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Clinical features of gouty arthritis.

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Between 1976 and 1985, 194 patients with gouty arthritis seen at chulalongkorn Hospital, Bangkok, were studied. Definite and probable gouty arthritis were diagnosed in 72.7 and 27.3 percent of the patients respectively. Predominantly affected were males (88.1%), with the age of onset mainly over 40 years and the peak on set among those over 60 years (40.2%). Mono-arthritis (74.2%) and podagra (43.3%) were the most common first presentations of the disease. However, recurrent oligoarticular arthritis (60.3%) and arthritis of the ankle joint (73.2%) were features that developed in the course of illness. Tophi were found in 29.9 percent of the total. Provocative factors and associated diseases were evident in 51.5 and 71.6 percent of the cases, respectively. Hypertension (44.3% of the total) was the most common of the associated diseases followed by chronic renal failure (29.4%). Nearly all patients with gouty arthritis responded well to the standard regimen for acute gout.

In conclusion, clinical features of gouty arthritis are similar to those reported elsewhere but for late onset of the disease an ankle joint involvement is the predominant feature of our cases of gouty arthritis.

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ระหว่างปี พ.ศ. 2519-2528 มีผู้ป่วยโรคเกาต์ จำนวน 194 ราย ได้รับไว้รักษาที่แผนกอายุรกรรม โรงพยาบาลจุฬาลงกรณ์ พบว่าอัตราร้อยละ 72.7 ของผู้ป่วย ได้รับการวินิจฉัยว่าเป็นโรคเกาต์ โดยการตรวจพบผลึกเกลือยูเรท และอัตราร้อยละ 27.3 ของผู้ป่วยได้รับการวินิจฉัยว่าเป็นโรคเกาต์โดยการใช้ยาโคชิซีนซึ่งทำให้การอักเสบของข้อหายไปอย่างรวดเร็ว เพศชายพบได้ในอัตราร้อยละ 88.7 ของผู้ป่วยทั้งหมด อายุของผู้ป่วยเมื่อเกิดโรคครั้งแรกมักจะมีอายุสูงกว่า 40 ปีขึ้นไป และอัตราจะสูงมากในผู้ป่วยที่มีอายุสูงกว่า 60 ปีขึ้นไป ซึ่งพบในอัตราร้อยละ 40.2 ของผู้ป่วย ในระยะเริ่มแรกของอาการทางข้อ การอักเสบชนิดเฉียบพลันแบบข้อเดี่ยวพบได้บ่อยมาก (74.2%) และข้อหัวแม่เท้าจะเป็นของที่พบได้อัตราสูง (43.3%) แต่ในระยะการดำเนินของโรค ลักษณะเด่นของโรคนี้คือการปวดข้อมักจะเป็นแล้วเป็นซ้ำอีก ซึ่งมักเป็นแบบหลาย ๆ ข้อ (60.3%) และการอักเสบของข้อเท้า (78.2%) ก้อนโท-ไฟย์ พบได้ในอัตราร้อยละ 29.9 ของผู้ป่วยทั้งหมด ภาวะการกระตุ้นทำให้โรคกำเริบและการตรวจพบว่ามีโรคอื่นร่วมด้วย พบได้ในอัตรา ร้อยละ 51.5 และ 71.6 ของผู้ป่วยทั้งหมดตามลำดับ โรคความดันโลหิตสูง (44.3%) เป็นโรคที่พบได้บ่อยมาก และรองลงไปได้แก่โรคไตวายเรื้อรัง (29.4%) การอักเสบของข้อในโรคนี้มักรักษาได้ผลดีจากคนใช้ยาลดการอักเสบ

โดยสรุป ลักษณะทางคลินิกของผู้ป่วยโรคเกาต์ที่พบมีลักษณะคล้ายคลึงกับโรคนี้ในภาคพื้นส่วนอื่นของโลก แต่ลักษณะเด่นที่พบเด่นก็คือโรคนี้มักจะเกิดในผู้ป่วยค่อนข้างสูงอายุ และข้อเท้ามักจะมีอัตราการพบว่ามีการอักเสบสูง

