Annals of Clinical Case Reports

Case Report
Published: 03 Apr, 2024

# A Misdiagnosis of Atypical Gout

*Manji A[1], Anderson V[2] and Saad A[1,2,3]**

[1]Sheepcot Medical Centre, Watford, UK

[2]St George's University, Grenada

[3]Imperial College School of Medicine, UK

## Abstract

Gout is a common type of inflammatory arthritis in the UK, due to hyperuricemia. With a wide range of risk factors and presenting symptoms, it may easily be mistaken for another inflammatory arthritis or skin and soft tissue infection. It is one of the most effectively treated inflammatory pathologies, with high rates of life-long remission on urate-lowering therapy. We present a case of gouty arthropathy in the right arm treated initially as cellulitis, leading to a five-week delay in diagnosis. We review literature reporting other instances of diagnostic delay or misdiagnosis of gout, and reasons for diagnostic inaccuracy. We conclude that gout should appear in the differential list for any patient with an acute joint or upper limb swelling, with acute and long-term management being highly effective in reducing long-term joint damage.

## Introduction

Gout is a common type of inflammatory arthritis with a prevalence of 2.5% in the UK [1]. It is a response to Monosodium Urate (MSU) crystal formation as a result of hyperuricemia. Risk factors for hyperuricemia include dietary factors such as alcohol excess and purine-rich foods, obesity, male sex, medications such as diuretics, and comorbidities such as chronic kidney disease, hypertension and diabetes [2]. Typical gout flares are characterized by joint swelling, pain and sometimes erythema, particularly at the first Metatarsophalangeal (MTP) joint [3]. Recurrent flares can become tophaceous or cause joint erosion [2]. It is treated in the acute phase with non-steroidal anti-inflammatory drugs, colchicine or corticosteroids, with subsequent initiation of lifelong anti-urate therapy. There is also a strong role for non-pharmacological management, with risk factor optimization as a key preventative stratagem [4].

With a broad range of risk factors and generic inflammatory joint presentation, gout is often poorly treated and misdiagnosed, despite being amongst the best-understood and most manageable joint conditions [3]. This report highlights a case of atypical gout misdiagnosed as cellulitis, with discussion on the reasons for poor gout diagnosis. Our aim is to underline the importance of gout as a consideration in the co-morbid patient with an acute inflammatory joint.

## Case Presentation

A 63-year-old gentleman tennis coach presented to his Emergency Department (ED) with a swollen, painful right arm. His past medical history was significant for hypertension, Deep Venous Thrombosis (DVT) and penicillin allergy. His regular medications were lisinopril and rivaroxaban 10 mg daily. He had no significant family history. He smoked 15 cigarettes/day and drank 90 units of alcohol weekly, although had quit both cold turkey at the start of the year and was documented only as an "ex-drinker" on initial medical records. He regularly exercised, coaching tennis as a full-time job. He reported having an episode of right arm swelling three years prior that resolved spontaneously after a week or so.

Examination in ED revealed a grossly swollen right arm from the elbow distally, with erythema over the elbow joint. There was significant restricted range of movement in the elbow, wrist and all finger joints, with pain elicited on all movements. He was afebrile, with normal vital signs. Bloods revealed an elevated C-Reactive Protein (CRP) at 138 mg/L and elevated white cell count at 12.1 × $10^9$/L. Elbow and wrist X-ray showed an enlarged fat pad and periosteal reaction at the middle finger distal interphalangeal joint (Figure 1). He was treated for cellulitis with intravenous linezolid. He was discharged two days later with a two-week course of oral doxycycline.

Although his swelling and pain initially improved, the patient presented to his General Practitioner (GP) the day after completion of antibiotics with recurring swelling (from the wrist

OPEN ACCESS

***Correspondence:***
*Adnan Saad, Sheepcot Medical Centre, Watford, UK,*

**Received Date**: *12 Mar 2024*
**Accepted Date:** *28 Mar 2024*
**Published Date:** *03 Apr 2024*

***Citation:***
*Manji A, Anderson V, Saad A. A Misdiagnosis of Atypical Gout. Ann Clin Case Rep. 2024; 9: 2601.*
***ISSN: 2474-1655.***

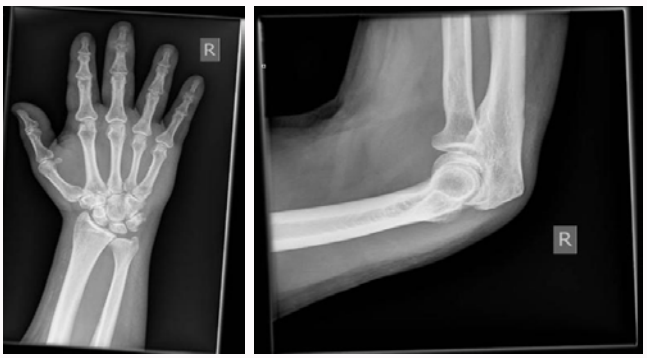


**Figure 1:** X-ray hand and elbow showing elevated fat pad and middle finger periosteal reaction.

distally), pain and reduced movement affecting his work. He did not report fever, and there was no spreading erythematous rash. However, examination found a non-tender well-defined lump on the right middle finger and minimal erythema over the right metacarpophalangeal joints. Repeat bloods were requested, showing a CRP of 19 and no elevated white cells. He was sent home with safety-netting advice, simple analgesia and documented as a recovering case of cellulitis. Arthropathy was considered and a routine ultrasound and rheumatoid factor requested. He remained sober and non-smoking.

