Florid Reactive Periostitis of the Hand

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Abstract

Florid reactive periostitis is a relatively rare lesion that most often develops in the tubular bones of the hands and feet. This lesion can easily be confused with malignant or infectious processes. Correlation of physical examination and radiographic findings with histologic findings usually is diagnostic. Excisional biopsy with careful removal of all diseased tissue is most often curative. However, recurrent cases have been described as sometimes requiring ablative procedures.

Florid reactive periostitis (FRP) is a reactive lesion of cortical bone that can be confused with other tumors and tumorlike conditions. The unique radiographic and histologic characteristics of FRP can help differentiate it from other tumors, including osteochondroma, myositis ossificans, bizarre parosteal osteochondromatous proliferation, and osteosarcoma. Here we report a case of FRP that developed after surgery for a hand mass.

Case Report

A right-hand–dominant woman in her mid-30s presented to our office 3 months after undergoing excisional biopsy at another institution for a firm right long-finger dorsal ulnar mass that had been present for more than 1 year. Initially, the finger had sustained some trauma when the woman hit it against a cabinet. The reported pathology was chronic tenosynovitis with neuromatous proliferation. The woman was doing well up until 2 weeks after surgery, when she started noticing stiffness. At 1 month, she returned to her original treating physician with a stiff, firm, swollen long finger. She was then referred to our institution.

On the patient's initial visit to our institution, physical examination revealed a firm, swollen digit. Metacarpophalangeal joint flexion was to 80°, proximal interphalangeal joint flexion to 40°, and distal interphalangeal joint flexion to 40°. There was full extension at all joints. Radiographs showed bone formation adjacent to the proximal phalanx, at its distal end near the previous incision site (Figure 1). Magnetic resonance imaging (MRI) performed before the first surgery was reviewed and did not show any bony abnormality.

At our institution, the patient underwent a second surgery for excisional biopsy. Grossly, the lesion appeared to be a mix of bone and cartilage (Figure 2). The initial verbal pathology report was osteochondroma, later amended to FRP. At 1-month follow-up the patient demonstrated significant gains in her motion but still was not normal. At 7 months, the patient had flexion of the metacarpophalangeal joint to 90°, proximal interphalangeal joint to 95°, distal interphalangeal joint to 60°, and full extension. There was no swelling, erythema or mass present at the biopsy site. Repeat radiographs showed no recurrence (Figure 3).

Discussion

FRP is a relatively rare lesion that remains poorly understood. In 1933, Mallory[1] described 4 cases of tumors that contained cartilage and bone arising from the soft tissue of digits. The name of the lesion underwent several revisions before Spjut and Dorfman[2] proposed the term *florid reactive periostitis,* which they preferred over *nodular fasciitis* and *fasciitis ossificans.* In their report on 12 patients, they stated that the lesion was commonly if

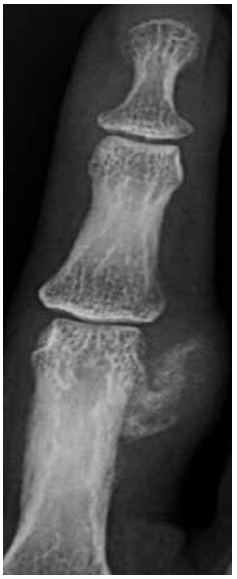

Figure 1. Preoperative anteroposterior radiograph of long finger shows new bone formation at distal end of proximal phalanx.

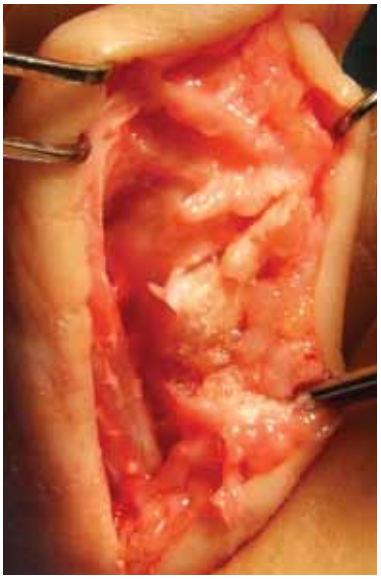

Figure 2. Specimen obtained during excisional biopsy contains mixture of bone and cartilage.