Gout is a disorder of purine metabolism which is manifested by arthritis (gouty arthritis), the deposition of monosodium urate crystals in tissue and around the joints (tophi), renal damage (gouty kidney) and hyperuricemia. Both the clinical manifestations and the biochemical disorders of hyperuricemia and gout have been studied extensively[1-12] The clinical pattern of gouty arthritis is characterized by occurrence in males at 40 or more years of age with acute arthritis of the first metatarsophalangeal joint (podagra) being the most common feature of the disease.[3,6,12]

The purpose of this study is to present the clinical features of the disease in patients with gouty arthritis who were seen during a 10-year period at Chulalongkorn Hospital, Bangkok, Thailand.

Patients and methods

One hundred and ninety-four cases of acute gouty arthritis were studied for sex and age distribution, pattern of presentation, provocative factors, associated diseases and results of treatment of acute gouty attacks. All were in-patients seen at the Medical Department of Chulalongkorn Hospital between January 1976 and December 1985. The diagnosis was made either by diagnostic criteria for acute gout[13] particularly with the demonstration of urate crystals in joint fluid, or by a dramatic response to colchicine therapy particularly in patients with acute arthritis together with hyperuricemia and/or presence of tophi, without evidence of chondrocalcinosis or periarticular calcification.

Results

The 194 cases were divided into two catagories depending on the criteria and therapeutic diagnosis with colchicine. Category I (141 cases or 72.7 percent of the total) included cases with definite diagnosis of acute gout in whom urate crystals were identified in the joint fluid; category II (53 cases or 27.3 percent of the total) included cases with probable diagnosis of acute gout in whom the episodes of acute arthritis showed dramatic response to a therapeutic level of colchicine.

Table 1 shows the patients' sex and age at onset. Occurrence was predominantly in males (88.7 percent of the total) and the incidence gradually increased in patients over age 40; the peak age at onset was noted in patients over age 60 (40.2 percent of the total).

As shown in tables 2 and 3, monoarticular arthritis (74.2%) was more commonly presented than oligoarticular arthritis (25.8%) and tenosynovitis (2.1%) as the initial articular manifestation. The first metatarsophalangeal joint was involved in 43.3 percent of the cases followed in frequency by involvement of the ankle (40.2%), knee (29.9%), wrist (7.2%) and elbow (4.1%).

Fifteen cases (7.7 percent of the total) were presenting gouty arthritis for the first time; the majority of cases (92.3%) were patients who had recurrent attacks of the disease. Among the latter patients, oligoarticular arthritis was more commonly observed than monoarticular arthritis (60.3 vs. 39.7%) as shown in table 4.

In the course of disease, the occurrence of arthritis was most commonly noted in the ankle joint (73.7%) followed in frequency by the first metatarsophalangeal joint (64.4%), knee joint (63.9%), wrist joint (25.8%), elbow joint (20.1%), proximal interphalangeal joint of the fingers (13.9%), shoulder joint (6.7%) and tendons (12.4%) as shown in table 5.

Tophi were observed in 58 out of the 194 cases or 29.9 percent of the total. In 32.4 percent of the patients without tophi, the duration of the disease was less than two years; in patients with tophi this limited duration was observed in only 10.3 percent. In 32.6 percent of the patients with tophi, the the duration of disease was more than 10 years, while such a lengthy duration was observed in only 16.2 percent of the patients without tophi (details are shown in table 6). The most common location of the tophi were as follows: the ankle joint area including the ankle joints, malleolus and Achilles tendon (55.2%), followed by the elbow (39.7%), first metatarsophalangeal joint (34.5%) and knee joint (19%) as shown in table 7.

Provocative factors which aggravated gouty attacks were evident in 51.5 percent of all cases. Medical illnesses or mental stress were the most common of these; they were followed in frequency by attacks occurring after the consumption of alcohol and food containing organ meat, the occurrence of trauma, the intake of meat, surgery, exercise and temperature changes (table 8).

