Case Report

Cervical intramedullary spinal cord lipoma

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Abstract

Background: Intramedullary, nondysraphic, spinal cord lipomas are rare and account for less than 1% of all spinal cord lesions. Symptoms typically consist of a progressive myelopathy associated with increasing degrees of paralysis (e.g., quadriparesis/plegia, paraparesis/plegia).

Case Description: A 39-year-old male, without a history of spinal dysraphism, presented with a progressive spastic quadriparesis. This was attributed to magnetic resonance-documented large intramedullary cervical lipoma. Following partial intramedullary surgical debulking of the lesion, the patient neurologically improved.

Conclusion: Partial debulking of a cervical intramedullary lipoma in a patient who originally presented with a severe quadriparesis resulted in significant neurological improvement. Notably, utilization of intraoperative ultrasonography, CO₂ laser, and both motor evoked and somatosensory evoked potentials can be helpful during the removal of such lipomas.

Key Words: Cervical spine lipoma, cervical spine tumors, intramedullary lipoma

INTRODUCTION

Spinal lipomas are usually extramedullary lesions, and are typically found in the lumbosacral spine with spinal dysraphism. Truly intramedullary spinal cord lipomas are rare, comprising less than 1% of all spinal cord lesions.¹ Because of their intramedullary location, following surgical intervention/debulking/excision, patients may only exhibit partial recovery.

Here, we report a 39-year-old male with a large cervical intramedullary lipoma who improved after partial surgical debulking.

CASE REPORT

Clinical presentation
A 39-year-old male presented with a 1-year history of cervical pain and progressive tetraparesis. His neurological complaints included hypoesthesia in all four extremities, accompanied by a progressive quadriparesis (e.g., inability to walk and left leg hyperreflexia).

Magnetic resonance imaging (MRI) showed an intradural, intramedullary mass extending from C5 to T2 (6.2 × 1.3 cm), causing a severe cord compression without spinal dysraphism [Figure 1]. The lesion was hyperintense on T1 and hypointense on T2 images; these findings were consistent with a lipoma.
The patient underwent a cervical laminectomy extending from C5 to D2 with a myelotomy performed at the thinnest area of the spinal cord overlying the mass. As there was no clear cleavage plane between the lipoma and the cord, an internal debulking of the mass was performed along with a duroplasty. The postoperative period was uneventful, and the patient was discharged on postoperative day 8. Following surgery, the patient’s spasticity and weakness improved and he was again able to ambulate. Four years later, MR showed only a mild growth of the residual tumor (Figure 1), and the patient’s condition remained stable.

DISCUSSION

Spinal cord lipomas are rare lesions, representing less than 1% of all spinal cord tumors.[2] They are typically extradural in location, and are predominantly found at the sacral/lumbosacral regions, in conjunction with spinal dysraphism and subcutaneous lipomas.[8] Intradural and intramedullary lipomas are even less frequent. Because of their critical location, intramedullary cervical tumors often carry a poor prognosis.[4]

Etiology/Embryogenesis

The few spinal cord lipoma cases reported in the literature are typically extramedullary lesions.[9] These usually originate from the migration of mesenchymal elements into the neural tube before its complete closure during embryogenesis.[1] Symptoms usually appear with a biphasic age distribution:[5] before the 5th year of life, with tetraplegia or floppy baby syndrome (probably due to a birth-trauma of the spinal cord)[6,7] or to a greater amount of fat tissue developing during the childhood[6] or between the 2nd and the 5th decades of life.[4,5]

Clinical presentation

The clinical presentation of cervical intramedullary lipomas includes ataxia, cervical axis pain, dysesthesias, and a progressive quadriplegia, as noted in this case. Adults often exhibit more subtle findings characterized by a slowly-progressive myelopathy. When compression is maximal, the patients finally develop increasing myelopathy.[1,4]

Early diagnosis and treatment

Early diagnosis and treatment are critical to avoid prolonged cervical cord compression with resultant irreversible neurological injury.[4]

MRI usually demonstrates a T1 hyperintense and T2 hypointense intramedullary mass with an inversion of intensity at short T1 inversion recovery sequences, supporting the adipose nature of the mass. The optimal treatment of these lesions is decompression from within the tumor margins to avoid further neurological deterioration as there is typically no clear plane of cleavage between the lesion and the spinal cord.[1,3,4] Intraoperative ultrasonography is also useful to identify the extension of the lipoma because of its anechoic structure,[1] while somatosensory evoked potentials help avoid damage to nervous structures. Motor evoked potentials should also be routinely employed for resection of these lesions.[3,4] Partial excision with an adequate decompression (e.g., duroplasty) often provides sufficient long-term symptomatic relief.[3,4]

Some surgeons advocate using the carbon-dioxide laser to vaporize these lesions, avoiding direct manipulation of the spinal cord.[1,3,4]

CONCLUSIONS

Intramedullary cervical spinal cord intramedullary lipomas are rare. They typically present with a progressive spastic quadriplegia. Treatment usually requires debulking rather than gross total resection to avoid increasing the neurological deficit.[4] The addition of a duroplasty provides further long-term decompression of the spinal canal.

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Conflicts of interest

There are no conflicts of interest.

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