

Solitary Osteochondroma of Dorsal Spine – A Rare Case Report

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Abstract

Osteochondroma or bony exostosis is a common benign tumor of bone occurring predominantly in long bones. It may arise infrequently from the spine giving rise to vague symptoms as backache or may lead to compressive myelopathy due to cord compression. Malignant transformation is noted in very few cases of solitary osteochondroma. The authors are presenting a rare case of solitary osteochondroma arising from thoracic spine presenting as backache during sleep in supine posture in a young patient.

Keywords: Solitary; Osteochondroma; Dorsal; Spine

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Introduction

Solitary osteochondroma or osteocartilaginous exostosis is a relatively commonly encountered lesion arising in the bones developing through endochondral ossification. In fact, it is the most common benign skeletal neoplasm [1, 2]. It most commonly arises from long bones and only infrequently from spine [1, 2]. It can be associated with several complications. The most serious and dreaded complication is the malignant transformation into chondrosarcoma, the risk of which is approximately one percent in solitary and 3-5% in multiple lesions [3]. The rarity of thoracic osteochondroma with an interesting history of backache during sleep in supine posture has prompted the authors to report this case.

Case Report

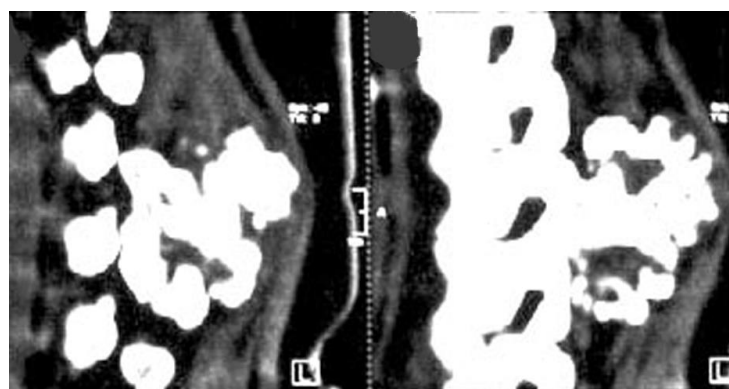
A 30-years old female visited the outpatient department of our hospital with a history of backache during sleep especially in supine posture during the night which was partially relieved on changing the posture. Clinical examination revealed a bony hard swelling in the midline, mid-dorsal region without obvious signs of inflammation. The swelling was painless though minimal tenderness was noted on deep palpation. The laboratory investigations of the patient were unremarkable. The past history of the patient was unremarkable. History of recent & old trauma and recent enlargement of swelling was denied. History of taking paracetamol or ibuprofen or their combination occasionally was noted.

The patient then underwent radiographic examination of dorsal spine in the anteroposterior and lateral projections. The radiographs revealed a large, lobulated, sessile, broad-based and heterogeneously-calcified mass arising from the posterior elements of the D6 vertebra whose lamina and the spinous process could not be visualised separate from the mass. The mass was producing a soft tissue bulge but there was no obvious extension of the mass into the spinal canal. Skeletal survey of patient did not reveal any similar lesion elsewhere in the skeleton. Based on the above findings, the diagnosis of the solitary osteochondroma of the spine was suggested.

The patient then underwent US for evaluation of cartilaginous cap of the lesion. US examination with a high frequency transducer revealed an irregularly calcified mass with areas of hypoechogenicity and a hypoechoic rim, which did not exceed 10 mm in any part of the visualised tumor margin. Corroborating the findings of the US with that of the radiograph and clinical features, the possibility of the benign solitary osteochondroma was suggested.

Due to patient's apprehension and poor affordability, computed tomographic examination of dorsal spine was performed instead of MRI, which revealed a large, sessile osseocartilaginous excrescence arising from the posterior aspect of the bilateral lamina along with the spinous process of D6 vertebra. The matrix of the lesion was in homogeneously calcified. There were multiple areas of low attenuation within the lesion. The margins of the lesion appear smooth and at no location, the soft tissue rim exceeded 10 mm. There was no extension into the spinal canal (Figure 1 A, B, C). Based on the

Figure 1 A, B, C: Axial CT scan and sagittal multi planar CT reconstructions in the bone and soft tissue window settings reveal a large, benign osteochondroma arising from the posterior elements of the D6 vertebra



Discussion

Solitary osteochondroma or cartilage-capped exostosis is essentially an osseous outgrowth arising from the bony cortex. These lesions arise from bones, which develop through a process of endochondral ossification and are related to the physis. The lesions can rarely arise from the diaphysis or epiphysis (Trevor's disease or dysplasia epiphysealis hemimelica). Hereditary multiple osteochondromatosis is a hereditary condition characterised by multiple osteochondroma. This entity is typically polyostotic, although multiple osteochondroma frequently affect the single bone (particularly tibia or femur). Multiple osteochondroma are associated with diaphyseal aclasis [1, 2, 3].

