CASE REPORTS

The subdural extramedullary angiolipoma: A rare case report and review of literature

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Received: July 1, 2016 **Accepted:** September 7, 2016 **Online Published:** September 14, 2016
DOI: 10.5430/ijdi.v4n1p6 **URL:** http://dx.doi.org/10.5430/ijdi.v4n1p6

ABSTRACT

Spinal angiolipomas are benign uncommon tumors with the well-differentiated fatty tissue and copious abnormal vascular elements. The epidural angiolipoma accounts for more than 90% of all reported cases. We present a rare case of intradural extramedullary angiolipoma studied by CT and MRI imaging and reviewed the relevant literature. The bilateral L4-S1 laminectomy was performed. No serious complication occurred postoperatively and lambosacra MR imaging revealed no recurrence 1 year after surgery.

Key Words: Intradural extramedullary angiolipoma, Magnetic resonance imaging, Histology

1. INTRODUCTION

Spinal angiolipomas are benign uncommon tumors with well-differentiated fatty tissue and copious abnormal vascular elements. They account for only 0.04% to 1.2% of all spinal cord tumors and have the predilection for the epidural mid-thoracic area.[1–5] Onset of symptoms is present in the fifth decade with a slight female predominance.[6] The epidural angiolipoma accounts for more than 90% of all reported cases.[7] This report presents the radiological and histological details of a 53-year-old man who mainly presented with the weakness of lower extremities and underwent surgical excision of the subdural extramedullary angiolipoma.

2. CASE REPORT

A 53-year-old man complained of the back pain and progressive weakness of both extremities for 5 days after the minor trauma. No other abnormality was demonstrated in neurological examination.

The CT scan demonstrated the iso-intensity lesion in the spinal canal from L4 to S1 level. No apparent enhancement can be demonstrated after the administration of contrast medium-iodine. The precise location of lesion cannot be identified in both non-contrast and iodine-enhanced CT scan. The case underwent the MR examination scanned by GE Signa 1.5 T MR machine. The sequence included T1 weighted imaging (TR/TE = 400 ms/10 ms), T2 weighted imaging (TR/TE = 3,420 ms/123 ms) with a 4 mm section thickness and 1 mm interslice gap, and STIR imaging with a repetition time of 1,800 ms, echo time of 35 ms, inversion time of 100 ms, excitation of 2 and matrix of 128 $\times$ 224. The contrast agent (Gd-DTPA) was administered with a dose of 0.1 mmol/kg body weight.

The MR imaging revealed the subdural extramedullary mass (6.2 cm $\times$ 1.5 cm) mainly located on the dorsal side from the L4 to S1 level. The lower and upper part of mass was iso/hyper-intense on STIR, T1 and T2 weighted imaging. The central area of mass was iso/hypo-intense on T1 and T2 weighted imaging and hypo-intense on STIR imaging. The

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slightly heterogeneous enhancement was demonstrated in the central area and homogeneous enhancement in the periphery of mass (see Figures 1-5).

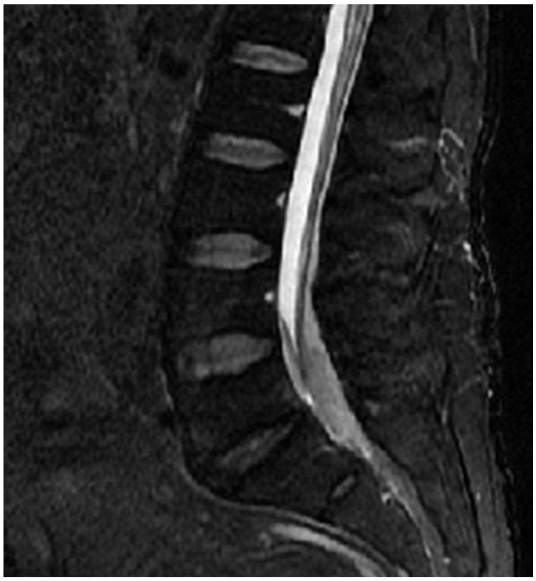

Figure 1. MRI imaging revealed the subdural extramedullary mass (6.2 cm × 1.5 cm) mainly located on the dorsal side from L4 to S1 level. The lower and upper part of mass was iso/hyper-intense on STIR imaging. The central area of mass was hypo-intense on STIR imaging

