

THE DIAGNOSIS OF GOUT

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Gout is the most commonly overlooked type of joint disease. The diagnosis usually is easy if the basic clinical picture is kept in mind; it is often made from the history alone. The typical subject is an obese, ruddy, otherwise healthy man, engaged in a sedentary occupation. The onset is very sudden, and the pain is very severe; usually only a single joint is involved at first. The pain often begins in the great toe joint or in the foot, and often begins at night. The affected joint is much swollen, very red and exquisitely tender. Early in the disease, attacks last from a few days to two weeks, with a gradual subsidence of symptoms. Following the acute attack the patient is absolutely free of all joint manifestations. The attacks almost always recur after some precipitating influence, such as an indiscretion in diet or the use of alcohol. With recurrences the same joint may be involved or the disease may appear in a single other joint or in several joints. In time the attacks are apt to last longer; finally, the disease may become chronic with marked joint deformity.

There are many variations of this fundamental typical picture. The disease may occur in women; the patient may not necessarily be healthy-looking; some other disease, such as leukemia or polycythemia, may precipitate an attack; the disease may run a chronic course from the onset; and any joint may be involved.

While there may be many different clinical pictures, gouty arthritis should be thought of as characterized by recurrent, acute attacks of very painful arthritis which clear up completely, leaving a normal joint between attacks early in the course of the disease.

The diagnosis of gout does not depend entirely upon the clinical history. Certain laboratory procedures help greatly. As a rule, the uric acid content of the blood is increased. However, the uric acid is frequently higher than normal in conditions other than gout. Rarely, the gout may be active without an increase in uric acid. The sedimentation rate is uniformly elevated when the disease is active. An elevated sedimentation rate is characteristic of rheumatoid arthritis also, so this finding may only be confusing. The roentgen findings, if typical, help greatly, but many active cases show no positive findings. The one absolute diagnostic criterion is the presence of the tophus. The most common site is in the margin of the lobe of the ear. A nodule should not be considered as a tophus, however, unless the needle-shaped sodium biurate crystals can be demonstrated in it.

To emphasize the clinical picture of gout, Dr. Jack Kinell and I have analyzed the findings in 100 cases studied completely at the

Cleveland Clinic. Only five of the patients were women. Most came from the highest social level. About 80 per cent were lawyers, merchants, executives and business men; 10 per cent were physicians.

Typically, the gouty patient is an obese, ruddy complexioned individual with an appearance of exceptional well-being. The average pounds overweight for the entire group was 31. Only two patients were underweight. Thirty per cent were 40 pounds or more overweight. Most of the patients had a red cell count and hemoglobin normal or above. These findings are in marked contrast to the almost constant anemia in other types of acute arthritis and in rheumatoid arthritis.

The average age of our patients when first seen was about 50 years, with an average duration of symptoms of seven years. The onset of the disease occurred between the ages of 33 and 50 years in 60 per cent of the cases.

A history of sudden, acute pain in a great toe is important in the diagnosis of gout. However, joints other than the great toe may be the site of the initial disturbance and, if so, may mislead the examiner. When any male patient presents himself with a story of acute, monarticular joint pain of sudden onset, consideration should be given to gout as a possible cause even though almost any joint other than the first metatarsophalangeal is the one involved. In our series the original joint affected was the great toe in 53 cases, the ankle in 13, and the foot in 12. After the onset of the disease almost every other joint in the body may be involved.

The question of hyperuricemia in gout is well established. During acute attacks, in the early stages of the disease, the level of the blood uric acid is usually, but not invariably, elevated. Therefore, with a typical history and with the type of individual in whom one might suspect gout, a diagnosis of gout need not necessarily be excluded by the finding of a blood uric acid of normal level. In the interim between attacks, the uric acid will very often not be elevated. Toward the end of the first stage, years after the onset of the disease, the likelihood of finding a hyperuricemia during and between attacks increases. When the stage of chronic gouty arthritis is reached, the level of uric acid in the blood is almost always high. The average blood uric acid for the entire group was 3.8 mg. per cent. The highest was 6 mg. in a patient with acute gout who had been having symptoms for nine years.