Table 9 shows the incidence of associated diseases which were found in 71.6 percent of patients. Hypertension (44.3%) was the most common associated disease followed by chronic renal failure defined as serum creatinine level of more than 2 mg/dl (29.4%), coronary heart disease (9.8%), diabetes mellitus (8.8%) and hematologic malignancies (5.2%) including chronic myeloid leukemia (4) acute leukemia, (2) multiple myeloma, (1) myelofibrosis (1) and lymphoma. (2)

Chronic renal failure was evident in 37.9

percent of the patients with tophi compared with 25.7 percent without tophi. Hypertension was observed in 63.3 percent of the patients with chronic renal failure; 41.9 percent of all patients with hypertension showed evidence of chronic renal failure (table 10.)

Normal serum uric acid levels (less than 7 mg/dl) were evident in 17.5 percent of the patients; one case had bloody effusion.

The details concerning results of treatment are shown in table 11. Colchicine was administered to 86 patients and dramatic positive response defined as good response yielding within 24-48 hour was obtained in 94.2 percent of those cases; however, side-effects (nausea, vomiting and diarrhoea) were observed in 46.5 percent of the cases. Most of the patients also responded well to corticosteroid or corticotrophin and non-steroidal anti-inflammatory drugs.

Table 1 Age and sex distribution : 194 cases of gouty arthritis.

	No. of patients	%
Sex Male	172	88.7
Female	22	11.3
Age at onset (years)		
0 – 19	–	–
20 – 29	14	7.2
30 – 39	21	10.8
40 – 49	36	18.6
50 – 59	45	23.6
60+	78	40.2

Table 2 Pattern of initial articular manifestation : gouty arthritis.

Articular manifestation	No. of patients	%
Monoartigular	144	74.2
Oligoarticular	50	25.8
Tenosynovitis $\bar{c}$ arthritis	4	2.1

Table 3 Initial joint involvement : gouty arthritis.

Joint	No. of patients	%
First MTP (podagra)	84	43.3
Ankle	78	40.2
Knee	58	29.9
Wrist	14	7.2
Elbow	8	4.1
Shoulder	2	1
PIP	2	1
MCP	1	0.5
Other MTP	1	0.5
S.C.	1	0.5

Table 4 Pattern of articular manifestation (during interview) of gouty arthritis patients.

Articular manifestation	No. of patients	%
First attack	15	7.7
Recurrent attack	179	92.3
. Monoarticular	71	39.7
. Oligoarticular	108	60.3

Table 5 Joint involvement of gouty arthritis (in course of disease).

Joints	No. of patients	%
Ankle	142	73.2
First MTP (podagra)	125	64.4
Knee	124	63.9
Wrist	50	25.8
Elbow	39	10.1
PIP	27	13.9
Shoulder	13	6.7
Other MTP	5	2.6
Hip	2	1.0
S.C.	1	0.5
M.C.P.	1	0.5
Tarsal	1	0.5
Tendonitis	24	12.4

Table 6 Incidence of tophi and duration of disease.

	No. of patients $\bar{s}$ tophi (136)		No. of patients $\bar{c}$ tophi (58)	
Years	No.	%	No.	%
0 – 2	44	32.4	6	10.3
2^+ – 4	32	23.5	12	20.7
4^+ – 6	18	13.2	11	19.0
6^+ – 8	11	8.1	9	15.5
8^+ – 10	9	6.6	1	1.7
10^+	22	16.2	19	32.6

Table 7 Location of tophi.

	No. of patients	%
Present	58	(29.9)*
First MTP	20	34.5
Other MTP	8	13.8
Toes	7	12.1
Ankle	18	31.0
Malleolus	11	19.0
Achilles tendon	3	5.2
Foot (dorsum)	15	25.9
Knee	11	19.0
Elbow	23	39.7
Wrist	8	13.8
MCP	4	6.9
Fingers	9	15.5
Hand	1	1.7
Shoulder	1	1.7
Pinna	7	12.1
Skin	4	6.7

( )* Percentage of the total number of cases otherwise the percentage of the patients with tophi

Table 8 Provocative factors in acute attacks of gouty arthritis.

