

A Deceptive Cervical Lymph Node: A Solitary Spinal Osteochondroma

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Abstract

Introduction: Osteochondroma of the cervical spine is an uncommon bony tumour. **Clinical Picture:** We present a case which was misdiagnosed as a posterior cervical lymph node. The patient presented with a tender neck lump and was seen by two surgical departments. They eventually diagnosed it as an osteochondroma and referred the patient to our department. This exostosis arose from the lamina of C3 vertebra and extended posteriorly. The patient presented with persistent neck ache but had no neurological deficit. **Treatment:** It was excised uneventfully. **Conclusion:** From the literature review, this appears to be the first case where an exostosis arose from a spinal facet joint. A discussion of osteochondromas follows.

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Key words: Cervical spine, Exostosis, Osteochondromatosis

Introduction

Osteochondromas are cartilage-capped bony exostoses that arise mainly from the metaphyses of long bones from a lateral displacement of the epiphyseal growth cartilage, but any bone formed by endochondral ossification (bones that develop from cartilage) may give rise to osteochondromas.¹ Osteochondromas may arise in a solitary form or in a multiple form, variously known as “hereditary multiple exostoses (HME)” or “multiple (hereditary) osteochondromatosis (MHO)” or “multiple cartilaginous exostoses” or “diaphyseal aclasis” or “Bessel-Hagel Syndrome”. Rarely do osteochondromas arise in the spine (3%),¹ and they are a rare cause of spinal cord compression. However, osteochondromas have a potential of malignant transformation, especially so in the hereditary form (10% to 30%). In this paper, a rare case of a solitary osteochondroma arising from the lamina of C3 cervical vertebra is presented. The patient was seen by two different surgical specialties and misdiagnosed twice prior to being referred to our department for eventual management. This case illustrates the inherent difficulty in diagnosing an osteochondroma of the spine, especially in the absence of any neurological deficit, and the risk of missing a tumour with the potential to undergo malignant transformation.

Case Report

The patient, a 17-year-old Chinese male, was initially seen by a general practitioner in February 1997 for a right-

sided posterior neck lump of 2 weeks' duration, which was diagnosed as a cervical lymph node. A course of antibiotics was prescribed with no resolution of the lump. He was then seen by a resident in the General Surgical Department who similarly treated him without success with a course of antibiotics, and concurrently also referred him to the Department of Otorhinolaryngology to exclude a nasopharyngeal cause of the swelling. The otorhinolaryngologist correctly diagnosed it as a bony protuberance and ordered a computed tomographic (CT) scan, which showed a bony exostosis. There was no lymphadenopathy.

When reviewed by the orthopaedic specialist, his main complaint was that of neck ache. There were no neurological symptoms or signs. There were no other bony exostoses observed. There was also no family history of multiple exostoses. Cervical spine radiographs showed an exostosis at the level of C3 vertebra. The CT scan (Fig. 1) and magnetic resonance imaging (MRI) (Fig. 2) showed the exostosis arising from the lamina of C3 vertebra and extending posteriorly towards the spinous process, with the underlying lamina thinned out. There were no features suggestive of malignancy. There was no compression of the spinal cord. The initial decision was taken to observe him. However, the exostosis continued to bother him periodically and he eventually requested for excision of the exostosis.

During surgery, the exostosis was seen to be arising from around the right facet joint of C2/C3 vertebrae. It completely

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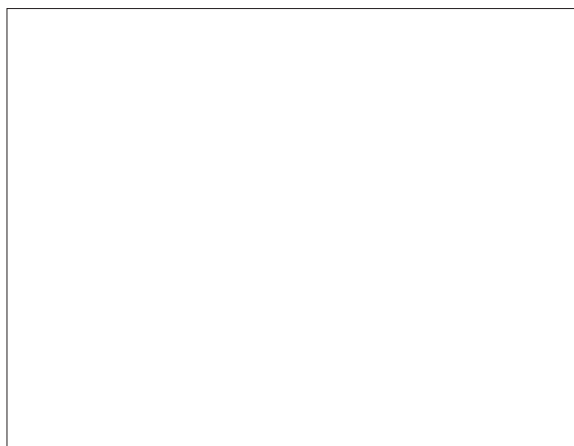


Fig. 1. CT scan showing the origin of the osteochondroma from the lamina of C3 vertebra.

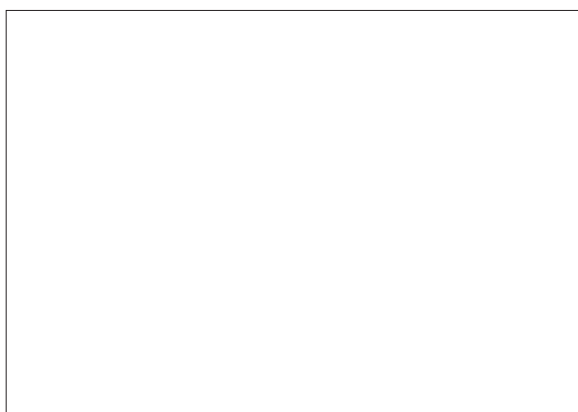


Fig. 2. MRI, coronal plane, showing the osteochondroma arising from C3.

covered the posterior aspect of the facet joint (Fig. 3) and measured 4 x 3 x 3 cm. It extended laterally and posteriorly over the lamina towards the spinous process. The underlying lamina was thinned out. It was excised uneventfully (Fig. 4). Postoperative recovery was uneventful; there were no neurological deficit or symptoms. He was discharged well 5 days later. Histology was consistent with an exostosis. No malignancy was observed and he continues to be on follow-up.

