unusual localization results in somewhat poorer prognosis. However, the prognosis for postradiation sarcoma situated in long bones is no different from the prognosis of conventional osteosarcoma. Osteosarcomas may rarely arise in other benign conditions such as fibrous dysplasia.

Telangiectatic osteosarcoma is a rare variant in which the roentgenograms show a purely lytic destructive lesion and the histology suggests a diagnosis of aneurysmal bone cyst under low power. Cytologically, however, the spaces are lined with very malignant-looking cells. The prognosis in telangiectatic osteosarcoma is probably the same as for conventional osteosarcoma. Indeed, it appears that these tumors are extremely sensitive to chemotherapy and may be associated with a better prognosis.

Some osteosarcomas are extremely well differentiated. The neoplastic cells do not show overt signs of malignancy. This may lead to a mistaken diagnosis, especially of fibrous dysplasia. These well-differentiated osteosarcomas are locally aggressive lesions which do not usually metastasize.

Parosteal osteosarcoma is the most common type of osteosarcoma arising on the surface of bone. Approximately 80% of these occur on the distal end of the femur posteriorly. There is a slight female predominance. The roentgenograms show a heavily ossified mass situated on the cortex of the posterior femur. The tumor is composed of bony trabeculae in a parallel arrangement. Spindle cell proliferation is seen between the bony trabeculae. The spindle cells do not show overt signs of malignancy. Parosteal osteosarcoma is a locally aggressive disease with limited potential form metastasis.

Periosteal osteosarcoma is a rare variant of osteosarcoma appearing on the surface of bone. These tend to involve children and adolescents and there is a tendency to involve the shaft of a long bone. Roentgenograms show a lucent defect situated on the cortex of bone. Histologically, periosteal osteosarcoma is a moderately differentiated chondroblastic osteosarcoma. The prognosis seems to be just about as good as in parosteal osteosarcoma.

Rarely, a high-grade osteosarcoma may occur on the surface of bone. The distinction from a conventional osteosarcoma is made purely based upon roentgenographic features. The prognosis is about the same as for conventional osteosarcoma.

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The histological response to chemotherapy as a predictor of the oncological outcome of operative treatment of Ewing's sarcoma

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Seventy-four patients who had a Ewing's sarcoma of the bone were managed with preoperative and postoperative chemotherapy as well as operative resection, with or without postoperative irradiation. The primary objectives of the study were to determine the histological response to preoperative chemotherapy in terms of the percentage of tumor necrosis and to assess the relationship between the histological response and the oncological outcome.

The minimum duration of follow-up of the surviving patients who were continuously free of disease was 5 years. Sections of each operative specimen were examined and the histological response to chemotherapy was graded semiquantitatively. Grade I indicated necrosis of 50% of the tumor or less; grade II, necrosis of more than 50% but less than 90%; grade III, necrosis of 90-99% and grade IV, necrosis of 100% of the tumor. Of the 74 tumors, 44 (59%) were exquisitely sensitive to chemotherapy and had complete (grade IV) or nearly complete (grade III) necrosis. In contrast, 14 tumors (19%) had little or no response to chemotherapy (grade I) and 16 (22%) had a moderate degree of necrosis (grade II).

The' histological response to preoperative chemotherapy (p=0.001), followed by the size of the tumor (p=0.001) were the most important predictors of event-free survival. At 5 years, the rate of event-free survival was zero in 14 patients who had had a grade-I response, in six of 16 who had had a grade-II response, and in 37 (84%) of 44 who had had a grade-III or IV response. The risk of local recurrence was most strongly associated with the operative margins; there were only four local recurrences (6%) after 67 resections were negative margins. Local recurrence may also have been influenced by the histological response and the use of local radiation. There were no local recurrences after operative treatment of six tumors that had been associated with pathological fracture.

The histological response to preoperative chemotherapy and the size of the primary tumor are the most important clinical predictors of the outcome of operative treatment of nonmetastatic Ewing's sarcoma. These indicators should be used to identify patients who are at high risk for metastasis as such patients may be candidates for more intensive or novel therapies.