	No. of patients (194)	%
Present	100	51.5
Medical illness/or stress	39	20.1
Consumption of		
alcohol	22	11.3
organ meat	21	10.8
meat	13	6.7
Trauma	15	7.7
Surgery	7	3.6
Exercise	7	3.6
Temperature changes	5	2.6
Infection	1	0.5

Table 9 Associated diseases in patients with gout.

	No. of patients (194)	%
Present	39	71.6
Hypertension	86	44.3
Chronic renal failure	57	29.4
Coronary heart dis.	19	9.8
Congestive heart failure	6	3.1
Rheumatic heart dis.	4	2.1
Diabetes mellitus	17	8.8
Acute renal failure	1	0.5
Haematologic malignancy	10	5.2
CVA	1	0.5
Cirrhosis	2	1.0
Glycogen storage dis.	1	0.5
Other malignancy	3	1.5

Table 10 Hypertension and chronic renal failure in patients with gout.

	Gout in 194 patients			
	with hypertension 86		without hypertension 108	
	No.	%	No.	%
Chronic renal failure	36	41.6	21	19.4
Without chronic renal failure	50	58.1	87	80.6

Table 11 Result of treatment of acute gout.

	No. of patients	Response		Side-effect			
				nausea/vomitting		diarrhea	
		No.	%	No.	%	No.	%
Colchicine	86	81	94.2	2	2.3	40	46.5
Piroxicam	41	41	100				
ACTH	26	26	100				
Dexamethazone	15	15	100				
Oxyphenbutazone	17	15	88.2				
Indomethacin	8	8	100				
Sulindac	2	2	100				
Phenylbutazone	3	2	66.7				
Naproxen	1						

Discussion

The incidence of gout is about 0.2-0.3 percent of the population of the United States and some regions of Europe.[3,12,14] The incidence of gout is not evident in the South Pacific area; however, the clinical features of gout have been reported in patients from Malaysia (130 patients), Japan (2,500 patients) and the Phillippines (260 patients).[15-17] In Thailand, no survey on the incidence of gout has yet been performed; however, the clinical features of 260 patients with gout were presented at Fifth SEAPAL Congress of Rheumatology, which was held at Bangkok in 1984.[18]

Gout occurs predominantly in males as have been found in more than 90 percent of the cases reported.[3,6,12,17,18] However, an incidence among females of more than 20 percent has been reported in a few studies.[2,5] In our series, males were more commonly afflicted than females, as previously reported. The peak age of incidence was during the fourth to sixth decades of life[2,3,6,12,17,18] In our patients, the peak age of incidence was commonly observed in patients over age 60 (40.2 percent of the total); gout is generally considered a disease of males, occurring in patients over 40 years of age.

Monoarticular arthritis is the most common feature of the initial manifestation of the disease; this pattern was reported in 80-90 percent of the cases and the most commonly involved joint was the first metatarsophalangeal joint (podagra).[3,6,12,17] In subsequent attacks of gout, oligoarticular arthritis has been more frequently ovserved than monoarticular arthritis in the majority of reports.[3,12] This observation was evident in more than half the cases reported and podagra was the most commonly involved joint. In our series, the initial pattern and subsequent articular involvement were not different from those of previous reports; however, involvement of ankle joints was more predominant than that of the first metatarsophalangeal joints, particularly in the course of disease. Similarly, the intermittent pattern of gouty attack was the main feature of the disease.

