Osteochondroma and Spinal Cord Compression in a Patient With Hereditary Multiple Exostoses: A Case Report

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Abstract

Objective: The purpose of this report was to describe the presentation of a patient with hereditary multiple exostoses and thoracic spinal cord compression from an osteochondroma.

Clinical Features: A 31-year-old female presented to a chiropractic clinic with a history of hereditary multiple exostoses and back pain that had existed since the age of 16 years. She had a past medical history that was remarkable for 3 prior surgeries for mass removal. Examination revealed a left upper midscapular mass with decreased sensation.

Intervention/Outcome: Magnetic resonance imaging, computed tomography, and biopsy led to a diagnosis of osteochondroma. These diagnostic modalities confirmed that there was no malignant degeneration. Initial magnetic resonance imaging revealed a large expansive lesion involving the left posterior elements at the region of T3-T4. Subsequent thoracic hemilaminectomy and resection of the spinal tumor with posterior instrumentation and stabilization from T2-T5 resulted in 90% overall subjective improvement.

Conclusions: A detailed case history, thorough examination, guided advanced imaging, and biopsy provide important information for the diagnosis and appropriate treatment of expansive lesions in patients with hereditary multiple exostoses. (J Chiropr Med 2016;xx:1-6)

Key Indexing Terms: *Exostoses, Multiple Hereditary; Bone Neoplasms; Spinal Cord Compression; Chiropractic; Osteochondroma*

Introduction

Many osteochondromas are asymptomatic; however, complications can involve bone, nerve, and soft tissues via mass effect or intrinsic change[1-10] (Fig 1).

Osteochondromas (osteocartilagenous exostoses) represent most of the primary benign bone tumors.[7,11-13] Osteochondromas are common in the appendicular skeleton. Sixty-five percent of these tumors are located around the knee and proximal humerus and 20% arise in the axial skeleton, and of these, approximately 5% occur in the vertebral column.[1,14-16] Solitary osteochondromas develop in isolated bones and are not hereditary, whereas multiple osteochondromas can occur spontaneously or as part of an autosomal dominant disorder known as *hereditary multiple exostosis* (HME).[10] Both genders can be affected equally, but there is a slight male predominance.[17,18] The incidence of HME is approximately 1 in 50,000 live births.[3,13,19,20]

This case describes the presentation, management, and outcome for a patient with a past history of HME presenting with back pain as the result of thoracic spine osteochondroma.

Case Report

A 31-year-old white woman with known HME presented with thoracic pain that had worsened over the past few years. Phenotypical appearance was consistent with HME. Pain had been present since the age of 16 years. Spinal imaging (spiral computed tomography [CT]) had been performed 6 years earlier, but no clinical treatment had been provided (Fig 2). Pain was the chief complaint, with a secondary tingling sensation in the left upper midscapular region. Past medical history was remarkable for previous surgical intervention for mass removal: right ankle at the ages of 8 and 16 years and the left ankle, fibula, and right wrist at the age of 21 years. The patient was also being treated for fibromyalgia and bipolar disorder. Her current medications included carbamazepine (Tegretol).

Examination revealed a large, non-edematous, immobile, and tender left upper midscapular mass at T2-T6. There were decreased pinprick and light touch sensations in the T6 dermatome distribution on the left side. The patient also had hard, nonmobile, and nontender masses in the proximal

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Soft Tissue	Vascular	Neurologic	Bone/Joint
Impingement (muscle, tendon)	Arteriovenous compression Superficial Femoral, popliteal artery. Common carotid, vertebral, subclavian artery.	Neuropathy, (common peroneal/(lateral popliteal nerve)	Deformity: bowing of long bones/forearms(radius), short stature, leg length discrepancy, varus deformity (femur), valgus deformity (tibia)
Friction, Bursae Formation(scapula, hip, shoulder)	Pseudoaneurysm (most common), (superficial femoral artery, popliteal artery)	Radiculopathy	Pseudoarthrosis
Tenosynovitis	Arterial thrombosis	Myelopathy	Synostosis
Tendon rupture	Venous thrombosis	Cord compression	Articular subluxation (radial head/radiocapitellar joint)
Joint restriction	Thromboembolism	Cranial Nerve Deficits	Pressure erosion
	Arterial rupture	Cauda Equina Syndrome	Fracture (usually at base)
	Pericardial effusion	Myelomalacia	
	Hemothorax (rib exostosis)	Thoracic outlet syndrome	
	Aneurysm (posterior tibial artery)		
	Hemopericardium		
	Pneumothorax		

Fig 1. *Complications of osteochondroma. Reported soft tissue, vascular, neurologic, and bone/joint complications.*

aspect of the tibia in both legs. The second toe of her left foot was observed to be short. The remainder of the neurologic examination was essentially normal, with the exception of depressed patellar and Achilles reflexes. There was no evidence of myelopathy.

Noncontrast magnetic resonance imaging (MRI) of the thoracic spine revealed a large lesion involving the left posterior elements of T3-T5 (Fig 3). The mass extended inferiorly involving the left posterior elements at the T4 and T5 levels. There was associated mild to moderate stenosis

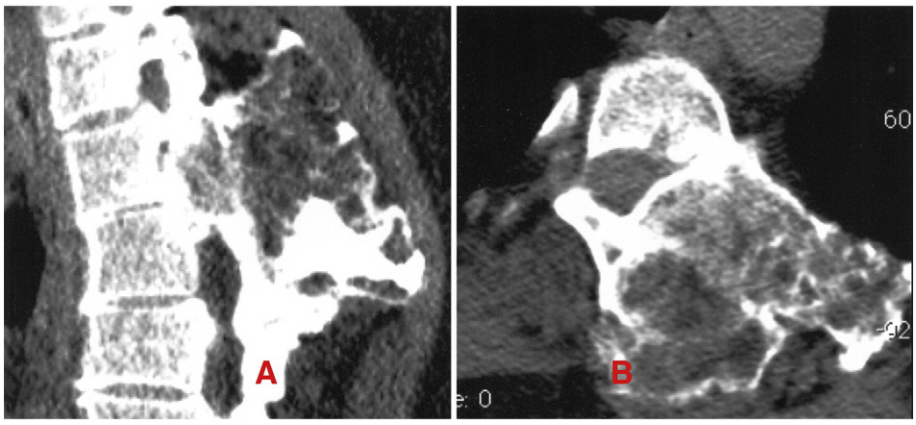

Fig 2. *Spiral computed tomography showing left-sided, broad-based, sessile bony mass with spinal canal and lateral recess stenosis (6 years prior). Sagittal (A) and axial (B) views.*