OSTEOBLASTOMA OF THE CERVICAL SPINE

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ABSTRACT

An osteoblastoma lesion was shown at left lateral element of cervical level and left neural foramen. Plain x-ray and CT images showed an expansion of the involved bone, osteolytic blackground with calcified / ossified matrix. Rich blood supply to the tumor nidus was observed and the dense tumor stain was at the capillary phase. The staining was rather homogeneous.

INTRODUCTION

Osteoid osteoma and osteoblastoma have identical histologic features but differ in size, sites of origin and symptoms. By definition, osteoid osteomas are less than 2 cm in greatest dimension and osteoblastomas are larger (1).

Osteoblastoma occurs in the second and third decades of life (75% of patients are less than 25 years old), and males outnumber females 2:1. Osteoblastoma involves the spine more frequently, it may not be painful, or if pain is present, it is dull, achy, and not very responsive to salicylates; and it is not associated with a marked bony reaction. It is readily treated by conservative surgery; if not entirely excised, they can recur. The possiblility of malignant transformation is remote except when tumors are treated with radiation, which promotes this dreaded complication.

Plain radiographs, CT images and angiographic pictures of this tumor at the lateral elements of the cervical spine was presented.

CASE REPORT

A 22-year-old man presented with a complaint of pain at his left side of the neck for one year. The pain persisted at both day and night time. There was no radiating pain.

Plain radiographic films of the cervical spine in AP and lateral views showed a lesion at the left lateral element of C5. A round nidus had well defined border and calcified matrix area (Fig.1). The curve of the cervical spine was straightened. The disk spaces appeared normal. CT images revealed better information. The lesion was an expanding one, involving the pedicle, lamina, and the facet of left side of C5. The left C5-6 neural foramen was occupied by the lesion. The left C5 transversarium foramen was narrow due to the posterior wall involvement. The expanding component had a radiolucent background with calcified / ossified matrix. Epidural space of left central canal was mildly occupied. There was no density change of the adjacent back muscle (Fig. 2). Branches of the thyrocervical artery supplied the nidus with strongest staining at the capillary phase (Fig. 3).

Surgery was performed with partial removal of the mass at left lamina area and the section revealed an osteoblastoma (Fig. 4).

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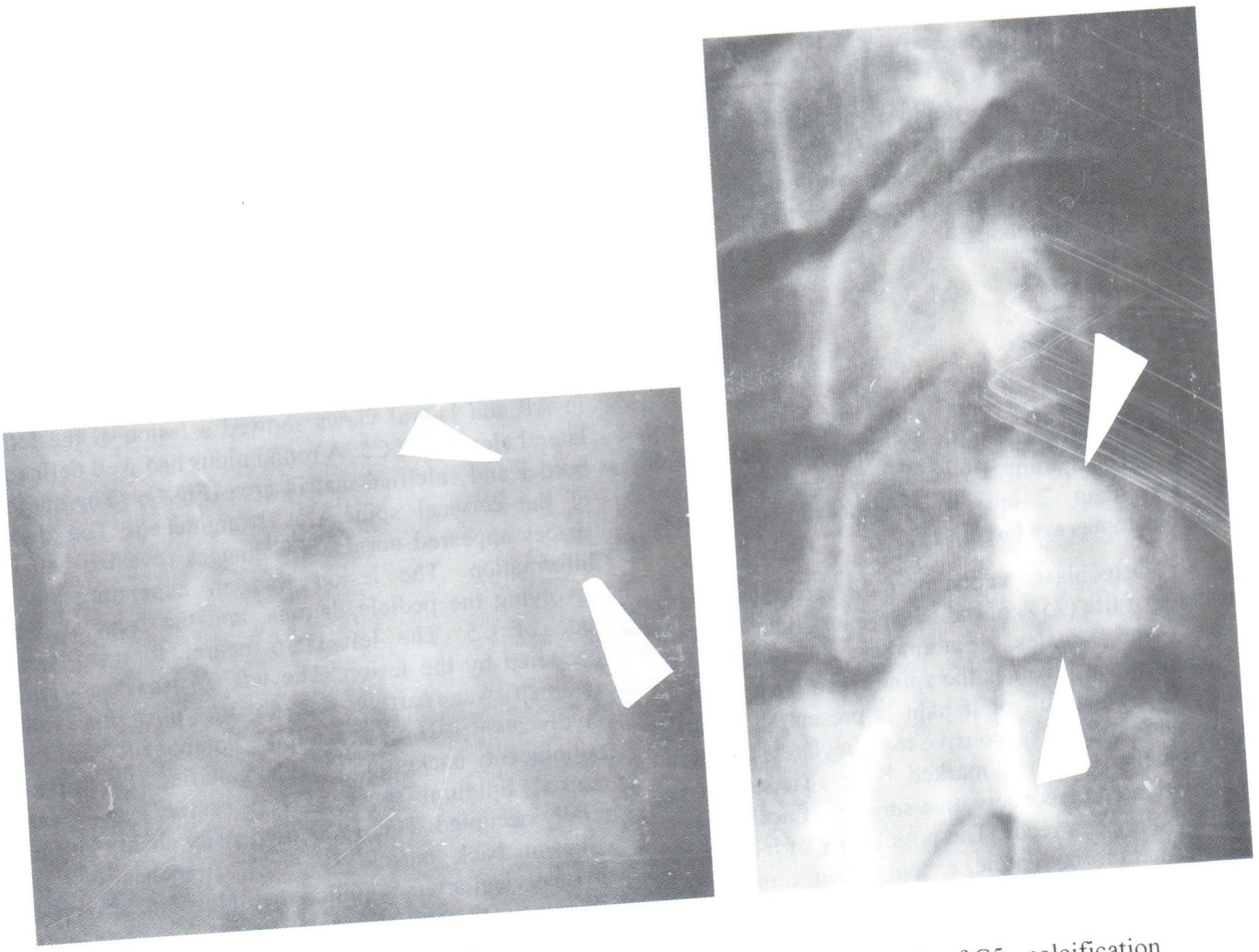

