

## Arthritis as a presentation of acute leukemia

Md. Abdul Aziz, Surozit Kumar Sarkar, Farzana Rahman, Shafiqul Islam, Amin Lutful Kabir and Masuda Begum

### Article Info

Department of Hematology, Faculty of Medicine, Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka, Bangladesh

#### For Correspondence:

Md. Abdul Aziz  
azizfcps@yahoo.com

Received: 10 October 2016  
Accepted: 17 October 2016  
Available Online: 9 December 2016

ISSN: 2224-7750 (Online)  
2074-2908 (Print)

DOI: 10.3329/bsmmuj.v9i4.29979

#### Cite this article:

Aziz MA, Sarkar SK, Rahman F, Islam S, Kabir AL, Begum M. Arthritis as a presentation of acute leukemia. Bangabandhu Sheikh Mujib Med Univ J. 2016; 9: 212-213.

#### Available at:

www.banglajol.info

A Journal of Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh

### Abstract

A 14 year old boy presented with 3 months history of low back pain as well as pain and swelling of both knee joints. The pain was inflammatory in nature. He was thoroughly evaluated but no underlying cause was detected. However, the boy was treated with NSAIDs and sulphasalazine. A few weeks later he developed anemia and took the blood transfusion. Then he developed fever and the joint pain re-appeared. On examination, the patient was found moderately anemic, positive bony tenderness and splenomegaly. Musculoskeletal examination revealed right knee joint effusion. The investigation revealed pancytopenia. Bone marrow morphology and immunophenotyping revealed acute lymphoblastic leukemia. We treated the patient according to modified UKALL-2003 protocol and patient condition improved and arthritis disappeared.

### Introduction

In a number of lymphoproliferative diseases including leukemia, osteoarticular symptom has been a presenting manifestation, especially in children.<sup>1</sup> These patients may be thought initially to have juvenile arthritis or rheumatic fever. Later on, they are diagnosed as acute leukemia.<sup>2</sup>

Recently we have experienced a case that has presented with arthritis but diagnosed as a case of acute leukemia after 3 months.

### Case Report

A 14 year old boy hailing from Dhaka admitted at the Hematology Department of Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka with 3 months history of joint pain. The pain was inflammatory in nature involving mainly large joints especially sacroiliac joint and knee joints. He was thoroughly investigated and treated with NSAIDs and sulphasalazine without significant improvement. The boy also swallowed some indigenously medication with reported improvement. He also developed gradual progressive weakness and few occasions of gum bleeding during brushing. After two and half months, he developed fever. He did not have any documented positive examination finding in his initial stages of illness. We found him severely anemic, bony tenderness, splenomegaly and

inflamed knee joint with effusion after admission. We performed peripheral blood film, bone marrow study and immunophenotyping. On that basis, he was diagnosed as a case of acute lymphoblastic leukemia. We started a chemotherapy protocol. The patient improved dramatically and all his joint symptoms disappeared.

### Discussion

In approximately 5% of patient with acute lymphoblastic leukemia, bone and joint pain may be the only presenting symptoms and the patient may be referred for rheumatology evaluation for concern of juvenile rheumatoid arthritis. Diagnosis of these cases may be delayed, and the differentiation of acute lymphoblastic leukemia from juvenile rheumatoid arthritis is critical to avoid pretreatment with corticosteroids which might have a negative impact on subsequent diagnosis and risk stratification.<sup>3</sup>

Joint manifestations in leukemia have been attributed to a variety of causes, including leukemic synovial infiltrations, hemorrhage into the joint or periarticular structures, synovial reaction to adjacent bony, periosteal, or capsular lesions, crystal-induced synovitis<sup>4</sup> and very rarely several cases with leukemic cells in synovial fluid have been reported.<sup>5,7</sup>

Arthritis symptoms are observed more frequently in acute leukemia than in chronic





Figure 1: Gross swelling of the right knee joint

leukemia. It is more often in children than in the adult. It may be thought at first to have rheumatic fever, juvenile idiopathic arthritis or Still's disease.<sup>8</sup>

