

An Unusual Presentation of Gout

Suchitra Raj (Foundation Year 2)

A F Radwan (Consultant Physician)

Darlington Memorial Hospital

Suchitra.raj@cddft.nhs.uk

Introduction

Gout, a common disorder of uric acid metabolism, causes deposition of monosodium urate crystals in soft tissue¹. The incidence of gout as reported by UK General Practice Database is 11.9-18.0 cases per 10,000 patient-years with a prevalence of 1.4%². The male to female ratio is 9:1, although prevalence increases in women after menopause². Mortality and morbidity associated with gout are significant. If left untreated, patients endure significant joint pain and later joint destruction³. Hyperuricaemia is also an independent risk factor for death due to cardiovascular disease⁴.

Case report

An 86 year old woman with a past medical history of heart failure, Alzheimer's dementia and Crohns disease presented with a history of unilateral lower leg swelling. This was appropriately diagnosed as cellulitis and treated with intravenous benzyl penicillin and flucloxacillin. She was due to be discharged after two weeks but developed an acutely swollen right little finger. She was assessed by the junior medical on call team who noted a tense swelling of the proximal interphalangeal joint (PIP) of this finger. She was then referred to the orthopedic team who diagnosed a subcutaneous abscess and performed incision and drainage. A radiograph at this time (figure 1) showed subluxation of the metacarpophalangeal (MCP) joints, juxta articular osteopenia, ulnar deviation and swelling overlying the PIP joint of the little finger. She was recommenced on IV benzyl penicillin and flucloxacillin.

A week later she developed a similar swelling of her right index finger. Again, incision and drainage was performed. On both occasions, fluid from the drainage was sent for gram staining which was negative but crystal studies

were not performed. Routine blood tests showed raised inflammatory markers and a normal serum urate level of 0.32.



Figure 1.

Over the next few days, she developed two further similar tense swellings in her right index finger DIP joint and left middle finger PIP joint (figures 2 & 3). She was reviewed by a rheumatologist who performed an aspirate with fluid microscopy which then showed negatively birefringent crystals consistent with gout. Serum urate levels again were 0.31.



Figure 2.



Figure 3.

Classification

Primary hyperuricaemia is urate super-saturation arising in the absence of co-existing diseases or drugs that alter uric acid production or excretion. Secondary hyperuricaemia is associated with conditions that can cause excessive urate production such as enzyme defects, myeloproliferative disorders and malignancy. Alternatively, conditions such as chronic renal failure, drugs (diuretics and cyclosporine) can cause diminished renal clearance leading to urate super-saturation.

Presentation

Clinical manifestations of gout are threefold:-

- acute gouty arthritis
- interval gout
- chronic tophaceous gout.

Acute gouty arthritis presents as severe pain, disability and redness usually involving a single joint in lower extremities. Polyarticular presentation is known in about 20%, more commonly, in individuals with untreated gout.

Chronic tophaceous gout is characterised by solid urate in connective tissue which can present on the ears or in soft tissue. Although fairly uncommon, it is still seen in men with high alcohol consumption and elderly women on diuretics.

Diagnosis & Management

A study by Zhang et al looked at the elements involved in the diagnosis of gout⁵. This is displayed in figure 4 which shows that a patient's risk factors (46%) are more important than uric acid levels (19%) in confirming the diagnosis of gout.