Fig.1 Plain films of the cervical spine of the lesion at left lateral arch of C5, calcification in the nidus was obvious.

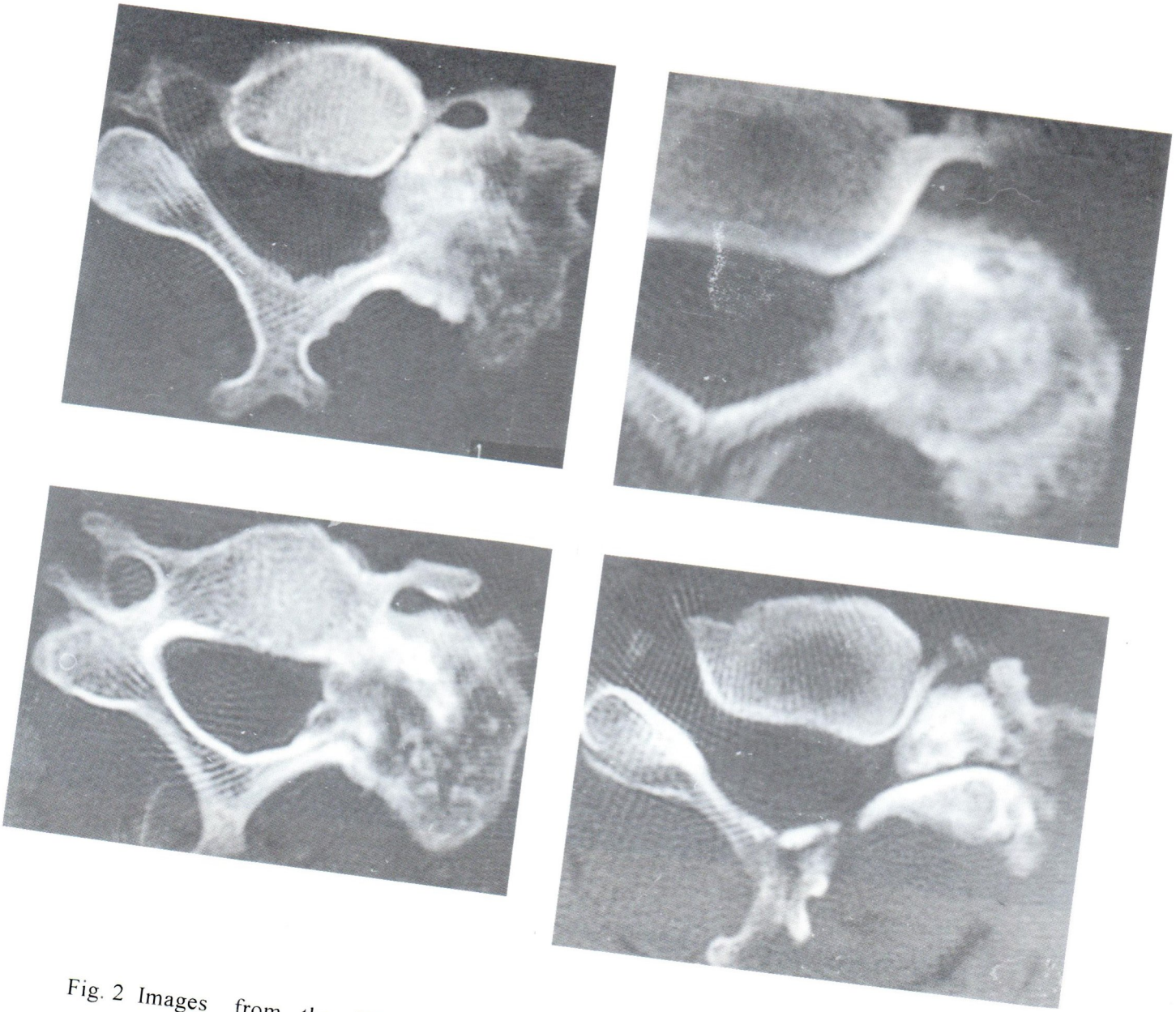

Fig. 2 Images from the CT scan gave clearer information, that the lesion had expanded the involved left lateral arch, osteolytic background, calcified matrix and involvement of the left lateral recess and the central canal.