After a further two weeks he re-presented with worsening swelling and ongoing functional difficulties, still awaiting his ultrasound. His right middle finger swelling remained the same (Figure 2). Due to the intense focal pain, recurrent DVT was added to the list of differentials. He was sent to the Urgent Treatment Centre for same-day ultrasound and review. Ultrasound did not reveal a DVT, bloods showed no inflammatory changes and a negative rheumatoid factor. He was reviewed by the Rheumatology team, and after thorough examination and further bloods (urate of 441) diagnosed with an atypical gouty arthropathy and tophus of the right middle finger. They noted no focal joint swelling as expected in a flare-up of gout, and mildly raised urate. He was discharged with two weeks of naproxen.

Following acute management, his symptoms almost completely resolved, and he was commenced on lifelong allopurinol urate-lowering therapy. A diagnosis of gout was coded onto his record. He was counselled on the importance of remaining alcohol-free, and other risk factors for gout flare-ups.

## Discussion

In this report we present a case of gouty arthropathy, diagnosed five weeks after initial presentation, in which key investigations for a gout flare were either performed after significant delay, or not performed at all. There is a wide body of literature suggesting that gout is poorly recognized and managed [5]. We discuss below reasons for poor gout diagnosis and management in this case and more generally, with a focus on misdiagnosis as cellulitis.

Firstly, this presentation of gout was atypical in multiple respects. Gouty arthropathy usually manifests as well-defined monoarthropathy, erythema and pain [3], whereas this patient presented with a grossly swollen right arm, with patchy areas of erythema. Key investigations for diagnosis, including joint aspiration and serum uric acid, were therefore not considered.

He also presented with a later-confirmed gouty tophus, which classically presents after 5 to 10 years of poorly controlled gout [6]. However, this patient had no prior diagnosis of gout and, as such, this was not considered as likely as other arthritic phenomena. Tessema et al. [7] reported a case of gout with tophi misdiagnosed for 17 years as rheumatoid/osteoarthritis, noting the overlapping appearance of gouty tophi with arthritic nodules. In the case of our patient, a long-term tennis coach with risk of joint degeneration, suspecting osteoarthritis Heberden's nodes would not have been unreasonable. Whilst he had a significant risk factor for gout in his alcohol intake, his decision to stop drinking prior to his presentation, and subsequent histories referring to him as an "ex-drinker", did not immediately draw medical attention to the quantity of alcohol intake and recent cessation.

Confusion in recognizing gout specifically from cellulitis has been previously established. Kankanala [8] document a case of cellulitis around a joint area mistakenly treated as gout. In our patient, he presented with bloods suggestive of infection and an angry erythematous rash, making it possible that he did have gout with a superimposed cellulitis initially, with the gout aspect untreated in hospital and continuing to cause symptoms in the community.

There is a wide differential diagnosis for gout, and any atypical presentation may mimic a range of inflammatory pathologies, leading to delayed diagnosis. Feng et al. [9] performed a retrospective study of 24 patients with gouty arthritis of the wrist, finding an average time-to-diagnosis of two months, with delays in recognition leading to functional wrist impairment. We also note case reports by Senguttuvan et al. [10] and Zhou et al. [11] documenting gout misdiagnosed as polyarticular rheumatoid arthritis and infectious spondylodiscitis respectively. In both cases, the authors concluded that gout is easily mistaken for other diagnoses. The long-term risk of delayed diagnosis is irreversible joint damage, making it imperative that gout be considered in the differential for any acute joint or skin/

**Figure 2:** Wrist/digit swelling and middle finger gouty tophus on second presentation to hospital.

soft-tissue pathology without a clear initial diagnosis.

## Conclusion

Gout can present with a variety of symptoms and signs and is easily misdiagnosed as cellulitis or another inflammatory pathology. It is important to consider gout in any patient with acute joint or limb swelling, especially if they have a risk factor for hyperuricemia. Blood tests and joint aspiration are inexpensive investigations to perform if there is clinical uncertainty. Acute and maintenance gout treatment is highly effective in protecting from long-term joint damage.

## References


1. Prevalence | Background information | Gout | CKS | NICE. 2024.
2. Clebak KT, Morrison A, Croad JR. Gout: Rapid evidence review. Am Fam Physician. 2020;102(9):533-8.
3. Stewart S, Dalbeth N, Vandal AC, Rome K. The first metatarsophalangeal joint in gout: A systematic review and meta-analysis. BMC Musculoskelet Disord. 2016;17(1).
4. Conley B, Bunzli S, Bullen J, O'Brien P, Persaud J, Gunatillake T, et al. What are the core recommendations for gout management in first line and specialist care? Systematic review of clinical practice guidelines. BMC Rheumatol. 2023;7(1):15.
5. Lipworth W, Kerridge I, Brett J, Day R. How clinical and research failures lead to suboptimal prescribing: the example of chronic gout. BMJ. 2011;343(7835).
6. Erickson TD, Assylbekova B, Chong ACM. Multiple subcutaneous gouty tophi even with appropriate medical treatment: Case report and review of literature. Kansas J Med. 2021;14:12-16.
7. Tessema S, Mahgoub AE, Nakhleh R. Gout gone awry: The importance of proper diagnosis. Clin Case Rep. 2021;9(12):e05201.
8. Kankanala R. Case Report: Gout *vs.* Cellulitis. J Urgent Care Med. 2024.
9. Feng W, Xiong G. Clinical classification and treatment experience of gouty arthritis of the wrist. Chin J Reparative Reconstr Surg. 2021;35(11):1411.
10. Senguttuvan NB, Kandasamy D, Marimuthu K, Kannan A. When common diagnosis is not common enough. Intern Med. 2001;50(24):3045-6.
11. Zhou S, Xiao Y, Liu X, Zhong Y, Yang H. Gout involved the cervical disc and adjacent vertebral endplates misdiagnosed infectious spondylodiscitis on imaging: Case report and literature review. BMC Musculoskelet Disord. 2019;20(1).