

# Gout

Last Updated Friday, 28 July 2006

## Introduction

Gout is a disease that involves the build-up of uric acid in the body. About 95 percent of gout patients are men. Most men are over 50 when gout first appears. Women generally don't develop gout until after menopause. But some people develop gout at a young age.

This guide will help you understand

- how gout develops
- which parts of the body are affected by gout
- what can be done for the condition

## Anatomy

What is gout?

Gout was the first disease in which researchers recognized that crystals in the synovial fluid could be the cause of joint pain. Synovial fluid is the fluid that the body produces to lubricate the joints. In gout, excess uric acid causes needle-shaped crystals to form in the synovial fluid. Uric acid is a normal chemical in the blood that comes from the breakdown of other chemicals in the body tissues. Everyone has some uric acid in his blood. As your immune system tries to get rid of the crystals, it causes the inflammation and pain of arthritis.

The first attack of gouty arthritis usually happens in just one joint. Half of the time, gout affects the metatarsophalangeal (MTP) joint. This is the joint at the base of the big toe. Eventually, 90 percent of people with gout will have pain in the MTP joint. Other joints that are commonly affected include the mid-foot, ankle, heel, and knee joints. Less commonly gout affects the fingers, wrists, and elbows.

Over time, patients with gout can develop tophi, or lumps that grow around crystal deposits in joints or near pressure points. Tophi most often occur in the fingers, wrists, ears, knees, elbows, forearms, and heels. Tophi can also grow in the kidneys, heart, and eyes.

## Causes

Why does gout develop?

### Hyperuricemia

The underlying condition that causes gout is called hyperuricemia. It means that you have high levels of uric acid in your blood. This can happen for two reasons: (1) your body creates too much uric acid, or (2) your kidneys don't excrete the uric acid effectively. Whether or not you will develop gout is related to how bad your hyperuricemia is over time.

For people who create too much uric acid, the cause is usually genetic. Some rare genetic and metabolic disorders can cause overproduction of uric acid, which can eventually lead to gout.

More than 90 percent of people with gout have kidneys that don't effectively get rid of uric acid. Sometimes this is caused by certain kinds of drugs, such as diuretics, cyclosporine, and low-dose aspirin. Other medical conditions, such as obesity, hypertension, and diabetes, can also make some people more likely to develop gout.

Many gout patients have a combination of overproduction and under-excretion of uric acid. Their bodies create too much uric acid and have problems getting rid of it. This combination of problems happens with drinking alcohol, especially beer. The more alcohol the patient drinks, the worse the problem is. Alcohol both raises uric acid levels in the body and impairs the kidneys' ability to excrete the buildup.

### Acute Causes

Attacks of gouty arthritis seem to be caused by sudden increases or decreases in the amount of urate (a solid form of uric acid) in your synovial fluid. This rapid change can be caused by injury to the joint, alcohol use, or use of certain drugs.

An injury that can trigger gout can be very slight. Even gentle exercise can cause inflammation in the joint, although you may not notice it. Once the joint is at rest, the body absorbs some of the water in the synovial fluid. This leaves the synovial fluid more concentrated with urate, which may allow crystals to grow.

## Other Factors

Heredity plays a role in gout. In some families, hyperuricemia tends to develop into gout, while in other families it doesn't. But genes alone don't account for gout.

There are several risk factors for gout. These conditions do not cause gout, but they are closely related to severe hyperuricemia. The risk factors include obesity, kidney problems, high hemoglobin levels, high triglyceride levels, and hypertension (high blood pressure). About 14 percent of hypertension patients have gout. People who eat lots of meat, especially organ meats such as liver and heart, don't exercise, and drink lots of alcohol are also at a higher risk for gout.

It is important to note that hyperuricemia alone doesn't cause gout. Most people with high levels of uric acid in their blood never develop any symptoms of gout. At least five percent of Americans have at least one period of hyperuricemia as adults without showing any symptoms of gout. And most people can tolerate fairly high levels of uric acid in their bloodstream without damage to their kidneys.

## Symptoms

What does gout feel like?

Gout causes attacks of very painful joint inflammation. Early gout attacks usually affect only one joint. This joint is most commonly the MTP joint at the base of your big toe. The joint becomes swollen, warm, and red within eight to twelve hours. Most of the time the attacks happen at night, and patients say the pain is so bad the joint can't even stand the weight of a sheet. Walking and standing are almost impossible if the legs or feet are affected. Many patients have flu-like symptoms, including fever and chills. The pain may go away on its own in a few hours, or it may take a few weeks.

Gouty arthritis attacks come and go. There may be months between attacks. Over time the attacks happen more often, last longer, and involve more joints. Eventually the pain doesn't ever completely go away. The joints stay swollen and tender even between flare-ups, and the flare-ups start to happen every few weeks. Eventually, some patients develop tophi on joints or pressure points and kidney stones.

## Diagnosis

How do doctors identify the condition?

The diagnosis begins with a history of your symptoms and a physical exam. Your doctor will need to look at synovial fluid from the affected joint to identify the needle-like crystals. This is the most important part of the diagnosis. To get a sample of the synovial fluid, a small needle is inserted into the affected joint and a small amount of synovial fluid is removed. The fluid is sent to a laboratory where it is viewed under a special microscope to determine if uric acid crystals are present.

Your doctor may also get a blood test to look at the levels of uric acid. However, uric acid levels rise and fall depending on many complex factors in your body. It is possible to have a normal uric acid level while you are having severe gout pain.

If you have tophi, your doctor may want to biopsy one of the lumps.

Your doctor will need to rule out other forms of arthritis. Gout can occur with other forms of arthritis, such as septic arthritis and rheumatoid arthritis. There are also other diseases that cause different kinds of crystals to form in the synovial fluid.

X-rays don't show doctors much in the early stages of gout. X-rays can help monitor your disease, and they may be needed to rule out other problems.

## Treatment

What can be done for the condition?

Gout cannot be cured, but it can be very successfully treated. The main goal of treating gout is to get rid of the pain and swelling of gout attacks. Doctors prescribe medicines called colchicine, certain nonsteroidal anti-inflammatory drugs (NSAIDs), and corticosteroids to decrease swelling and relieve pain. All of these drugs work quickly and are very effective. The sooner they are given after an attack starts, the faster the pain goes away. These drugs may be given by mouth, through an intravenous line into your bloodstream, or injected directly into the joint.

Your doctor may also aspirate the affected joint, which involves using a needle to drain some of the synovial fluid. This can immediately decrease the pressure in the joint.

Lifestyle changes can help you manage intermittent gout without using drugs every day. Your doctor may ask you to do the following:

- Change your diet. Diets that are lower in meat and some other foods can help decrease the amount of uric acid in your body.
- Quit taking drugs such as diuretics.
- Lose weight.
- Quit drinking alcohol.
- Avoid activities that stress your joints.
- Drink plenty of fluids to help your kidneys work more efficiently.

If your gout is severe, you may need to take daily medication to reduce your uric acid levels. Your doctor will put you on the lowest dose possible of medications such as uricosuric drugs or xanthine oxidase inhibitors. Doctors usually prescribe allopurinol for patients who overproduce urates or have tophi, kidney disease, or kidney stones. For patients who have difficulty getting rid of uric acid through the kidneys, medications to help the kidneys remove more uric acid from the blood may be prescribed as well.

Doctors seldom treat hyperuricemia without symptoms of gout. However, if hyperuricemia is at least moderately bad over several years, it is more likely to lead to gout. In this case, a doctor may begin treatments to prevent gout.

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