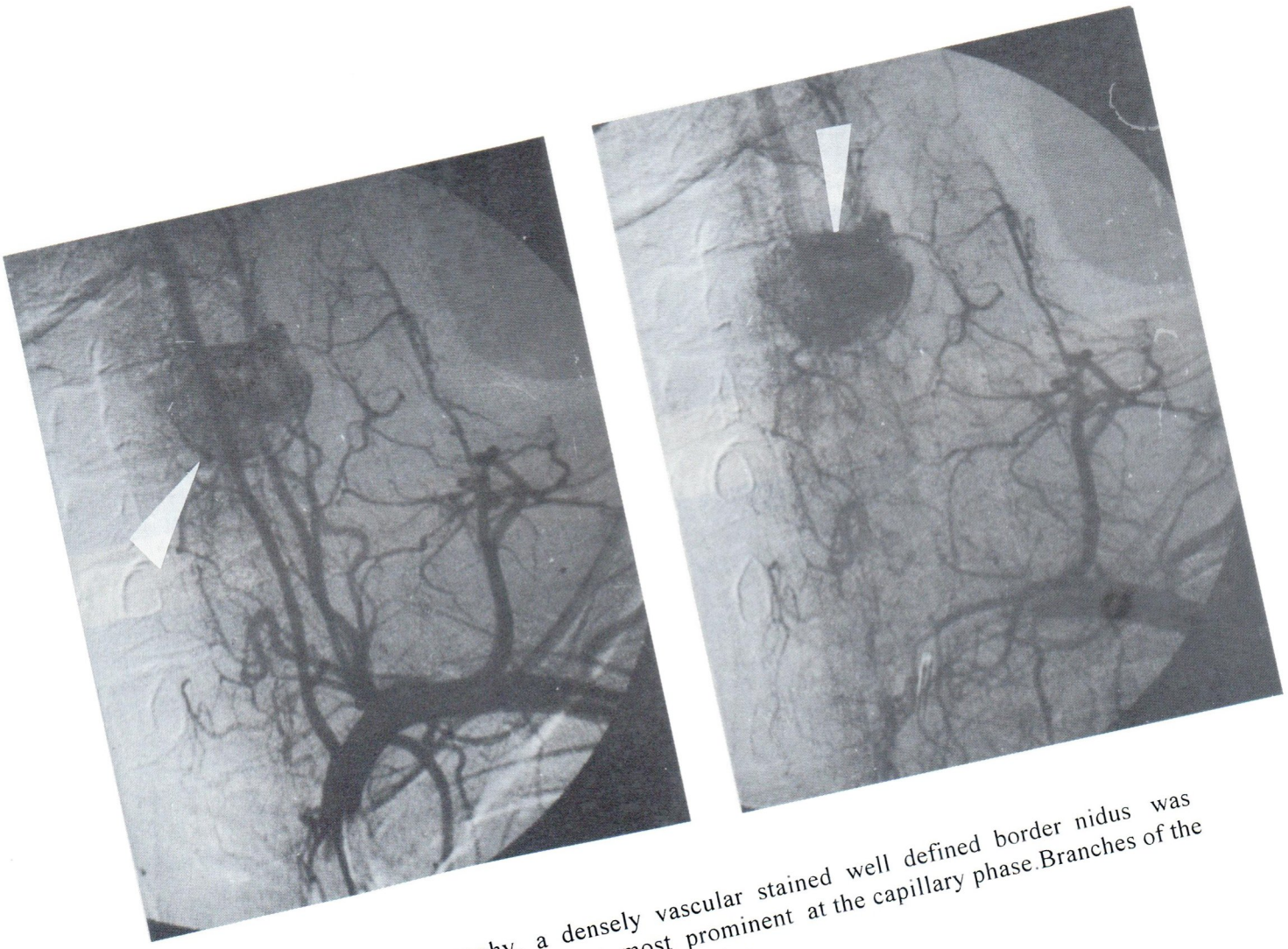

Fig. 3 At angiography, a densely vascular stained well defined border nidus was noted, the staining was most prominent at the capillary phase.Branches of the thyrocervical artery supplied the nidus.