The incidence of tophi in the present study occurred in 29.9 percent of the total, which was in the same range of incidence as previously reported (17-53%).[1,2,3,12] Currently, a decreasing incidence of tophi in gouty patients has been reported,[19-21] which is probably due to early recognition of the disease and better care for patients. As in previous studies,[3,12,22] the occurrence of visible tophi was more frequently evident in patients with a long history of the disease than in those whose duration of disease has been short. Chronic renal failure was more comonly observed in patients with tophaceous gout than in non-tophaceous patients.[3,12,22,23] In our series, the prevalence of chronic renal failure was noted in patients with both tophaceous and non-tophaceous gout (37.9 percent and 25.9 percent, respectively). Nearly half of the patients with hypertension showed evidence of chronic renal failure; compared with the non-hypertensive cases renal failure was evident in only one-fifth of our cases. These findings support the observation that hypertension and the duration of gouty arthritis are factors involved in the development of renal failure.[24,25] Urolithiasis was reported in 10-30 percent of the reported cases; also acute renal failure occurred but infrequently.[23,26] Eight percent of the present cases showed evidence of stones but only one case showed evidence of acute renal failure. Renal damage from gout is caused either by deposition of urate crystals in the interstitial tissue of the kidney, which leads to progressive renal failure in the form of chronic renal failure (urate nephropathy), or by blockage of uric acid crystals in the tubules and the urinary tract (uric acid nephropathy), which leads to the formation of stones or complete blockage of urinary flow (acute renal failure).[23] The latter problem can be prevented or treated by hydration, by the administration of drug to achieve alkalinization and by the treatment of hyperuricemia.

It was found in more than half the patients in this study that medical illnesses, mental stress, the consumption of meat or organ meat and alcohol, as well as trauma and surgical procedures can provoke an attack of gout as has been reported previously.[6,12,26]

Gouty patients usually have been found to have associdated disease, particularly hypertension, coronary heart disease, hyperlipidemia, diabetes mellitus and hematologic malignancy.[3,6,12,17,27,28] Our patients were no exception.

As discussed in previous reports,[12,20,29-32] acute gout can be easily controlled by a regular regimen of treatment with such drugs as colchicine, non-steroidal anti-inflammatory drugs and steroidal preparations.

In conclusion, gouty arthritis was found to be more common among males, particularly those over 40 years of age and monoarticular arthritis was the most common feature of the initial manifestation of the disease. In the course of illness, oligoarticular arthritis was more frequently observed

than monoarticular arthritis. Provocative factors and associated diseases were often found. Acute gout was easily controlled by colchicine or non-steroidal anti-inflammatory drugs and steroidal preparations. These findings are similar to those reported elsewhere, but late onset of the disease and ankle joint involvement were particular features in our patients.