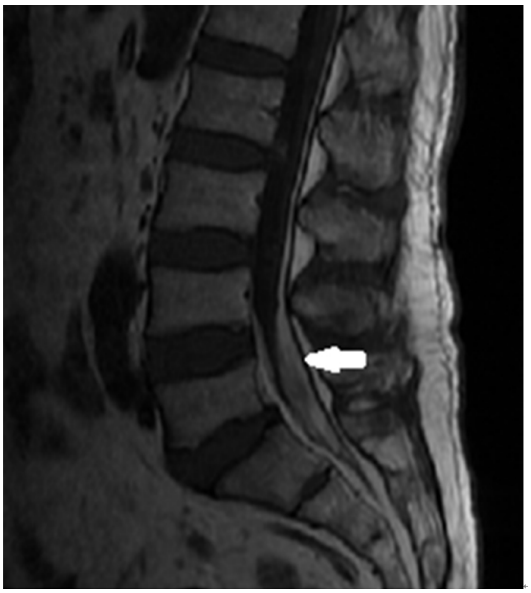

Figure 2. The lower and upper part of mass was iso/hyper-intense on T1 weighted imaging. The central area of mass was iso/hypo-intense on T1 weighted imaging he white arrow indicates the dura mater

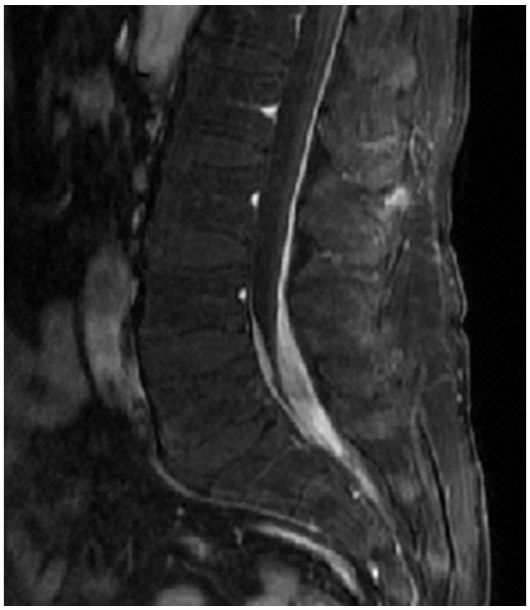

Figure 3. The slightly heterogeneous enhancement was demonstrated in the central area and homogeneous enhancement in the periphery of mass on the sagittal plane

The bilateral L4-S1 laminectomy was performed. The mass was easily dissected and totally removed from the spinal cord and dural mater. Bleeding from the surrounding area was slight.

Microscopic examination revealed the angiolipoma consisting of well-differentiated fatty tissue with abundant vascular structure. However, the caliber of vascular channels was less than that of fat cells. The immunohistochemistry test demonstrated the SMA(+) and CD34(+) in the vascular structure (see Figures 6).

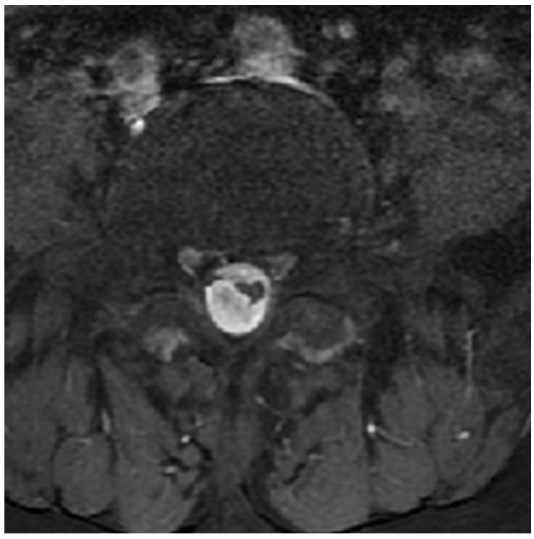

Figure 4. The slightly heterogeneous enhancement was demonstrated in the central area on the sectional plane

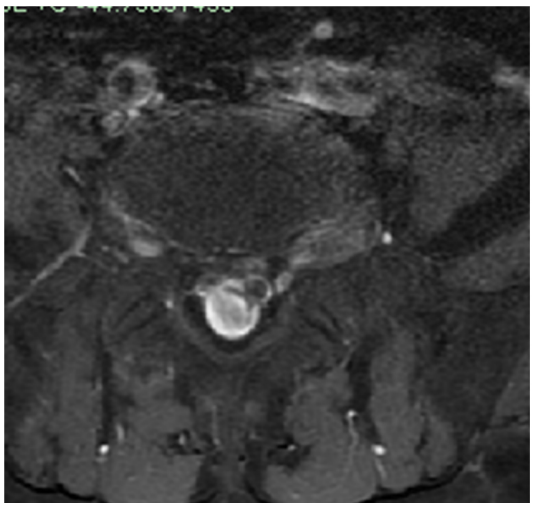

Figure 5. The slightly heterogeneous enhancement was demonstrated in the central area on the sectional plane