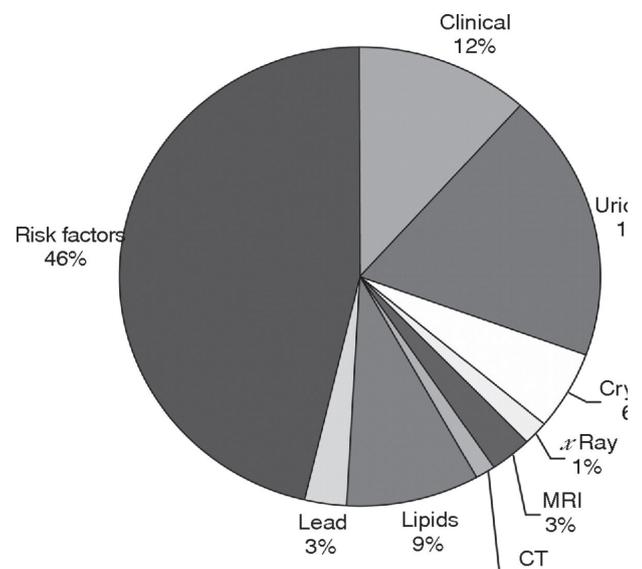


Figure 4

EULAR (The European League against Rheumatism) produced a set of guidelines to assist in the management of gout⁶. This is displayed in figure 5 together with the strength of recommendation (SOR) of each proposition.

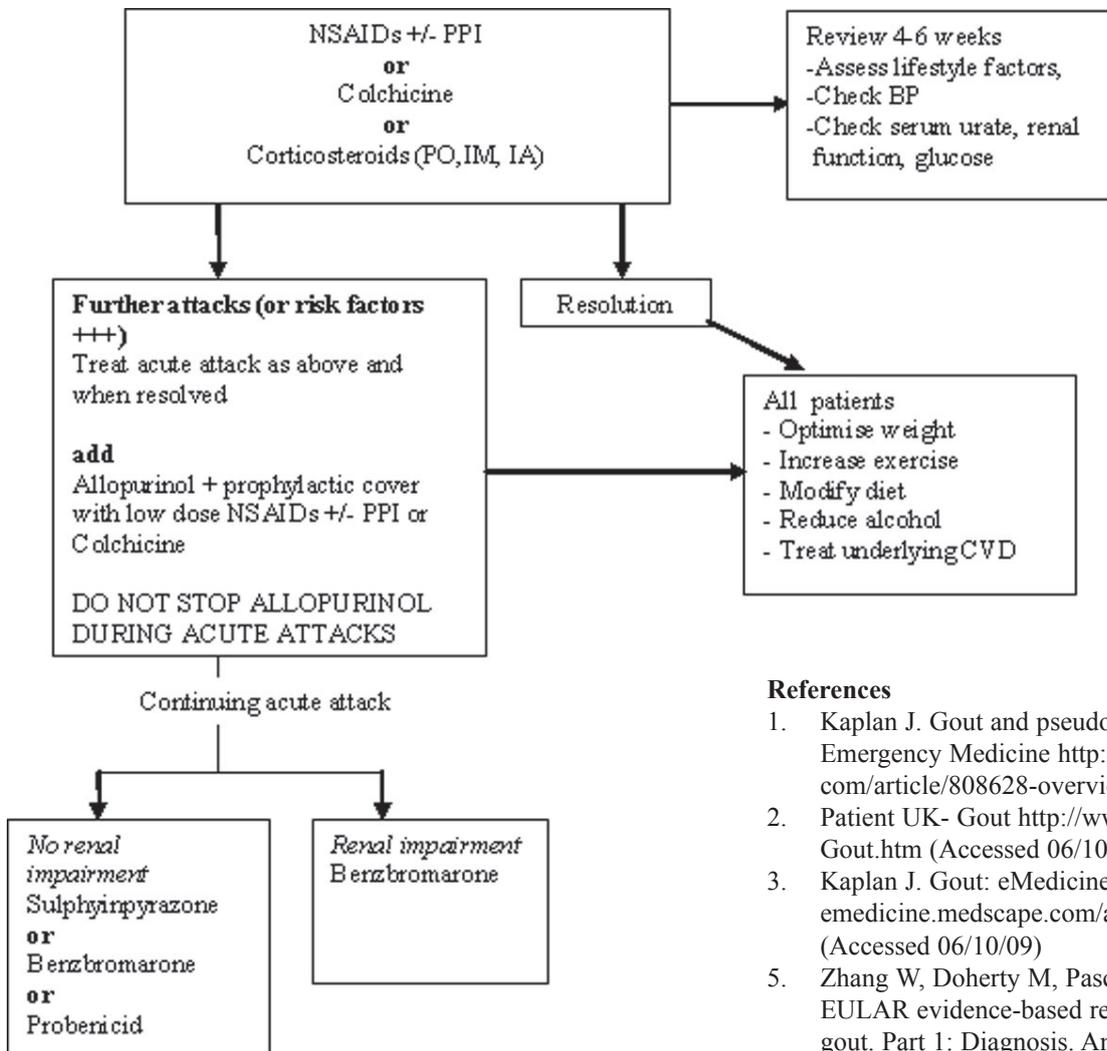
It is interesting to note that although serum uric acid is clearly an important risk factor, it does not confirm or exclude gout. Many people with hyperuricaemia do not develop gout and during gout attacks urate levels may be normal. In this case, owing to the normal urate level, gout was suspected only late into her presentation as a cause of her polyarticular swelling.

