

PSEUDOTUMORAL TOPHACEOUS INVOLVEMENT OF THE ACHILLES PARATENON

T. Ryckaert, I. Crevits, S. Brijs, G. Debakker, F. Rosseel, A. Tieleman, R. De Man¹

Gout is the most common form of microcrystalline arthropathy which usually does not pose a diagnostic challenge when patients have typical presentation, appropriate biochemical picture and classical radiographic appearance. However, formation of gouty tophi in unusual locations and with atypical presentations may mislead clinicians and radiologists, thereby justifying gout nickname as the "great mimicker". When interpreting images of tendon related masses, radiologists should be aware of gouty tophi as a possible differential given its variable and nonspecific imaging appearance.

In this article, we present a case of a patient with a painless tophaceous gout nodule, adjacent to the Achilles tendon.

Key-word: Gout.

Case report

A 43-year-old textile worker consulted our hospital with a several-year history of a painless, slow-growing ankle mass. He had noticed the mass for the first time approxi-

mately 5 years previously as a small lump, painlessly increasing in size over time.

The medical history of the patient revealed that he had visited an orthopaedic surgeon 12 months earlier for anterior knee pain which was conservatively treated. Physical examination noted a normal gait. Inspection and palpation showed an obvious, firm and mobile mass situated in the posterior-medial aspect of the ankle and adjacent to the Achilles tendon. It was tender, measuring approximately 2,5 cm. His muscle bulk, strength, reflexes, and sensation were entirely normal. No obvious vascular findings were found. The patient had a normal neurologic status with no Tinel's sign of the sural nerve.

Conventional lateral radiograph of the left ankle showed a non-specific but well-defined soft-tissue mass in the posterior ankle region without obvious calcifications (Fig. 1A). The mass was located along the expected course of the Achilles tendon. Ultrasound examination clarified a well-defined lesion which was situated adjacent to the Achilles tendon and characteristics of intralesional reflections and retro-acoustic shadowing (Fig. 1B). The mass was non-compressible and no internal calcifications were seen.

On MR the mass had a heterogeneous low to intermediate signal intensity pattern on the T2 weighted images (Fig. 2A), the T1-weighted appearance was consistent, with a homogeneously low to

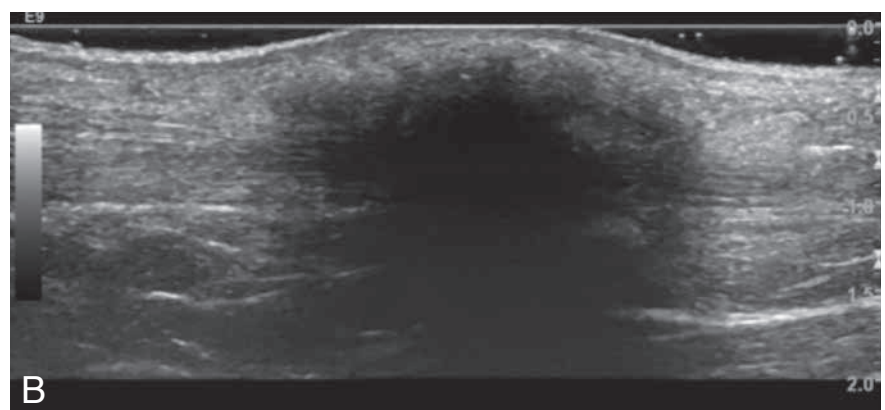


Fig. 1. — Soft-tissue mass in the posterior ankle region, along the expected course of the Achilles tendon (A) without obvious calcifications on the conventional lateral radiograph, although on a longitudinal ultrasound image along the Achilles tendon the mass shows a significant hypoechoic shadowing (B).

