Case Report

A case of systemic lupus erythematosus with aplastic anaemia

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Abstract

Systemic lupus erythematosus is an autoimmune disorder, which has a rare association with aplastic anaemia. A young 26 years old lady who presented with a history of intermittent fever, microcytic anaemia, joint pains and mild degree of splenomegaly was investigated. Bone marrow examination showed aplasia. Serological tests revealed positive antinuclear antibody and anti double-stranded DNA tests. Patient was diagnosed as having aplastic anaemia with systemic lupus erythematosus, managed with steroids and being followed up for monitoring the response.

Keywords: Systemic lupus erythematosus, Aplastic anaemia, SLE with aplastic anaemia, Autoimmune disorders.

Introduction

Systemic lupus erythematosus (SLE) is a systemic autoimmune disorder characterized by multisystem tissue damage due to a myriad of autoantibodies and deposition of immune complexes.[1] It predominantly affects young women and has a varied clinical presentation and disease course. In SLE pancytopenia is usually due to immune mediated peripheral destruction and only rarely because of bone marrow (BM) aplasia.[2] AA is a clinical syndrome characterized by pancytopenia and a hypocellular marrow. More than 75% cases of acquired AA are idiopathic and among the cases of secondary AA, SLE is one of the rare causes.[3,4] A case of AA, who was found to have underlying SLE is presented.

Case Report

A young woman aged 26 years presented with a history of pallor, generalized weakness, occasional swelling and pain involving joints of the fingers, and low-grade irregular fever for the past two years.

On examination she was a slightly obese young woman with a pale complexion, having normal temperature and blood pressure and did not have any rash on her face or any other part of the body. Swelling or tenderness was not present in any joint at the time of examination. There was no lymphadenopathy or hepatomegaly but spleen was palpable 1cm below the left costal margin. Examination of the lung fields and precordium did not reveal any abnormality. She had been getting irregular treatment comprising anti anaemia and non-steroidal anti-inflammatory drugs (NSAID) from various general practitioners and private clinics without proper laboratory work-up and without much benefit. She had even been transfused twice with whole blood during the past one year.

On investigations she had pancytopenia with a haemoglobin level of 7.5 g/dl, white cell count was $2.5x10^9$/l, absolute neutrophils count was $1.2x10^9$/l, platelets' count was $91x10^9$/l, mean corpuscular volume was 66.2 fl and mean corpuscular haemoglobin was 20.7 pg. Red cell indices matched with the microcytic and hypochromic red cell morphology of mild degree observed on examination of Leishman stained smear. She had an erythrocyte sedimentation rate of 92 mm fall after one hour, reticulocyte count was 0.05% and Coomb's test was negative.

Because of pancytopenia BM was done which showed hypocellular fragments and trails with increased storage iron. Sections of BM trephine were hypocellular with

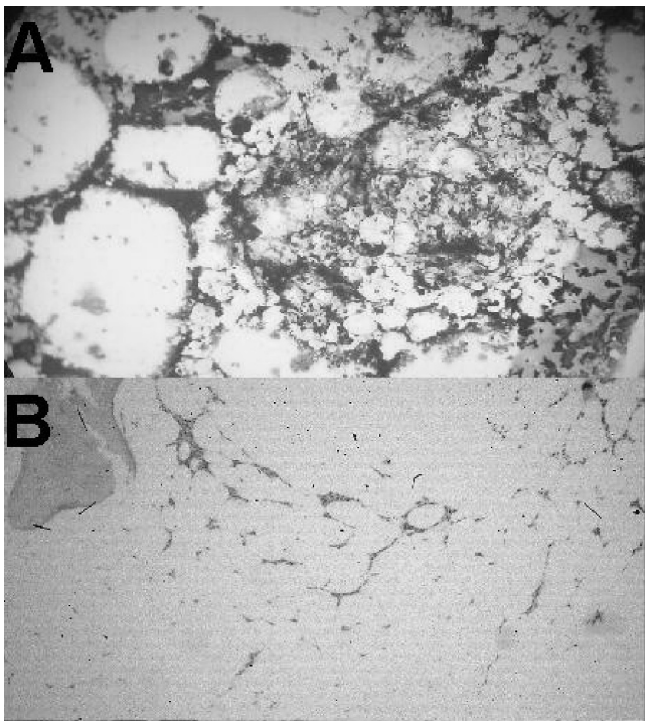

Figure: (A) Leishman stained smear of patient's bone marrow showing hypocellular fragment. (B) H&E stained section of the trephine showing hypocellularity.

