

Pseudocysts of the Humerus

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Two patients are described who had areas of rarefaction in the humeral heads that were biopsied and found to be normal bone. Almost all humeral heads have an area of localized rarefaction laterally, and when very pronounced this can be confused with a lytic lesion. These pseudocysts are so radiographically characteristic that they should not be biopsied.

An area of rarefaction in the humeral head which partially overlies the greater tuberosity is a well known normal variant [1, 2]. In two recent cases, this rarefaction was of such an extent that it mimicked a lytic lesion and resulted in surgical intervention. This report illustrates the degree to which this rarefaction can occur; such recognition may prevent unnecessary diagnostic surgery.

Case Reports

Case 1

A 32-year-old man presented with pain in his right shoulder. Laboratory data, including serum protein electrophoresis, and physical examination were normal. Radiographs revealed an area of rarefaction in the humeral head (fig. 1). Tomograms were performed and showed no cortical breakthrough or periosteal new bone formation. Giant cell tumor and chondroblastoma were diagnostic considerations. A biopsy revealed normal bone; hence, a second operation was performed and a larger specimen obtained. This, too, was histologically normal bone. The patient had an uneventful recovery.

Case 2

A 22-year-old man had right shoulder pain for several months. Physical examination revealed minimal crepitus over the shoulder; laboratory data were normal. A bone scan showed increased uptake in the right shoulder. Radiography revealed an area of rarefaction in the humeral head (fig. 2). In light of the previous case, an effort was made to dissuade the surgeons from biopsy. However, a biopsy was performed which revealed normal bone. The patient had an uneventful postoperative course.

Range of Rarefaction

The humeral head was evaluated prospectively for localized rarefaction in 50 shoulders of 44 patients using projections made in internal and external rotation. Chest films which included the shoulders were not used. The usual complaint leading to the radiographs was chronic shoulder pain. The humeral heads were placed in one of four categories: (1) no rarefaction, (2) minimal localized rarefaction, (3) definite localized rarefaction, and (4) pseudocyst. Only one patient (2%) had no localized rarefaction, 21 (42%) had minimal localized rarefaction, and 23 (46%) had a definite localized rarefaction. Five

patients (10%) had a rarefaction so well defined that it was felt to be easily confused with a lytic lesion.

Discussion

Two patients are described with pseudocysts of the humeral head that were needlessly biopsied. Three other patients have subsequently been seen in which biopsy was avoided, partially because of knowledge of this entity. Although disease processes such as myeloma,

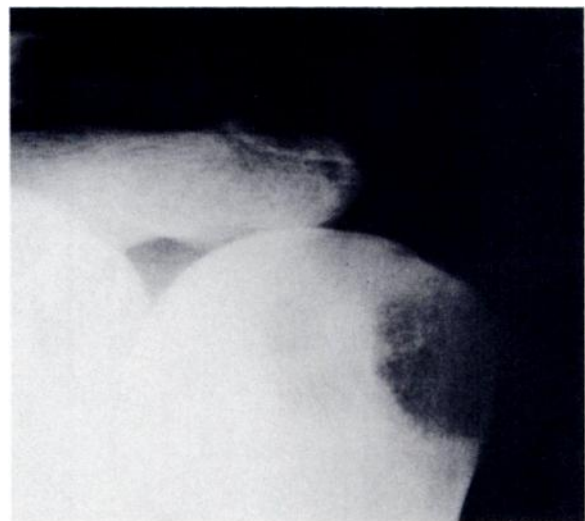


Fig. 1.—Case 1. Well defined lytic "lesion" is present without cortical breakthrough. Biopsy showed normal bone.

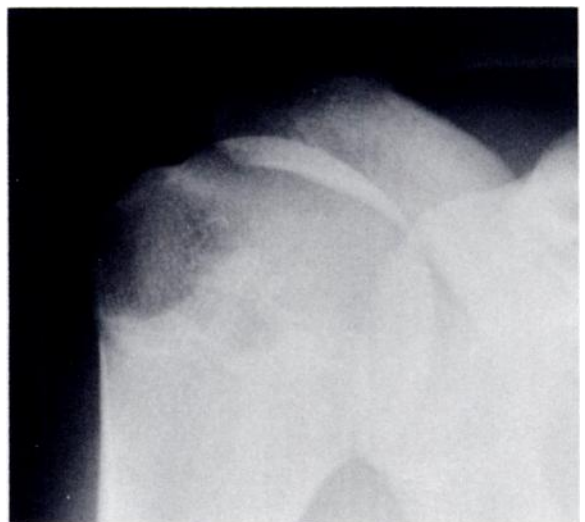


Fig. 2.—Case 2. Appearance similar to case 1. Normal biopsy.

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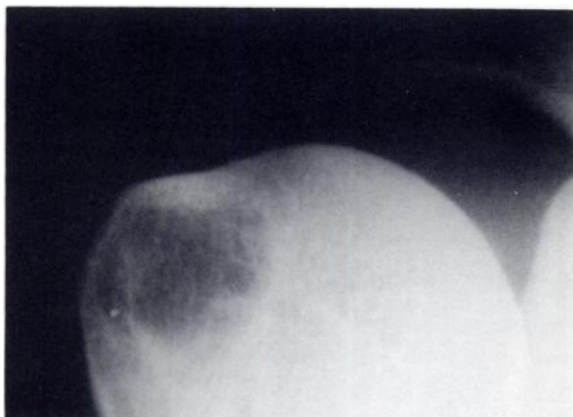


Fig. 3.—Normal shoulder with definite rarefaction in region of greater tuberosity. No biopsy performed.

giant cell tumor, chondroblastoma, and metastatic disease can certainly occur in the humeral head and mimic a pseudocyst, these pathologic processes can usually be differentiated easily by criteria such as cortical breakthrough, periosteal new bone, more extensive involvement than the pseudocyst, and poorly defined margins.

Up to 98% of patients have a localized area of rarefaction in the humeral head next to the greater tuberosity (fig. 3). This rarefaction can vary from minimal to "cystic." It is felt that this rarefaction is due to a difference in the amount of trabecular bone present in the greater

tuberosity and the remainder of the humeral head. The pseudocyst is very characteristic in its appearance and location and should not require biopsy or additional studies for confirmation. A bone scan may or may not be positive depending on the presence or absence of additional pathology such as ligamentous avulsion [3] or calcific tendonitis [4]. When the patient's clinical history makes a lesion in the humeral head more likely, follow-up films are recommended. The area of rarefaction is usually, but not always, bilateral; thus comparison views are not necessarily helpful.

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