

Case Report

Lumbar Spinal Extradural Angiolipoma : Case Report and Review of the Literature

Jin Hoon Park, M.D., Sang Ryong Jeon, M.D., Seung Chul Rhim, M.D., Sung Woo Roh, M.D., Ph.D.

Department of Neurological Surgery, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea

Angiolipomas in the lumbar spinal region are extremely rare. The present report describes the identification of such a tumor and its removal, and discusses the tumor characteristics and prognosis. A 74-year-old woman was presented with a 5-month history of lower back pain. Severe radiculopathy was experienced in the left leg for 5 days prior to the presentation, and there were no neurological deficits. Magnetic resonance (MR) images showed an approximately 3.5 cm heterogeneously enhanced and elongated mass at the left L5-S1 level. A portion of the mass appeared with high signal intensity on T2-weighted MR images, with low signal intensity on T1-weighted images, and with high signal intensity on T1 fat suppression enhancement images. Resection of the tumor was approached via an L5 and S1 laminectomy. A fibrous sticky yellowish hypervascular tumor was identified. Histological study revealed the tumor as an angiolipoma. Symptoms were relieved after tumor excision, and there were no neurological sequelae. Although extremely rare, lumbar epidural angiolipoma should be considered in the differential diagnosis of lumbar spinal epidural lesions. The prognosis after surgical management of this lesion is favorable.

KEY WORDS : Angiolipoma · Spinal neoplasm · Lumbar epidural tumor.

INTRODUCTION

Angiolipomas are benign tumors of mature adipose tissue containing abnormal vascular elements. Spinally located angiolipomas are rare and estimated to account for 0.04-1.2% of spinal axis tumors and 2-3% of extradural spinal tumors. Most spinal angiolipomas arise in the thoracic epidural space, with lumbar occurrence being extremely rare^{3,4,9,12}.

The first report of a lumbar spinal angiolipoma was by Kasper and Cowan in 1929, and fewer than 20 have been documented since^{5,8,13-15}. The present report describes a case of lumbar spinal angiolipoma and reviews the literature.

CASE REPORT

A 74-year-old woman was presented with a 5-month history of lower back pain. Severe radiculopathy was expe-

rienced in the left leg for 5 days prior to the presentation. Neurological examination revealed no deficits.

Magnetic resonance (MR) images indicated an approximately 3.5 cm heterogeneously enhanced and elongated mass at the left L5-S1 level. The mass was located between L5 and S1 levels and was comprised of two components. The first component of the mass lying at L5 appeared with low signal intensity on T1-weighted MR images, with iso- or high signal intensity on T2-weighted images, and with low signal intensity on T1 fat suppression enhancement images. The other component of the mass lying at S1 and appeared with low signal intensity on T1- and T2-weighted images, and with high signal intensity after gadolinium injection. The L5 component showed low density on computerized tomography. These preoperative observations suggested a lipogenic tumor, sequestered disc, hemangioma or neurogenic tumor.

Tumor resection was performed via an L5 and S1 total laminectomy. Exposure of the tumor revealed a yellowish hypervascular mass that was fibrous and sticky. The tumor was dissected from the thecal sac and between the S1 and S2 nerve roots. Consistent with the MR images, the L5 component was mainly fat, while the S1 component was an angiomatous fatty mass. Complete excision of the tumor and preservation of all neural structures was accomplished.

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• Address for reprints : Sung Woo Roh, M.D., Ph.D.
Department of Neurosurgery, Asan Medical Center, University of Ulsan
College of Medicine, 388-1 Pungnap 2-dong, Songpa-gu, Seoul
138-736, Korea
Tel : +82-2-3010-3561, Fax : +82-2-476-6738
E-mail : swroh@amc.seoul.kr

Histological examination showed that the tumor contained a mixture of mature adipocytes and large, branching, blood-filled cavernous vascular channels indicating an angioliipoma.

The patient was discharged with no neurological sequelae, and the radiculopathy disappeared postoperatively.

DISCUSSION

In 1961, Howard and Helwig established angioliipoma as a clinicopathological entity usually occurring in subcutaneous vessels, muscle, bone and kidneys⁷. Spinal epidural angioliipomas are quite rare, occur in middle-aged women and preferentially affect the dorsal aspect of the thoracic spine. Lumbar angioliipomas are extremely rare, representing only 9.6% of all spinal extradural angioliipomas¹⁶.

