



When Gout Goes Untreated: A Case of Extensive Tophaceous Disease

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Abstract

Background: Tophaceous gout represents the advanced stage of chronic gouty arthritis and results from prolonged hyperuricemia leading to deposition of monosodium urate crystals in joints and soft tissues. Although gout commonly affects the lower limb joints, involvement of the hand with large tophaceous masses is relatively uncommon and may mimic soft tissue tumors or inflammatory arthritis. We report a case of giant tophaceous gout involving the dorsum of the hand in a middle-aged male, highlighting its clinical presentation, diagnostic challenges, and management.

Case Presentation: A 40-year-old male presented to the outpatient department with a gradually progressive, painless swelling over the dorsum of the right hand for the past 6 years. The swelling was initially small but progressively increased in size, leading to cosmetic deformity and difficulty in hand movements.

The patient had a history of recurrent episodes of acute pain and swelling of the first metatarsophalangeal joint over the past 10 years, which were self-managed with intermittent analgesics. There was no history of trauma, fever, weight loss, or similar swellings elsewhere. The patient was not on regular urate-lowering therapy.

Keywords: Tophaceous gout, chronic gout, hand swelling, tophus, hyperuricemia.



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INTRODUCTION

Gout is a metabolic disorder characterized by hyperuricemia and deposition of monosodium urate crystals in joints and periarticular tissues. Chronic untreated or inadequately treated gout can progress to tophaceous gout, typically after several years of recurrent acute attacks. Tophi commonly involve the helix of the ear, olecranon bursa, Achilles tendon, and first metatarsophalangeal joint. Involvement of the hand, especially presenting as a large mass, is rare and may pose diagnostic dilemmas. Manifestations commonly appear as firm, pink nodules or fusiform swellings^(1, 2). We present a case of multiarticular chronic tophaceous gout in 40-year-old adult male. This case highlights a classic but neglected presentation of tophaceous gout of the hand.

CASE PRESENTATION

A 40-year-old male presented to the outpatient department with chief complaints of multiple joint swelling on bilateral hands and feet. The swelling appeared 10 years back, and gradually increased over the years. The patient had frequent pain from the swelling in the past. The swelling was initially small but progressively increased in size, leading to cosmetic deformity and difficulty in hand movements.

The patient had a history of recurrent episodes of acute pain and swelling of the first metatarsophalangeal joint over the past 10 years, which were self-managed with intermittent analgesics. There was no history of trauma, fever, weight loss, or similar swellings elsewhere. He has no family history of such swellings. The patient was not on regular urate-lowering therapy.

Clinical Examination

On examination, a large, firm, lobulated swelling measuring approximately 6 × 5 cm was noted over the dorsum of the left hand, centered around the metacarpophalangeal joints with small nodular swellings over proximal interphalangeal joints of index and ring fingers (Figure 1). The overlying skin was stretched but intact, with no

signs of inflammation or ulceration. The swelling was non-tender and had restricted mobility over underlying structures. Finger movements were mildly restricted due to the mass effect. Multiple nodular swelling over dorsal aspect of right foot (Figure 2) and left foot (Figure3). No regional lymphadenopathy was noted. Examination of other joints revealed no active synovitis.

Figure 1: A) Dorsum of left hand showing Nodular swelling over 3rd Metacarpophalangeal Joint. B) From Ulnar side. C) From Radial side