There is only one specific lesion of gout, namely, the tophus. A diagnosis of the condition before the appearance of tophi is often easily made but should be qualified by the designation presumptive or pretophaceous gout. Following the appearance of tophi, a diagnosis of proved or tophaceous gout may be applied. As hyperuricemia develops and as the disease becomes more chronic, the possibility of

demonstrating tophi is increased. However, the presence of tophi is an extremely variable finding. They are not as commonly found as is generally suspected. Furthermore, they may appear during any stage of the disease, with or without a chronic hyperuricemia, and often may not appear at all, although the disease may be of twenty or thirty years' duration, and although the blood uric acid may be decidedly high.

There were only 21 cases in this series in which tophi could be demonstrated. The duration of symptoms in these patients ranged from only two weeks to ten years. The patient with symptoms of only two weeks' duration must have had gout for a longer period of time than the history would indicate. The fact that tophi developed before the onset of joint symptoms is no more difficult to understand than the symptom-free interval between acute attacks which the patients typically show. No tophi were found in 13 cases with histories of from ten to thirty years' duration. Proved tophaceous gout may be present with a normal blood uric acid level.

Positive roentgen evidence of gout is usually lacking in early attacks. This is often disappointing since the symptoms and clinical findings are so striking. As the disease progresses, the possibility of positive findings by roentgen examination increases. Strangely enough, however, many cases show nothing by x-ray although the disease may have been present for several years and although there may have been repeated attacks of severe joint pain and swelling. When deformity results in the stage of permanent arthritis, roentgen changes are always present but may not have the so-called typical appearance of gout. Positive roentgen evidence of gout was found in only 25 cases.

Areas of erosion representing osseous tophi in articular or juxta-articular bone constitute the typical appearance of gout by x-ray. These may appear as destructive changes in articular surfaces or may show up as definite punched-out areas in the shaft of the bone. Often these areas are small and very similar to the changes found in degenerative or atrophic arthritis. Unless areas of erosion of this type are large, they cannot be directly attributed to gout but, if large, they are highly significant. However, it is apparent from the above data that roentgen evidence of gout, like the appearance of tophi and the finding of hyperuricemia, is variable and unreliable, especially during the early stages before chronic arthritic changes develop.

Tissues other than the joints are affected in gout. Vascular nephritis is common. Although a faint to heavy trace of albumin was found in the urine of about half of our patients, sufficient indication to warrant a study of kidney function was lacking. Only three patients had casts in the urine.

Renal stones are not uncommon. Although only 11 per cent of our patients had or gave a history of stone, a useful rule to follow as suggested by Hench is, "suspect gout in acute or chronic arthritis with a history or findings of renal colic or nephritis." This may be helpful at times in differentiating between rheumatoid arthritis and gout.

Bursitis or tendonitis may often be attributed to gout, but the proof of this depends upon the finding of other manifestations of the disease. Neuritis is a well-known complication.

The sedimentation rate may help greatly in making the diagnosis of gout, since it is uniformly elevated in acute cases and often in chronic cases. The average rate in the 100 cases reported here was 0.94 mm. per minute, while the upper limit of normal is 0.45 mm. The sedimentation rate varies with the clinical activity of the disease, although the blood uric acid does not.

It is apparent from this summary that the only constant findings in gout is the clinical pattern. The diagnosis cannot be excluded on a low uric acid level, on the absence of tophi, or on the absence of x-ray findings.

In treating patients with gout, weight reduction is most important if the patient is overweight. During an acute attack a purine-free diet should be used. The patient should always follow a low purine diet even in the absence of symptoms. Alcohol should be absolutely forbidden.

Colchicine will often abort or relieve an attack. Three to six tablets containing 1/120 grain of the alkaloid are given daily unless diarrhea develops. If there is no response to colchicine, cincophen may be necessary. The dangers of this drug have probably been overstressed.

Gout is a chronic metabolic disease, so is probably never cured. The patient must always reckon with the possibility of recurrence. Constant medication may prevent a recurrence. It is often necessary to continue indefinitely the use of colchicine or cincophen three days of each week.