When You Hear Hoof Beats, It Might Be A Zebra: Lupus Patient With Fever And Leukopenia

Erica Peart DO
Lehigh Valley Health Network, Erica_J.Peart@lvhn.org

James Ross MD, FACP
Lehigh Valley Health Network, James.Ross@lvhn.org

Published In/Presented At

Peart, E., & Ross, J. (2010). *When you hear hoof beats, it might be a zebra: Lupus patient with fever and leukopenia.* Poster presentation.

When You Hear Hoof Beats, It Might Be A Zebra: Lupus Patient With Fever And Leukopenia

Erica Peart DO, James Ross MD • Department of Medicine • LEHIGH VALLEY HEALTH NETWORK ALLENTOWN, PENNSYLVANIA

INTRODUCTION

Fever is a common manifestation in patients with systemic lupus erythematosus. Causes for fever in patients with lupus include disease activity, infection, malignancy and drug reactions. Neutropenia is defined as an ANC less than 1.5 x 109 /L. It occurs in about 50% of patients with lupus and can occur even when the patient is not in a flare. The neutropenia of lupus is usually due to peripheral destruction and not due to bone marrow suppression.

CASE PRESENTATION

20 year old female with lupus nephritis controlled with mycophenolate mofeti, was admitted complaining of fever and intermittent chest pain. On admission, she had a temperature of 101.1 and negative cardiac studies. Blood work showed she was neutropenic with a WBC count of 1.6 and ANC of 0.1 thou/cmm including a few promyelocytes, myelocytes and metamyelocytes. Her renal function was normal. Further work up reveled low complement levels, elevated sedimentation rate, positive ANA, and elevated dsDNA antibodies. According to previous records, the patient had never been neutropenic. Physical exam of the patient was relatively unremarkable. Her chest pain was reproducible and localized to the right side of her chest and throat exam revealed one oral ulcer. No heptosplenomegaly, joint inflammation, or skin rash were seen. The patient was started on antibiotics, mycophenolate mofeti was stopped, and she was given filgrastim (Neupogen) which only transiently improved her ANC to normal limits. Despite these measures her fever persisted, further testing was done to look for the source of the infection, but all returned negative. Since fevers and neutropenia persisted without a source, a bone marrow biopsy was done revealing myelofibrosis with active granulopoiesis. The patient was negative for both JAK V617K mutation and BCL/ABL transcription, consistent with the diagnosis of autoimmune myelofibrosis. She was started on prednisone and within 48 hours was afebrile, feeling well and able to maintain normal ANC and WBC count.

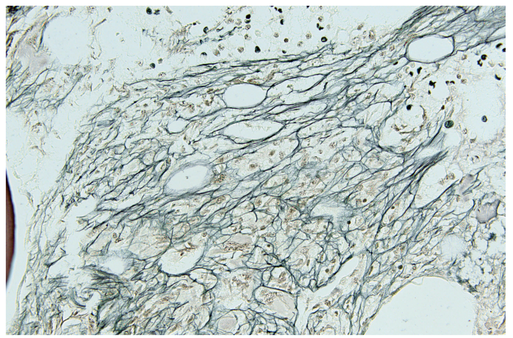
DISCUSSION

Patients with SLE often have hematologic abnormalities and fevers as a component of their disease. Autoimmune myelofibrosis is a rare cause of these abnormalities in patents with lupus, but should be considered when peripheral blood smears are abnormal. Bone marrow biopsy should be considered when myeloid/red blood cell precursors and tear drop cells are seen. Autoimmune myelofibrosis differs from primary myelofibrosis in the following ways:

- splenomegaly is rarely seen
- there are only mild numbers of (daptocytes) or tear drop red cells and immature myeloid cells in the peripheral blood
- patients have a positive direct antiglobin test and ANA, but negative JAK mutation and BCL/ABL transcription
- autoimmune myelofibrosis responds well to steroids and IgG

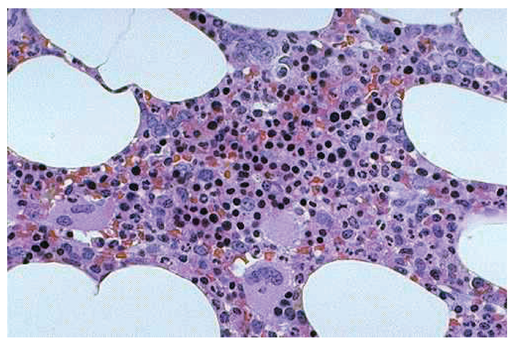
This case exhibited an atypical cause for some common manifestations of lupus.

BONE MARROW BIOPSY



MYELOFIBROSIS

▲ Patient's bone marrow biopsy with reticulin stain showing myelofibrosis



NORMAL SPECIMEN

▲ Example of a normal specimen with H & E stain

UPDATE

The patient is clinically doing well, symptoms have resolved. She has been off of filgrastim (Neupogen) for over a month with stable neutrophil counts. For treatment, she is still undergoing a slow steroid taper, but her autoimmune markers have now normalized and she shows no clinical signs of disease activity. The patient was also seen at another institution where she had a repeat bone marrow biopsy which showed a significant decrease in myelofibrosis. The idea of acute megakaryoblastic leukemia with myelofibrosis was also entertained, but seems unlikely with the absence of dysmorphic cells in the bone marrow. This would be a rare and devastating cause for the patient's symptoms, as few patients survive beyond three years with this diagnosis. Another idea currently being considered is whether the myelofibrosis is related to the mycophenolate mofeti. There are very rare reports of myelofibrosis developing in transplant patients who had been treated with cyclosporine A and mycophenolate mofeti. Patient currently remains off of mycophenolate mofeti.