Case Report 162

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Radiological Studies

Fig. 1 A, B. A A posteroanterior roentgenogram of the chest demonstrates a periosteal reaction involving the left fourth rib anteriorly. B A cone down roentgenogram of the left upper ribs confirms the periosteal reaction and demonstrates a soft tissue mass approximately 6 × 2 cm containing an area of calcification 1 cm. in diameter. The lateral cortex of the rib is eroded, but the endosteal margin and medulla are uninvolved.

History

This 17-year-old white male was seen by his physician because of a painful swelling overlying the left rib cage. The mass, which was first noted six months earlier, following trauma during a football practice, had increased in size and was painful to touch. No other symptoms were present and the patient was afebrile.

On examination a 4 cm firm swelling was palpable in the left anterior axillary line, at approximately the level of the fourth rib. The physical examination was otherwise unremarkable. Hematological and biochemical studies were normal.

Radiological studies of the chest and left ribs were obtained (Fig. 1A and B), demonstrating periosteal reaction of the left fourth rib with a soft tissue mass containing calcium.

An excisional biopsy was performed.
Pathological Studies

Fig. 2A, B. A Moderately cellular chondroid matrix with irregular areas of partially calcified osteoid is noted in this photomicrograph from a histological section of the biopsy specimen (H and E stain – low power). B An area from the periphery of the lesion shows increased cellularity and nuclear pleomorphism in this high power photomicrograph from the same histological section.

Diagnosis: Periosteal Osteosarcoma of Rib

The differential diagnosis includes fracture with callus, other primary osseous malignancies (including Ewing tumor, osteosarcoma and chondrosarcoma), and osseous involvement from soft tissue neoplasms.

Discussion

Periosteal osteosarcoma is a recently described primary malignant bone neoplasm differing clinically, histologically, and radiologically from medullary and parosteal osteosarcoma. The lesion is more aggressive than parosteal osteosarcoma, but has a better prognosis than medullary osteosarcoma.

Unni was able to evaluate twenty-three cases of periosteal osteosarcoma and deSantos a further fifteen. In this combined series the most common location was in the lower extremity, the distribution of cases being as follows: femur – 16, tibia – 18, fibula – 1, humerus – 2, and ilium – 1. No case was reported in a rib.

The ages of the thirty-eight patients ranged from 9 to 70 years. One patient was in the first decade, twenty-two in the second, seven in the third, one in the fourth, two each in the fifth, sixth and seven decades, and one in the eighth decade.

The duration of symptoms in the twenty-three cases reported by Unni varied from two weeks to two years.

Radiologically, all lesions were limited to the cor-