Case report 424

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Radiological studies

Fig. 1. An apical view of the shoulder (to demonstrate the acromion optimally) shows a well-circumscribed, lytic lesion in the acromion (arrow) measuring approximately 2 cm in diameter.

Clinical information

This 16-year-old young man reported the spontaneous onset of severe pain in the shoulder following a fishing expedition. Roentgenograms of the shoulder and neck obtained at a local hospital were interpreted as normal. Treatment consisted of immobilization with a sling and administration of anti-inflammatory medications. During the first month the pain in the shoulder regressed with a dull ache. Eight months later he was examined at the Sports Clinic of this Center. He still complained of pain in the shoulder with and without activity; the pain was unrelieved by aspirin. Physical examination showed a full range of motion with no muscular pain on palpation. Roentgenograms, including a special apical view of the acromion, demonstrated a well-defined, lytic lesion of this bone (Fig. 1). A bone scan showed no increased activity and was interpreted as normal.

An open excisional biopsy was performed.

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Diagnosis: Eosinophilic granuloma of the acromion

The differential diagnosis included: Brodie abscess, fibrous tissue lesion (fibrous dysplasia), simple bone cyst, post-traumatic hemorrhagic cyst, degenerative cyst, and intraosseous ganglion. Possibilities of a malignant lesion (Ewing tumor) are remote.

Within one month after the surgical procedure the patient was free of symptoms. At 2 years following the surgical procedure the patient continued to be asymptomatic and was free of disease.

Pathological study

Fig. 2. A photomicrograph of histological sections obtained from the excisional biopsy of the lesion in the acromion shows an inflammatory, cellular pattern, consisting mainly of histiocytes and eosinophiles

Discussion

In the athletic patient population, the majority of shoulder injuries involve only soft tissue. Over a three-year period, 1,258 shoulder injuries were incurred by the various Temple University athletic teams. About three percent of injuries to a shoulder showed radiological abnormalities [8]. However, history is of extreme importance in evaluating pain in the shoulder in athletes. When a thorough history is suggestive of only a spontaneous onset of pain, tumor, infection or other lesions must be considered, and radiographs must be carefully reviewed.

Radiologically, lesions of the acromion may be difficult to appreciate for several reasons. On standard radiographs of the shoulder, the acromion is off-center and often is not outlined clearly. A radiograph, centered on the acromion an angled at 45 degrees to the horizontal plane (apical view), gives a true AP of the acromion and is helpful in clearly outlining intraosseous lesions in this location. In addition, two epiphyseal centers of the acromion appear in patients between the ages of fourteen and sixteen years and close in patients between the ages of eighteen and twenty years [3]. Consequently, in the teenager, the acromion may present an irregular radiological appearance. A comparative view of the opposite acromion is necessary to determine whether the irregularity is a variant of normal or whether it is a pathological abnormality.

Treatment of eosinophilic granuloma is dependent upon correct diagnosis. A tissue specimen obtained by open biopsy or by needle biopsy, utilizing electron microscopy, may be very helpful for a correct diagnosis [4]. The method of biopsy is optional and is determined by the location of the lesion and the preference of the surgeon. Bone scans have been reported to be inconsistently positive with eosinophilic granuloma [5], as is illustrated in this case. Therefore, the scan is not definitive in establishing the diagnosis. However, the scan can be a helpful adjunctive study in cases where there is question of malignancy or infection and possible dissemination. Computerized tomography (CT) reportedly produces an image typical of an eosinophilic granuloma [7] and this also may be a helpful adjunctive examination.

Eosinophilic granuloma is a benign lesion of bone. It was first described as a distinct clinical entity in 1949 by Lichtenstein und Jaffe [6] and Otani and Erlich [9]. The lesion is characterized by an inflammatory reaction, comprised of histiocytes and eosinophiles, the etiology of which is unknown.

Controversy exists as to whether or not the lesion is an isolated entity or is part of the spectrum