Discussion

Osteochondromas occur in either a solitary or multiple form. Osteochondromas are thought to arise from a portion of epiphyseal cartilage that is pinched off to form an autonomous growth centre and grows independently away from the metaphysis.² They are fairly common bone tumours, accounting for approximately 50% of benign bone tumours and 10% to 15% of all bone tumours.³ Osteochondromas occur more frequently in males, with a male to female ratio ranging from 1.5:1 to 2.5:1. The tumours most frequently occur in those below the age of 20 years and are most often located in long bones, with 43%

of the tumours occurring around the knee.^{1,3} The multiple form, HME or MHO, is an autosomal dominant condition that can lead to both sessile and pedunculated lesions. They form about 12% of all cases.⁴ The lesions may occur on different bones or on the same bone, and symptoms tend to present earlier, in the first decade of life. Probably the first person to describe and illustrate exostoses was Sir Astley Cooper at St Thomas' and Guy's Hospitals in London in 1818.³

The risk of malignant transformation to chondrosarcoma in HME is unknown, but may be 5% to 25% compared to approximately 1% for solitary osteochondromas.³ Out of the 7 spinal occurrences of 635 cases of chondrosarcomas reported by the Mayo Clinic, 5 patients had HME while 2 had solitary exostosis.⁵ Malignant transformation is suggested by a sudden growth spurt, especially after epiphyseal closure, or recurrence.

Only 1.3% to 4.1% of solitary osteochondromas arise in the spine,⁴ as in our case, where they form 0.4% of intraspinal tumours⁶ or 3.9% of solitary spinal tumours.^{5,6} About 9% of patients with HME have spinal tumours.⁷ However, only very few patients with HME have been described to have multiple spinal exostoses. Patients with HME presenting with spinal exostosis were, on average, younger than those with solitary exostosis presenting with a spinal exostosis (21 years versus 30 years).¹ In both the solitary and hereditary groups, Albrecht et al have documented an incidence of 50% of all spinal exostoses occurring in the cervical spine (which contains 23% of all vertebrae) and 26% in the thoracic spine (which contains 40% of all vertebrae), with C-2 being the most frequent site. They postulated that the high mobility and flexibility of the cervical spine would lead to greater stress and microtrauma to the epiphyses and result in displacement of a portion of it.

Spinal osteochondromas are often asymptomatic⁷ and rarely result in neurologic symptoms, as in our case. Compression of adjacent arteries, including the carotid, subclavian or vertebral arteries, may occur.⁸ Anterior growth of a cervical spine osteochondroma may present¹ as a pharyngeal mass or a goitre, or with dysphagia or hoarseness.⁹ Neurologic involvement results from a slow progressive growth of the osteochondroma into the spinal canal. In their review of the literature, Albrecht et al¹ noted that in unselected cases, 0% to 14% of three series presented with some form of neurological symptoms. In their literature search of spinal exostoses, 77% of such patients with HME had myelopathy, while 34% of patients with solitary exostosis developed myelopathy. The large number reported in their own series may reflect reporting biases. In most cases, neurologic symptoms develop slowly. However, a case of sudden death in a patient with an exostosis of the odontoid process has been reported.¹⁰

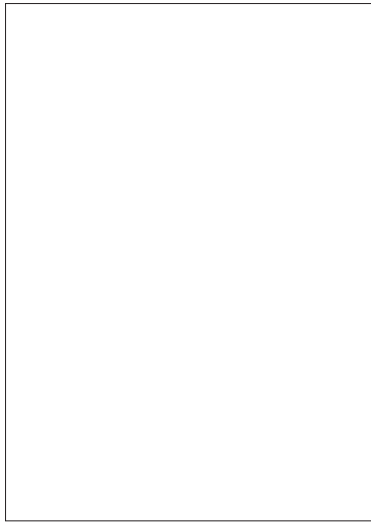


Fig. 3. Intra-operative photograph of the exostosis.



Fig. 4. Post excision of the exostosis.

Radiographs of the cervical spine will typically show a pedunculated or sessile bony protuberance. The cartilage cap will obviously not be visible, although specks of calcification may be seen. At the base, the cortex of the bone flares outwards into the cortex of the exostosis. This is pathognomonic of an osteochondroma.¹¹ Myelogram may show extradural compression in patients with neurological deficits. CT is the ideal modality. It will define the cartilaginous and osseous components, show the extent of the tumour and define its relationship with the vertebrae and neural elements.¹¹ The typical characteristics on CT are 1) roundish, sharply-outlined mass, 2) bone-like density with scattered calcifications, 3) paraspinal, dumb-bell or eccentric intraspinal location, 4) osteosclerotic changes in adjacent bone, and 5) lack of contrast enhancement.¹² The same holds true for MRI. MRI, however, has the advantage of clearly defining the cartilage,

marrow and neural components in the T2 images. It also clearly delineates the cartilage cap, which is often not seen on CT. If the maximum thickness of the cap exceeds 2 cm, sarcomatous transformation must be seriously considered.¹¹

Surgery was first performed in 1907 by Oschner and Rothstein. Since then, there have been several case reports, with most patients having complete resolution of their deficits or only minor residual deficits.¹ Standard surgical approaches to the cervical spine are used. The main difficulty is the close proximity of the bony hard lesion to osseous and delicate neural elements, which often requires drills, chisels and burrs. Incomplete excision can lead to recurrence, and this has been described as early as 6 months and as late as 14 years in the literature review by Albrecht et al.¹ Hence, regular follow-ups are essential to exclude recurrence.

Conclusion

Encountering a spinal osteochondroma is a relatively rare experience in a surgeon's career. However, to date, there is a considerable amount of literature that has accumulated over the past few decades from an increasing awareness of the condition. The main investigative modality would be the CT scan. Standard surgical approaches done with care will suffice and good to excellent outcomes can be achieved. Early excision will avoid the insidious onset of neurological deficits and abolish the risk of malignant transformation.

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