

to as *chronic tophaceous gout* or *chronic advanced gout*), typically develops 10 or more years after the onset of acute attacks. This phase is characterized by less severe attacks compared with the early flares and incomplete resolution of symptoms between flares as the patient continues to experience some baseline joint pain.

The characteristic lesion of chronic gout is the *tophus*, a palpable collection of MSU crystals in soft tissue or joints. It is detected in about 75% of patients who have had gout for more than 20 years. The severity and duration of hyperuricemia determine the likelihood of tophus development. Although the ears, fingers, wrist, and olecranon bursa are the typical locations, tophi can occur anywhere in the body.

DIAGNOSIS

The typical presentation of acute gouty arthritis in a characteristic joint distribution is strongly suggestive of the diagnosis, particularly if there is a history of similar attacks that completely resolved. Nevertheless, the diagnosis should be confirmed by aspiration of the involved joint. This is a critical step to rule out septic arthritis and other crystalline arthropathies such as CPPD deposition disease, which is caused by deposits of calcium pyrophosphate dihydrate (CPPD) crystals in the cartilage (see later discussion). During acute attacks, intracellular, strongly negative birefringent, needle-shaped MSU crystals are typically identified by polarized compensated microscopy. MSU crystals can also be demonstrated in tophus aspiration (Fig. 82-2A).

Bacterial infection can coexist with urate crystals in the synovial fluid; Gram stain and culture should be performed. Aspirated fluid appears cloudy, and synovial fluid analysis shows inflammatory fluid (>2000 white blood cells per microliter) with as many as 50,000 to 100,000 cells/ μL or even more). Serum uric acid is not a diagnostically reliable test during acute flares because the serum urate level may be normal or even low. Laboratory testing may reveal leukocytosis and elevated inflammatory markers, both of which are nonspecific. Between attacks, MSU crystals can often be demonstrated in previously inflamed joints. This can provide support for a diagnosis of gout when the patient is asymptomatic.

Radiologic Features

During an acute attack, a plain radiograph may only show soft tissue swelling. After many years of the disease and during the chronic phase, well defined, “punched out” juxtaarticular erosions with overhanging bony edges and sclerotic margins may be seen. The joint space is preserved until late in the course of the disease. Soft tissue masses may be detected in patients with tophi. Periarticular osteopenia is absent. Ultrasound can be a promising tool in the diagnosis and management of gout.

Gout in Transplantation Patients

Hyperuricemia occurs much more frequently in transplantation patients using cyclosporine than in the normal population. Compared to patients with classic gout, these patients exhibit a significantly shorter period of asymptomatic hyperuricemia (0.5 to 4 years versus 20 to 30 years), a shorter stage of acute intermittent gout (1 to 4 years versus 10 to 15 years), and rapid development of tophi as early as 1 year after transplantation. Gouty attacks can be atypical and less severe, in part because of the concomitant use of prednisone.

DIFFERENTIAL DIAGNOSIS

Acute gouty arthropathy should be distinguished from septic arthritis and other crystal-induced arthropathies such as CPPD deposition disease. The onset of acute CPPD arthropathy is usually less abrupt, and attacks tend to last longer, up to 1 month or more. Attacks occur more often in large joints such as the knee and wrist. Forms of spondyloarthritis including reactive arthritis, psoriatic arthritis, ankylosing spondylitis, and inflammatory bowel related arthritis can also manifest with monoarticular arthritis. In these disorders, synovial fluid is inflammatory, with a leukocyte count usually in the range of 10,000 to 50,000/ μL , but crystals are absent and fluid culture is negative.

In its chronic phase, gout can be confused with rheumatoid arthritis and tophi can be confused with rheumatoid nodules. Aspiration of chronically inflamed joints or a tophus can help in distinguishing the two entities.

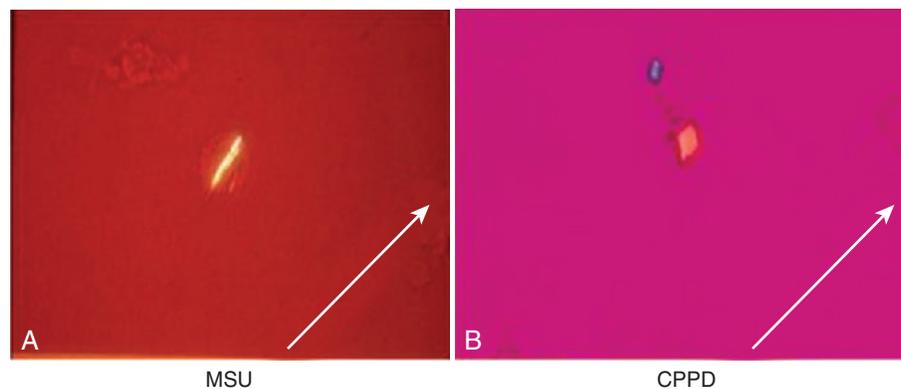


FIGURE 82-2 Polarized microscopy image of (A) strongly negative birefringent monosodium urate crystals and (B) weakly positive calcium pyrophosphate dihydrate crystals. Arrows indicate axis of polarization. (A, Modified from the ACR Slide Collection on the Rheumatic Diseases. Available at <http://images.rheumatology.org/>. Accessed January 2015; B, Modified from Saadeh C, Diamond HS: Calcium pyrophosphate deposition disease. Available at: <http://emedicine.medscape.com/article/330936-overview#showall>. Found under “Multimedia Library.” Accessed January 2015.)