Solitary osteochondroma of the cervical spine presenting with quadriparesis and hand contracture

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DISCLOSURE

I do not have any financial or organizational relationships with commercial interests or other entities. I hereby certify that to the best of my knowledge no aspect of my current personal or professional circumstances places me in a position of having a conflict interest with my duties, responsibilities and exercise of independent judgement as an educational presenter.
INTRODUCTION

- Spinal osteochondromas are rare benign tumors arising from the cartilaginous elements of the spine that may arise as solitary lesions or as multiple lesions in the context of Hereditary Multiple Exostoses.

- Spinal osteochondromas uncommonly manifest with myelopathy.

- Here we describe a solitary osteochondroma of C3-4, presenting with progressive quadriparesis and hand contracture which was treated successfully with laminectomy and posterior spinal fusion. Additionally, we summarize previous reports of osteochondromas with cord-compression originating at the C3-4 level.
METHODS

• A comprehensive search of PubMed was conducted through August 2019 using the search terms "osteochondroma" and "cervical spine."

• Records were reviewed to identify all English-language articles reporting osteochondromas at the C-3 or C-4 level, presenting with spinal cord-compression.
RESULTS

Case Report

• A 15-year-old girl presented with a 3-month history of progressive quadriparesis and hand contracture secondary to an osteochondroma at the C-3 level of the cervical spine.
• MRI revealed a solitary osseous extramedullary outgrowth arising from the left laminar cortex of the C-3 vertebral body with inferior extension to the level of C-4.
• The mass resulted in severe spinal canal stenosis, compression of the thecal sac and cord, and moderate left neural foraminal narrowing.
RESULTS
Case Report

- Laminectomy, fixation, and fusion was performed using a posterior approach.
- Gross total resection was achieved and pathology confirmed osteochondroma.
- The patient's myelopathy resolved postoperatively. At the time of her two year follow up, she had no residual deficits or evidence of tumor regrowth.
RESULTS
Case Report

Figure 1. Sagittal preoperative and postoperative magnetic resonance imaging (MRI). Interval cervical laminectomy of C3-5 with posterior spinal fusion of C2-3, C3-4, and C4-5 was performed. (a) Sagittal view of preoperative T2 MRI. (b) Coronal view of preoperative T2 MRI. Outgrowth from the left laminar cortex of the C3 vertebral body with inferior extension to the level of C4, resulting in severe spinal cord stenosis, compression of the thecal sac/cord, and moderate left foraminal narrowing is demonstrated. (c) Sagittal view of 3-month postoperative T2 MRI (left). (d) Coronal view of 3-month postoperative T2-STIR MRI (right). Resolution of cord compression is demonstrated.
RESULTS
Systematic Review

• A total of 26 patients, across 23 studies, were identified with spinal cord compression secondary to osteochondroma of the C-3 or C-4 level.

• Of these, 14 cases arose in the setting of HME and 13 were solitary osteochondromas.
DISCUSSION

• Osteochondromas represent the most common benign tumor of bone.
• Solitary osteochondromas involve the spine in only 5% of cases and are most commonly found in the cervical (49%) followed by the thoracic (26%) and lumbar spine (23%).
• Cervical lesions typically arise from C2 (24%), C1(19%), and C7 (15%).
• When these lesions are symptomatic, gross total resection should be performed to avoid malignant transformation or recurrence.
SUMMARY

• A 15-year-old female presented with progressive quadriparesis and hand contracture secondary to a solitary osteochondroma of the cervical spine. Symptomatic and radiographic resolution was achieved following gross total resection of the mass with cervical laminectomy and fusion.

• Our review of the literature illustrates the rarity of our patient’s presentation: We identified only 5 female patients with solitary osteochondromas of C3-4 presenting with cord compression.

• To our knowledge, this is the first reported case of a cervical osteochondroma arising from C3 presenting with quadriparesis and hand contracture.