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CURRENT PROBLEM CASE

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Intraosseous schwannoma of T_{12} with burst fracture of L_1

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Abstract Intraosseous schwannoma of T_{12} with burst L_1 fracture is extremely rare. Here we present a report of the successful treatment and 18-month follow-up of a 46-year-old man with this complication.

Introduction

Intraosseous schwannoma of the bone is a very rare, benign neoplasm, which accounts for less than 0.2% of primary bone tumors. Intraosseous schwannomas most commonly arise in the mandible, though another frequent site is the sacrum [1, 5], and very rarely, the spinal column has been involved. Both Schwann cells and perineural cells are thought to be the tumor-forming elements in schwannomas. The majority of these tumors are solitary and benign, and their treatment produces excellent long-term results [2, 4].

Case report

A 46-year-old man who had been involved in a car accident was seen with the complaint of severe back pain. On physical examination, the patient had tenderness at the thoracolumbar junction and local kyphosis with normal neurologic examination results. Radiography of the spine revealed a burst fracture of L_{12}, with almost 60% compression of the vertebral body and 25° kyphosis at the thoracolumbar junction. The incidental finding of a lytic lesion with a sclerotic rim was visible in the body of T_{12} (Figs. 1 and 2).

A computed tomography (CT) scan of the spine showed a large lytic lesion, involving all three spinal columns, with sclerotic rim, and eroding the pedicle and lamina on the left side (Fig. 3). This patient was operated on using a posterior approach, and a left-sided hemilaminectomy at the T_{12} level was performed. The encapsulated extradural tumor was completely excised (Figs. 4 and 5). After curettage and bone grafting, two Harrington rods were used for reduction of the L_1 fracture, accompanied by posterior fusion (Fig. 6). Now, 18 months postoperatively, the patient is asymptomatic and neurologically normal (Fig. 7).

Discussion

Primary intraosseous schwannoma of the bone is very rare, which can be explained by the fact that sensory nerves are not prevalent within bone, and most of the intraosseous nerve fibers which are nonmyelinated are associated with blood vessels [3, 6].

The radiological features of this unusual benign neoplasm are suggestive of the diagnosis, appearing as a lytic defect with a sclerotic margin, cortical erosion, absence of calcification, and erosion of the pedicle and lamina. The histologic features are characterized by two distinctive patterns, Antoni type A and Antoni type B [4, 5]. The spinal column is seldom rendered unstable, by either the tumor or surgical resection.

Intraosseous schwannomas are successfully treated by excision or thorough curettage and, for this reason, internal fixation and bony fusion are seldom required. Recurrence of the tumor is unusual, and the treatment has good long-term results: malignant transformation has not been reported [2, 3]. In our case, because of the coexistence of the L_1 fracture, in addition to currettage and bone grafting of the tumor, stabilization and posterior fusion were necessary for correction of kyphosis.

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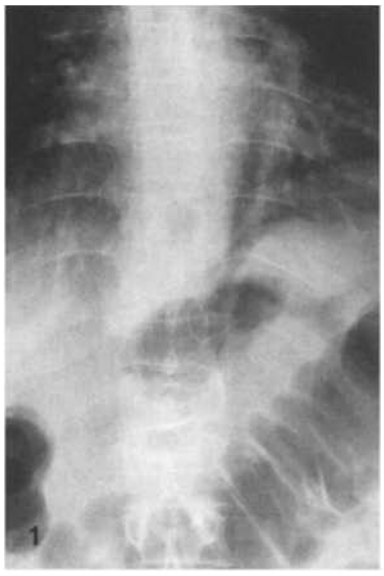

