Srinagarind Hosp Med J 1989; 4(1) : 53 - 56

Secondary Gout Associated with Agnogenic Myeloid Metaplasia : A case report and Review literatures

Ratanavadee Na nagara
Duangtip Vongsangnak

Department of Medicine, Faculty of Medicine, Khon Kaen University

รายงานผู้ป่วยโรคเก๊าท์ที่เกิดร่วมกับ agnogenic myeloid metaplasia

รัตนวดี ณ นคร, ดวงทิพย์ วงศ์แสงนาค

ภาควิชาอายุรศาสตร์ คณะแพทยศาสตร์ มหาวิทยาลัยขอนแก่น

ผู้ที่ป่วยด้วยโรค agnogenic myeloid metaplasia metaplasia บางครั้งอาจมาด้วยอาการของโรคเก๊าท์ได้ อาการแสดงทางคลินิกคล้ายกันกับโรคเก๊าท์ปฐมภูมิ แต่มีลักษณะบางอย่างที่อาจแตกต่างกันไปได้บ้าง เช่น อายุเฉลี่ยของผู้ป่วย, เพศ, ประวัติครอบครัว ระดับของกรดยูริคในเลือด, ลำดับของการเกิด tophi และอุบัติการณ์ของการเกิดนิ่วไต ผู้เขียนได้รายงานผู้ป่วยหญิง 1 ราย ที่เป็น agnogenic myeloid metaplasia และมาโรงพยาบาลด้วยอาการข้ออักเสบพร้อมกับตรวจพบ tophus โดยไม่เคยมีอาการปวดข้อมาก่อน, ผลการตรวจทางห้องปฏิบัติการและการรักษาจะนำเสนอไว้ในรายละเอียด

Cases of agnogenic myeloid metaplasia may present with clinical symptoms of secondary gout resembling primary gout except in some aspects such as mean age of onset, sex ratio, family history, serum uric acid level, appearance of tophi and incidence of associated uric acid stone. This is a case report of female patient, whom diagnosed as agnogenic myeloid metaplasia, presented with the first attack of gouty arthritis together with appearance of tophus. The laboratory investigations and treatment will be presented in detail.

INTRODUCTION

Secondary gout due to myeloproliferative diseases is the clinical entity which was well documented among the physicians, but the clinical differentiation between this and primary gout was summarized only in a few literatures.[1,2,3] It commonly occurs in polycythemia vera and/or myeloid metaplasia but rarely occurs in chronic myeloid leukemia.[2] Increasing turnover rate of

uric acid due to augmented hemopoiesis is the pathogenetic role.

Case Report

Female patient of 53 years presented with painful and swollen right knee accompanied by fever for 10 days, and also had a painful lump over the dorsum of right foot of which occurrence she has never considered. There was no associated history of trauma, alcoholic drinking, family tendency of gout or passing of renal stone.

She has been diagnosed as rheumatic valvular disease complicated with congestive heart failure 8 months ago, and was regularly treated with digitalis, hydralazine, thiazide diuretic and elixir-KCL. There was past history of asymptomatic anemia and marked hepatosplenomegaly for about 10 years without any treatment.

Physical examination revealed a middle age lady, normal vital signs, moderate anemia without jaundice. There was no lymphadenopathy. Neck veins engorged and showed Corrigan's sign. Cardiomegaly and murmur of aortic stenosis and regurgitation were detected. Breath sound was normal. There were marked hepatosplenomegaly without tenderness. Musculoskeletal examination showed acute arthritis at the right knee joint with moderate effusion and painful tophus, 3 cm. in diameter, at the dorsum of right foot.

Laboratory findings : CBC : Hematocrit 15 vol%, WBC 15,000/cu.mm., PMN 60%, band form 18%, metamyelocyte 2%, lymphocyte 17%, and monocyte 3%, platelets slightly decreased without abnormal morphology. Red blood cell morphology showed anisopoikilocyte 3+, target cell 3+, hypochromia 3+, few tear drop cells and fragmented red cells. Hemoglobin typing was EA. Bone marrow aspiration and biopsy were compatible with agnogenic myeloid metaplasia.