Angioliipoma patients most commonly have long-standing pain and then develop progressive neurological symptoms secondary to spinal cord compression. Like other vascular lesions, onset or deterioration may occur during pregnancy. On rare occasions, angioliipomas may cause sudden deterioration due to thrombosis, hemorrhage or steal phenomena. While the present patient complained of acute symptom onset, histological examination revealed no evidence of bleeding or thrombosis^{2,6}.

MR is the imaging modality of choice for detecting angioliipomas. The fat component is typically hyperintense on T1-weighted images and hypointense on T2-weighted images. In the current case, hypointensity on T1-weighted images correlated with increased vascularity within the spinal angioliipoma. Gadolinium enhancement with or without fat saturation sequences are useful in the study of these lesions, and the former examination also confirmed the present diagnosis^{3,10,13,16}.

Spinal epidural angioliipomas are benign lesions that have good postoperative outcomes. These lesions are slow growing and do not undergo malignant transformation. Surgery appears to be the treatment of choice, and complete excision appears to be curative in most cases. While addi-

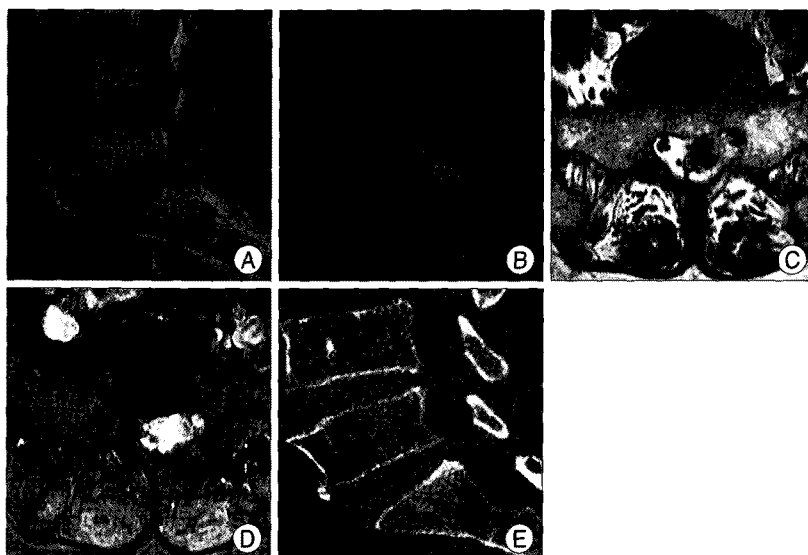


Fig. 1. A : T1-weighted sagittal magnetic resonance (MR) image showing a hyperintense portion of the mass at the L5 level (suggesting a fatty component) and a low signal portion at the S1 level (indicating vascularity). B : Fat suppressed T1-weighted sagittal MR image with gadolinium shows hyperintensity at the S1 level and low signal intensity at the L5 level. C : T1-weighted axial MR image showing a high intensity mass displacing the S2 root laterally at the left S1 level. D : Fat suppressed T1-weighted axial MR image with gadolinium shows a highly enhanced mass. E : Computer tomography sagittal reconstruction image showing a low density mass at the L5-S1 level.

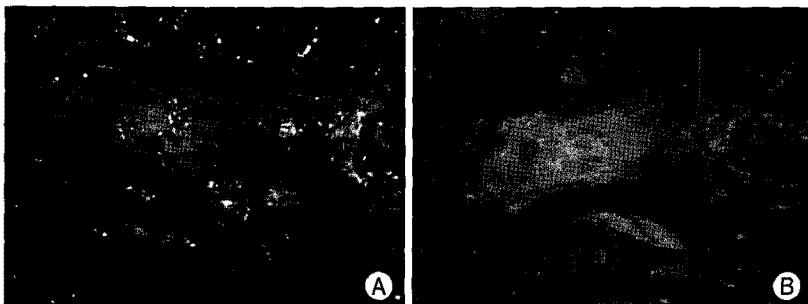


Fig. 2. A : A yellowish hypervascular mass is observed displacing the nerve root dorsally between the left S1 and S2 nerve roots. B : The S1 and S2 nerve roots are seen following the complete removal of the tumor.