References

1. Linton RR, Talbott JH. The surgical treatment of tophaceous gout. Ann Surg 1943 Feb; 117(2) : 161-180
2. Kuzell WC, Schaffarrzick RW, Naugler WE, Koets P, Mankle EA, Brown B, Champlin B. Some observations on 250 gouty patients. J Chron Dis 1955 Dec; 2(6) : 645-669
3. Gutman AB. Gout. In : Beeson PB, McDermott, eds. Textbook of Medicine. 12th ed. Philadelphia : WB Saunders, 1967. 1238-1248
4. Rodman GP, Golomb MW. Gout in the negro female. Am J Med Sci 1958 Sep; 236(3) : 269-283
5. Turner RE, Frank MJ, Ausdal DV, Bollet AJ. Some aspects of the epidemiology of gout : sex and race incidence. Arch Intern Med 1960 Sep; 106(3) : 400-406
6. Grahame R, Scott JT. Clinical survey of 354 patients with gout. Ann Rheum Dis 1970 Sep; 29(3) : 461-468
7. Talbott JH. Gottlieb N, Grendelmier P, Rodriquez. Gouty arthritis in the black race. Semin Arthritis Rheum 1975 Feb; 4(3) : 209-239
8. Yü TF. Some unusual features of gouty arthritis in females. Semin Arthritis Rheum 1977 Feb; 6(3) : 247-255
9. Homes EW. Pathogenesis of hyperuricemia in primary gout. Clin Rheum Dis 1977 Apr; 3(1) : 3-23
10. Halla JT, Ball GV. Saturnine gout : a review of 42 patients. Semin Arthritis Rheum 1982 Feb; 11(3) : 307-314
11. Nuki G. Human purine metabolism : some recent advances and relationships with immunodifficiency. Ann Rheum Dis 1983; 42 Suppl 1 : Suppl 8-11
12. Kelley WN, Fox IH. Gout and related disorders of purine metabolism. In : Kelley WN, Harris ED, Ruddy S, Sledge CB, eds. Textbook of Rheumatology. 2nd ed. Philadelphia : WB Saunders, 1985. 1359-1398
13. Wallace SL, Robinson H, Masi AT, Decker JL, McCarty DJ, Yü TF. Preliminary criteria for classification of the acute arthritis of primary gout. Arthritis Rheum 1977 Apr; 20(3) : 895-900
14. Currie WJC. Prevalence and incidence of the diagnosis of gout in Great Britain. Ann Rheum Dis 1979 Apr; 38(2) : 101-106
15. Khaira BS. Gout in Asians. Far East Med J 1967; 3 : 406
16. Mikanagi K, Nishioka K, Ooi Y. Clinical aspect of gouty patients in Japan. XIII th. International Congress of Rheumatology Abstract. Amsterdam, Excepta Medica, 1973. 87
17. Torralba TP, Bayani-Sioson PS. The Filipino and gout. Semin Arthritis Rheum 1975 May; 4(4) : 307-320
18. Parivisutt L, Nilganuwong S. The clinical study of gouty arthritis in Thai patients (abstract). J Med Assoc Thai 1984 Jan; 67 Suppl 1 FP 83 : 26
19. Gutman AB. The past four decades of progress in the knowledge of gout, with an assessment of the present status. Arthritis Rheum 1973 Jul-Aug; 16(4) : 431-443
20. Yü TF. Milestone in the treatment of gout. Am J Med 1974 May; 56(5) : 676-684
21. O' Duffy JD, Hunder GG, Kelley PJ. Decreasing prevalence of tophaceous gout. Mayo Clinic Proc 1975 May; 50 (5) : 227-228
22. Whngaarden JB, Kelley WN. Clinical description of classic gout. In : Gout and Hyperuricemia. New York, Grune and Stratton, 1976. 213-226
23. Bluestone R, Waisman J, Klinenberg. The gouty kidney. Semin Arthritis Rheum 1977 Nov; 7(2) : 97-113
24. Berger L, Yü TF. Renal function in gout. IV. An analysis of 524 gouty subjects including long-term follow-up studies. Am J Med 1975 Nov; 59(5) : 605-613
25. Yü TE, Berger L. Impaired renal function in gout : it association with hypertensive vascular disease with intrinsic renal disease. Am J Med 1982 Jan; 72(1) : 95-120

26. Kjellstrand CM, Campbell II DC, Von Hartitzsch B, Buselmeier TJ. Hyperuricemic acute renal failure. Arch Intern Med 1974 Mar; 133(3) : 349-359
27. Maclachlan MJ, Rodnam G. Effect of food, fast, and alcohol on serum uric acid and acute attack of gout. Am J Med 1967 Jan; 42(1) : 38-57
28. Smyth CJ. Disorders associated with hyperuricemia. Arthritis Rheum 1975 Nov-Dec; 18(6 Suppl) : 713-719
29. Homes WE. Clinical gout and pthogenesis of hyperuricemia. In : McCarty DJ, ed. Arthritis and Allied Conditions : a Textbook of Rheumatology. 10th ed. Philadelphia : Lea and Febiger, 1985. 1445-1480
30. Simkin PA. Management of gout. Ann Intern Med 1979 May; 90(5) : 812-816
31. Tumrasvin T, Deesomchok U. Piroxicam in treatment of acute gout : high dose versus low dose. J Med Assoc Thai 1985 Mar; 68(3) : 111-116
32. German DC, Holmes EW. Hyperuricemia and gout. Med Clin North Am 1986 Mar; 70(2) : 419-436