depressed haemopoiesis and normal reticulin pattern (Figure-A and B). Fundoscopy did not reveal any abnormality, chest X-ray was clear and abdominal ultrasonography showed an enlarged spleen. Urine examination revealed proteinuria 1+, while liver function tests, urea and creatinine were within normal limits.

Keeping in view the protracted history of her symptoms especially fever, joint pains and a palpable spleen, anti nuclear antibody (ANA) test was done which was found to be positive. Anti double stranded DNA (dsDNA) tests was also positive while rheumatoid arthritis factor and anti-cyclic citrulinated peptide antibodies were negative. On the basis of the clinical history, examination and laboratory findings, she was diagnosed as a case of aplastic anaemia (non severe) secondary to SLE. She is being managed with oral steroids and so far in two months' time, has shown slight improvement in symptoms and blood counts.

Discussion

Haematological manifestations such as anaemia and cytopenias are almost universal in the patients of SLE but AA has been very infrequently reported in such cases.[4] On the other hand, in spite of increased frequency of autoimmune diseases in AA patients, SLE is rarely seen in cases of AA.[5]

In SLE, there is helper T cell dependent B cell activation against various self-antigens because of either genetic susceptibility or environmental influence. B cells, after being activated by T cells, secrete a wide array of autoantibodies against nuclear, cytoplasmic and cell surface antigens. Tissue damage and clinical manifestations in SLE are because of these autoantibodies and deposition of immune complexes.[1] On the other hand suppression of BM in AA is considered to be due to cytokines such as interferon- , interleukin-2 and tumour necrosis factor alpha (TNF-) produced by auto-reactive, cytotoxic T lymphocytes in response to target antigens generated presumably due to injury by some virus, toxin or drug.[6]

Although pathophysiology of AA is very different from that of SLE, AA is in essence also an autoimmune disorder. However the exact pathogenetic link, if any, between the two diseases has not yet been clearly elucidated. In SLE associated AA both antibody mediated BM suppression as well as cell mediated BM aplasia have been shown as possible mechanisms in different studies.[7,8] The former mechanism favours the notion that BM aplasia is a manifestation of SLE while the latter raises the possibility of two disease processes occurring in a patient simultaneously. More research is needed to find out conclusively, the exact mechanism of BM aplasia in cases of SLE.

Even though our patient showed a markedly hypocellular marrow which was consistent with AA, but a protracted history of symptoms of anaemia, joint pains and swelling and presence of enlarged spleen prompted us to investigate for an underlying chronic autoimmune process. Diagnosis of SLE explained her irregular fever, arthralgias and splenomegaly but the patient did not have other typical features of SLE such as malar rash, solar sensitivity or oral ulcers possibly due to inherent variability of disease presentation.

In cases of AA there is typically macrocytic anaemia but in our patient anaemia was microcytic, which can be attributed to mechanism causing 'anaemia of chronic disorder' (ACD) associated with SLE. Such a finding of microcytic anaemia has not been mentioned previously in cases of AA associated with SLE.

The patient had been using various NSAIDs for pain and swelling of fingers, which can also be considered as a cause of BM aplasia. This is however less likely because the use of drugs had been intermittent and cessation of treatment did not improve the pancytopenia.

Various modalities of treatment have been used to treat SLE associated AA with variable success. These include glucocorticoids, androgens, cyclosporin, cyclophosphamide and exchange transfusion.[9,10] Our patient has been given methylprednisolone intravenously for three days followed by oral prednisolone. So far there is only slight improvement in symptoms and peripheral blood counts and patient is being followed up with other options in mind.

Conclusion

AA is a rare complication of SLE. SLE must be considered in patients presenting with pancytopenia and hypocellular marrow especially if the anaemia is microcytic. History of arthralgias, and other symptoms of SLE must be elicited in all cases of AA. More research is required to explore the relationship between SLE and AA.

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