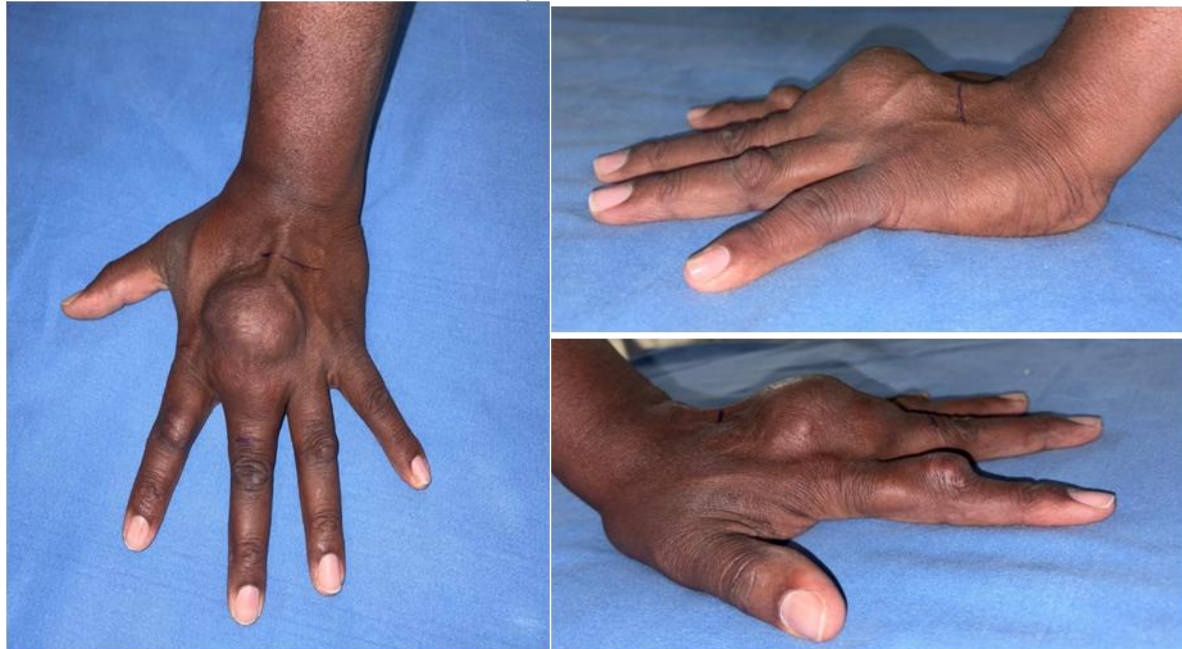


Figure 2 : A) Dorsal aspect of Right Foot. B) From Lateral side. C) From Medial side.



Figure 3 : A) Dorsal aspect of Left Foot. B) From Lateral side. C) From Medial side.



Investigations

- Serum uric acid: 9.8 mg/dL (elevated)
- ESR and CRP: Mildly elevated
- Renal function tests: Within normal limits

Plain radiograph of the Left Hand Anteroposterior, lateral and oblique view showed soft tissue swelling with moth-eaten joint spaces and bony erosions (Figure:4). Plain radiograph of Right Foot and Left Foot Anteroposterior, lateral and oblique views showed Soft tissue swelling over 1st Metatarsophalangeal joint (Figure: 5) Ultrasound examination revealed heterogeneous hyperechoic deposits suggestive of tophaceous material. Fine-needle aspiration from the swelling demonstrated needle-shaped monosodium urate crystals with negative birefringence under polarized light microscopy, confirming the diagnosis of tophaceous gout.

Figure 4 : X-Ray Left Hand Oblique, Lateral and Anteroposterior view



Figure 5 : A) X-Ray Right Foot Anteroposterior and Oblique view, B) X-Ray Right Foot Anteroposterior and Oblique view



Figure 6: A) X-Ray Right and Left Foot Anteroposterior and Lateral view, B) X-Ray Right Ankle Anteroposterior and Lateral view



