

Osteoid osteoma of the Dorsal spine: A case report with review of the literature

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Abstract

Osteoid osteoma is a benign bony tumor comprising of only 1% of all spinal tumors. The pathological finding is presence of a nidus of osteoid vascular bone with dense sclerotic bone in its periphery. In spine lumbar spine is commonest area (60%), followed by cervical (27%) and thoracic spine (12%). We report a case of osteoid osteoma involving the lamina of third dorsal spine in 27-year-old male who presented with progressive backache for last 3 years. Magnetic resonance imaging and computed tomography scan are necessary investigation to identify these small lesions which can be easily missed. The lesion was excised and patient was relieved of pain.

Keywords: Osteoid osteoma, dorsal spine, laminectomy

Introduction

Osteoid osteoma was first described by Jaffe in 1935 to describe benign bony tumor characterized by presence of a nidus of osteoid vascular bone with dense sclerotic bone in its periphery [1]. It comprises 10% of all benign bone tumors and 1% of all spinal tumors [2]. The presentation is back pain which ranges from intermittent to continuous and intense; localized around level of lesion, having characteristic nocturnal rise which shows equivocal response to salicylates. Rarely do they present with painful scoliosis or neurodeficit [3]. It is difficult to diagnose osteoid osteoma on routine radiographs and exact diagnosis requires further imaging. We reported a case of osteoid osteoma of the dorsal spine in 27-year-old male.

Case Report

A 27-year-old male presented with 3 years history of slowly progressive back pain with increase in intensity for last 6 months. The pain was associated with night time worsening. There was no history of constitutional symptoms or radicular symptoms. He gave no past history of tuberculosis. His treatment history included analgesics at various clinics till he got a MRI done at one centre which suspected an osteoid osteoma and was then referred to us. On examination, tenderness was present at upper dorsal spine level which aggravated with on twisting movement. There was no obvious scoliotic deformity or neurological involvement. His routine blood investigations were within normal limits. Radiographs of dorsal spine did not reveal any list. Repeat MRI was done at our centre which showed a well defined osteoid osteoma of size 6x5 mm in the right side of third dorsal lamina (Fig 1). Computed tomography (CT) of the same region was done to confirm the lesion which showed well-defined

nidus surrounded by dense sclerotic bone in its periphery (Fig 2a, b). Decompressive surgery in form of laminectomy was done of the D3 lamina. The lamina was thinned out using a diamond tip burr and procedure completed using a num 1 Karrisons punch. No instrumentation was done. Post op patient had normal neurology and was ambulated second day. Repeat CT scans were done to document the correct level of surgery which showed complete removal of the tumor. (Fig 3). Histopathology confirmed the diagnosis of osteoid osteoma (Fig 4). Patient had complete recovery from the agonizing pain.

Discussion

Osteoid osteoma is a benign tumor commonly found in young patients. The lesion was first described by Jaffe. Osteoid osteoma and osteoblastoma share similar histological findings except that former is less than 2 cm and latter more than 2 cm in size. Osteoid osteoma is benign tumor and spine is an uncommon site. Spine contributes around 1% of all cases with lumbar spine (60%) as the most common site, followed by cervical (27%)

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Figure 1: (a, b) – Coronal (a) and sagittal reformatted image (b) shows low attenuated nidus with central mineralization in right side in Dorsal 3 lamina. There is mild reactive sclerosis around the nidus.

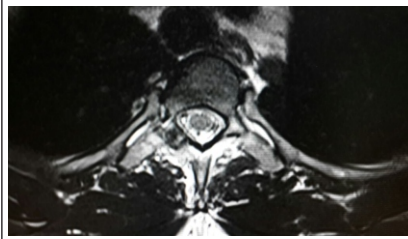


Figure 2: - the same lesion appears hypointense in T2W axial cut MRI.

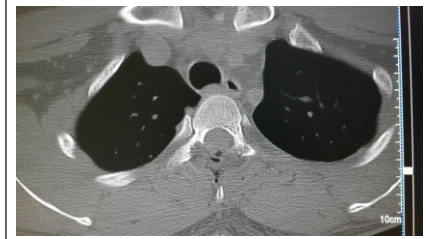


Figure 3: post op CT confirms adequate laminectomy with excision of lesion

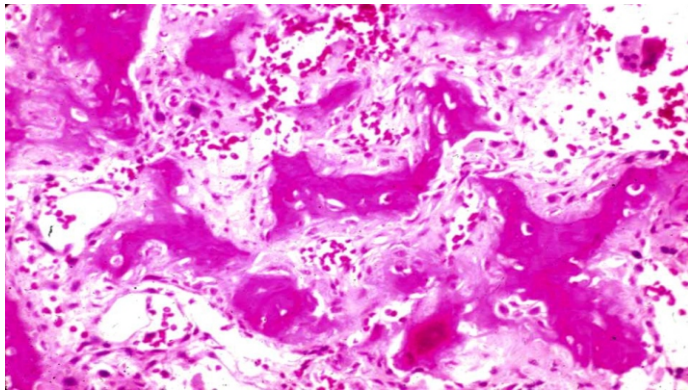


Figure 4: Histopathology showing characteristic anastomosing bony trabeculae and osteoblastic rimming

may appear isointense to cortical bone [9]. However it helps in assessment of tumor encroachment to adjacent neural structures. Bone scan are characteristic in giving a 3 phase uptake. We

could not do bone scan due to non availability of the facility at our centre. Differential diagnoses are osteomyelitis, giant cell tumor and aneurysmal bone cyst. Though these are very similar to osteoid osteoma clinically and radiologically but are histologically distinct [10, 11]. Histopathologically, it consists of highly vascularised nidus of size <15 mm surrounded by dense zone of sclerosis.

The recommended treatment is complete excision of tumor wherever possible. Intraoperative localization of the lesion is difficult and may even be missed at surgery. CT guided high frequency ablation is an attractive alternative management which gives accurate localization with minimum morbidity and can be safely used for spinal lesion involving the vertebral body but not preferred if tumor is close 1 cm to vital structures as in to neural arch [12]. Surgical excision of entire lesion can be expected to completely relieve pain.

and thoracic spine (12%). In the vertebrae the posterior elements are the usual site [2]. Spinal lesion presents with backache. Various theories have been proposed for the pain produced by these lesion [1, 4, 5]. The interval between symptoms and correct diagnosis is seldom <6 months. Sometime scoliosis is seen because of muscular spasm secondary to inflammatory reaction around nerve root [6]. Rarely do they present as radicular/referred pain or neurodefecit [7].

Routine radiographs fail to pick up spinal osteoid osteoma because of the small size of lesion, the complexity of spinal anatomy, and overlapping areas of soft tissue shadows. CT is best for visualizing the nidus and delineates exact origin, size, and location of tumor and is helpful in planning surgical excision [8]. Magnetic resonance imaging (MRI) is equally useful tool particularly in spinal area. MRI shows edema in bone marrow sometimes nidus may not be well appreciated or

Conclusions

Spinal osteoid osteoma cause persistent backpain in young adults. They are easily missed on routine radiographs and a high degree of clinical suspicion is required if not associated with scoliosis or neurodefecit. MRI and CT scan are important investigating tools to study the extent, size and location of the osteoid osteoma and adjoining neural structures. Surgical excision is curative and treatment of choice for spinal lesion.

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