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CASE

The patient is a 15-year-old male who was referred to our clinic for evaluation of a recently discovered humeral lesion. The referring orthopedic surgeon had seen him approximately 2 weeks before, at which time the patient described a 1-month history of right proximal arm pain. The pain was not associated with a known event or trauma and was somewhat controlled by the use of OTC NSAIDs, but it had progressively worsened over time.

Previously obtained plain radiographs of the humerus demonstrated a periosteal reaction at the midhumeral diaphysis (see Figure 1). These findings prompted further examination with contrast-enhanced MRI, which confirmed the lesion and showed marrow edema involving the entire humeral shaft and an associated 8-mm soft-tissue mass emanating from the anterolateral cortex of the humeral diaphysis.

The patient denied any difficulty with activities of daily living. Both parents and the patient denied recent fever, chills, night sweats, weight loss, redness, swelling, or increased warmth of the skin overlying the lesion. The history included preterm birth with respiratory insufficiency requiring a short period of mechanical ventilation. The patient suffered no long-term effects. He reported a history of ulcerative colitis diagnosed at 8 years of age, for which he takes daily sulfasalazine. There was no hospitalization or surgical history.

Physical examination The patient was afebrile with stable vital signs. He appeared well developed and nourished and was oriented x3. Visual inspection of the right upper extremity revealed no masses, swelling, or deformities. On palpation, mild to moderate tenderness over the deltoid insertion was noted. No underlying mass was palpable, and the skin was intact. There was no erythema or other sign of infection. Range of motion and muscle strength were full and symmetrical to the contralateral side, and the extremity was neurovascularly intact.

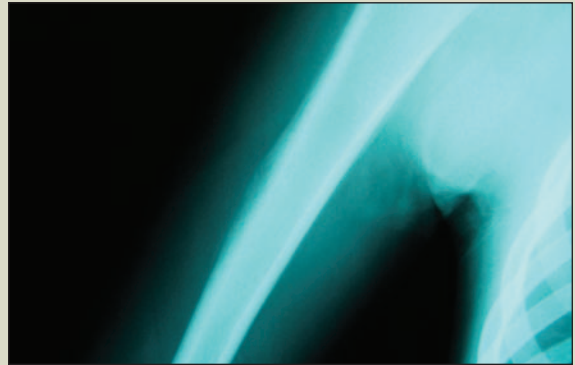
Testing Hematology results were as follows: WBC count, $7.1 \times 10^3/L$; hemoglobin, 10.9 g/dL; hematocrit, 35%; lymphocytes, 20.9%; monocytes, 13.8%; eosinophils, 4.1%; ESR, 38 mm/h; C-reactive protein, 3.24 mg/dL.

The patient was taken to the operating room where an open biopsy of the soft-tissue mass and osseous lesion was performed. The initial pathology evaluation, via frozen section, showed acute and chronic inflammatory changes with no malignant cells identified. Gram's staining demonstrated moderate WBCs and no organisms. Wound cultures were submitted to microbiology.

The author works in the Division of Orthopaedic Oncology at M.D. Anderson Cancer Center, Houston, Tex. He has indicated no relationships to disclose relating to the content of this article. Erich Fogg is Assistant Professor in and Program Director of the Physician Assistant Program at the College of Health Professions, University of New England, Portland, Me.

FIGURE 1

Periosteal reaction at the midhumeral diaphysis



WHAT IS THE MOST LIKELY DIAGNOSIS?

- Septic osteomyelitis
- Chronic recurrent multifocal osteomyelitis
- Aneurysmal bone cyst
- Giant cell tumor

DISCUSSION

Following frozen section results that revealed an inflammatory process and no malignancy, the surgeon continued with a complete curettage and antibiotic irrigation of the lesion. An infectious disease specialist was consulted. The patient was placed on IV vancomycin for broad-spectrum coverage while culture results were pending. He was discharged home on postoperative day 2 with an outpatient regimen of IV vancomycin and cefepime. Aerobic, anaerobic, and fungal cultures had no growth after 4 days. Final pathology reports revealed an increase in marrow histiocytes and plasma cells in the background of mixed inflammation and fibrosis. No malignancy was found.

On routine follow-up with the infectious disease service 3 weeks after the procedure, the patient reported a 4-day history of fevers and chills but remained asymptomatic with respect to the right arm. A hematologic work-up revealed neutropenia. The patient was again hospitalized. The antibiotic regimen was discontinued, and radiographs and blood cultures were obtained. The fever resolved shortly after the antibiotics were stopped, and the radiographs revealed no evidence of osseous changes. The patient was discharged home the following day.

Blood cultures showed no growth after 4 days, leading to the diagnosis of chronic recurrent multifocal osteomyelitis. The arm pain had completely resolved shortly after the surgery, and follow-up radiographs showed significant bone healing at the biopsy site. Because recurrent multifocal disease was a possibility, the patient was advised to alert us if his symptoms recurred or if any new musculoskeletal problems developed. □