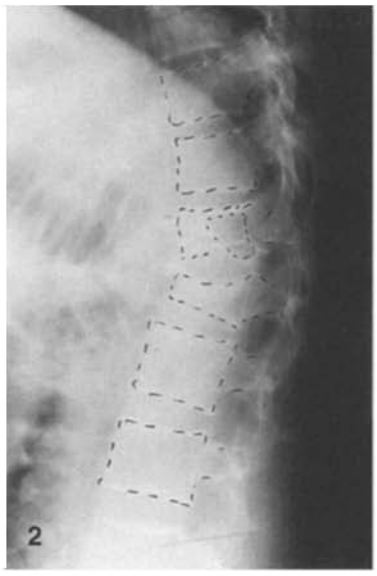

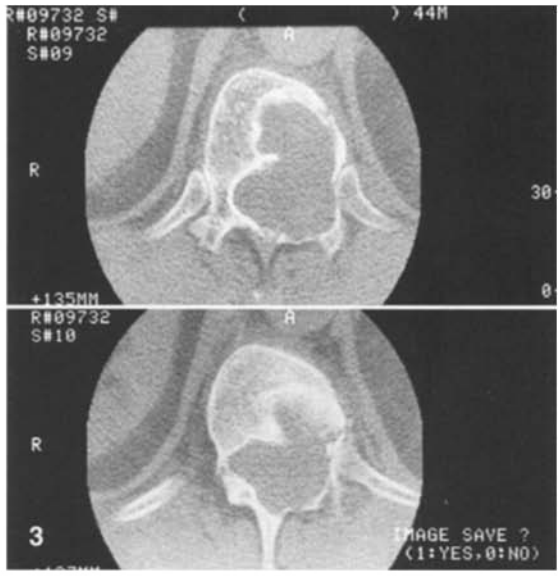

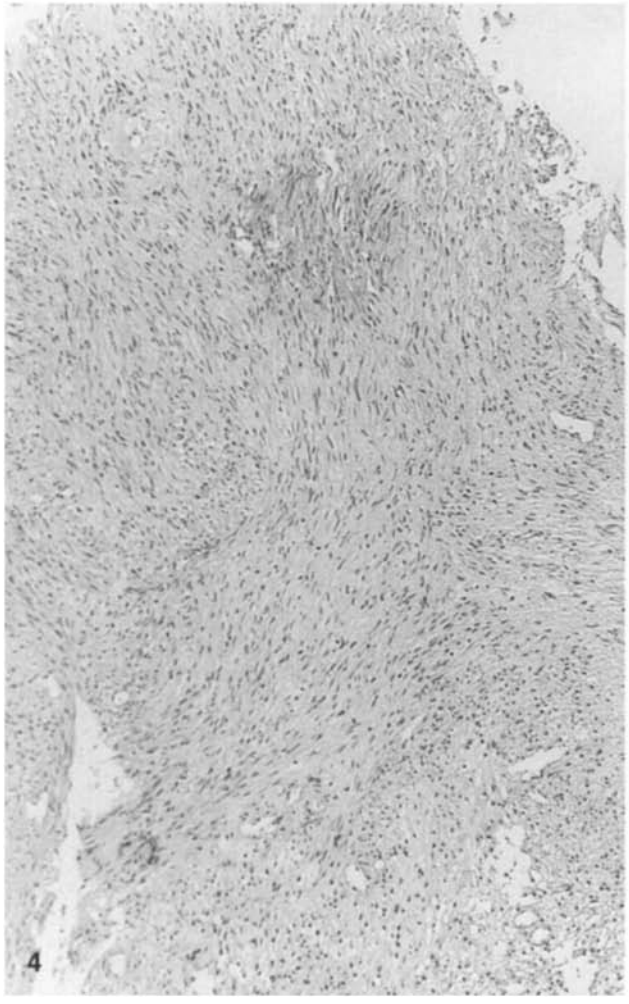

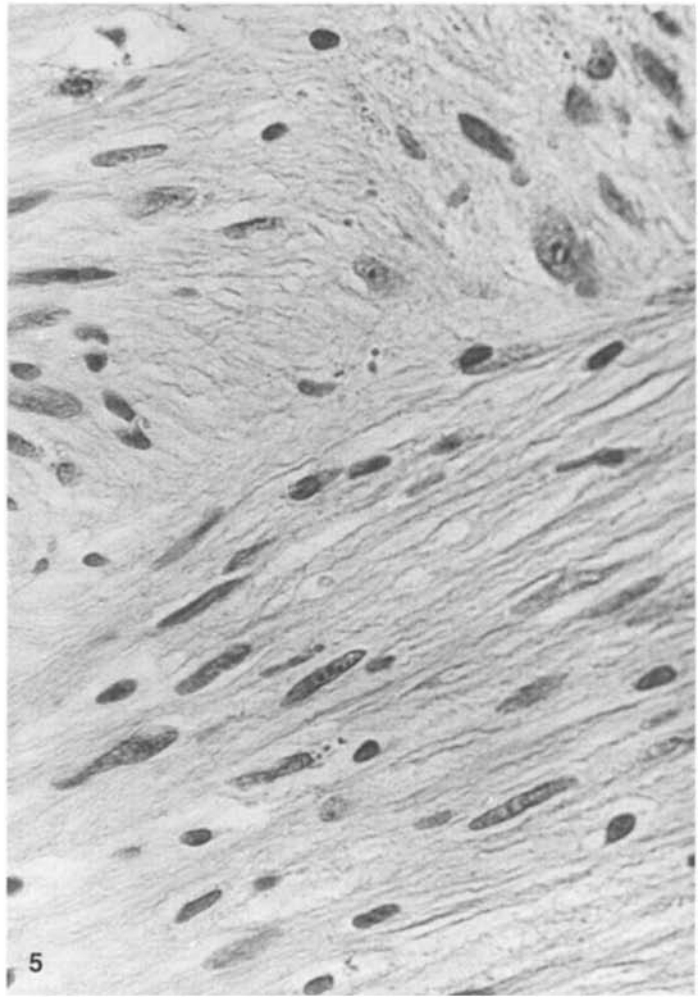

Fig. 1 Anteroposterior view of spine: deformed T_{12} with lateral wedging and absence of pedicle on left side and L_1 with decreased height, widening of the vertebral body, and increased interpedicular distance

Fig. 2 Angular kyphosis at thoracolumbar junction; a lytic lesion can be seen in the body of T_{12}, with sclerotic margin and compression fracture of the body of L_1, with over 60% anterior wedging

Fig. 3 Computed tomography scan of T_{12} shows a large expansile lytic lesion with a sclerotic border in the body