Roengenography of the right knee was normal. Joint fluid analysis was turbid, poor mucin clot, WBC = 25,200/cu.mm., PMN 80%, L 20% protein 3.8 gm/dl, sugar 111 mg/dl, positive intracellular urate crystal and negative for gram stain and culture. Content of the tophi demonstrated numerous urate crystal.

Urinalysis : sp. gr. 1.015, albumin 3+, WBC 2-7/OF, moderate uric acid crystal.

Biochemical evaluation : BUN = 85.8 mg/dl, creatinine = 3.0 mg/dl uric acid = 20 mg/dl, FBS, electrolyte and liver function test were within normal limit.

Plain KUB and ultrasound of the kidneys showed no evidence of renal stone. CXR and EKG showed left ventricular hypertrophy.

24 hours urine uric acid = 490 mg, creatinine clearance= 11.34 ml/min, urine uric acid and urine creatinine ratio = 1 : 1

She was finally diagnosed as agnogenic myeloid metaplasia (AMM) with secondary gout and rheumatic valvular heart disease, and received supportive treatment for AMM together with continuing treatment of RHD. Acute gouty arthritis was initially treated with sulindac and colchicine, and responded well within 5 days. After the arthritis subsided, sulindac was discontinued, allopurinol 100 mg/day was started and gradually increased dose to 300 mg/day.

Two months after treatment, there was no arthritis, the tophus disappeared, and serum uric acid 9 mg%, but the condition of RHD got worse because the medicines was neglected for 2 days. However after conventional treatment of congestive heart failure, she was finally improved and was discharged two weeks later.

Discussion

Secondary gout due to AMM was first reported in 1924[4] and the association of hyperuricemia to AMM was firmly established in 1937. Subsequent authors have

noted a frequency of hyperuricemia in AMM of 54 per cent[6] to 81 per cent.[7] The mean serum urate level in AMM is higher than primary gout[1] (10.4 mg/dl in AMM and 9.2 mg/dl in primary gout), and more than half of which had serum urate levels greater than 12 mg/dl.[1] Although the association between hyperuricemia and AMM is so high but the incidence of gout has been variably reported to be 5-13 per cent.[1,7-13]

The interval between the discovery of the underlying blood disorder and the development of gout varies from 1 to more than 10 years, however the history of gouty attack may occur prior to the diagnosis of AMM.[5,14-17] The average age of onset of overt gout in this group of patients is 59 years as compared with 40 years in primary gout, and its incidence among females is higher.[3,13] The incidence of positive familial history is lower in this group.

Most of the cases are easily diagnosed and respond well to therapy, but the clinical course of secondary gout varied more than that primary gout, some presented rather atypical and bizzare clinical pictures. Not only is the diagnosis sometimes not easy to make, but also the therapeutic measures employed not infrequently are ineffectual. Prophylactic colchicine, if instituted early is beneficial, but the results are rather unpredictable when given late or in complicated cases.

Appearance of tophi may precede the onset of gouty attack, a very unusual sequence in primary gout.[1,3]

Incidence of nephrolithiasis complicating AMM is higher than primary gout, it may occur prior to the diagnosis of AMM and is the major cause of morbidity and mortality. Approximately 40 per cent of AMM, uric acid crystal can be noted in routine urinalysis without evidence of nephrolithiasis.[3]

Concerning the etiology of hyperuricemia in AMM, the reports showed that the miscible pool and turnover rate of uric acid was increased,[1,18-21] but unable to correlate the serum urate with red cell, white blood cell and platelet counts or with histopathology of the bone marrow. Ward and Block[3] suggested that a more precise correlation would be made with the total amount of hemopoietic tissue and the degree of ineffective hemopoiesis except in patients with impaired renal functions.

