Case report

It might be a tumor: a unique presentation of a chronic rotator cuff tear

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ABSTRACT

A 59 year-old male presented to the county emergency department (ED) in southeastern United States for evaluation of a progressively worsening lump on his left shoulder. He describes it as painful and suggests “it might be a tumor”. There were no other associated complaints. On physical examination, there was a firm, non-tender, non-mobile mass without erythema or warmth, superior to the patient’s left acromioclavicular (AC) joint. Both hawkins and empty can test were positive for pain. Point-of-care ultrasound identified a fluid filled structure overlying the AC joint. Initial radiographs demonstrated the so-called geyser sign, a finding of synovial fluid expressed through the AC joint consistent with rotator cuff tear. Subsequent CT scan identified atrophy of the supraspinatus muscle most consistent with rotator cuff tear. This case represents a unique presentation of a chronic rotator cuff tear.

African relevance

- Identifies importance of thorough history, physical examination in the setting of soft tissue swelling
- Use of ultrasound to evaluate soft tissue swelling to exclude other diagnoses and avoid unnecessary procedures (arthrocentesis, aspiration)
- Use of radiographs to support diagnosis of rotator cuff tear

Case report

A 59 year-old male presented to the county emergency department (ED) in southeastern United States for evaluation of a progressively worsening lump on his left shoulder. He describes it as painful and suggests “it might be a tumor”. There were no other associated complaints. On physical examination, there was a firm, non-tender, non-mobile mass without erythema or warmth, superior to the patient’s left acromioclavicular (AC) joint (Image 1). Both hawkins and empty can test were positive for pain. Point-of-care ultrasound identified a fluid filled structure overlying the AC joint. Initial radiographs demonstrated the so-called geyser sign, a finding of synovial fluid expressed through the AC joint consistent with rotator cuff tear. Subsequent CT scan identified atrophy of the supraspinatus muscle most consistent with rotator cuff tear. This case represents a unique presentation of a chronic rotator cuff tear.

Discussion

Initial radiographs demonstrated a focal soft-tissue prominence dorsal to the AC joint, along with acromioclavicular joint and glenohumeral joint osteoarthritis. This was described as a “geyser” sign by radiology (Image 2). A point-of-care ultrasound was obtained to further characterize the mass. Sonographic findings were not consistent cellulitis or abscess, namely there was no cobblesstoning, well loculated or circumscribed fluid collection. Ultrasound did demonstrate a fluid collection which appeared to be in communication with the AC joint (Image 3).

This case report demonstrates the utility of bedside ultrasound in the initial management of undifferentiated soft-tissue swelling. In concert with physical exam findings, including specialized tests evaluating integrity of the rotator cuff, emergent diagnoses such as malignancy or abscess were largely excluded with relative ease. Extravasation of glenohumeral synovial joint fluid through a rotator cuff tear into an osteoarthritic AC joint can distend the superior aspect of the joint capsule, causing a notable deformity [1]. This injury pattern can be properly termed a ganglion or synovial cyst. First described in the 1980's, the so-called “geyser sign” was named for extravasation of contrast into the cyst on shoulder arthrogram [2]. Aspiration is contraindicated due to high rate of recurrence, and risk for infection [3].

Rotator cuff tears affect up to 50% of patients over the age of 70 [4]. In younger patients, cuff tears are due to trauma; in older patients they are most often degenerative associated with overuse. Patients typically present with pain at the insertion of the rotator cuff on the lateral...

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humerus. There are many diagnostic examination findings but generally patients have pain with some combination of internal rotation, external rotation and/or abduction. Management is variable. In young patients, primary repair is indicated in acute tears. In older patients, conservative management is indicated primarily centered around extensive physical therapy. In refractory cases or cases in which the activities of daily living are significantly affected, surgical consultation can be considered for a total shoulder replacement. Complications include chronic pain, inability to perform activities of daily living, inability to participate in sport or recreation.

Conclusion

The patient was discharged from the ED with acetaminophen and expedited follow-up with primary care with plans for MRI and orthopedic referral. PCP note 1 week later states the patient admitted discomfort and lump had been progressive over two months instead of the 3 weeks initially reported. Patient was a poor candidate for MRI due to retained metallic fragments in the occiput. CT was obtained instead. This confirmed a low-density soft tissue mass cephalad to an osteoarthritic AC joint, and further demonstrated a high riding humeral head, with advanced fatty atrophy of the supraspinatus muscle (not pictured). After missing two appointments with orthopedic surgery, and one with general surgery, the patient was considered lost to follow-up (Image 4).

Authors’ contributions

Authors contributed as follow to the conception or design of the work; the acquisition, analysis, or interpretation of data for the work; and drafting the work or revising it critically for important intellectual content: JK (75%), EO (25%). All authors approved the version to be published and agreed to be accountable for all aspects of the work.

Declaration of competing interest

The authors declare no conflicts of interest.
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Image 4. Computed tomography of the left shoulder redemonstrating the cystic structure or geyser sign above the AC joint.