Most patients have polyarticular diseases with prominent involvement of the knees and ankles and, variably, large joint effusions. Even rheumatoid factor may be detected and rheumatoid like nodule may occur.<sup>1</sup> Presence of leukemic cells in the synovial fluid may be detected but demonstration of immature looking mononuclear cells in the synovial fluid is not diagnostic of leukemia.<sup>2</sup>

In the diagnosis of leukemic synovitis synovial biopsy is more helpful. It found leukemic infiltration in all the synovial biopsies performed in 3 patients with leukemia-associated arthritis<sup>10</sup> but other study have reported negative biopsy results.<sup>11</sup>

A study among 286 acute lymphoblastic leukemia children showed 18.5% presented with localized joint pain, and half of them had objective signs of arthritis. The most frequent presentation is asymmetric oligoarthritis. The suspected misdiagnoses were reactive arthritis, osteomyelitis and juvenile idiopathic arthritis. They also found clinical signs of leukemia are less prominent but the overall and event-free survivals were superior compared with the children without joint involvement.<sup>12</sup>

Cytopenia and hepatosplenomegaly are rarely seen in acute lymphoblastic leukemia with joint involvement but the overall and event-free survivals were superior compared with the children without joint involvement.<sup>12</sup>

## Conclusion

In this case, leukemic presentation is delayed probably due to indigenous medication that may contain steroid which initially gave symptomatic improvement. This patient also presents with cytopenia and organomegaly along with joint involvement. So, non-classical joint manifestation should have a bone marrow evaluation before prescribing the steroid.

## References

1. Buckingham RB, Rodnan GP. Arthritis associated with hematologic disorders, storage diseases, disor-

ders of lipid metabolism and dysproteinemias. In: A textbook of rheumatology. McCarty DJ (ed). Philadelphia, Lea and Febiger, 1985, pp 1135-67.

2. Hallidie-Smith KA, Bywaters EGL. The differential diagnosis of rheumatic fever. *Arch Dis Child.* 1958; 33: 350-57.
3. Greer JP, Arber DA, Glader B, List AF, Means Jr. RT, Paraskevas F, Rodgers GM. *Wintrobe's Clinical haematology.* 13th ed. Philadelphia, Lippincott Williams & Wilkins, 2014.
4. Weinberger A, Schumacher R, Schimmer BM, Myers AR, Brogadir SP. Arthritis in acute leukaemia: Clinical and histopathological observations. *Arch Intern Med.* 1981; 141: 1183-87.
5. Emkey RD, Ragsdale BD, Ropes MW, Miller W. A case of lymphoproliferative disease presenting as juvenile rheumatoid arthritis: Diagnosis by synovial fluid examination. *Am J Med.* 1973; 54: 825-28,
6. Harden EA, Moore JO, Haynes BF. Leukaemia-associated arthritis: Identification of leukaemic cells in synovial fluid using monoclonal and polyclonal antibodies. *Arthritis Rheum.* 1984; 27: 1306-08.
7. Rnee M, Soesbergen V, Vroom TMF, Feltkamp CA, Somers R, Beek WPV. T-cell leukaemia presenting as chronic polyarthritis. *Arthritis Rheum.* 1982; 25: 87-91.
8. Hallidie-Smith KA, Bywaters EGL. The differential diagnosis of rheumatic fever. *Arch Dis Child.* 1958; 33: 350-357.
9. Traycoff RB, Pascual E, Schumacher HR Jr. Mononuclear cells in human synovial fluid: Identification of lymphoblast in rheumatoid arthritis. *Arthritis Rheum.* 1976; 19: 743-49.
10. Spilberg I, Meyer GJ. The arthritis of leukaemia. *Arthritis Rheum.* 1972; 15: 630-35.
11. Weinberger A, Schumacher HR, Schimmer BM. Arthritis in acute leukaemia: Clinical and histopathological observations. *Arch Intern Med.* 1981; 141: 1183-87.
12. Brix N, Rosthoj S, Herlin T, Hastle H. Arthritis as presenting manifestation of acute lymphoblastic leukaemia in children. *Arch Dis Child.* 2015; 100: 821-25.