These lesions are primarily encountered in children and adolescents incidentally as a slow growing firm mass. Solitary

findings in the radiological investigations and clinical features the high probability of the benign solitary osteochondroma of the dorsal spine was suggested.

Near-complete surgical excision of lesion with its cartilaginous cap was performed to relieve the patient of her complaints. Complete laminectomy was avoided due to risk of spine instability and inability of patient to afford spinal implants. The histopathological examination of the excised lesion revealed benign osteochondroma.

lesion show no sex predilection in contrast to multiple lesions that are commoner in males [3]. It is usual for growth to cease in these lesions with skeletal maturity. Very occasionally, the lesion involutes with increasing age and finally results only in a minor abnormality of tubulation [4]. They are usually painless and non tender. Larger lesions may however be related with symptoms related to pressure, fracture, irritation or compression of the adjacent neurovascular or other important anatomic structure [3].

The common sites of occurrence include long tubular bones especially femur, humerus and tibia. Approximately two percent of these lesions arise in the spine in solitary form representing 2-3% of benign tumors of spine, the most common site being the level of C2 vertebra [1, 5] with very few occurring in dorsal spine [6]. It commonly arises from the posterior

elements of the vertebra with few arising from transverse processes [6]. In the innominate bone and vertebra, these lesions are usually large and lead to a soft tissue mass and displacement of the adjacent structures with variable & irregular patterns of calcification. Rarely local symptoms due to pressure pain may be seen as in our index case leading to a clinical suspicion of osteoid osteoma.

Potential complications of these lesions include fracture, osseous deformity, vascular injury, neurological compromise, bursal formation and malignant transformation.

The risk of malignant transformation of a solitary osteochondroma is about 1% and in case of multiple lesions, the risk approaches 25% [1, 2, 3]. Commonest malignancy occurring in such lesions is chondrosarcoma. Features suggesting malignant transformation include clinical features (pain, sudden swelling or soft tissue mass) and radiological features (recent enlargement of the lesion, bone erosion, irregular or scattered calcification, cartilage cap thicker than 1 cm) [1, 5, 6].

Radiologically, this lesion is characterised by an osseous protuberance arising from the external surface of the bone and containing spongiosa and cortex that is continuous with those of the parent bone. The lesion may be that may be sessile (broad, flat base) or pedunculated (narrow stalk with a bulbous tip). A cartilage rim caps the lesion. The pedunculated lesions vary in size, but may be up to 8-10 cm in length and are typically directed away from the nearest joint. Sessile lesions are more commonly related to flat bones, particularly the pelvis and spine, and may grow to a substantial size, be of considerable irregularity and become very dense [1-4]. In such cases the resemblance to a cauliflower is noted. In such cases, if the sharply defined peripheral margin is preserved and serial examinations reveal no significant increase in size, their benign nature may be assumed.

Ultrasound examination can be used to analyze the cartilaginous cap, which appears as a hypoechoic rim. Lesions situated deep or oriented inwards are suboptimally evaluated by US [1, 4].

Computed tomography can be used to demonstrate the typical cortical and medullary continuity of the lesion in regions of complex anatomy and can also demonstrate the internal matrix, thickness of the cartilaginous cap and associated complications [1-6].

Magnetic resonance imaging of these lesions is more sensitive and specific in evaluation of the above features than CT.

It is also an effective technique for demonstrating the continuity of the cortical and medullary bone. The matrix of these lesions is heterogeneous having hyperintensities on T2WI corresponding to the cartilaginous portion and hypointensities on all pulse sequences corresponding to the ossified portion of the tumor [1-6]. Further, the cartilaginous tissue in the cap of an osteochondroma is of high signal intensity on T2WI and its covering perichondrium is hypointense on T2WI.

A normal bone scan virtually excludes the diagnosis of the malignant transformation of the exostosis [1].

To summarize, thoracic osteochondroma are rare and imaging is required for complete diagnosis and its complications. Rarely, a history of night pain may lead to clinical diagnosis of osteoid osteoma. Complete surgical excision is preferred to avoid recurrence.

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