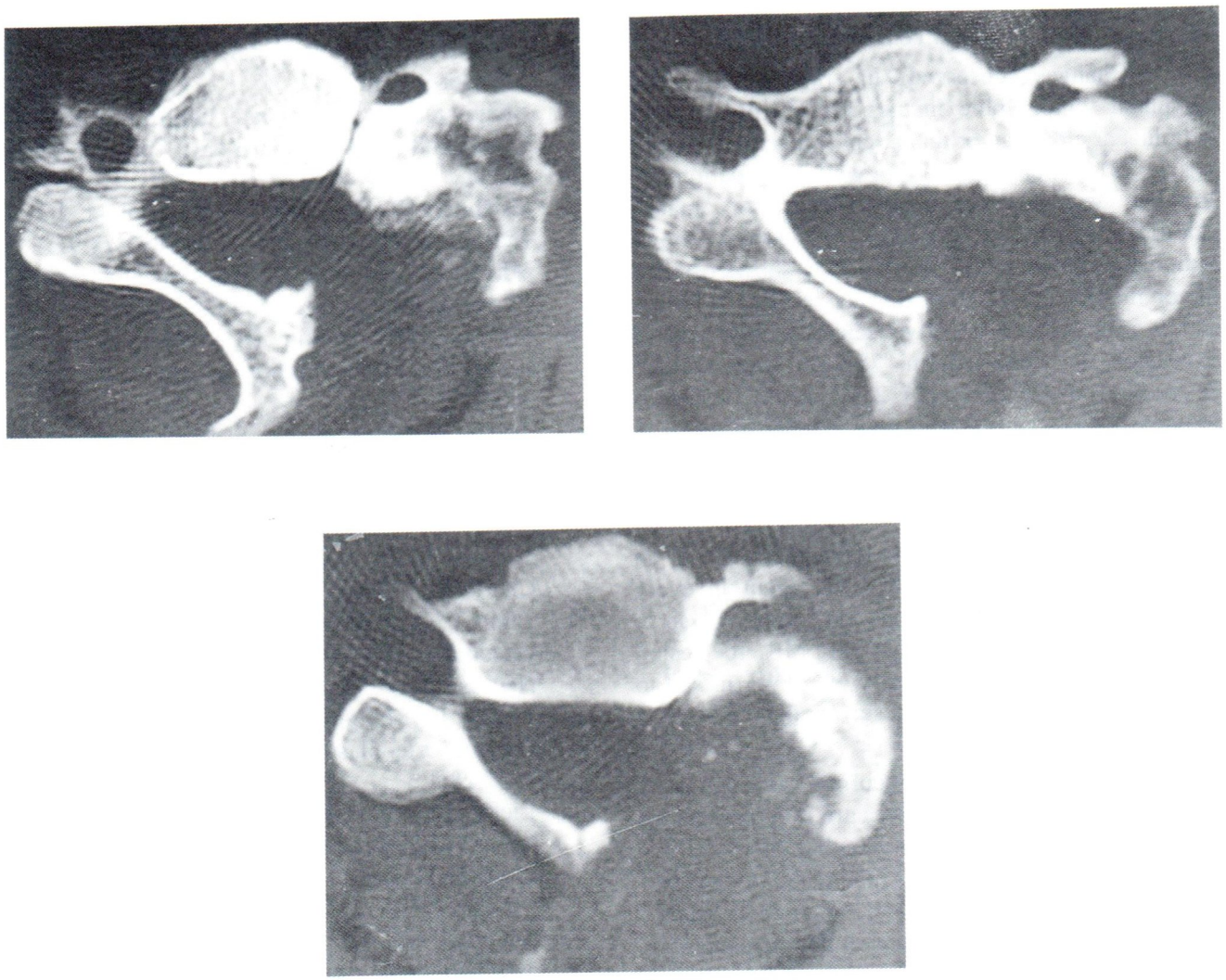

Fig. 4 Incomplete removal of the mass was obvious at the follow up CT scan.

Discussion

Benign osteoblastoma (conventional osteoblastoma) is a relatively uncommon primary neoplasm of bone that is composed of a well-vascularized connective tissue stroma in which there occurs active production of osteoid and primitive woven bone (2). Although osteoblastoma affect virtually any bone, it is most frequently observed in the flat bones or the vertebrae. The vertebrae were the site of origin in 30 per cent of patients (3).

Changes observed in radiographic and computed tomographic images are;(1) presence of radiolucent nidus larger than 2 cm (range of 2-12 cm) in size, (2) 83 per cent shows a well demarcation, (3) stippled or ringlike small flecks of matrix calcification can be present, (4) 25-64% shows radiolucent tumor matrix and 36-72% shows ossified tumor matrix, (5) 22-91% reveals reactive sclerosis and 9-56% without reactive sclerosis, (6) cortical expansion is observed in 75-94% and cortical destruction in 20-22%, (7) 25% of the lesion is progressively expansile and may rapidly increase in size, (8) the soft tissue component is sharply defined, (9) 58-77% have thin shell of periosteal new bone, (10) scoliosis is seen in 35%, (11) rapid calcification after radiotherapy. By nuclear medicine, there is an intense focal accumulation of bone agent in every lesion. Fifty per cent of lesions have tumor blush in capillary phase by angiography. At MR, the lesion has low to intermediate intensity on T1WI, mixed to high intensity on T2WI and surrounding edema is observed.

Ten per cent shows recurrent after excision, incomplete curettage can effect cure due to cartilage production and tapping of host lamellar bone.

Differential diagnosis are osteo / chondrosarcoma, cartilaginous tumors, giant cell tumor, aneurysmal bone cyst, osteomyelitis, hemangioma, lipoma, epidermoid, fibrous dysplasia, metastasis and Ewing sarcoma.

With regard to macroscopic pathology, an osteoblastoma may have a subperiosteal, cortical, or medullary location (5,6). Intracortical osteoblastomas are associated with a marked amount of surrounding sclerotic bone (7). Osteoblastomas located in the spongiosa lack abundant osteosclerosis (8). Vertebral osteoblastomas not infrequently have epidural extension and may even extend into the paraspinal tissue or involve adjacent vertebrae (9).

The aggressive or malignant osteoblastoma was identified by Mayer (10). The histology and the growth pattern of the tumor sometimes is similar to that of low grade osteosarcoma (11,12).

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