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Chondromyxoid fibroma of the sternum

Case report

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Summary. We report the second case of chondromyxoid fibroma (CMF) of the sternum, documented in the literature. In this case, only histology of the biopsy was useful in diagnosing CMF before definitive surgery. A wide subtotal resection of the sternum and reconstruction with a Gore-Tex soft tissue patch was performed.

Case report

A 43-year-old man presented with a 6-month history of pain in the chest. Clinical examination revealed a painful tenderness at the corpus of the sternum. Radiographs showed an ovoid radiolucent lesion of the corpus sterni outlined by a more or less expanded, delicate shell of periosteal new bone (Fig. 1a). CT scans revealed an expanding, inhomogeneous lesion with focal destruction of the cortex (Fig. 1b). It was suspected that it was a chondrosarcoma, but biopsy showed all the features of a CMF (Fig. 2b). A wide subtotal sternum resection was performed. The defect was closed by a Gore-Tex soft tissue patch and a musculus pectoralis flap. One year after operation, local recurrence had not appeared. The chest is stable and the patient can lift weights and is active in swimming.

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Pathological findings

Grossly, the tissue of the tumor was yellowish white, solid in texture and rather firm, but rubbery in consistency (Fig. 2a). Focally, a delineating cortical shell was absent; the tumor was still confined by the periosteum. Histologically, the tumor was composed of multiple lobules of myxoid tissue containing vascular fibrous tissue with stellate tumor cells and some giant cells (Fig. 2b). No mitotic were identified, and some lobules exhibited focal, recent hemorrhage.

Discussion

Primary tumors of the sternum are rare, accounting for about 0.5 to 1% of published series of primary bone tumors (Dahlin 1986; Waller and Newman 1990). Most sternal lesions are malignant; the most common tumor is a chondrosarcoma. CMF, a benign primary bone tumor, is very unusual in the sternum. So far only one other case has been reported (Teitelbaum and Bessone 1969). Usually, CMF has a predilection for the metaphyses of the tubular long bones, encountered most often adjacent to the knee joint. In addition, small numbers have been

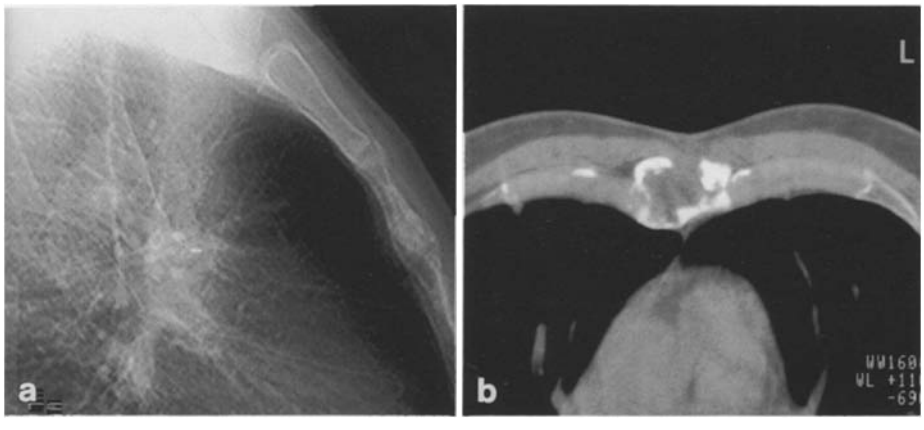

Fig. 1. a Expansive osteolytic area with matrix calcifications and reactive sclerosis at the upper portion of a sternal lesion. **b** CT scan demonstrates an expansive osteolytic lesion with partial destruction of the cortex of the sternum

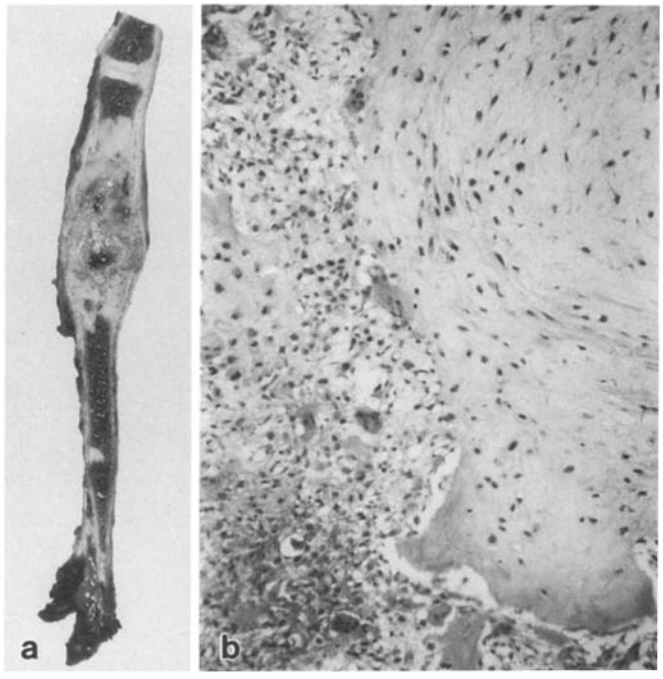

Fig. 2. a Photograph of the cut section show a whitish solid tumor with small, typical cartilaginous foci. Tumor was surrounded by thin border of sclerotic bone. **b** Condensed cell layer demarcates central, fibromyxoid element containing prominent stellate cells characteristic of CMF (H&E × 91)

reported in small tubular bones and rarely in flat bones (Gherlanzoni et al. 1983; Mirra 1989; Ribalta et al. 1990; Wilson et al. 1991). Patients with CMF are usually young, mostly in the first three decades of life. The incidence is slightly higher in males than in females. Radiographically, geographical bone destruction and cortical expansion are typical findings in CMF (Wilson et al. 1991), but these features are not specific, particularly not in flat bones. Due to the presence of large pleomorphic cells with hyperchromatic nuclei, the histological diagnosis CMF may sometimes be difficult and may result in the diagnosis of chondrosarcoma, chondroblastoma or enchondroma (Mirra 1989). A wide excision or en bloc segmental resection is recommended when the location of the lesion allows this (Gherlanzoni et al. 1983).

In conclusion, CMF should always be considered as a diagnostic possibility when evaluating a solitary bone lesion. The problem in diagnosing CMF is the limited clinical and pathological experience we have had with this tumor. Its occurrence in an unusual location can lead to misinterpretation. In our case the typical histological pattern enabled us to make the correct diagnosis and prescribe the right treatment.

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