

Seeing Through the Crystals: The Role of Imaging and the Importance of Early Treatment in Chronic Tophaceous Gout.

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INTRODUCTION

- Gout is a crystal arthropathy caused by chronic deposition of monosodium urate (MSU) crystals, typically affecting the first MTP joint, midfoot, and knees. Tophi a late complication of disease often appears about 10 years after the initial gout flare.
- Diagnosis is based on clinical history, tophi presence, detection of negatively birefringent crystals in synovial fluid, serum uric acid (SUA) levels, and characteristic radiographic findings.
- Studies in Malaysia report chronic tophaceous gout (CTPG) as a complication in 42%–52% of gout patients, indicating a significant disease burden.
- In Sarawak’s indigenous population, genetic predisposition contributes to earlier onset of gout.
- Teh et al. (2011) found that 47.1% had tophi, with notable delays in diagnosis (2.8 years) and treatment initiation (8.8 years).
- Early identification and initiation of urate-lowering therapy (e.g., Allopurinol targeting serum uric acid <300 µmol/L) are crucial in the management of Gout.

We report a case of CTPG with significant radiographic changes in a patient admitted for a foot ulcer, successfully managed with allopurinol.

CASE REPORT

A 30-year-old gentleman with a history of hypertension and gout since age 25 presented in December 2020 with complaints of bilateral foot swelling and an ulcer on the right first toe of one week duration. Examination revealed the presence of giant tophi over bilateral first metatarsophalangeal joints (MPTJ), with an overlying ulceration on the right 1st MPTJ. Blood investigations revealed an elevated SUA (800 mmol/L), with a normal renal function.

Subsequent radiographic evaluation showed characteristic findings of advanced gout. The left foot X-ray (Figure 1) showed expansile lytic bony changes with joint destruction. A 3D computed tomography (CT) scan demonstrated an extensive lobulated hyperdense tophi at the first MTPJ, causing severe joint destruction and bony erosion (Figure 2).

He was treated for infected gouty tophi with underlying CTPG. The patient was planned for rays amputation with subsequent foot reconstruction but had opted for conservative treatment. He was treated with antibiotics and wound care, following which he was started on allopurinol. His ulcer healed with regular wound care, and he achieved target SUA levels (Figure 3) with allopurinol 700 mg daily. By the end of 2024, the tophi size had significantly reduced, and he remained flare-free without any new hospitalisations.

CONCLUSION

- This case underscores two key aspects of gout management:
 - ✓ The essential role of radiographic and advanced imaging in diagnosing and evaluating disease severity in CTPG The potential for significant disease regression with early and aggressive urate-lowering therapy using allopurinol, even in the presence of extensive radiographic changes.
- Further emphasis should be placed on the importance of early treatment and medication adherence.

REFERENCES

Dalbeth N, et al. Gout. Nat Rev Dis Primers. 2019;5(1):69.
Han B, et al Giant gouty tophi in the hands. The Lancet Diabetes & Endocrinology. 2017;5(2).
Teh CL, et al Acute Gout in Hospitalized patients in Sarawak General Hospital. Med J Malaysia. 2014;69(3):126-128.
Mohd A, et al. Clinical characteristics of gout: a hospital case series. Malaysian family physician : the official journal of the Academy of Family Physicians of Malaysia. 2011;6(2-3):72-73.
Eashwary M, Hussein H. P164 Clinical Characteristics at two tertiary referral centers in Malaysia Abstract from METABOLIC AND CRYSTAL ARTHROPATHIES. APLAR Journal of Rheumatology. 2006;9(s1):A83-A90.
Teh CL, et al . A profile of gout patients in Sarawak. Rheumatol Int. 2013;33(4):1079-1082.



Figure 1: X-Ray of the Left Foot : The radiograph shows expansile lytic bony changes involving the distal first metatarsal and proximal interphalanx (blue arrow). There is also associated soft tissue swelling at this region. The bony erosion demonstrate overhanging edge. The proximal metatarsophalangeal joint is intact. No periarticular osteoporosis changes noted. The tarso-metatarsal joint also noted to have juxta-articular lytic changes with overhanging margin, especially the second, third and fourth (black arrow). There are also associated multiple periarticular cystic bony lesion. Relative preservation of the tarso-metatarsal joint spaces.



Figure 2: 3D Model reconstruction from the Computed Tomography of the Right Foot showing a Large cloud like, lobulated hyperdense calcific foci (tophi) at 1st metatarsophalangeal joint, causing disruption of the joint, destruction of metatarsal head and body, and body and base of proximal phalanx

Figure 3 : Uric Acid Levels Over Time

