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Painful scoliosis secondary to osteoblastoma of the vertebral body

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Abstract A 19-year-old boy with a painful thoracolumbar scoliosis was found to have an osteoblastoma of the body of T12. Excision of the tumour was carried out through a left thoracotomy approach and strut bone grafting was performed. Complete excision of the tumour was facilitated by intraoperative radiographs of the removed vertebra. Following surgery the patient's pain resolved completely and the deformity was partially corrected. Osteoblastoma of the vertebral body in the thoracolumbar region has not previously been

reported. Diagnosis may be difficult unless the significance of the association between pain and the scoliosis is appreciated. The tumour is often not readily apparent on plain radiographs. Therefore, further radiological investigation in the form of a bone and CT scan is necessary to establish the diagnosis. Early excision of the tumour is essential to prevent a permanent structural scoliosis from developing.

Key words Osteoblastoma · Vertebral body · Painful scoliosis

Introduction

Osteoid osteoma and osteoblastoma involving the posterior elements of the spine are described as a cause of painful scoliosis in adolescents [4]. Osteoblastoma of the posterior elements of the spine is rare. Osteoblastoma of the vertebral body is extremely rare, especially when it is located in the thoracolumbar region. The tumour can cause a painful scoliosis similar to an osteoblastoma involving the posterior elements of the spine [5].

The purpose of this report is to highlight the importance of early investigation of pain when it is associated with scoliosis. We also describe the technique of complete excision of the tumour using intraoperative radiographs and report on the successful outcome.

Case report

A 19-year-old boy presented with a 6-month history of mild diffuse pain in the thoracolumbar region. However, over the next 12 months the severity of his pain increased and it became con-

stant at night. Oral analgesics controlled his night pain. Over a period of 18 months, the patient developed a right thoracolumbar scoliosis from T8 to L4 measuring 30°. He was then referred to our spinal unit for further assessment and treatment.

On examination, he had level shoulders and pelvis and a right long C-shaped curve. This was associated with a mild right-sided rib hump. On deep posterior palpation there was tenderness from T11 to L1 on the concave side associated with paravertebral muscle spasm.

Antero-posterior radiographs of the whole spine showed a right thoracolumbar curve measuring 30° from T8 to L4 and a sclerotic area in the region of the T12 pedicle (Fig. 1). Full blood count, erythrocyte sedimentation rate and rheumatoid factor were normal.

Further investigation of the sclerotic area at T12, in the form of a bone scan, revealed an area of increased uptake corresponding with the lesion shown on plain radiographs (Fig. 2).

CT revealed a well-defined osteolytic lesion at the right posterior quadrant of the vertebral body with osteoblastic foci at the body of T12 (Fig. 3).

The tumour was removed through a left thoracotomy approach. The T12 vertebra was resected only partially and a fusion was performed on the left side from T11 to L1. The partially excised vertebra was X-rayed in theatre to ensure complete removal of the tumour (Fig. 4) and was then sent for histological examination.

A tricortical bone graft taken from the left iliac crest, supplemented with excised rib, was used as a strut graft. The patient made a good postoperative recovery and his symptoms completely

Fig.1 Plain radiograph of the whole spine showing a 30° right thoracolumbar curve with an area of sclerosis at the left T12 pedicle

Fig.2 Isotope bone scan showing an increased uptake in the region of T12

Fig.3 CT scan of T12 showing an osteoblastic lesion in the vertebral body

Fig.4 Intraoperative radiograph of the excised fragment showing the entire tumour

Fig.5 Postoperative radiograph of the spine taken 5 years after surgery, showing incorporation of the strut graft and no evidence of tumour recurrence

resolved. Histological examination of the lesion obtained from surgery were consistent with an osteoblastoma. At a 6-months review the spinal deformity had regressed to 20°, and 6 years later the patient remained asymptomatic with no evidence of recurrence of the tumour (Fig. 5). No further correction of the curve was noted.

Discussion

Osteoblastoma of the spine is a rare cause of painful scoliosis in adolescence. The tumour usually involves the posterior elements of the spine [1, 3, 6]. Involvement of the vertebral body is extremely rare, but can present similar symptoms and deformity [2]. There may be some delay in diagnosis, especially in adolescents who have some degree of scoliosis with no obvious radiological abnormality. Back pain is always the presenting symptom. More than 50% of patients present with an associated spinal deformity [3]. A structural scoliosis may occur in approximately 31% of patients due to the delay in diagnosis and treatment [5].

The purpose of this report is to highlight the fact that osteoblastoma of the vertebral body should be considered as a cause of painful scoliosis in a similar way to osteoblastoma of the posterior elements.

Early diagnosis and prompt treatment by surgical excision of the tumour is essential. This prevents the possibility of a permanent structural deformity from developing and also addresses the patient's symptoms.

The association of pain and scoliosis in adolescents should alert the clinician to the possible presence of this condition. Further investigations, in the form of a CT scan and bone scan, can result in early detection and appropri-

ate management. Complete resection of the tumour is essential to prevent recurrence. We strongly advocate the use of intraoperative radiographs of the excised fragments to ensure complete tumour clearance.

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