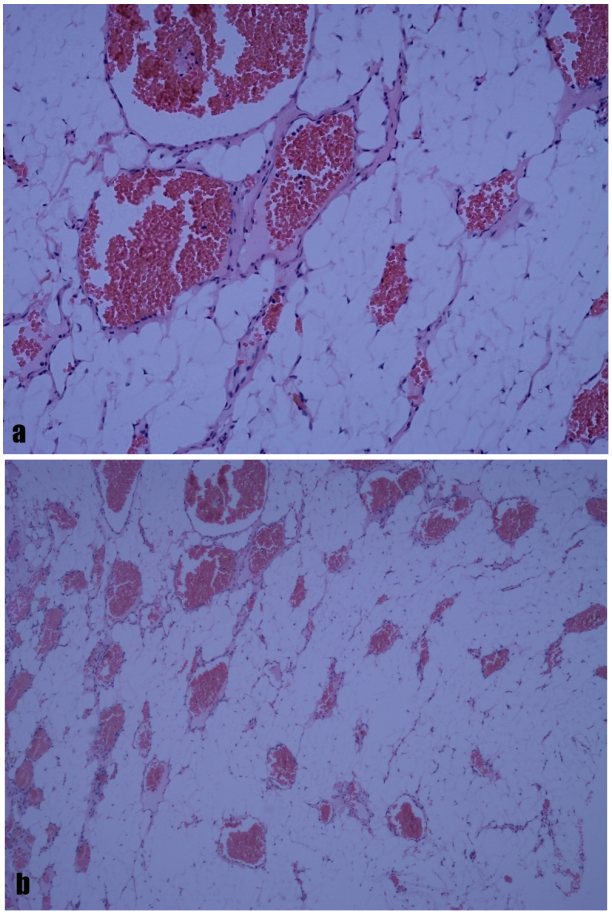

Figure 6. Microscopic examination revealed the angiolipoma consisting of well-differentiated fatty tissue with abundant vascular structure. However, the caliber of vascular channels was less than that of fat cells

No serious complication occurred postoperatively and lambosacra MR imaging revealed no recurrence 1 year after surgery.

3. Discussion

The spinal angiolipoma is a rare and benign neoplasm of well-differentiated fatty tissue and proliferative vascular channels that range from capillary to sinusoid, venular, or arterial in size.[8] The ratio of fatty to vascular component is variable, ranging from a predominantly lipomatous lesion to the subtype of a predominantly proliferative vascular structure.[9] To our knowledge, there are eight cases of subdural intramedullary angiolipoma reported.[10]

Microscopically, the reported spinal angiolipoma (mainly epidural angiolipoma) consisted of mature fatty tissue and proliferative vascular channels, the caliber of which was variable, ranging from nearly capillary sized to cavernous, but mostly several times larger than the fat cells.[11] In our case, it is worth to notice that the caliber of vascular channels was less than that of fat cells.

The frequent initial complaint of spinal angiolipoma presents as the compression on spinal cord and back pain. Typically, such sensory changes usually progress to the weakness of lower extremity for an extended period. The clinical symptom can be exacerbated by pregnancy and obesity.[12]

Magnetic resonance imaging is the best way to identify the spinal angiolipoma. Most reported cases revealed predominantly high signal on T1- and T2-weighted images and heterogeneously enhanced after administering the gadolinium because of the presence of interspersed vascular elements.[13–15] However, the interspersed vascular structure were hypointense on STIR imaging. It would perhaps be helpful to differentiate the angiolipoma from the dermoid cyst, because the dermoid cyst with a high lipid content may exhibit the similar radiological appearance on T1 and T2 weighted imaging as the angiolipoma, but show the hyper intensity on STIR imaging.[16] In our case, the slightly heterogeneous enhancement was demonstrated in the central area and homogeneous enhancement in the periphery of mass after the gadolinium administration. The radiological characteristics of our case were slightly different from those of typical spinal angiolipoma demonstrating the hypo-intensity on STIR imaging and significant hetero or homogenousenhancement,[17] because little bleeding in the lesion was present and the caliber of vascular channels was less than that of fat cells in our case.

4. Conclusion

We reported a rare case of subdural extramedullary angiolipoma and reviewed the relevant literature. MR imaging is the useful technique to identify the spinal angiolipoma both

in subdural and epidural area. The radiologist should have comprehensive knowledge of spinal angiolipoma to prevent any mistake or delay in diagnosis.

CONFLICTS OF INTEREST DISCLOSURE

The authors have declared no conflicts of interest.

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