Soft-tissue tophaceous deposits have been reported in the finger, carpal tunnel, spine (cervical and lumbar), hip, knee, and Achilles tendon. Intraosseous and intradermal sites have also been described, and there is also a report of a tophus being the cause of fracture nonunion. Glennohumeral joint involvement in gouty arthropathy, however, is unusual.

Tophaceous gout correlates with a longer duration of disease and a poor tolerance to medication. The clinical effects of intra-articular tophi are mostly caused by mechanical impingement. In the longer term, there is an increased rate of degenerative arthritis, although this association has been challenged. We have been unable to find any previous reports of tophaceous gout occurring within the glenohumeral joint or rotator cuff. We present such a patient and discuss imaging, treatment, and further management.

CASE REPORT

A 48-year-old man presented with a 7-month history of anterior shoulder pain following an injury at work when lifting a heavy bag. He had previously been treated with a course of anti-inflammatory medication, 4 months of physiotherapy, and 3 subacromial injections, each of which provided short periods of relief.

On examination he had good power in his rotator cuff but had strongly positive signs of subacromial impingement. He also had a mild decrease in all ranges of motion, interpreted as a mild capsulitis. There were no symptoms or signs of any intra-articular mechanical derangement.

The patient’s medical history revealed a 3-year history of gout without any specific medication. There were no cutaneous manifestations of gout and no other relevant medical history. An ultrasound revealed a hyperechoic lesion within the supraspinatus, presumed to have resulted from partial tearing. There were no other significant findings. Subsequently, magnetic resonance imaging (MRI), performed without contrast, did not demonstrate any significant findings except some supraspinatus tendinitis.

When a course of conservative therapy had failed, the patient was admitted for an arthroscopic acromioplasty. A normal range of passive motion was noted with the patient under anesthetic. Findings at arthroscopy revealed a mild synovitis with crystals in the synovial fluid. Tophaceous deposits were noted both within the supraspinatus tendon (Figure 1) and at the upper edge of the subscapularis tendon (Figure 2). No attempts were made to remove the deposits. A standard arthroscopic acromioplasty was performed with division of the coracoacromial ligament.

The patient made an uneventful postoperative recovery with full resolution of his shoulder symptoms at 3 months. He was subsequently referred to his general practitioner for commencement of urate-lowering therapy.

DISCUSSION

The most common arthropathy to affect the glenohumeral joint is rheumatoid arthritis. Being that the glenohumeral joint is a synovial joint with a large subacromial bursa, it could be expected that it might be commonly affected by a crystalline arthropathy such as gout. This appears not to be the case, with pseudogout being more common.

The presence of tophaceous gout correlates with a long duration of hyperuricemia and/or a poor response to urate-lowering medications. Gouty tophi have been reported in many locations in patients both with and without known hyperuricemia, and their presence warrants the initiation or resumption of urate-lowering therapy. With the use of such therapy earlier in the disease process, the prevalence of gouty tophi appears to be declining. Acute synovitis may mimic septic arthritis, and the diagnostic presence of monosodium urate crystals within the joint fluid should be sought. The aspiration of unusual deposits, such as tophi, may also be performed for diagnostic microscopy.

The imaging of tophi is more variable than may be expected of calcium-containing deposits. Gerster et al reported on the use of computed tomography for intra-articular tophi of the knee, but outside of the knee, most reports comment on the use of MRI. Chen et al compared both modalities, and for MRI, they suggest that the appearance is characteristically of low to intermediate signal intensity on both T1- and T2-weighting. However, report that appearances on T1-weighted imaging are relatively constant, with intermediate signal, whereas T2-weighted imaging is more variable. There is enhancement with gadolinium, but the index of suspicion would need to be high to diagnose such a deposit clinically. Even with the benefit of operative hindsight, the tophaceous deposits could not be seen on our scans.

The presence of tophi within the cuff may result in secondary impingement either directly by local hyperemia and edema or indirectly through impairment of rotator cuff...
function. No attempts were made to remove the tophaceous deposits from the rotator cuff. Having dealt with the patient’s secondary impingement, his rotator cuff function was improved with physiotherapy and his hyperuricemia treated with appropriate medication.

This appears to be the first case of tophaceous gout affecting the rotator cuff or glenohumeral joint reported in the literature. However, the presence of gouty tophi as a cause of impingement may be underdiagnosed in patients with longstanding and/or untreated disease.

REFERENCES

Figure 1 Articular side of supraspinatus (SSP) tendon containing tophaceous material (asterisk). LHB, Long head of biceps tendon.

Figure 2 Large gouty tophus (asterisk) at upper border of subscapularis tendon, with associated synovitis. HH, Humeral head; LHB, long head of biceps tendon.