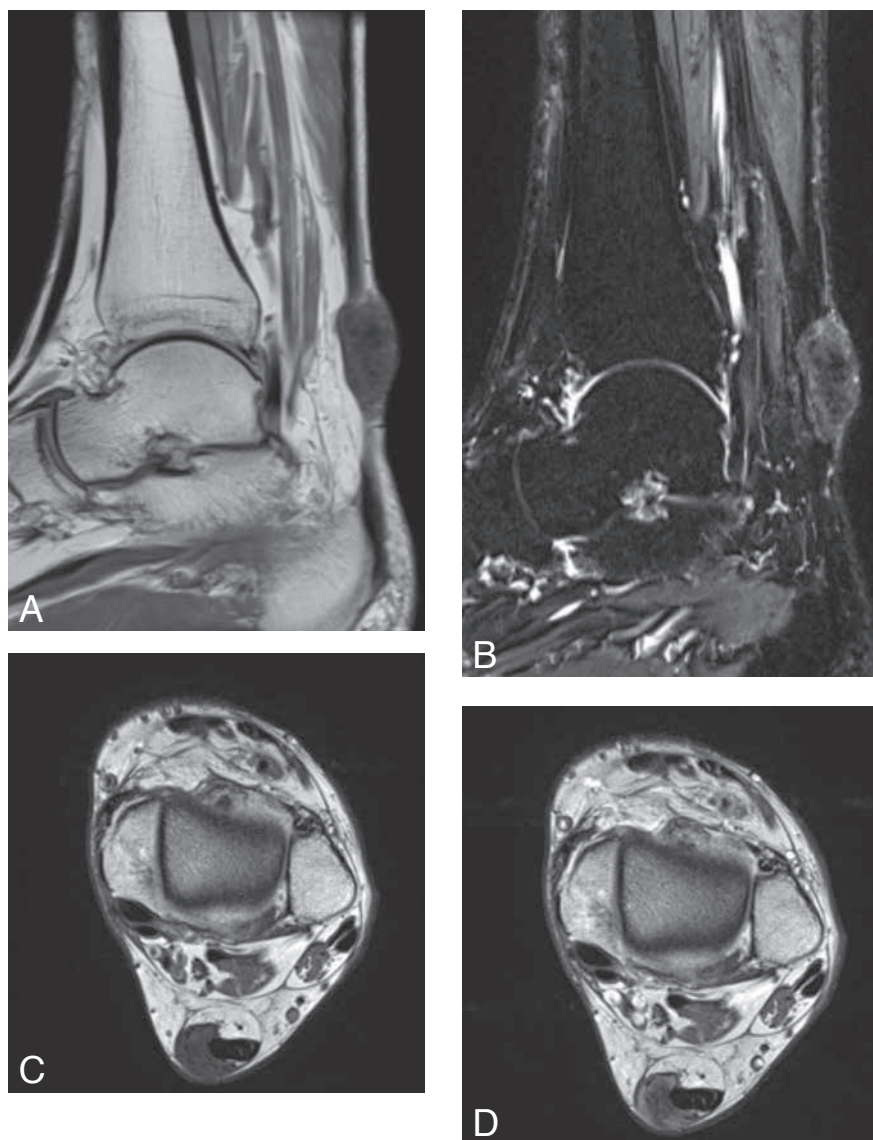


Fig. 2. — Sagittal PD (A) and sagittal fat-suppressed T2-weighted image (B) of the left ankle reveals a rounded soft tissue deposit adjacent to the Achilles tendon with heterogeneous low to intermediate signal. On the axial T1-weighted image (C) the mass is homogeneously low in signal with an peripheral enhancement after contrast administration (D).

intermediate signal intensity (Fig. 2B) and after administration of contrast the mass showed peripheral enhancement pattern (Fig. 2C).

Based on the clinical and radiological findings the decision was made to remove the lesion surgically and a local resection was performed. Histologically, the diagnosis of tophaceous gout was made.

Discussion

Gout is defined as a metabolic disease characterized by deposition of monosodium urate crystals. The biochemical hallmark of the disease is

hyperuricemia, which develops in response to an excessive rate of production of uric acid, a decrease in renal excretion of uric acid, or a combination of these two (1).

The disease is manifested by a combination of characteristics, these include: hyperuricemia, recurrent attacks of acute arthritis triggered by crystallization of urates within joints, intercritical periods of varying lengths, and development of chronic tophaceous gout.

This metabolic disorder can be classified as either primary gout or secondary gout. A primary gout condition is due to an overproduction of

uric acid as an inborn error of metabolism. Secondary gout is an acquired form of hyperuricemia, which is most commonly related to an underexcretion of uric acid. The presentation of gout is generally described in the joints of the extremities, but gout may also present in soft-tissue structures.

Tophaceous gout causes chronic inflammation in an area of soft tissue leading to fibrinoid necrosis of adjacent structures.

Tophaceous gout infiltration of tendon structures has rarely been reported in the literature, the majority involve the main body of the Achilles and quadriceps tendon itself. Despite the the insertional tendinopathy and enthesophyte formation, this case is particularly interesting because we have a pseudotumoral involvement of paratenon, without direct involvement of the tendon. Maybe the paratenon acts as a protective barrier against the crystal deposition besides. The slow rate of progression of the disease is another particularity of the case.

A tophus histologically consists of a central acellular core of crystalline or amorphous urates surrounded by a peripheral "fibrovascular zone" of macrophages, lymphocytes, and fibroblasts. Large foreign-body-type giant cells, which are often wrapped around masses of precipitated salts, are also very prominent (2).

Advanced imaging methods such as ultrasonography, CT, and MRI provide detailed images of the tophus. Ultrasonography studies have described two types of tophi on ultrasonographic examination: soft tophi, that are typically of varying echogenicity and soft also to palpation, long standing hard tophi that contain monosodium urate deposits generate a hyperechoic band with an acoustic shadow and are harder in consistency (3). Conventional CT can be used to detect and measure tophi in patients with gout. The tophus is typically visualized as a soft tissue mass, with a density of 170 HU (4). The MR imaging appearance of gouty tophi varies (5). Their appearances on T2-weighted sequences range from homogeneously low to homogeneously high signal, depending on the degree of hydration and calcification. The most common appearance on a T2 weighted sequence is a heterogeneous low to intermediate signal intensity pattern. T2-weighted hypointensity has been attributed to the presence of calcium, crystal and fibrous tissue, whereas tophi with high water content hyper-

intense. Its T1-weighted appearance is more consistent, with usually homogeneously low to intermediate signal intensity. Enhancement pattern is also variable, with homogeneous enhancement being the most common appearance, reflecting hypervascularity of the tophus. Peripheral enhancement has also been reported and was also seen in this case (Fig. 2D), this would be proportional to the vascularity predominantly in the outer "fibrovascular zone" seen on histology.

While gout is a common disease, this case was a diagnostic challenge, because there was no clear history of gouty attacks. Cases presenting with

tophi as the first manifestation of the disease could be a challenge for the clinician. Generally these cases differ from those with typical gout (older patients, frequently women, usually with predominant or exclusive finger involvement, most of them with renal insufficiency and with anti-inflammatory or diuretic therapy).

References

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