



## **Distal Interphalangeal Joint Gouty Arthritis in a Patient with Nodal Osteoarthritis: A Case Report and Review of Literature**

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### **Authors' contributions**

This work was carried out in collaboration between all authors. Authors SB and FF wrote the first draft of the manuscript. Authors BMA, AT and OA managed the literature searches. All authors read and approved the final manuscript.

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### **Case Study**

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### **ABSTRACT**

**Case:** Herein 73 year- old female patient with distal interphalangeal (DIP) joint gouty arthritis accompanying nodal OA was presented. There was significant redness and swelling in the joint, joint was warm and tender on palpation and range of motion was very painful.

**Conclusion:** The presentation of acute or subacute arthritis in interphalangeal joints of a

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woman with preexisting nodal OA may obscure the correct diagnosis and coexisting gouty arthritis may be overlooked.

*Keywords: Gouty arthritis; osteoarthritis; Monosodium urate (MSU).*

## 1. INTRODUCTION

Gouty arthritis is the most prevalent form of inflammatory arthritis characterized with increased uric acid (UA) levels, recurrent attacks of severe pain and inflammation affecting peripheral joints and monosodiumurate (MSU) crystal accumulation around the joints [1-3]. There is a strong association between sites of acute attacks of gout and the presence of clinical osteoarthritis (OA), especially at the first MTP joints, tarsal joints, knees and finger distal interphalangeal joints. Osteoarthritic joint influences local MSU crystal deposition, therefore gouty arthritis may accompany nodal OA [4,5].

Although gout is often considered as a preferential male disease, it is also not rare, especially in women with osteoarthritis. The presentation of acute or subacute arthritis in interphalangeal joints of a woman with preexisting nodal OA may obscure the correct diagnosis and coexisting gouty arthritis may be overlooked [6].

## 2. CASE PRESENTATION

A 73 years old female patient was admitted to our outpatient clinics with severe pain, redness and swelling at her left second DIP joint which began at night and increased gradually. There was significant redness and swelling in the joint, joint was warm and tender on palpation and range of motion was very painful. There were Heberden's nodes (HN) on left 3rd and right 2nd DIP joints. She defined that she had similar complaints in her right 2nd DIP joint which began acutely and resolved in 3 days twice in the same year. White blood cell count was 11.3 K/UL (range 4-11), erythrocyte sedimentation rate was 31mm/hr (range:0-20), C-reactive protein was 26.4 mg/dl (range: 0-5) and uric acid (UA) was 9.2 mg/dl (range: 3.1-7.8). On X-ray, DIP joint osteoarthritis compatible with HN were seen at left 2nd, left 3rd and right 2nd DIP joints and also there was soft tissue swelling around the left 2nd DIP joint. On medical history it was learned that she was using a calcium channel blocker with the

diagnosis of hypertension for the last few years. Patient didn't accept joint aspiration and diagnosis of gouty arthritis was established according to 1977 ACR criteria [7]. Colchicin 0.5mg 4x1 and diclofenac sodium 50 mg 2x1 were prescribed. A rapid response was observed to the medical treatment and colchicine dosage was decreased to 1g/day after the acute arthritis resolved and purine restricted diet was given. She was recommended to reapply 4 weeks later for the follow-up, but applied to our outpatient clinics with a recurrent attack in the same joint after 6 weeks. She defined that her complaints were reoccurred after administration of 300mg/day allopurinol in another center. Colchicine dosage was increased to 1.5 g/day and diclofenac sodium 100 mg/day was added. Her complaints were resolved in 2 days. Patient is under follow-up and since one year she did not have any further attack with the treatment of colchicine 1gr/day and allopurinol 150mg/day.

## 3. DISCUSSION

Gout is one of the most common inflammatory arthritis with a prevalence of 1.4% in Europe and 3.9% in USA [1,2]. The common signs of gout are nocturnal attacks of swelling, tenderness, redness and sharp pain in joints. It usually presents as acute episodic arthritis most of which are monoarticular, only 10% of them are oligoarticular or polyarticular [8]. Especially, women tend to have more upper extremity joint involvement and the onset of the gout attack is more often insidious in women [6].

