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Chronic Tophaceous Gout with Ulcerated Podagra- A Case Report

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ABSTRACT:
Gout is a form of inflammatory arthritis characterized by recurrent attacks of red, tender, swollen joints and deposition of monosodium urate crystals in joints, soft tissues and kidney. Gout occurs due to disturbance in uric acid metabolism resulting in hyper-uricemia. It has predilection for first meta-tarso-phalangeal joint. This joint is the commonest site for the acute gout known as Podagra. Untreated disease progresses into destruction of joints with the formation of palpable masses with uric acid crystals termed as tophi. The differential diagnoses of tophi are Heberden's node, Bouchard's nodes of osteoporosis and rheumatoid nodules. Clinical picture includes intense pain, redness, stiffness, swelling and tenderness.
The gold standard for the diagnosis is identification of monosodium urate crystals in synovial fluid using polarized light microscopy. Other diagnostic modalities include radiography, ultra-sonography, computed tomography and magnetic resonance imaging. Treatment modalities include patient education, diet,lifestyle changes, hypo-uricemic agents.

Key words: Monosodium urate crystals, Hyperuricemia, Tophi, Podagra, Hypouricemic agents.

I. PRESENTATION OF CASE:

A 70 year old male presented with longstanding history of pain and swelling in bilateral small and large joints of upper and lower extremities. Patient also had nodular swelling and non healing ulcers over both hands and right great toe. There were visible deformities present over both hands and right foot. (Figure: 1, 2, 3)Radiographic evaluation of feet revealed extensive bilateral juxta-articular erosion of the metatarsophalangeal and interphalengeal joints (Figure: 4). Radiographical examination of bilateral hands showed bilateral, generalised osteopenia, narrowing of joint spaces, peri-articular erosion and lytic lesions involving the metatarso-phalangeal and inter-phalangeal joints which was suggestive of Gouty arthritis (Figure: 5). Tissue examination was advised. Needle aspiration was performed and whitish, granular material was aspirated. Patient had no history of diabetes mellitus and hypertension.

On complete blood count, the hemoglobin content was 8.4 gm/dl, total leukocyte count (TLC) was 26, 600 cells per cu. mm (neutrophilic leucocytosis) and the platelet count was 2, 20, 000 per cubic mm. On biochemical analysis, Serum Uric acid 18.5 gm/dl and Serum creatinine was 3.3 mg/dl respectively. On wet mount, Synovial fluid aspirate revealed needle shaped crystals. Cytological examination revealed presence of monosodium urate crystals (Figure: 6). This finding was later confirmed when the histological examination of the wedge biopsy taken from the non healing ulcer present over the medial aspect of the great toe of left foot showed foci of needle shaped crystals, intense chronic inflammatory infiltrate and foci of fibrosis beneath the squamous epithelial lining. Histo-pathological features were suggestive of Tophaceous gout (Figure: 7).
Patient was treated with Colchicine 0.5 mg OD, Allopurinol 100mg BD along with antibiotic based on the culture report of the swab from the wound.

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Figure 1: Nodular swelling present over right distal interphalengeal joint

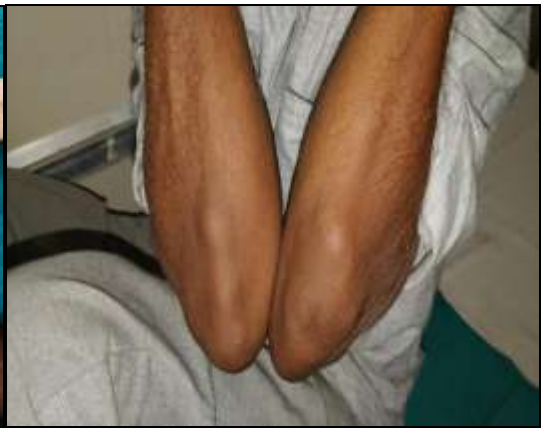

Figure 2: Multiple tophi over both elbows

Figure 3: Nodular swelling present over dorsum of great toe of left foot with ulceration

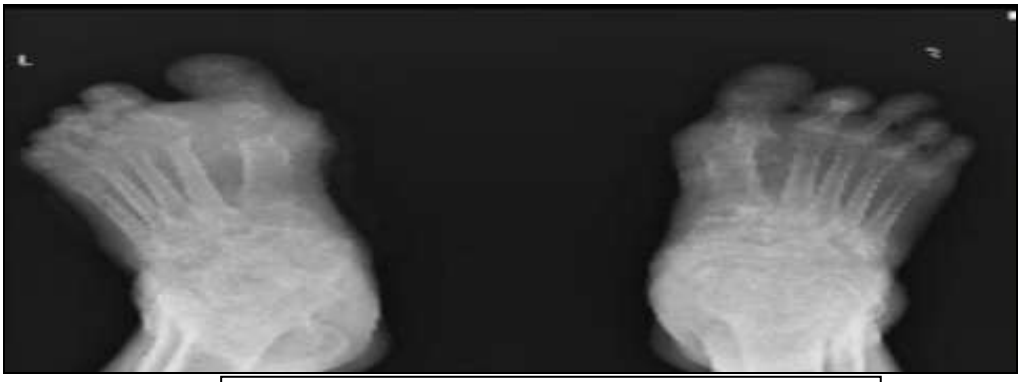

Figure 4: Radio-graphical examination of bilateral feet showed extensive juxta-articular erosion with dense soft tissue swelling over the first, second and fourth metatarsophalangeal (left) and the first and second metatarsophalangeal joints on the right side.