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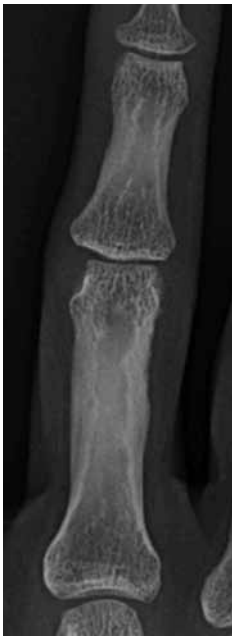

Figure 3. Seven-month follow-up radiograph with no recurrence.

not always associated with periosteum and that it did not arise from fascia.

Clinical Presentation. Clinically, the patient usually presents with swelling, pain, and skin erythema over the affected digit. A history of trauma is reported by less than 50% of patients.[2,3] Women are affected more often than men.[4,5] Most cases occur during the second and third decades of life, but the age range is 5 to 70 years.[2,6] The commonest site for the lesion is the proximal phalanx of the hand, followed by the middle phalanx, the metacarpal, and the distal phalanx. There are reports of the lesion arising in the thumb,[4,7] the tubular bones of the foot,[2] and the proximal tibia.[8]

Histology. Histologically, the predominant cells are large, spindle-shaped fibroblasts with prominent nuclei (Figure 4). Pleomorphism is absent, and, though mitosis is present, it is not abnormal. Multinucleated giant cells may often be present. A pattern of zoning with mature osteoid and bone in the center and mature bone at the periphery may be seen. Inflammatory cells, such as lymphocytes and plasma cells, are uncommonly seen and are not sufficient in number to cause confusion with an infection. Mature and immature osteoid, woven bone, and immature cartilage, or a mix of chondroid, osteoid, and myxoid elements, is usually present.[2]

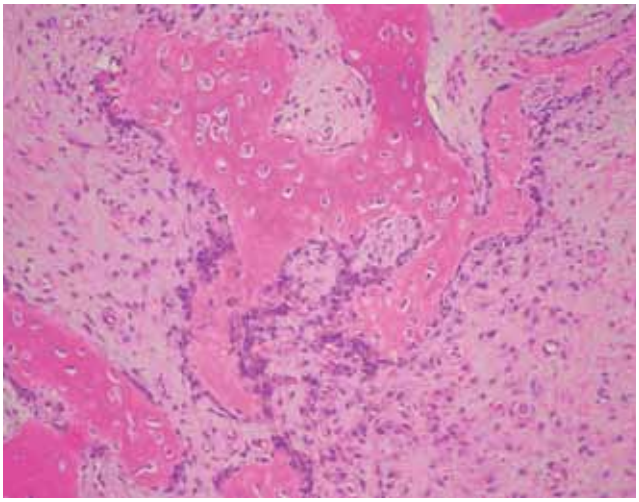

Figure 4. Photomicrograph shows characteristic fibroblasts with prominent nuclei and osteoid production with osteoblastic rimming.

Imaging Features. Radiographically, characteristic features include soft-tissue swelling and variable lamellated or mature periosteal reaction with slight periosteal elevation. There is juxtacortical calcification in the soft tissues, and the underlying cortex is usually intact.[9] Cortical continuity may be helpful in differentiating FRP from other abnormalities, especially neoplasms, including periosteal osteosarcoma, parosteal osteosarcoma, and periosteal chondrosarcoma.[10] There are several reports of cortical erosion, but this is not a useful indicator of the more aggressive variant of the tumor.[11]

Clinical Course and Treatments. In the majority of cases, the clinical course of FRP appears benign, with some authors reporting spontaneous resolution.[2] The recommended treatment is local excision, which has proved to be curative in most cases.[12] Three ray resections were reported by Spjut and Dorfman[2] in their series of 12 cases but this is viewed as radical by most authors. Rapid recurrence after initial excision has been reported and has led to ray amputation.[13] Patel and Desai[5] recommended staging FRP using the Enneking surgical staging system for benign tumors to aid in treatment decision making. Local excision for stage I tumors and ray amputation for stages II and III to prevent recurrence were recommended. Staging may be useful for predicting recurrence potential, but we think that primary ray resection for a benign tumor is too aggressive given that the option always exists for recurrent cases.

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Our patient's case demonstrates the sometimes worrisome clinical and radiographic picture that patients present. Careful pathologic evaluation correlating with the clinical and radiographic presentation is necessary to accurately diagnose this often confusing lesion. Complete marginal excision of the lesion appears to be curative in the majority of cases, but recurrent or aggressive tumors may require ablative procedures.

Authors' Disclosure Statement and Acknowledgments

The authors report no actual or potential conflict of interest in relation to this article.

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