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Case Report

Multiple Tumor Like Lytic Bone Lesions in a Young Patient with History of Uncontrolled Gout, A Case Report

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Abstract

Gout is a disease of disorder of uric acid metabolism and can cause inflammatory joints, with episodic symptoms of joint swelling and inflammation and pain, in some cases soft tissue deposition of the product of bad uric acid metabolism can cause chalky white material called tophi, in bones deposition of monosodium urates can cause large lytic lesions and can be mistaken by giant cell tumor or enchondromas specially in patients with phalangeal or metacarpal involvements, here we present a young patient with history of chronic uncontrolled gout with multiple large bone lytic lesions which could not be distinguished by tumor bone lesions on X-rays and MRI, He undergone open biopsy and curettage, right after the surgery he was pain free and the result of pathology was conclusive for gout. He experienced a disease flare up since he did not use his doctor prescriptions for gout control.

Gout bone lesions on special sites can be mistaken by tumors and with the acceptance of some surgical complications and making sure the disease is under control, under an experienced surgeon hand, and open biopsy to rule out dangerous causes can be performed.

Keywords: *Multiple Tumor; Lytic Bone Lesions; Gout*

Introduction

Gout is the most common inflammatory arthropathy and disorder of uric acid metabolism. Increased uric acid levels more than saturation point and impaired renal uric acid excretion can create urate crystal deposition. It is characterized by recurrent episodes of inflammatory arthritis, tophaceous deposits of monosodium urate crystals, high serum uric acid with or without renal calculi and nephropathy [1]. Gout affects about 1 to 2% of the Western population at some point in their lives with increased incidence in recent decades. It might be due to increasing risk factors in the population, such as metabolic syndrome, longer life expectancy and changes in diet [2]. Gout is a disorder of purine metabolism and hyperuricemia causing urate crystal deposition in and around the joints [3]. Symptoms of gout are episodic attacks of acute arthritis causing pain, erythematous and swelling in joints usually begins with first metatarsal phalangeal joint. Tophi usually found on the helix of the ears, on fingers, toes, wrists and knees, on the olecranon bursa, on the Achilles tendons. They can cause pain, dysfunction and ulceration. Lytic bone lesions can occur in some patients with tophaceous gout and can cause pain are prone to cause pathologic fracture [5]. Here by we present a young patient with chronic tohpaceous gout with multiple large lytic lesions.

Case Report

In this case report, we tend to report a 22 years old male presented to our clinic with pain and swelling of multiple joints since 10 years. Patient was diagnosed as a case of poor controlled chronic gout and was on conservative management till date which did not improve the arthropathy. At our clinic we examined the patient and obtained series of radiographs. Examinations revealed multiple nodules on both elbow, all proximal interphalangeal (PIPs) and distal interphalangeal (DIPs) joints of both hands, first metatarsal phalangeal (MTP) joint of left foot, and first PIP joint of the right foot. Laboratory investigations revealed Urea of 66 mg/dL, Creatinine 1.94 mg/dL and Uric Acid 8.4 mg/dL, mildly raised ESR, mild anemia, leukocytosis, and low creatinine clearance at 54 ml/min/body surface area. His urine analysis, blood sugar and hepatic profile were normal. X-rays obtained showed soft tissue swelling, joint surface erosion with destruction and well defined nodules of multiple joints and marked erosive destructive changes of the left first metatarsophalangeal joint, first metatarsal bone, 5th proximal interphalangeal joint, and proximal phalangeal bone of the left hand, CT scan and MRI were obtained and were inconclusive for absolute diagnosis of whether these are gout induced bony lesions or enchondroma or giant cell tumor.

