Case Report

An intraspinal extradural lipoma with spinal epidural lipomatosis: A case report and a review of literature

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Abstract

Background: Intraspinal extradural lipomas are very rare and should be differentiated from spinal epidural lipomatosis (SEL) and/or angiolipomas.

Case Description: A 76-year-old male presented with left lower extremity radiculopathy. The magnetic resonance imaging (MRI) revealed hyperplasia of epidural fat at the L2–3 and L3–4 levels accompanied by a lipomatous L4–5 mass. Following resection of this mass and hyperplastic epidural fat, the histological examination was consistent with an intraspinal extradural lipoma and SEL.

Conclusion: This case indicates that asymmetrical compression of the dural sac may be attributed to an intraspinal extradural lipoma vs. just SEL and/or an angiolipoma.

Key Words: Histological examination, intraspinal extradural lipoma, spinal epidural lipomatosis, spinal tumor

INTRODUCTION

An intraspinal extradural spinal lipoma without spinal dysraphism is very rare. It accounts for only 0.4%–0.8% of all intraspinal tumors.2,4,9 Differentiation of an intraspinal extradural lipoma from spinal epidural lipomatosis (SEL – overgrown normal adipose tissue in the epidural space11) and angiolipomas (e.g. 0.14% of all spinal tumor containing vascular tissue11) is imperative.4,9

Herein, we present the clinical, radiographic, surgical, and pathological assessment of a patient with an intraspinal extradural lipoma and SEL.

CASE REPORT

History and examination

A 76-year-old male was presented with left lower extremity radiculopathy that had progressed over the last 2 years. Sixteen years before admission, an intracerebral hemorrhage left him hemiplegic on the left side, necessitating the use of a wheelchair.

The magnetic resonance imaging (MRI) of the lumbar spine revealed spinal stenosis at the L2–3, 3–4, and 4–5 levels. Additionally, the T2-weighted images showed degenerative disc disease and hyperplastic...
epidural fat contributing to L2–3 and L3–4 stenosis [Figure 1a and b]. The sagittal MR studies also revealed anterior displacement of the dural sac due to posterior epidural fat [Figure 1c]. The axial T2-weighted image showed that a hyperintense mass occupied the left side of the spinal canal, and compressed the dural sac at the L4–5 level [Figure 2].

Operation and postoperative course

Seven months later due to persistent complaints, the patient underwent surgery consisting of fenestrations at the L2–3, 3–4, and 4–5 levels. At L4–5, a yellow, encapsulated, lobulated lipomatous mass with epidural fat filled the epidural space [Figure 3a and b]. The lesion was readily dissected away from the dura allowing for an en bloc resection [Figure 3c]. At the L2–3 and 3–4 levels, additional hyperplastic epidural fat was removed in a piecemeal fashion [Figure 4a and b].

Histologic analysis

The histological examination of the encapsulated mass showed lobulated mature adipose tissue enclosed by fibrous tissue, compatible with a lipoma, while the histology of the L2–3 and L3–4 epidural fat was consistent with just mature adipose tissue; none of the slides demonstrated cellular atypia [Figure 5a and b]. One month postoperatively, the patient reported a significant relief of the pain in his left leg, while paresthesia improved but did not fully resolve.

DISCUSSION

There are a few cases of intraspinal extradural lipoma without spinal dysraphism. Here, we reviewed 10 studies in the literature and summarized the diagnosis and surgical management of this 76-year-old male.[3,6,8,9] (Table 1).

Intraspinal extradural lipomas typically occur in the lumbar spine (10 of 11 patients in the literature). Meisher et al. reported a thoracic lipoma at the T4–9 level resulting in paraplegia. Loriaux et al. reported three patients with radiculopathy attributed
to extradural/intraforaminal lipomas; these lesions were all small (1.1 × 0.8 × 0.2 cm, 1.1 × 1.1 × 0.3 cm, and 2.5 × 1.6 × 0.3 cm).[4] The “empty foramen sign” on MRI reflected displacement of the nerve root cranially or caudally due to intraforaminal lipomas.[4]

In the literature, the postoperative course for most patients was uneventful: three completely recovered (27%), six showed improvement (55%), one showed no improvement (9%), while one patient’s status was unknown (9%).[1-6,8,9]

As these intraspinal extradural lipomas are rare, they may be easily overlooked,[4,8] particularly when epidural fat is hyperplastic. This case highlights the importance of considering an intraspinal extradural lipoma when looking at an epidural compressive and often asymmetric fatty encapsulated lesion on MRI.

CONCLUSION

A 76-year-old male presented with a rare intraspinal extradural lipoma accompanied by SEL. These lesions are typically enclosed in a fibrous capsule, and present with asymmetric fatty compression of the lumbar dural sac on MRI.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Badami JP, Hinck VC. Symptomatic deposition of epidural fat in a morbidly obese woman. AJNR Am J Neuroradiol 1982;3:664-5.
2. Butti G, Gaetani P, Scelsi M, Pezzotta S. Extradural spinal lipomas. Report of two cases and review of the literature. Neurochirurgia 1984;27:28-30.
3. Kim HK, Koh SH, Chung KJ. Solitary epidural lipoma with ipsilateral facet arthritis causing lumbar radiculopathy. Asian Spine J 2012;6:203-6.
4. Loriaux DB, Adogwa O, Gottfried ON. Radiculopathy in the setting of lumbar nerve root compression due to an extradural intraforaminal lipoma: A report of 3 cases. J Neurosurg Spine 2015;23:55-8.
5. Marks SM, Miles JB, Shaw MD. Idiopathic spinal extradural lipomas: Three cases and review of the literature. Surg Neurol 1985;23:153-6.
6. Meisheri YV, Mehta S, Chattopadhyay K. Acute paraplegia due to an extradural spinal lipoma: Case report. Spinal cord 1996;34:633-4.
7. Rocchi G, Caroili E, Frati A, Cimatti M, Savlati M. Lumbar spinal angiolipomas: Report of two cases and review of the literature. Spinal Cord 2004;42:131-6.
8. Schizas C, Ballesteros C, Roy P, Cauda equina compression after trauma: An unusual presentation of spinal epidural lipoma. Spine 2003;28:E148-51.
9. Zevgaridis D, Nanassis K, Zaramboukas T. Lumbar nerve root compression due to extradural, intraforaminal lipoma. An underdiagnosed entity? J Neurosurg Spine 2008;9:408-10.