Management as per the recommendations of the British Society of Rheumatologists is displayed in Figure 6⁷:

Figure 5.

	<i>Proposition</i>	<i>SOR</i>
1	In acute attacks the rapid development of severe pain, swelling, and tenderness that reaches its maximum within just 6–12 hours, especially with overlying erythema, is highly suggestive of crystal inflammation though not specific for gout	88
2	For typical presentations of gout (such as recurrent podagra with hyperuricaemia) a clinical diagnosis alone is reasonably accurate but not definitive without crystal confirmation	95
3	Demonstration of MSU crystals in synovial fluid or tophus aspirates permits a definitive diagnosis of gout	96
4	A routine search for MSU crystals is recommended in all synovial fluid samples obtained from undiagnosed inflamed joints	90
5	Identification of MSU crystals from asymptomatic joints may allow definite diagnosis in intercritical periods	84
6	Gout and sepsis may coexist, so when septic arthritis is suspected Gram stain and culture of synovial fluid should still be performed even if MSU crystals are identified	93
7	While being the most important risk factor for gout, serum uric acid levels do not confirm or exclude gout as many people with hyperuricaemia do not develop gout, and during acute attacks serum levels may be normal	95
8	Renal uric acid excretion should be determined in selected gout patients, especially those with a family history of young onset gout, onset of gout under age 25, or with renal calculi	72
9	Although radiographs may be useful for differential diagnosis and may show typical features in chronic gout, they are not useful in confirming the diagnosis of early or acute gout	86
10	Risk factors for gout and associated co-morbidity should be assessed, including features of the metabolic syndrome (obesity, hyperglycaemia, hyperlipidaemia, hypertension)	93

Figure 6.



Conclusion

With an ageing population, gout is becoming a more common problem seen mostly in primary care. It is important to be aware of the nature of this illness and relevant investigations needed. If misdiagnosed it has significant morbidity. A normal urate level does not exclude the disease as this initially misled our team in working out this patient's clinical problem.

References

1. Kaplan J. Gout and pseudogout: eMedicine Emergency Medicine <http://emedicine.medscape.com/article/808628-overview> (Accessed 06/10/09)
2. Patient UK- Gout <http://www.patient.co.uk/doctor/Gout.htm> (Accessed 06/10/09)
3. Kaplan J. Gout: eMedicine Radiology <http://emedicine.medscape.com/article/389965-overview> (Accessed 06/10/09)
5. Zhang W, Doherty M, Pascual-Gomez E, et al. EULAR evidence-based recommendations for gout. Part 1: Diagnosis. *Ann Rheum Dis* (2006) 65:1301-11
6. Zhang W, Doherty M, Pascual-Gomez E, et al. EULAR evidence-based recommendations for gout. Part 2: Management. *Ann Rheum Dis* (2006) 65: 1312-24
7. Jordan K M, Cameron J S et al. British Society for Rheumatology and British Health Professionals in Rheumatology Guideline for the Management of Gout. *Rheumatology* 2007 46(8): 1372-74