

endosteal and periosteal tissue in the region of the fracture. An exuberant callus represents a recognized source of benign as well as malignant neoplasms of the osseous and bony tissue.

*Localized Osteitis Fibrosa and Giant Cellular Sarcoid Granuloma.* An injury to the cancellous bone, often not sufficient to cause a breach in the continuity of the surface of the bone but resulting in a hemorrhage into the cancellous tissue, may lead to dystrophic reactions of repair and regeneration, which give rise to the formation of a localized osteitis fibrosa cystica or a giant cellular granuloma (giant cell sarcoma; brown tumor) in the marrow cavity of the affected bone (Sauerbruch; Brailsford; and Glauner).

These pathological reactions ensue when the injured bone is deprived of its normal trophic influences, causing a localized liberation of the calcium and an absorption of the trabeculae in conjunction with the formation of a mucoid fibrous bone marrow nearby, extravasations, congested and proliferated capillaries, and callous formation. Depending to some extent upon the type of trauma and the site of the injured area, these changes may lead, by an increased disintegration of the osseous tissue, to the formation of cysts within the bone or may be followed by so-called "brown tumors," which consist of a vascular, spindle cellular tissue containing many foreign body giant cells and old blood pigment (hemosiderin). While osteitis fibrosa is found mainly in the metaphyses and diaphyses of the humerus, femur, and tibia, giant cell granulomas are chiefly situated in the lower epiphyses of the radius and femur (Freund and Meffert; Pommer; and Lang).

Localized fibrous osteitis is distinctly a traumatic disease of the young, being most prevalent during the first and the early part of the second decade of life, while the giant cells granulomas are found mainly during the second and third decade. Lang stated that hemorrhagic traumatic cysts of the bones are found especially frequently in the growth regions of these organs of young individuals (Ewing). Inasmuch as the cellular changes observed in osteitis fibrosa resemble those seen in the bone marrow of many cases of osteogenic sarcoma of adolescent individuals, it is generally assumed that osteitis fibrosa is a precursor of osteogenic sarcomas occurring during the early periods of life (Ewing).

*Neoplastic Reactions: Benign Traumatic Tumors.* Chondromas and osteomas are rarely etiologically related to traumatic episodes. This is particularly true in regard to the hereditary multiple types of these neoplasms. It has been maintained, on the other hand, that a local trauma may activate a misplaced focus of cartilagenous tissue, situated in the epiphyseal region, into a neoplastic growth (Ophüls; Morton; and Duvior and Pollet) of solitary type. Traumatic chondromas of the knee and finger were reported by Müller; Loenhard; and Kaufmann. Brunschwig pointed out, however, that osteochondromas and osteomas of the hands and feet are rare, in spite of the fact that trauma to these parts of the body is frequent. Special mention may be