of the vertebra, extending posteriorly and involving the posterior elements, causing erosion of the pedicle and lamina on the left side

Fig. 4 Tumor tissue, composed of spindle cells with fusiform nucleus and focal nuclear palisading

Fig. 5 Tumor tissue, detail of Fig. 4

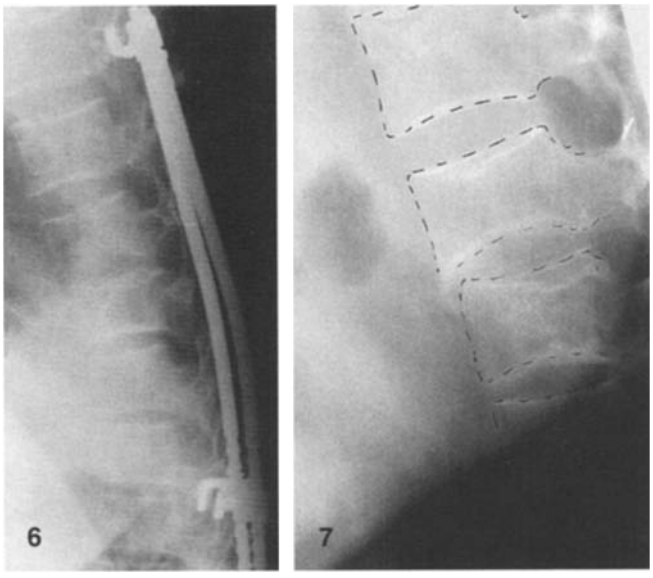

Fig. 6 Postoperative lateral radiograph of the spine: kyphosis has been corrected

Fig. 7 Postoperative lateral radiograph of spine at thoracolumbar junction, 18 months after operation, with trabecular formation and radiologic evidence of healing in T_{12} vertebral lesion and also showing posterior fusion of T_{12}–L_1

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