In our patient secondary gout was fortunately easily diagnosed and managed. The onset of gout occured 10 years after clinical appearance of AMM, and tophus appeared prior to or at the time of the first gouty attack. Associated renal insufficiency was found at first seen, but nephrolithiasis was not discovered even if urate crystal appeared in the urine. Urine uric acid and urine creatinine ratio was 1 : 1, suggested that the causes of hyperuricemia were not only due to renal insuffiency alone,[22] but also due to increasing uric acid pool from AMM and might be due to the concomitant use of thiazide diuretic.[23,24] The evidence of hyperexcretor was not found in this patient as expected, this may be affected by coexistent renal insufficiency.

Summary

The case of secondary gout associated with agnogenic myeloid metaplasia was reported. Clinical presentations, laboratory findings and treatment has been discussed in detail. Review literatures about secondary gout in myeloproliferative disorders, especially AMM was also performed in the view of incidence, clinical presentation, laboratory findings and management.

References

1. Yu TF. Secondary gout associated with myeloproliferative diseases. Arthritis and Rheum 1965; 8 : 765-71.
2. Hickling RA. Gout, leukemia and polycythemia. Lancet 1953; 10 : 57-9.

3. Ward HP, Block MH. The natural history of agnogenic myeloid metaplasia. Medicine 1971; 50 : 357-420.
4. Huber H, Lewis SM, Szur L. Anamic und gesamtmerge zirkulierender crythrocyten bei osteomyelosklerose. Klin Wschr 1965; 43 : 758.
5. Hickling, RA. Chronic non-leukemic myelosis. Quart J Med 1937; 6 : 253.
6. King JE, Ackerman Ga. Erythropoiesis in the bone marrow of the fetal rabit. Rec 1967; 157 : 589.
7. Nakai GS, Craddock CG and Figueroa WG. Agnogenic myeloid metaplasia : a survey of 29 cases and a review of the litherature. Ann Intern Med 1962; 57 : 419.
8. Varki A, Lottenberg R, Griffith R, et al. The syndrome of idiopathic myelofibrosis. Medicine 1983; 62 : 353-371.
9. Pitcock JA, Reinhard Eh, Justus BW, et al. A clinical and pathological study of seventy cases of myelofibrosis. Ann Intern Med 1962; 57 : 73.
10. Korst DR, Clatanoff DV, Schilling RF. On myelofibrosis. AMA Arch Intern Med 1956; 97 : 169.
11. Leonard BJ, Israels MCB, Wilkinson JF. Myelosclerosis a clinicopathological study. Quart J Med 1957; 26 : 131.
12. Talbott JH. Gout and blood dyscrasias. Medicine 1957; 38 : 173.
13. Gutman AB. Primary and secondary Gout. Ann. Intern Med 1953; 39 : 1062-76.
14. Hegadorn K. A case of aleukemia myelosis with osteosclerosis and gout. Zeif f Klin Med 1926; 104 : 124.
15. Hickling RA. Leukemia and related conditions and the blood uric acid. Lancet 1958; 1 : 175.
16. Hoffman A. Aleukemic leukemia. Klin Wschr 1926; 5 : 124.
17. Merskey C. Chronic nonleukemic myelosis : report of six cases. Arch Intern Med 1949; 84 : 277.
18. Bishop C, Garner W, Talbort JH. Pool, size, turnover rate and rapidity of equilibration of injected isotopic uric acid in normal and pathological subjects. J Clin Invest 1951; 30 : 879.
19. Gutman AB, Yu TF. Secondary gout. Ann Intern Med 1962; 56 : 675.
20. Krakoff IH. Studies of uric acid biosynthesis in the chronic leukemias. Arch Rheumat 1965; 8 : 772.
21. Laster L, Miller Af. Uric acid production in a case of myeloid metaplasia associated with gouty arthritis, studies with N-labeled glycine. Am J Med 1953; 15 : 857.
22. Kelton JR, Kelley WN, Holmes EW. A rapid method for the diagnosis of acute uric acid nephropathy. Arch Intern Med 1978; 138 : 612.
23. Kelley WN, Harris ED, Ruddy S, et al. Textbook of Rheumatology, Vol 1. 2nd ed. Philadelphia : WB Sannders 1985; 1359-90.
24. Michael WJ, Willium EM. The risks of asymptomatic hyperuricemia and the use of uricosuric diuretics. Drugs 1981; 21 : 220-225.