It tends to affect especially the first metatarsophalangeal (1<sup>st</sup> MTP) joint. It can also occur in the ankle, mid-tarsal joints, ankles, knees, interphalangeal joints, wrists and elbows. Dactylitis was also reported to be an uncommon feature of gouty arthritis [9]. The reason for this distribution of affected joints is not understood [5], but a study of Poland found an association between gout and radiographic presence of OA at the 1st MTP joint, midfoot and knee in 262 subjects with gout [10]. However the exact causal relationship underpinning the hypothesis, whether MSU crystals deposit more readily in

osteoarthritic cartilage or deposition of MSU crystals leads to progressive joint damage, remains unknown and more research is required in this field. Radiographic, clinical and histopathological studies strongly suggest that osteoarthritic joint influences local MSU crystal deposition, but does not appear to be a risk factor for the development of gout alone [3,5,11,12]. It is also possible that a general cartilage defect, such as may occur in nodal OA, increases the risk of developing gout [13]. Researchers affirmed that the association between gout and OA is mediated by local mechanical factors rather than systemic or genetic factors [13]. Likewise, our patient had nodal osteoarthritis and osteoarthritic changes probably triggered the gouty arthritis in that joint.

Although gout is often considered as a preferential male disease, it is also not rare and mainly becomes manifest in the postmenopausal period, especially in women with associated comorbidities like renal insufficiency, hypertension, or diabetes mellitus, women who are taking diuretics or have dietary factors (obesity, alcohol, fructose, purine-rich fatty foods), women who have a positive family history, or women who present with an atypical pattern of inflammatory arthritis. Female gout patients also differ in the location of the gout arthritis, not only podagra is involved but also other joints such as fingers and ankle. Special attention should be given to women with nodal OA in order that coexisting gouty arthritis not be overlooked [6,14,15].

The presence of MSU crystals in synovial fluid is the gold standard for diagnosing gout, but its application is not often performed in clinical practice because of the urgency of fluid examination, limiting access to the polarizing microscopes and timeless to aspirate a joint [8]. It was stated that the results in the crystal-proven gout studies were quite equal to the studies using the ACR criteria, and in daily practice the diagnosis of gouty arthritis is based on clinical grounds without the use of crystal identification in de synovial fluid [15]. In our patient, there was significant redness, tenderness and swelling in the DIP joint which began at night and increased gradually. UA level was high and rapid response was observed to the colchicine treatment. Gout diagnosis was also established according to 1977 ACR criteria in our patient, since she did not accept the joint aspiration.

Accumulating data support an increase in the prevalence of gout that is potentially attributable to recent shifts in diet, lifestyle, medical care, and increased longevity [15]. All patients should be assessed regarding associated comorbidities and medications [2]. Lifestyle changes addressing obesity, diabetes, hyperlipidemia, and hypertension should be considered in any patient with gout including weight loss and restriction of high purine organ meats, alcohol, and high-fructose liquids. Other measures may include withdrawal and substitution of drugs that induce hyperuricemia, such as thiazidic diuretics [16].

The treatment of acute attack should be preferably initiated within 24 hours of onset of an acute gout attack. Nonsteroidal antiinflammatory drugs (NSAIDs) or systemic corticosteroids, or oral colchicine were appropriate initiating monotherapy [17,18]. For the acute gout attack which was characterized by severe pain, or for an acute polyarticular gout attack, combination therapy was recommended [17,18]. If the patient had two or more attacks per year or kidney stones or tophi on clinical exam, urate lowering therapy should be recommended. Urate-lowering therapy comprises both nonpharmacologic and pharmacologic interventions. Allopurinol or febuxostat can be started to taper UA level [16-18]. Another treatment for lowering UA is probenecid. Patients with good renal functions and without overproduction of UA should be given probenecid [18]. If the patient who do not respond to other treatments or cannot tolerate them, pegloticase, a recombinant uricase, may be given [19]. Anakinra is not approved by Food and Drug Administration for gout treatment however it may be used for very severe attacks or unsatisfactory other medical treatment [20]. Since the acute gout attack was very painful in our patient, oral colchicine and nonsteroidal antiinflammatory treatment were started and a rapid clinical response was obtained to the treatment. Initially we aimed to try nonpharmacologic options to lower UA levels in the first month of the acute gouty arthritis attack, but allopurinol was prescribed by another physician in the meantime. After her second admission to our outpatient clinics with another gouty arthritis attack in the same joint, medical treatment was rearranged. Patient is under follow-up since one year she did not have any further attack with the treatment of colchicine 1gr/day and allopurinol 150mg/day.

#### 4. CONCLUSION

There is a strong association between sites of acute attacks of gout and the presence of clinical osteoarthritis. The presentation of acute or subacute arthritis in interphalangeal joints of a woman with preexisting nodal OA may obscure the correct diagnosis and coexisting gouty arthritis may be overlooked. For proper diagnosis and treatment; it is important to bear in mind that gouty arthritis may accompany nodal OA.

#### CONSENT

All authors declare that 'written informed consent was obtained from the patient for publication of this case report.

#### ETHICAL APPROVAL

All authors hereby declare that this case report have been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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