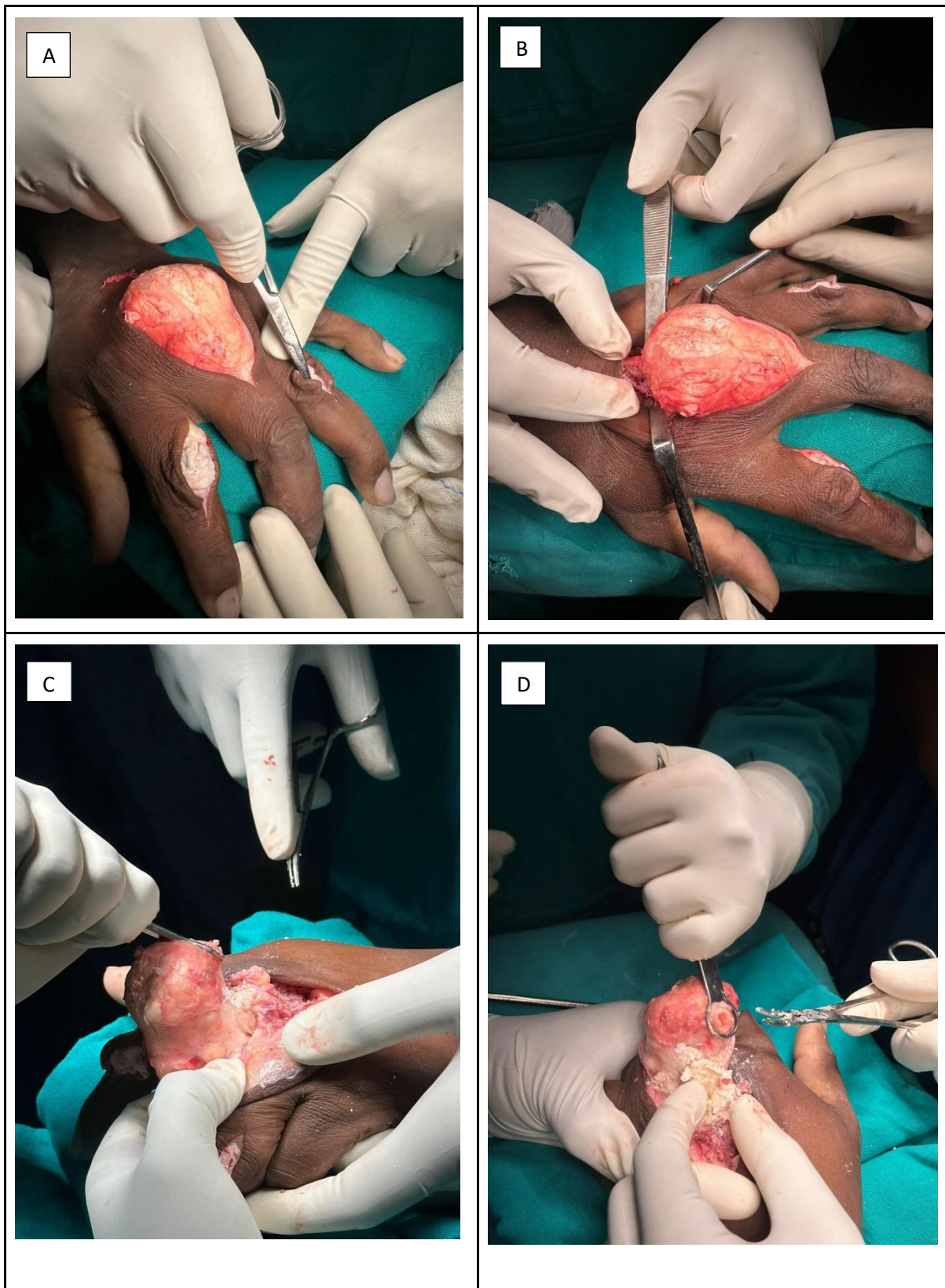
Diagnosis

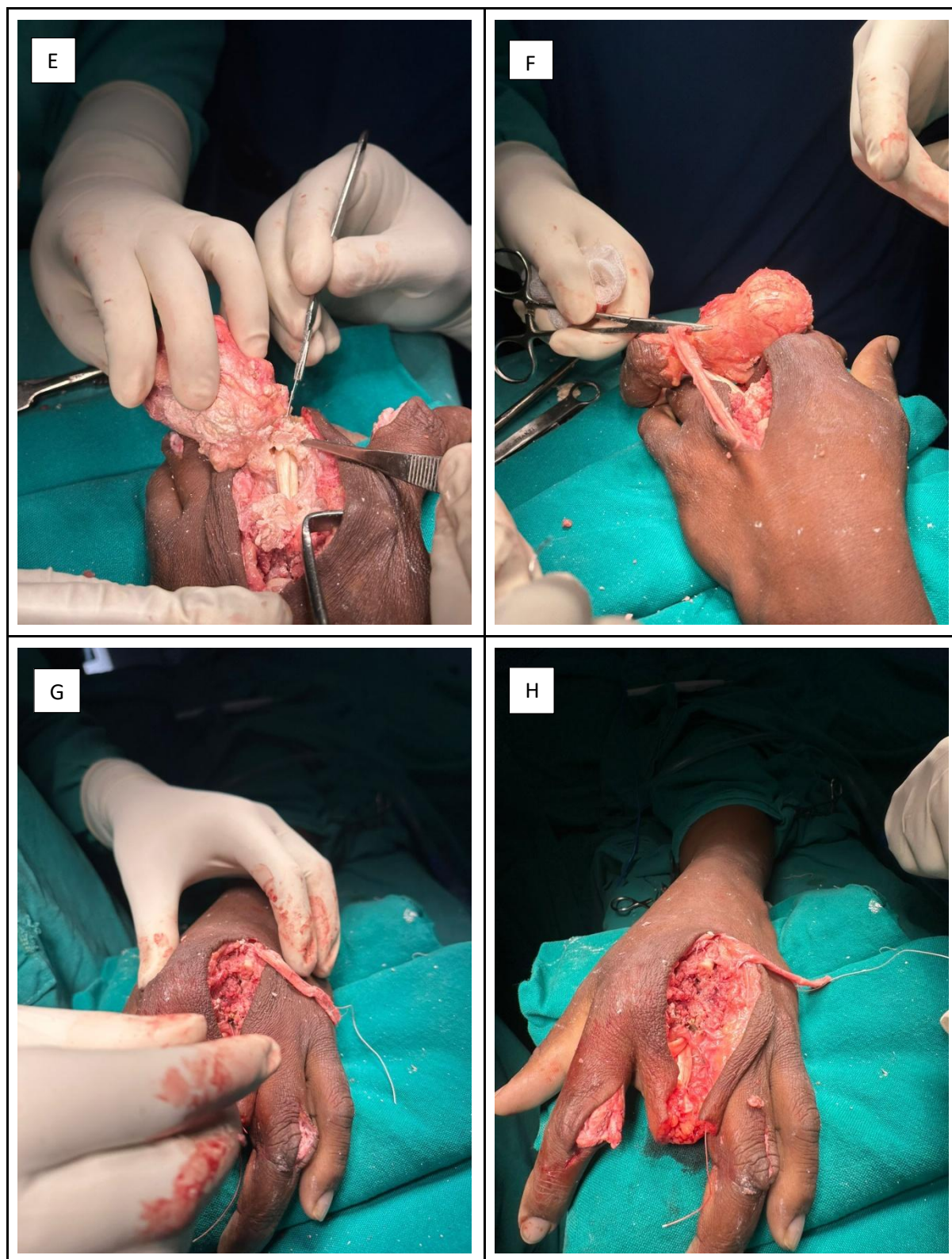
Based on clinical history, laboratory findings, and crystal analysis, a diagnosis of chronic tophaceous gout of the hand was made.

