantly affecting children younger than 3 years. This differential diagnosis should be considered whenever a lipomatous lesion with non-fatty components is seen in a young child, even in cases with atypical locations.

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