Enchondroma *versus* low-grade central chondrosarcoma

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The diagnosis of cartilage lesions depends on three factors. First, clinical and radiographic features must be considered. These include the age of the patient, symptoms, location in the skeleton and the pattern of bone destruction or mineralization. Second, low-power histological features must be carefully studied to learn the growth pattern of the lesion. Third, the cellularity and degree of nuclear atypia must be analyzed. This last factor, the so-called "cytologic grade', is the least important because there is considerable overlap in the cytologic features of the various cartilage lesions. Nonetheless, review of the spectrum of the three cytologic grades of cartilage should precede the study of specific diagnostic problems.

Distinguishing an enchondroma from a low-grade central chondrosarcoma is one of the most difficult problems in bone pathology. Making the correct diagnosis depends on close communication between the clinician and the radiologist before a biopsy is per-

formed. This is because enchondroma and iow-grade central chondrosarcoma are distinguished by how they behave, and histological teatures do not always predict behavior. Theretore, a pathologist attempting to analyze a cartilage lesion by histological features alone may be forced to render a diagnosis ot "borderline cartilage neoplasm" or "cartilage lesion ot uncertain malignant potential". These terms are of no use to the surgeon who must treat the patient. The behavior of a cartilage lesion is learned by clinical and radiographic features before a biopsy is done. The histological features are then interpreted in the light of this information. In adults, solitary enchondromas of long bone do not grow, whereas low-grade chondrosarcomas grow slowly. Therefore, the behavior of a cartilage neoplasm is best predicted by asking the question: "Is the lesion growing?" Clinical and radiographic features should be interpreted in the light of this question. It is best answered by serial radiographs and close clinical follow-up for a few months, a time-delay which does not compromise treatment results. This approach to diagnosis does not apply in the cartilage lesion of Oilier's disease, of the hand, or in children. In these lesions, slow growth does not always indicate malignancy.

The pathologist does have a role, however. Certain histological features, if present, indicate whether or not a lesion is growing. These features are primarily found on low-power study.

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Immunosuppression. Rare and not so rare osteoarticular infections

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Germans Trias i Pujol Hospital is a 600-bed university hospital that covers an area of 800,000 inhabitants and is a state referral center for the treatment of patients with AIDS.

We reviewed all cases of osteoadicular infection over a period of 15 years (1983-1998) associated with immunosuppressed patients.

From June 1983 to December 1998 the hospital has treated 8,420 cancer patients, 1,350 AIDS patients, 802 lymphoma-leukemia patients and 260 renal transplant patients.

Of the above 10,832 patients with some form of immunosuppresion, 39 had osteoarticular intection, distributed as follows: 26 AIDS patients; six kidney-transplanted patients; five lymphoma-leukemia patients and two cancer patients.

The most common agent was *Staphylococcus aureus* and sporadic cases of *Salmonella, Escherichia coll, Candida albicans* and *Mycobacterium tuberculosis* were found.

Among the most unusual cases, we present two cases of *Rochalimaea (Bartonella)* infection (bacillary angiomatosis) and one case of *Scedosporium inflatum (S. prolificans)* infection.

Since 1983 when the first clinical and histopathological description of bacillary angiomatosis was reported, we have learned that the Gram-negative *Bartonella* rods cause a variety of cutaneous and extracutaneous clinical syndromes. In extracutaneous disease, most organ systems have been reported to be involved, including the head, liver, spleen, bone marrow and lymph nodes, central nervous system, muscles, soft tissues and bone.

Scedosporium *proliferans* (previously known as *Scedosporium inflatum)* is a dematiaceous fungus first described as a human pathogen in 1984. It has been involved in penetrating trauma, in intravenous drug use and in disseminated infections in immunocompromised patients.

The overall prevalence of osteoarticular infections in patients with an immunosuppressed status is low (0.3%). In AIDS patients the incidence is higher (1.9%).

Since the onset of the HIV pandemia, few cases of osteoarticular infections have been reported. As AIDS patients survive longer, it is now clear that HIV infection predisposes to infection by common pathogens as well as by opportunistic microorganisms.

It seems that the practice that leads to HIV infection determines the appearance of osteoarticular infection.

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