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Acute Hip Pain—A Forgotten Cause

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Abstract

This is a case of acute left hip pain in a young male patient presenting to the Emergency Department (ED). The hip joint is painful with limited range of motion, and the patient is admitted to rule out septic arthritis of the hip. The subsequent inpatient serum uric acid level performed is elevated and the Magnetic Resonance Imaging (MRI) hip reveals a moderate hip effusion. A Computer Tomography (CT) guided hip joint aspiration confirms the diagnosis of gout with uric acid crystals seen in the hip synovial fluid analysis. The patient is treated as for gout with marked improvement in his symptoms.

Keywords

Gout, Hip, Uric Acid

1. Introduction

Acute hip pain often brings people to the ED as it affects their mobility and function. Hip radiographs are often performed to rule out fractures in patients with a preceding injury. However, in cases of no preceding injury, conditions such as a hip osteoarthritis, avascular necrosis, infection and inflammatory conditions must be considered. A good history taking and thorough physical examination are often essential. Together with the use of appropriate blood investigations and other imaging modalities, the diagnosis can be confirmed so that appropriate treatment can then be instituted early.

Gout is a common inflammatory arthritis caused by deposition of monosodium urate crystals within the joints. It is often associated with elevated serum hyperuricaemia. Uric acid is a waste product of purines. The patients usually present with painful, warm and swollen joints. Gout most commonly afflicts the peripheral joints such as the big toe, ankle, wrist and elbow. The involvement of gout in the shoulder and hip joint is exceedingly uncommon.

Gout is associated with conditions such as insulin resistance syndrome, hypertension, nephropthy, and dis-

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orders associated with increased cell turnover [1] [2]. Risk factors include medications that increase uric acid levels like diuretics, purine containing foods like meat, and ingestion of alcohol. The prevalence of self-reported, physician-diagnosed gout in the Third National Health and Nutrition Examination Survey is found to be greater than 2% in men older than 30 years of age and in women older than 50 years of age [3].

In this paper, we report a rare case of gout in the hip of a young adult patient.

2. Case Report

A 29-year-old technician presented with 2-day history of progressively worsening left hip pain, which was accompanied by low-grade fever. There was no preceding trauma. He had to ambulate with the use of crutches to offload his left hip, when he usually ambulates without aid.

He has past medical history of hypertension, chronic renal disease and gout on treatment with allopurinol. His last gout attack was 3 months prior involving the left big toe and left ankle. He had previous arthroscopic surgical debridement of his right hip for a labral tear ten years prior.

His vital signs on presentation to the Emergency Department (ED) were a temperature of 38.7 degree Celsius (101.6 degrees Farenheit), pulse rate of 107 beats/minute and a blood pressure of 123/77 mmHg. On physical examination, the range of movement of the left hip was limited. He had limited left hip internal rotation, 20 degrees of left hip external rotation and 50 degrees of left hip flexion. There was pain on all movements of the left hip joint. The skin overlying the left hip was not erythematous or warm. There was no tenderness over the greater tronchanter. The vascular and neurological examination of his left lower limb was normal. He did not have any lumbar spine or sacroiliac tenderness and there was no pain or swelling in the other joints.

The admission blood tests revealed a raised white blood cell count of 16.6×10^3/uL, C-reactive protein 19.4 mg/L. The uric acid level done inpatient was raised at 540 umol/L. The serum Erythrocyte Sedimentation Rate (ESR) was high at 105 but the Procalcitonin level was normal at 0.32 ug/L. The blood cultures performed had no bacterial growth.

The X-ray of the pelvis (**Figure 1**) was normal and there was myositis ossificcans seen on his right hip consistent with his previous right hip surgery. The Magnetic Resonance Imaging (MRI) of the left hip (**Figure 2**) revealed acute synovitis with a moderate left hip effusion with surrounding likely reactive muscle edema and borderline lymphadenopathy. The MRI also noted underlying cam-type of femoroacetabular impingement with a chronic frayed tear of the anterosuperior and superior acetabular labrum. There was no evidence of additional signal enhancement on MRI suggestive of an infective aetiology; although this could not be excluded on MRI.

The patient was treated with analgesia upon admission. Because of the suspicion and need to exclude left hip septic arthritis, he underwent left hip joint aspiration under Computer Tomography (CT) guidance. The fluid from the hip joint aspiration showed uric acid crystals. There was no bacterial growth in the hip joint fluid. A diagnosis of gout was confirmed.

The patient was then treated with colchicine, in addition to analgesia. He improved markedly and was able to ambulate independently upon two days after the start of colchicine. The hospitalisation was five days.

Figure 1. X-ray of left hip.

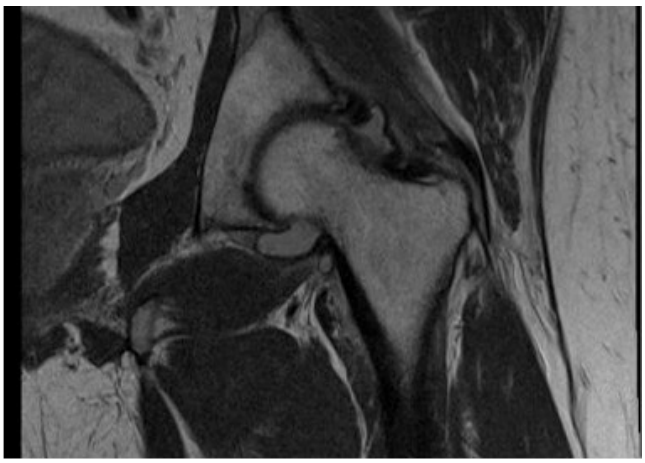

Figure 2. MRI of left hip.

