Case 2425

Post-traumatic osteolysis of the clavicle.
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Section: Musculoskeletal system
Case Type: Clinical Cases
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Patient: 42 years, female

Clinical History:

One year after complete AC joint dislocation she was experiencing significant symptoms of shoulder pain radiating into her neck and arm.

Imaging Findings:

The patient sustained an injury to her right shoulder in a fall from a horse. On examination there was swelling and tenderness over the acromioclavicular (AC) joint and no evidence of any distal neurovascular deficit. Radiographs showed a complete AC joint dislocation (Fig 1). She was treated by immobilization in a collar and cuff for 3 weeks, followed by physiotherapy. One year after the injury she was still experiencing significant symptoms of shoulder pain radiating into her neck and arm.

Radiographs taken at this stage showed erosive changes in the distal end of the clavicle (Fig 2). She was listed for AC joint reconstruction surgery. At the time of her surgery, two years after the initial injury, further radiographs showed that the osteolysis had progressed, with the lateral 2-3 cm of the clavicle having been resorbed. She was treated with screw fixation of the lateral end of the clavicle to the coracoid process and coracoclavicular ligament reconstruction (Fig 3). The screw was removed after nine months. After physiotherapy the shoulder was pain-free with a good range of movement.
Discussion:

Osteolysis of the lateral tip of the clavicle is a rare condition, having been first described by Werder in 1950 (1). It usually follows an injury to the AC joint, although the joint need not be subluxed in order to cause osteolysis. It has also been reported to occur without an acute injury in males who participate in weight-training (2) or use pneumatic tools (3). In post-traumatic cases characteristic resorption of the lateral end of the clavicle, with loss of subarticular cortical bone and cystic changes, although it may be seen on radiographs as early as two-and-a-half weeks after the injury (4), is usually seen within one to three months, and can progress for several years (5). Up to 2-3 cm of the clavicle may be involved, and occasionally there is also ostelysis of the acromion. Clinical features are persisting shoulder pain and weakness, with swelling and tenderness over the AC joint. Because radiographs taken immediately following the injury usually show a normal clavicle, the diagnosis is often missed. Connective tissue disorders, hyperparathyroidism, infection, neoplastic disease and massive osteolysis are all important differential diagnoses which can give similar radiographic appearances. The pathological process involved remains unclear; ischemia, an autonomic phenomenon or synovial overgrowth have all been suggested as possible mechanisms. Immobilization, resection of the lateral end of the clavicle, and AC joint reconstruction have all been proposed as treatment options.

Differential Diagnosis List: Post-traumatic osteolysis of the clavicle

Final Diagnosis: Post-traumatic osteolysis of the clavicle

References:

Cahill BR.

Osteolysis of the distal part of the clavicle in male athletes.

Ehrlich HG.<br>Die Osteolyse im lateralen Claviculaende nach Pressluftschaeden.<br>Arch Orthop Unfallchir 1959;50:576-82.
Levine AH, Pais MJ, Schwartz EE.

Posttraumatic osteolysis of the distal clavicle with emphasis on early radiologic changes.

Madsen B.<br>Osteolysis of the acromial end of the clavicle following trauma.<br>Br J Radiol 1963;36:822-8.
Figure 1

Description: Initial appearance after injury Origin:
Figure 2

**Description:** Erosive changes in the distal clavicle

**Origin:**
Figure 3

Description: After AC joint reconstruction, showing extent of bone resorption Origin: