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case report

Unusual radiographic changes of a gout patient

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Background. *Gout is a metabolic disorder that results in hyperuricemia and accumulation of uric acid crystals (urats) in tissues, especially joint cartilage. The gouty arthritis presents as acute attacks of arthritis leading eventually to chronic gouty arthritis. In 80% of cases it first occurs in the matatarsophalangeal (MTP) joint of the great toe and is more frequent in male population.*

Case report. *We present a case of unusual radiographic changes accompanying gouty arthritis. A 63 year old female complained about swelling of the first MTP joint on the right, right knee, about stiffness of feet and hands'digits and about backache. First symptoms started to appear 30 years ago. In the time of examination radiographs displayed degenerative changes of the majority of presented joints, bilateral sacroiliitis and osseous ankylosis of both insteps. Microscopic examination showed urate crystals in the samples of the synovial fluid aspirated from the knee. The histological findings of the synovial tissue after the synovectomy were also in favour of gouty arthritis.*

Conclusions. *Radiographs are the most important imaging modality in the diagnostic process of gout. However, radiographic differential diagnosis can be difficult, since the findings overlap with other conditions which cause arthritis and osteoarthritis especially in longstanding gout, elderly patients and females. The diagnosis must be often confirmed with the help of laboratory and histological findings.*

Key words: arthritis, gout - radiography

Introduction

Gout is a metabolic disorder that results in hyperuricemia and leads to monosodium urate crystals being deposited in various sites in the body, especially joint cartilage.[1]

The commonly reported overall prevalence of gout is 6 per 1000 population for men and 1 per 1000 population for women.[2] The prevalence is increasing with age to rates of 24 per 1000 in men and 16 per 1000 in women.[3] A part of this increase may be increased physicians' awareness of atypical gout.[4]

The classic radiographic findings are asymmetrical soft tissue swelling with or without calcifications (gouty tophi); well-defined erosions, often with sclerotic borders or overhanging edges, without marked osteoporosis.[1] Joint space width may appear relatively wide.[5] It typically affects the first metatarsophalangeal (MTP) joint.

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Case report

A 63-year-old female has been admitted to the department of rheumatology in our hospital for several times over the last few years. She was complaining about swelling of the right great toe and right knee at times, about stiffness of feet and hands' digits and about a backache. First symptoms started to appear 30 years ago. Laboratory tests showed hyperuricemia. In the department of radiology we performed radiography of feet, ankles, knees, hands, sacroiliac joints and thoracic spine. The radiograph of feet demonstrated state after bilateral operation of hallux valgus deformity, osteoarthritis of metatarsophalangeal (MTP) joints and fibular subluxation of digits. The bone structure of MTP joints of great toes was demineralised. We saw osteophytosis of ankles and osseous ankylosis of both insteps (Figure 1). The radiograph of knees showed effusion and marked hyperostotic osteophytosis. Degenerative joint disorders were seen on the radiograph of hands. On the sacroiliac joints the radiograph joint space irregularity could be seen: pseudodilatations, especially of the left joint space, indistinct outlines, fine erosions and juxta-articular sclerosis more pronounced on the side of iliac bone (Figure 2); the finding of sacroiliitis was additionally confirmed by the computed tomography. The thoracic spine radiograph demonstrated Forestier's ankylosing hyperostosis.

Figure 1. A lateral radiograph of the ankle shows osseous ankylosis of instep in patient with gout.

A diagnostic puncture of the right knee's effusion was obtained. Intra- and extracellular urate crystals were found in the synovial fluid using a polarizing microscope. The histological findings of the synovial tissue after the synovectomy of the right knee pointed to gouty arthritis.

She also underwent the resection of the subcutaneous node on the left elbow. The hystological findings of the node showed large aggregations of uric acid crystals surrounded by abundant macrophages, scattered lymphocytes and foreign body type cells. The finding is typical of gouty tophi.

Despite the unusual radiographic presentation, the diagnosis of gout was established with the help of laboratory and histological findings.

Discussion

Despite centuries of recognition of gout, the proper diagnosis of gout is still problematic.[5] It has been only in the past 35 years that a significant research in the area of gout has been undertaken.[6] The classic presentation of gout is as an acute monoarthritis often in the first MTP joint or in other joints, such as knee. Gout is a common problem in middle-aged males, from the fourth to sixth decade, but has an increasing recognition in elderly ones with unique and often atypical features.[7] Acute attacks of gout are less common in elderly people, in whom it presents as a chronic polyarticular disease in a much different fashion making proper diagnosis less likely.[8-10] In

these cases gout can be misdiagnosed and confused with other arthritides or osteoarthritis.

In younger patients, hyperuricemia and gout are overwhelmingly observed in men. However, it has been recognized with an increasing frequency particularly in the elderly female population. Although historically only about 5% of all patients with gout were women, recent observations suggest that female gouty arthritis occurs far more commonly than previously suspected.[6] After menopause, serum uric acid levels in women approach those in men. As many women as men are newly diagnosed as having gout when they are older than 60 years, and more women than men are diagnosed when they are older than 80 years.[8] Many of these patients also had underlying osteoarthritis. There is also the increased female-male ratio in atypical gout.[4]

Although the location of gout is mostly in the MTP joint of great toe (followed by the other joints of foot, ankles, knees, hands), in case of atypical gout it occurs on uncommon places even for the first time.

Gout is seldom the cause of backache. Sacroiliitis is a rare manifestation of gout. In the literature there are only a few descriptions of gout affecting spine. When lumbosacral spine is involved, the same radiographic changes are described as on the peripheral joints - soft tissue tophi, bone erosions with sclerotic borders and overhanging edges. There has been a case report of epidural tophus, which caused thoracic myelopathy

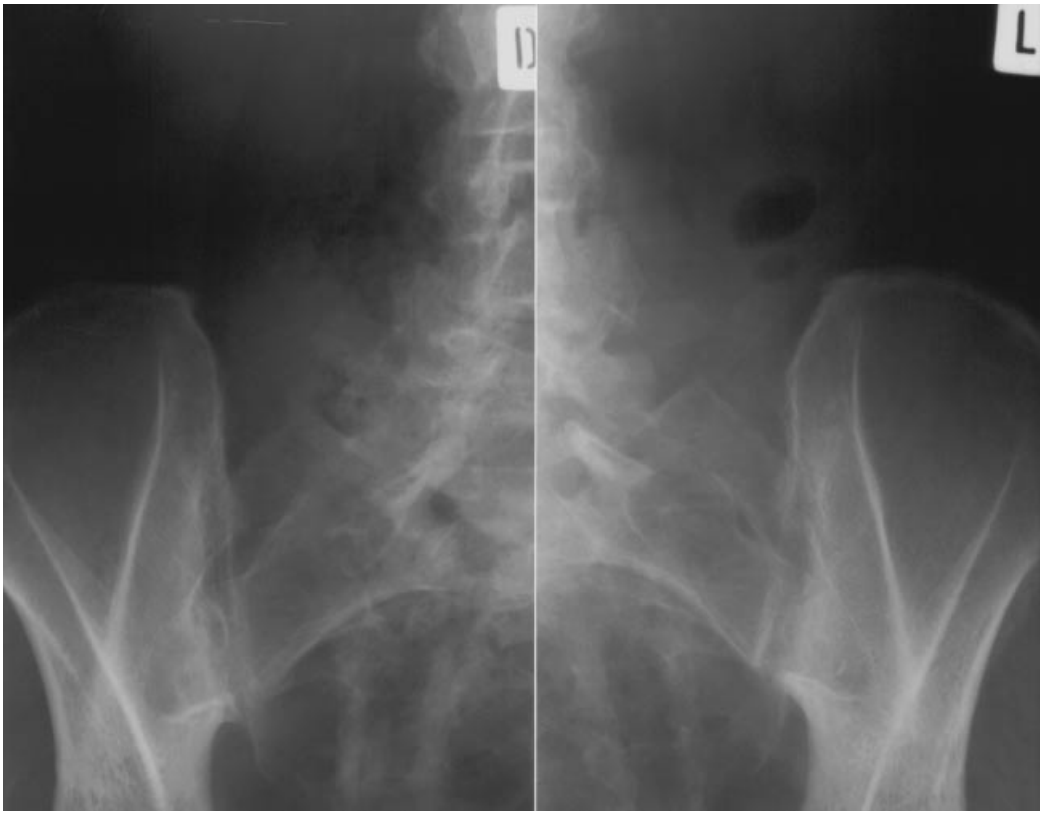

Figure 2. Sacroiliitis shown by radiography; indistinct joint space and sclerosis more pronounced on the side of the iliac bone.

due to the compression.[11] Gout seldom presents with ankylosis. There are some descriptions of ankylosis in advanced cases of chronic gout beginning in youth.[12]

Radiographs are the most important imaging modality when diagnosing gout. However, the radiographic differential diagnosis can be difficult, since the findings overlap with other conditions which cause arthritis and osteoarthritis especially in longstanding gout, elderly patients and females.[13] Therefore, the radiographic diagnosis of gout remains an important challenge and must often be confirmed with the help of laboratory and histological findings.

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