As our patient had multi-articular involvement which showed a wide-spread bone and articular involvement in the radiographs, and as the bone involvement in not common in gout, we looked out at other differential diagnosis, such as chondrosarcomas. We planned a surgery to rule out the more important differential diagnosis. We surgically removed the nodules and sent biopsies to rule out multiple enchondroma and giant cell tumor. Surgery was done and tophi from DIP of right little finger, and PIP of left little finger was removed. White chalky material was found to be in the tophi which was completely removed. Histopathology results were conclusive for deposition of monosodium urate crystals and tophi. Immediately post-operative, the patient had pain relief from the joints where tophi was removed. Our patient also showed mild skin necrosis and signs of delayed wound healing initially, and after a course of conservative therapy, wound healing was improved. Two weeks after the surgery, the patient returned with reoccurrence of nodules at surgical sites with symptoms similar to pre-operative condition and with spread of tophi to the tip of the right little finger. Even short after the surgery, the patient was on poor control of gout and was referred to a rheumatologist for an intense medical follow-up.

Figure 1: *Photographic series of the patient.*

Figure 2: *Radiographs of patient.*

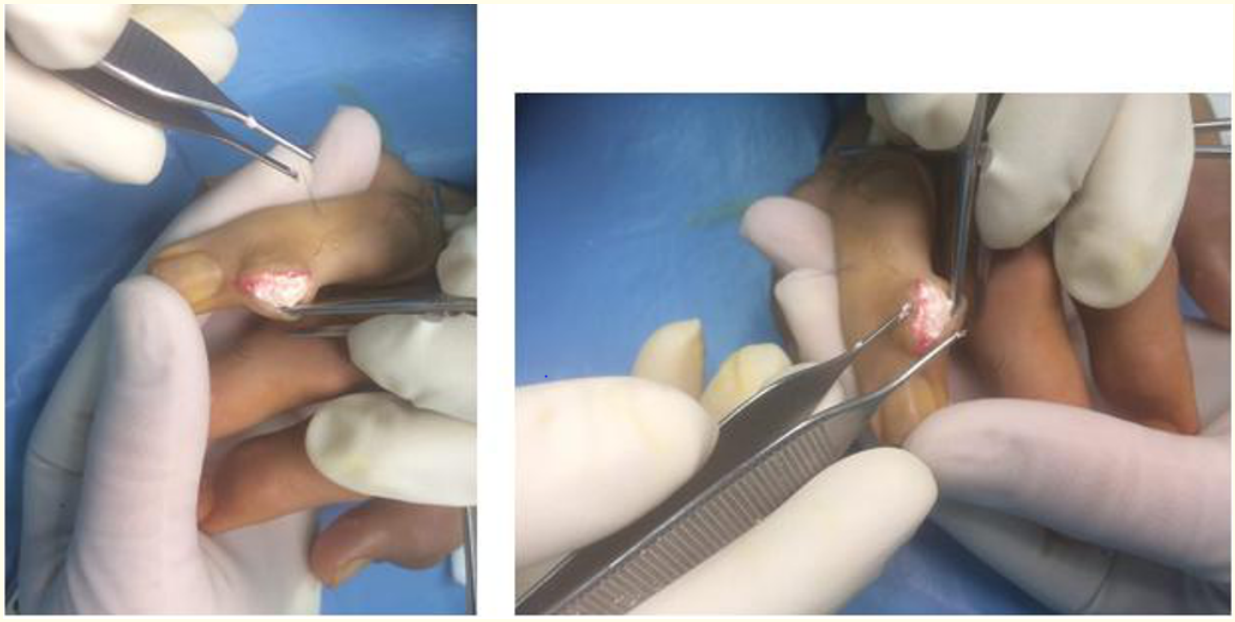

Figure 3: *Intraoperative picture showing white chalky material.*

Discussion

Gout is the most common inflammatory arthropathy and disorder of uric acid metabolism. Increased uric acid levels more than saturation point and impaired renal uric acid excretion could create urate crystal deposition [1]. Gout despite being one of best manageable diseases of rheumatology is frequently neglected and poorly controlled leading to complications [4]. High protein diet, alcohol consumption, obesity are one of the common risk factors for causing high serum uric acid leading to acute attacks of inflammatory arthritis or chronic gouty arthropathy [6]. At high serum levels, uric acid crystallizes and the crystals deposit in joints, tendons, and surrounding tissues, resulting in an attack of gout [7]. When left untreated acute attacks of gout can lead to chronic gout, which is characterized by chronic destructive polyarticular involvement with low-grade joint inflammation, joint deformity, and tophi-monosodium urate crystals surrounded by chronic mononuclear and giant-cell reactions [8]. Tophaceous gout develops within 5 years of onset of gout in 30% of untreated patients [9]. Sometimes the skin overlying the tophus ulcerates and extrudes white, chalky material composed of monosodium urate crystals [8]. Differential diagnosis for gout and articular involvement are septic arthritis, synovial cysts, nodal osteoarthritis, rheumatoid arthritis, sarcoidosis, lymphoma or neoplasms like chondrosarcoma [10] in acute gouty attacks treatment is medically and lifestyle modifications like NSAIDS, allopurinol, steroid, ACTH. Sometimes many acute attacks resolve spontaneously without treatment [11]. surgical treatment is rare. The main indication for surgery is sepsis or infection of ulcerated tophi. Other indications are recurrent attacks with deformities, severe pain and joint destruction [1].

