Gout Disease

Gout is an arthritis that occurs due to the accumulation of crystals composed of monosodium urate in joints, which are negatively birefringent. It occurs primarily in males, and is caused by either overproduction of uric acid, or underexcretion of uric acid.



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Acute Inflammatory Monoarthritis
Acute-angle Monocle-King-Arthur In-flames
Gout is characterized by episodes of acute attacks and it often presents in one joint, the first metatarsophalangeal joint (also known as MTP, the big toe).

Epidemiology

Primarily in Males
#1 Foam-finger Man
Gout is more common in males than females.

Pathophysiology

Precipitation of Monosodium Urate Crystals
Raining crystals from Monocle-salt-shaker and Unicorn-Rat
Too much uric acid, hyperuricemia, leads to precipitation of monosodium urate crystals in joints, particularly in within peripheral joints where the temperature is relatively low. This is due to overproduction or underexcretion of uric acid.

Underexcretion of Uric Acid
Unicorn-Acidic-lemon Stuck-under-exit
This mechanism represents the majority of causes of primary gout. Examples include gouty disease due to thiazide diuretics, chronic kidney disease, where there is impaired excretion of uric acid.

Overproduction of Uric Acid
Unicorn-Acidic-lemon Jumping-over entrance
This occurs in states of increased cell turnover such as cancer, psoriasis and chemotherapy-induced tumor lysis syndrome, where there is increased uric acid production.

Negatively Birefringent, Needle-Shaped
Negative Bi-refrigerator with needle-shapes
Gouty crystals are found to be needle shaped and negatively birefringent when aspirated fluid from a joint is viewed under polarized light microscopy.

Symptoms

Swollen, Red, Painful Joint
Swollen, red, pain-bolts on joint
Acute gouty attacks are characterized by a swollen, red, painful joint.

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Asymmetric Joint Distribution

Asymmetric joints effected

Joints are affected asymmetrically, unlike in rheumatoid arthritis.

Podagra

P-Dagger

This refers to the classic manifestation of pain in the MTP (metatarso-phalangeal, big toe) joint.

Tophus

Tofu

Chronic tophaceous gout occurs in later stages of hyperuricemia. Tophi are large collections of urate crystals and the accompanying inflammation.

After Large Meal or Alcohol

Large Meal with Alcoholic-martini

Lactate, a breakdown product of alcohol, competes with uric acid for the same excretion sites in the kidney. This can lead to decreased uric acid secretion.

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