

# Tophi which develop years before the first attack of acute gouty arthritis

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Gout is a clinical disease associated with hyperuricemia and caused by the deposition of monosodium urate crystals in and around the tissue of joints. The course of classic gout passes through three distinct stages: asymptomatic hyperuricemia, acute intermittent gout, and advanced gout/chronic tophaceous gout.<sup>1,2</sup> Tophi; described as accumulation of articular, osseous, soft tissue, and cartilaginous crystalline deposits; is one of clinical manifestation of chronic tophaceous gout stage, and usually developed after 10 or more years of acute intermittent gout.<sup>1,2</sup> Although patients have been reported with tophi as their initial clinical manifestation.<sup>3,4</sup>

## CASE REPORT

A 45 year old man, with a 10 year history of multiple nodule in his ankle, knees, and fifth finger of his right hand. The first nodule was found as large as corn seed in his right ankle. In two years, the other nodules were found in the other part of his body and they grew larger, but with no pain, no swelling, and also no treatment/intervention. Eight years before admission, he suffered an acute attack of gouty arthritis in his right knee with a high serum uric acid level (18 mg/dL). The attack could be relieved in one week with non-steroid anti inflammation drug only. At that time, his doctor didn't perform a joint fluid aspiration for diagnosis. Over the years, he never came to the doctor due to no more severe pain (no more acute attack of gouty arthritis) and no more inflammation in his joints. He also never got any treatment of hyperuricemia. However, he still often suffered mild pain in his joints with nodules, and he just consumed traditional medicine or analgesics (self medication) to relieve the pain.

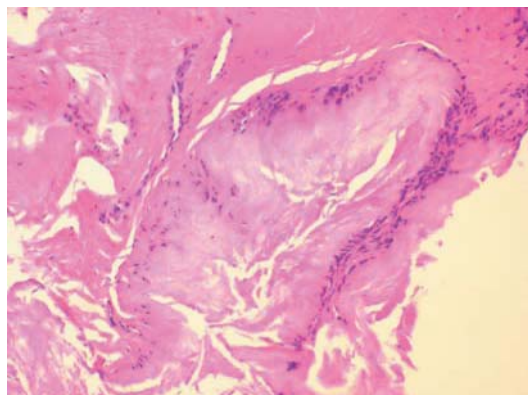
Two weeks before admission, he came to the surgery department of Cipto Mangunkusumo Hospital due to his multiple nodules. The doctor then performed an X-ray of his right ankle and also nodule biopsy in that part of body. The ankle X-ray revealed soft tissue mass without calcification, and also slightly destruction of the bone. The histopathology appearance of nodule biopsy briefly revealed tophus, due to hyperuricemia, and confirm the diagnosis of gouty arthritis in chronic-tophaceous-gout stage.



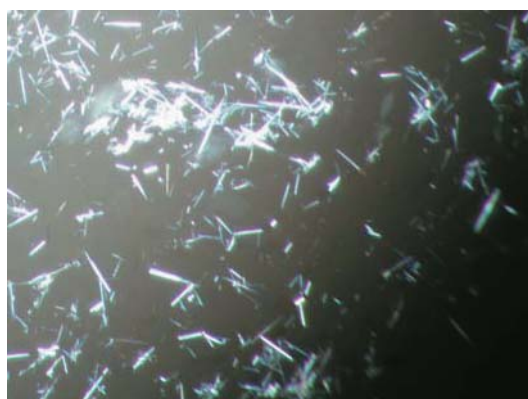
**Figure 1** Location of tophi in his right ankle (above), and in the other part of his body (below)



**Figure 2** X-Ray appearance of right-first-metatarsophalangeal revealed slightly destruction of the bone



**Figure 3** The histopathology appearance of nodule (in his right ankle) biopsy, with HE staining, revealed fibrotic connective tissue and amorphous mass, with surrounding chronic inflammation cell and debris cell.



**Figure 4** Needle-appearance of monosodium urate crystal on polarized microscopy

The treatment was urate-lowering agent (allopurinol) and also colchicine to prevent acute attack during initiation of urate-lowering agent treatment, if the sign of any inflammation relieved. Purine-free diet was also very important to lower the serum urate value.

## DISCUSSION

In many reports, only a minority of individuals with sustained hyperuricemia develop tophi or other gout manifestation. Furthermore, gout has been observed in a few individuals who have not shown previous evidence of hyperuricemia.<sup>1</sup> In the complete of its natural history, tophi usually develop in chronic-tophaceous-gout stage about 10 years or more after the first attack, without adequate treatment to control urate level.<sup>1,2</sup> However, tophi can also develop without preceding acute gouty arthritis in very rare cases as we describe in this paper.<sup>3,4</sup>

In this case, tophi has developed in many part of the patient's body before he suffered an acute attack of gouty arthritis two years later. And they became chronic-tophaceous-gout stage with insidious mild pain of his joints. The first acute attack, about eight years before admission, was precipitated by unknown factor, maybe some trauma. The second acute attack, two weeks before admission, was precipitated by tophus biopsy intervention in his right ankle. Another problem is that about 53% of patients experienced delayed wound healing as a result of complications of surgery. That way, surgical removal of tophi is seldom indicated.<sup>5,6</sup> Besides, prolonged treatment with sufficient doses of urate-lowering agent often leads to resolution of even large, draining tophi. The degree of resolution and its pace are determined by the characteristic of the tophus. Soft tophi, in which urate crystals can be aspirated easily, may resolve quickly. Other tophi may hard and resistant to dissolution, presumably because they have been present for a longer time and they include fibrous tissue.<sup>6</sup>

## CONCLUSION

Tophi as one of clinical manifestation of chronic tophaceous gout stage usually found after 10 or more years of acute intermittent gout. However in this case (as rare condition), the development of tophi was in the absence of prior episodes of acute gouty arthritis.

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