E Falidas reported a case of a 75-year old man with history of tophaceous gout and several recurrent episodes of arthritis during the past five years presented with a large, painful, ulcerated tophus located on the first metatarsophalangeal joint of his left foot. Patient had multiple other tophi overlying the first and second metacarpophalangeal joints of his left hand and the interphalangeal joints of his right hand, wrists, elbows, ankles, interphalangeal and metatarsophalangeal joints of the feet and heels. Before resorting to amputation, a surgical debridement with lavage of the joint was performed, which was helpful as the ulcers healed completely. Their report suggested surgical intervention should be considered in selected unresponsive chronic cases of tophaceous gout [1].

Large lytic bone lesions and even pathologic fractures can happen in patients with tophaceous gout, over activity of osteoclasts and reduced osteoblast activity can contribute to stablish a tumor like bone lesion [1] which sometimes can be confused with giant cell tumor or enchondroma, in our case an open biopsy was performed to rule out above differential diagnoses.

Lee., *et al.* reported two cases of tophaceous gout that were surgically treated, they emphasized use completely surgical debridement with hydrosurgery lavage system and application of Vacuum-assisted closure. Both of their patients had good outcome without complications [12].

Surgery for tophaceous gout is associated with high risk of complication such as delayed wound healing and skin necrosis [13]. Surgery for tophaceous gout should be done after careful evaluation and considered only if cosmetic deformity, functional impairment is present with draining sinus [14].

Kumar and Gow conducted a retrospective study on indications, result and complications of tophaceous gout surgery on 45 patients. Sepsis control was main indicator for surgery (51%), followed by mechanic problem and pain control respectively. 53% of the patients experienced delayed wound healing as a result of complications of surgery. Three patients required digital amputations for ongoing sepsis. Rest of the patients had good outcome. They concluded that surgery for tophaceous gout is associated with relatively high rate of complications [15].

Lee., *et al.* reported a case series of seventeen patients on surgical procedure of tophaceous gout. They used soft tissue shaver similar to that used in arthroscopy procedure for debridement and reported excellent outcome in all patients without complications [16].

Literature suggest that surgery for tophaceous gout is associated with high post-operative complications including delayed wound healing and overlying skin necrosis, and as mentioned before, our patient also initially showed some necrosis of the overlying skin on the joints, and signs of delayed wound healing was apparent. A course of conservative therapy was needed to improve the wound.

Conclusion

Uncontrolled gout could cause wide spread destructive lesions in the bone. Surgical debridement of tophaceous gout should be extensive using hydrosurgery or similar lavage system to decrease any chance of recurrence or at least postpone the recurrence. In cases with multiple lytic lesion with a high suspicion of enchondroma or GCT that radiologic evaluations do not help the surgeons, with acceptance of some levels of post-operative complications or disease flare up an open biopsy can be performed.

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