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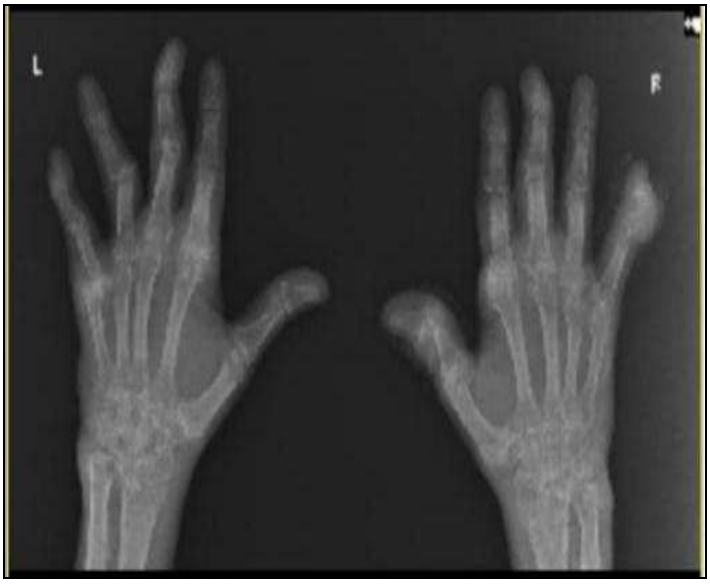

Figure 5: There is evidence of narrowing of joint space with periarticular erosion and lytic lesions seen at 1st and 2nd MTP joints on right side and 2nd, 3rd and 5th MTP joints on left side.

The diagnosis of gout is confirmed by demonstration of monosodium urate crystals from the synovial aspirate. Uric acid levels, creatinine levels and Plain radiographs are helpful in diagnosing Gout from other disorder like Rheumatoid Arthritis. Conventional radiography is helpful in diagnosis and followup.

Figure 6: Wet mount examination of synovial fluid aspirate showing needle shaped crystals.

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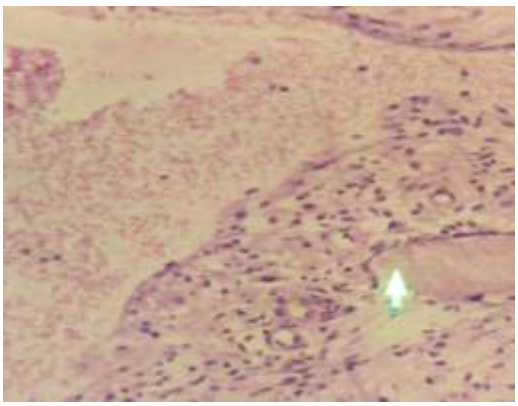

Figure 7: Given photomicrograph on 10x magnification showing foci of needle shaped crystals, intense chronic inflammatory infiltrate and foci of fibrosis beneath the squamous epithelial lining. (White arrow head)

II. DISCUSSION:

Gout is a metabolic disease that can manifest as both acute and chronic arthritis. There is deposition of monosodium urate crystals in the joint spaces and kidney leading to hyperuricemia. Uric acid levels can be normal or low during acute attack of gout. Presence of attacks of arthritis is attributed to excessive secretion of cytokines and chemokines. The inflammatory process is further exacerbated when these uric acid crystals are further phagocytosed by macrophages in the joint fluid. Secretion of prostaglandin F2 alpha, chemokines and cytokines causes exaggerated pain and the inflammatory process. Low uric acid levels can be due to excessive excretion of uric acid or due to formation of crystals. The above points indicate that acute flaring of gout should be considered while dealing with cases of mono-articular arthritis in hospitalized patients. [(1)] The potential triggering factors for gout include renal insufficiency, hypertension, diuretic therapy for a prolonged duration, long disease duration, corticosteroid intake and inconsistent uric acid lowering therapy. Besides these, prednisolone intake for longer duration is also a contributory risk factor for gout.

One should bear in mind, the differential diagnosis of rheumatoid arthritis and tophi with co-existent calcinosis cutis while dealing with a case of gouty arthritis involving major joints. Each of these differential diagnoses can be rules out by serological, biochemical and radiological evaluation. [(2)(3)]The diagnosis of this entity is based on the demonstration of monosodium urate crystals on either cytological or histo-pathological examination. Monosodium urate crystals can also be demonstrated by polarized microscopy.[(3)]

The control of elevated levels of uric acid is the most vital factor while dealing with a case of gout. Besides this, behavioral modification and medication is also essential to prevent further progression to tophi. Ulcerative lesions occurring because of tophaceous gout pose a challenge to treatment and can be very debilitating. Treatment of this condition involves Colchicine, Allopurinol, intensive wound care and close monitoring for signs of infection. [(4)(5)]

III. CONCLUSION:

Exacerbation of gout can occur due to excessive secretion of cytokines and chemokines. Triggering factors include renal insufficiency, hypertension, prolonged intake of diuretics, prednisolone and corticosteroids. Differential diagnosis of gouty tophi include, rheumatoid nodules, tophi with calcinosis cutis, Heberden's node and Bouchard node of osteoporosis. Gold standard methods of diagnosis include demonstration of monosodium urate crystals on polarized microscopy, histopathological examination and cytological evaluation.

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