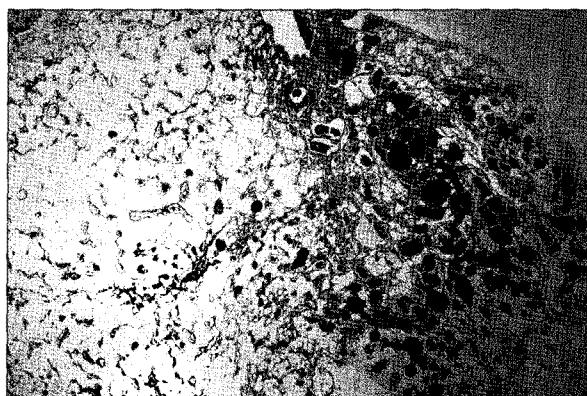


Fig. 3. Histological examination of the tumor revealed a well-vascularized area comprising mature adipocytes and large branching blood-filled cavernous vascular channels, and a hypovascularized area suggestive of a conventional lipoma (× 40 magnification; HE stain)

onal radiotherapy has been used in the treatment of 3 cases, there is no indication that it is necessary for these benign lesions. In the present case, complete tumor resection also provided symptomatic relief, which is consistent with other cases^{1,5,11,13,16}.

CONCLUSION

Although extremely rare, lumbar epidural angiolipomas should be considered in the differential diagnosis of lumbar spinal epidural disease. The prognosis after surgical management of this lesion is favorable. While symptoms may vary, MR images are usually diagnostic.

References

1. Anson JA, Cybulski GR, Reyes M : Spinal extradural angiolipoma : a report of two cases and review of the literature. *Surg Neurol* 34 : 173-178, 1990
2. Boockvar JA, Black K, Malik S, Stanek A, Tracey KJ : Subacute paraparesis induced by venous thrombosis of a spinal angiolipoma : a case report. *Spine* 22 : 2304-2308, 1997
3. Fournay DR, Tong KA, Macaulay RJ, Griebel RW : Spinal angiolipoma. *Can J Neurol Sci* 28 : 82-88, 2001
4. Garg A, Gupta V, Gaikwad S, Deol P, Mishra NK, Sharma MC, et al : Spinal angiolipoma : report of three cases and review of MRI features. *Australas Radiol* 46 : 84-90, 2002
5. Gonzalez-Crussi F, Enneking WF, Aream VM : Infiltrating angiolipoma. *J Bone Joint Surg Am* 48 : 1111-1124, 1966
6. Haddad FS, Abl A, Allam CK : Extradural spinal angiolipoma. *Surg Neurol* 26 : 473-486, 1986
7. Howard WR, Helwig EB : Angiolipoma. *Arch Dermatol* 82 : 924-931, 1960
8. Kasper JA, Cowan A : Extradural lipoma of the spinal canal. *Arch Pathol* 8 : 800-802, 1929
9. Kujas M, Lopes M, Lalam TF, Fohanno D, Poirier J : Infiltrating extradural spinal angiolipoma. *Clin Neuropathol* 18 : 93-98, 1999
10. O'Donovan NA, Naik K, Maloney WJ, Llewellyn CG : Spinal angiolipoma mimicking extradural lipomatosis. *Can Assoc Radiol J* 47 : 51-53, 1996
11. Pagni CA, Canavero S : Spinal epidural angiolipoma : rare or unreported? *Neurosurgery* 31 : 758-764; discussion 764, 1992
12. Preul MC, Leblanc R, Tampieri D, Robitaille Y, Pokrupa R : Spinal angiolipomas. Report of three cases. *J Neurosurg* 78 : 280-286, 1993
13. Provenzale JM, McLendon RE : Spinal angiolipomas : MR features. *AJNR Am J Neuroradiol* 17 : 713-719, 1996
14. Rocchi G, Caroli E, Frati A, Cimatti M, Savlati M : Lumbar spinal angiolipomas : report of two cases and review of the literature. *Spinal Cord* 42 : 313-316, 2004
15. Schiffer J, Gilboa Y, Ariazoroff A : Epidural angiolipoma producing compression of the cauda equina. *Neurochirurgia (Stuttg)* 23 : 117-120, 1980
16. Turgut M : Spinal angiolipomas : report of a case and review of the cases published since the discovery of the tumour in 1890. *Br J Neurosurg* 13 : 30-40, 1999