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Case Report

Tophaceous gout with rare involvement of the patella

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ABSTRACT

Gout arthritis is an inflammatory arthritis caused by hyperuricemia from various etiologies. It is typically a polyarticular arthritis with the most common joint involved being the first metatarsophalangeal joint. We present a case of gout of the knee with characteristic magnetic resonance imaging findings and rare involvement of the patella. Radiographic findings of gout are diagnostic; however, they manifest many years after the onset of the disease process. Control of symptoms and progression of the disease is possible with correct treatment made possible by early diagnosis.

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Introduction

Gout is an inflammatory arthropathy caused by long-standing hyperuricemia. Patients are usually asymptomatic for many years before developing symptoms and before radiographic evidence of disease. The first metatarsophalangeal joint is the most commonly involved joint, although gout is often polyarticular. Involvement of the knee is not uncommon, but involvement of the patella is rare. The following is a case presentation of gout with involvement of the patella and characteristic magnetic resonance imaging (MRI) findings.

Case report

A 52-year-old gentleman presented to our outpatient imaging center for a right knee MRI in September 2015. His chief complaint was pain and swelling to the medial aspect of his knee after a fall 2 weeks earlier. Pertinent medical history of our patient includes hypertension, hyperlipidemia, gout, secondary polycythemia, and coronary artery disease. The patient has a surgical history of coronary artery bypass graft and mitral valve repair.

He has a long-standing history of gout and excessive alcohol consumption for many years. His gout was diagnosed

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both on a clinical basis and radiographically. Before initiating treatment, his serum uric acid level was 13 mg/dL. Initially, he was started on 100 mg daily of allopurinol, which is a xanthine oxidase (XO) inhibitor that reduces the production of uric acid in the body. Unfortunately, he had a severe allergic reaction to allopurinol including rash and mucosal ulcers. Following this, he started 80 mg daily of febuxostat for the management of his hyperuricemia. Febuxostat is a new oral nonpurine XO inhibitor. While taking febuxostat, he continued to have multiple gout flares with large periarticular tophi involving his hands and elbow.

Earlier in February 2015, he had visited the emergency department for left hand pain not typical of his gout attacks. A left hand radiograph demonstrated findings consistent with tophaceous gout (Fig. 1). Photographs taken in June 2015 show the extent of tophi on physical examination (Figs 2 and 3).

With continued treatment, our patient's uric acid level dropped to 5.6 mg/dL. Because of his continued gout flares and his painful tophi, he discontinued febuxostat and was started on a new medication called pegloticase. Pegloticase is an enzyme that metabolizes uric acid into a harmless chemical that is eliminated from the body in urine. Pegloticase is administered intravenously at a dose of 8 mg every 2 weeks. His uric acid level has now dropped below 1 mg/dL, and he has experienced significant improvement in



Fig. 1 – Single anteroposterior radiograph of the hand shows multiple periarticular calcified masses throughout the hand (solid curved arrow). Associated periarticular erosions are present (solid and dashed straight arrows). Also noted is calcification of the triangular fibrocartilage complex (curved dash arrow).



Fig. 2 – Photograph of the dorsum of the hand taken June 4, 2015 showing large gout tophi of the 4th and 5th digits.

his tophi as evidenced by photographs taken in April 2016 (Figs 4 and 5).

A right knee MRI from September 2015 revealed an acute fracture of the tibial plateau (Fig. 6). In addition, the MRI demonstrated changes of gout arthritis including severe nodular thickening of the distal quadriceps tendon (Figs 7-9) and adjacent erosion of the superior aspect of the patella (Figs 8-10). There was also diffuse thickening of the prepatellar soft tissues (Fig. 10), patellar tendon (Fig. 11), and nodular thickening of the iliotibial band (Figs 12 and 13). Incidental anterior cruciate ligament ganglion cyst was also demonstrated (Fig. 14).

Discussion

Gout is an inflammatory arthritis caused by high-serum levels of uric acid, known as hyperuricemia. Hyperuricemia is defined as a serum urate level of approximately 6.8 mg/dL or higher, which is the upper limit of urate solubility at physiologic body temperature and pH [1,2]. There are various causes of hyperuricemia including genetic disorders of purine metabolism, purine-rich diets, decreased renal excretion of urate secondary to chronic renal disease, and certain

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