Management

The patient was started on urate-lowering therapy (allopurinol) along with dietary modifications and anti-inflammatory medications. Surgical excision was advised due to the large size of the tophus and functional limitation, but the patient opted for conservative management initially and later surgical excision of tophi over dorsal aspect of Left Hand done (Figure 6).

Figure 7 : Excision of Tophaceous swelling over Dorsum of Left Hand Sequential release of swelling from underlying tendon sheath and enmass excision with Disarticulation of 3rd Metacarpophalangeal joint and wound closure done.







DISCUSSION

Gout is a prevalent condition resulting from abnormal metabolism of uric acid. The crystallization of uric acid leads to its deposition in the joints, causing recurrent arthritis. Individuals who are older, male, postmenopausal women, and those of black race are at an increased risk of developing gout⁽³⁾. Hyperuricemia and gout can be linked to medications that elevate uric acid levels (such as diuretics, cyclosporine, and low doses of aspirin), genetic variations in genes that regulate renal urate transport, and certain dietary factors, including the intake of red meat, seafood, and alcohol⁽⁴⁾. Typically, gout begins by affecting the first metatarsophalangeal joint of the foot, although it can also involve other joints less frequently. In patients who are untreated or traditionally treated, tophaceous gout may arise, characterized by chronic destructive polyarticular involvement and the presence of tophi⁽⁵⁾. Chronic tophaceous gout often develops after a decade or more of recurrent polyarticular gout. Tophi can manifest in soft tissues and various organs, regardless of the presence of gouty arthritis. The incidence of gout is significantly higher in men compared to women and increases with age, attributed to the uricosuric effects of estrogen. In this case, there is a documented history of extensive tophi in the hands and feet occurring within ten years of the onset of arthritis. Kim et al. documented disseminated miliarial gout in a 34-year-old male, which developed four years after the onset of gouty arthritis⁽⁶⁾. Jung et al. reported a case of disseminated gout presenting as nodules that emerged after ten years of gouty arthritis⁽⁷⁾. Gout can involve large joints, which may be mistaken for rheumatoid arthritis and calcinosis cutis. However, it can be distinguished through neurological, biochemical, and radiological assessments. Tophaceous gout is a manifestation of long-standing hyperuricemia and usually develops after a decade of untreated disease. Hand involvement is uncommon and may be misdiagnosed as rheumatoid arthritis, ganglion cyst, soft tissue tumor, or chronic infection.

Management of Gout should encompass both dietary changes and pharmacological interventions. Non-pharmacological strategies involve limiting purine intake, decreasing alcohol consumption, and achieving weight loss. An acute episode is managed with NSAIDs, colchicine, or corticosteroids. The goal of treatment for chronic tophaceous gout is to normalize hyperuricemia. Medications such as probenecid, which promotes uric acid excretion, or allopurinol, are utilized. Febuxostat is utilized to inhibit the production of uric acid. Surgical intervention for the removal of tophi is considered only in instances of severe pain, joint deformities, or the physical presence of tophi⁽⁸⁾.

Delayed diagnosis and lack of urate-lowering therapy are the primary reasons for progression to tophaceous disease. Early recognition and aggressive medical management can prevent irreversible joint damage and deformities. Surgical excision is indicated in cases of functional impairment, skin breakdown, nerve compression,

or infection. This case emphasizes the importance of early diagnosis and regular treatment of gout to prevent advanced complications.

CONCLUSION

Tophaceous gout of the hand, though rare, should be considered in patients with chronic painless hand swellings and a history of hyperuricemia. Early diagnosis and appropriate management are crucial to prevent functional disability and deformity.

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