3. Discussion

Gout is a spectrum of disorders related to a defect in purine metabolism. It is a common rheumatologic condition characterised by hyperuricaemia and the presence of tophaceous deposits is pathognomonic.

Gout attacks in the hip are rare as evidenced by our review of the literature [4]-[6]. There have been single case reports of acute gouty sacroiliitis [7] and pseudogout [8] presenting with acute hip pain.

We feel that many cases of hip gout are underreported because of the hip joint being deep-sited. The hip joint is not a superficial joint where warmth, erythema and effusion can be detected, unlike the ankle, knee, elbow and wrist.

In this case report, the hip pain and the limitation of hip movements suggest the presence of a significant hip effusion, which was confirmed on imaging. The diagnosis of hip gout can possibly be mistaken for hip osteoarthritis, hip labral tears, sacroiliitis, piriformis syndrome and even lumbar spondylosis.

The management of gout consists of treatment with colchicine and nonsteroidal anti-inflammatory drugs in an acute attack. The results are usually very dramatic with significant improvement in pain and function shortly after institution of treatment. This was demonstrated in our patient. The subsequent use of prophylactic therapy with allopurinol and probenecid are used to maintain uric acid levels.

Park YB *et al*. reported the prevalence of patients with acute gout with normal uric acid levels at diagnosis to be 12% [9]. In a review of diagnostic criteria for gout, crystal identification in the synovial fluid remains the gold standard for identification of gout [10].

It is often difficult to differentiate between septic arthritis and gout in acute monoarthritis in the ED. For non-traumatic inflammed joints presenting to a United Kingdom teaching hospital, Reed MJ *et al*. proposed joint aspirations in the ED for patients with possible septic arthritis. Gout is diagnosed if uric acid crystals are seen on microscopy [11].

From their series, septic arthritis was diagnosed if joint fluid gram stain was positive, but the diagnosis of septic arthritis cannot be excluded when the gram stain is negative. Due to this need to exclude septic arthritis, these patients in Reed MJ *et al*. series were still admitted. It was also noted that their patients had a long wait in ED before their joint aspirations were performed by a senior ED physician or orthopaedic surgeon. Therefore, this present problems in ED resource mangement and at present, not all EDs have the expertise to do joint aspirations.

The hip is a deep and less accessible joint. A hip joint aspiration requires considerable expertise and resources such as an ultrasound or CT for image guidance. The use of ultrasound guided joint aspiration has been reported in West Africa for a case of acute gout of the hip joint [6]. Ultrasound visualisation for joint aspiration poses less risk to patients with pre-existing renal impairment compared to the use of CT.

Janssens HJ *et al*. proposed a criteria using seven clinical and laboratory variables for diagnosis of acute gouty arthritis in primary care without joint fluid analysis [12]. A score of 4 or less ruled out gout in almost 100% of patients; and with a score of 8 or more, gout was confirmed in more than 80% of cases.

Kienhorst LB *et al*. validated this criteria in a prospective study performed in a secondary rheumatology clinic

setting and found that it had good predictive value of gout when joint fluid analysis was not available [13]. Lee KH *et al*. also suggested the benefit of using these criteria to distinguish between gout and septic arthritis in the absence of a polarised microscope [14]. Therefore, in EDs with no capability for joint aspirations, such criteria can be used to aid in the diagnosis of gout. Treatment for gout can be instituted early in the ED, even though some of these patients may still need to be admitted to the hospital to rule out septic arthritis. Their length of stay in the hospital may be shortened as symptoms improve with the early treatment and can be discharged once joint fluid culture proved negative.

For our patient, the score for the patient in this case report is 9.5. Our patient had an established history of gout on treatment with allopurinol, but he still had to be admitted to exclude septic arthritis of the left hip.

A good history taking and physical examination is still required to allow for a high index of suspicion for all cases of monoarthritis. There have been rare cases of concomitant septic arthritis and gout [15] [16]. Therefore, where clinical suspicion is high, to differentiate between the two diagnoses, positive joint fluid examination for uric acid crystals and positive joint fluid cultures are needed for the diagnoses of gout and septic arthritis respectively.

We presented this case report to highlight various educational points.

Firstly, gout is an "old disease" that often mimics infection. In the absence of fever and a white cell count within the normal limits, gout or pseudogout is more likely than infection. It is still paramount to exclude infection and hence the need for a hip aspiration to obtain a gram stain and fluid culture.

Second learning point: The diagnosis of a labral tear in young patients with hip pain is more prevalent with the evolution of hip arthroscopy. It is important to understand that in the case we presented, a good history and physical examination likely precludes a labral injury. There was no preceding trauma and labral tears do not usually present with a global loss of range of hip motion, like our patient. There is usually pain on flexion, adduction and internal rotation of the hip in patients with hip labral tears.

Third learning point: The importance of adding a uric acid investigation in all patients with gout to understand the current uric acid level and the efficacy of their current treatment.

4. Conclusion

The timely diagnosis of gout, especially at unusual sites of presentation such as the hip, in the ED with available resources such as using a diagnostic criteria and joint aspiration can allow treatment to be started in the ED. However, most of these patients may still often require admission to rule out septic arthritis. The early institution of gout treatment in the ED may reduce the length of hospital stay.

Conflicts of Interest

There are no conflicts of interest and consent has been obtained from the patient for publication of this case report.

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