Breast lump as an unusual manifestation of massive rotator cuff tear

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ABSTRACT

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Acromioclavicular joint cysts have been reported in association with extensive rotator cuff tears. However, cysts related to rotator cuff pathology can also form in other areas. In this case report, we describe the presentation of a large breast cyst associated with rotator cuff arthropathy mimicking a rapidly enlarging breast tumor.

INTRODUCTION

Cystic lesions that arise adjacent to the shoulder have been reported in association with labral tears or as an unusual manifestation of massive rotator cuff tears. Acromioclavicular joint cysts have been reported in small series in the orthopaedic literature in association with extensive rotator cuff tears [1–5]. They often present as a painless, subcutaneous lump near the acromioclavicular joint that may raise the suspicion of a tumour [5]. However, cysts related to rotator cuff pathology can also form in other areas. In the present case report, we describe the presentation of a large breast cyst associated with rotator cuff arthropathy mimicking a rapidly enlarging breast tumour. To the best of our knowledge, this is the first reported case of such a presentation.

CASE REPORT

In January 2011, an 84-year-old female was referred urgently by her physician to the Breast Unit complaining of a large lump in her right chest wall (Fig. 1). The patient noticed the lump first 3 weeks previously, when it started to cause distortion of the upper outer quadrant of her breast. Clinical examination revealed a nontender 70-mm mass in the breast, with a further 25-mm mass in the infraclavicular fossa and right axilla. Fine-needle biopsy of the mass revealed only inflammatory cells. Mammogram and ultrasound scan demonstrated no evidence of cancer. However, the ultrasound scan showed a large, 60-mm, cystic mass posterior

Fig. 1 Patient with a lump superior of her right breast.

to the right breast, extending from the midclavicular line to the anterior axillary line.

Subsequently, she underwent magnetic resonance imaging (MRI), which revealed a large loculated cystic mass posterior to right pectoral muscle extending from superior breast and into right axilla (Fig. 2). The right shoulder joint was seen to be extremely

Fig. 2 Coronal fast-suppressed T2 demonstrating massive cuff tear and subcoracoid fluid collection.

degenerative, with significant rotator cuff pathology and fatty atrophy of the cuff muscles. The fluid collection appeared to arise from the anterior joint margin, and was presumed to reflect a large bursa arising from the degenerative joint. Fluid was also noted within the subacromial and subdeltoid bursa. At that stage, the patient was referred to our department for further management.

Incidentally, the patient had already been seen in our clinic 2 months earlier for left shoulder pain. Assessment at the time showed a significant limitation in active movements bilaterally, with flexion to 50° and abduction to 40°, internal rotation to the buttock and no active external rotation. Plain radiographs demonstrated signs of severe cuff arthropathy with proximal migration of the humeral head and degenerative changes of the glenohumeral joint and considerable widening of the acromioclavicular joint, which presumably is projectional (no previous surgery) (Fig. 3).

Following the investigation by the breast surgeons for the lump, she was reviewed again in our clinic. The lump remained unchanged in characteristics and caused no significant pain to the patient. Treatment options were discussed with the patient, including operative treatment with reverse shoulder replacement versus non-operative management, and the patient decided to continue with observation at present.

DISCUSSION

The exact aetiology of cyst formation in association with shoulder pathology is not completely understood. However, it appears to be related to trauma, connective tissue degeneration and synovial extension from an adjacent joint. Most cysts appear to result from

Fig. 3 Anteroposterior radiograph of a shoulder with cuff tear arthropathy.

massive rotator cuff lesions with proximal migration of the humeral head, acromioclavicular joint and glenohumeral osteoarthritis. Craig proposed that acromioclavicular joint cysts are formed by leakage of synovial fluid from the glenohumeral joint fluid through the rotator cuff tear into the subacromial bursa and then into a degenerative acromioclavicular joint, causing distension of the superior acromioclavicular joint capsule and elevating the skin [1]. He described the 'geyser sign' in the diagnostic work-up of these cysts [5]. This occurs when a dye is injected into the glenohumeral joint leaks into the subdeltoid bursa and outlines acromioclavicular joint cyst like a geyser. However, MRI is now superior in evaluating these lesions and can demonstrate the lesion without contrast.

In the present case, instead of disruption of the inferior capsule of the acromioclavicular joint, it appears that the clavipectoral fascia has been perforated. This perforation may be caused by mechanical irritation, with leakage of synovial fluid to the subpectoral space.

The location of the cyst in the breast area, with rapidly enlarging 'breast tumour' alerted the physician and the breast surgeons to investigate this lump with a mammogram and an ultrasound scan with fine-needle biopsy followed by MRI.

Management options of acromioclavicular joint cysts include observation, arthroscopic drainage with acromioclavicular joint excision arthroplasty [5] or arthroscopic excision with treatment of rotator cuff pathology, depending on the age of the patient, symptoms and co-morbidities (cuff repair, hemiarthroplasty [2], reversed shoulder arthroplasty [6]). Aspiration only leads to recurrence of the cyst in all cases because the underlying rotator cuff tear or acromioclavicular joint problem is not addressed [2,3].

In the present case, the patient had adapted her lifestyle to her shoulder function and, because pain was not a major feature of her symptoms, opted for conservative management.

In our view, it is important to raise awareness to the possibility of these cysts in the differential diagnosis of lumps in the breast area.

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