Case report 877

Yoshinao Oda, M.D.,1 Yukihide Iwamoto, M.D.,1 Masahiro Ushijima, M.D.1, Sachio Masuda, M.D.,1 Yoichi Sugioka, M.D.1, Masazumi Tsuneyoshi, M.D.2

1 Department of Orthopedic Surgery, Faculty of Medicine, Kyushu University, Fukuoka, Japan
2 Second Department of Pathology, Faculty of Medicine, Kyushu University, Fukuoka, Japan

Clinical information

A 16-year-old girl was referred to us with a 3-month history of pain in the left knee. The physical examination was normal except for revealing tenderness in the medial and proximal aspects of the left lower leg. The laboratory evaluations, including serum levels of alkaline phosphatase, calcium, and phosphorus, proved to be within the normal limits.

Radiological studies of the left knee showed a large lytic expanding lesion of the proximal metaphysis to epiphysis of the left tibia with scattered calcification (Fig. 1 A,B). In the distal metaphysis of the left femur, a lytic lesion was also found with a popcorn-like calcification, suggesting enchondroma (Fig. 1 A,B). Computed tomography confirmed the presence of an intramedullary lytic lesion with calcification and cortical expansion but showed no cortical destruction or extraosseous mass in the proximal tibia (Fig. 1C).

Radiographically, an eccentric osteolytic lesion was also recognized in the distal epiphysis of the left tibia (Fig. 2A). Computed tomography revealed no cortical destruction (Fig. 2B). Additional radiographic studies showed no remarkable changes in the other long bones of the extremities or axial skeleton.

Correspondence to: Y. Iwamoto, M.D. Department of Orthopaedic Surgery, Faculty of Medicine, Kyushu University, 3-1-1 Maidashi, Higashi-ku, Fukuoka 812, Japan
Diagnosis: Giant cell reparative granuloma arising in enchondromatosis

The differential diagnosis in the proximal tibia included chondrosarcoma, giant cell tumor, brown tumor in hyperparathyroidism, and dedifferentiated chondrosarcoma.

An en bloc resection of the proximal tibia followed by a massive bone allograft and arthrodesis of the knee joint was performed, because the histological examination of a tiny biopsy specimen suggested low-grade chondrosarcoma. A biopsy of the distal tibia showed the lesion to contain giant cells. Therefore, surgical curettage with bone chip packing was carried out in the distal tibia.

Macroscopically, the medullary cavity of the proximal tibia was filled with a multilobulated gray-white mass containing a brownish, soft mass at the periphery on its cut surface (Fig. 3). The curedt fragments from the distal tibia consisted of moderately firm, reddish-tan tissue.

Microscopically, the multilobulated tumor of the proximal tibia was made up mainly of cartilaginous tissue with clusters of chondrocytes (Fig. 4A). In part, an "enchondroma

---

**Fig. 3.** The cut surface of the resected proximal tibia shows a brownish soft mass (arrows) at the periphery of the gray-white mass filling the medullary cavity.

**Fig. 4 A, B.** Histologic sections from the proximal tibia. A Cartilaginous tissue consisting of a cluster of chondrocytes. There was no atypia or mitotic figures (H&E stain, × 160). B An "enchondroma encasement" pattern. The nodules of cartilage separated by normal marrow are partially surrounded by bland plates of lamellar bone (H&E stain, × 58).

**Fig. 5 A-D.** Histologic sections from the proximal tibia. A Enchondromatous areas and giant cell-containing areas are sharply demarcated (H&E stain, × 35). B Florid fibroblastic proliferation with scanty giant cells (H&E stain, × 192). C Reactive osteoid formation in the fibrous stroma (H&E stain, × 160). D Clumps of multinucleated giant cells around hemorrhagic loci, demonstrating the characteristic granulomatous aspect (H&E stain, × 192).

**Fig. 6.** A cluster of giant cells is recognized in the fibrous background with reactive osteoid (H&E stain, × 160).