

## Case Report

### Unusual haematological findings in a case of disseminated tuberculosis

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#### Abstract

A 40 year old female presented with low grade fever and weight loss. On examination, she had mild pallor, hypertension, cervical lymphadenopathy and mild splenomegaly. Haematological investigations revealed anaemia with marked thrombocytosis and leucocytosis. Ultrasonography of abdomen showed splenomegaly with minimal ascites and left sided pleural effusion which was exudative in nature. FNAC from the neck gland was suggestive of tuberculosis. A diagnosis of disseminated tuberculosis was made on the basis of FNAC findings and pleural fluid study. The lady responded to standard anti-tubercular therapy with resolution of haematological changes.

**Key words:** Tuberculosis; antitubercular agents; thrombocytosis.

#### Introduction

Tuberculosis has varied clinical manifestations. Haematological abnormalities are often an overlooked aspect of the disease. A wide spectrum of haematological findings have been described in tuberculosis which are atypical and revert back to normal with successful treatment of tuberculosis. These findings can initially lead to a diagnostic confusion in a case of tuberculosis. A case of disseminated tuberculosis presenting with marked thrombocytosis and leucocytosis which responded to antitubercular therapy, is being highlighted.

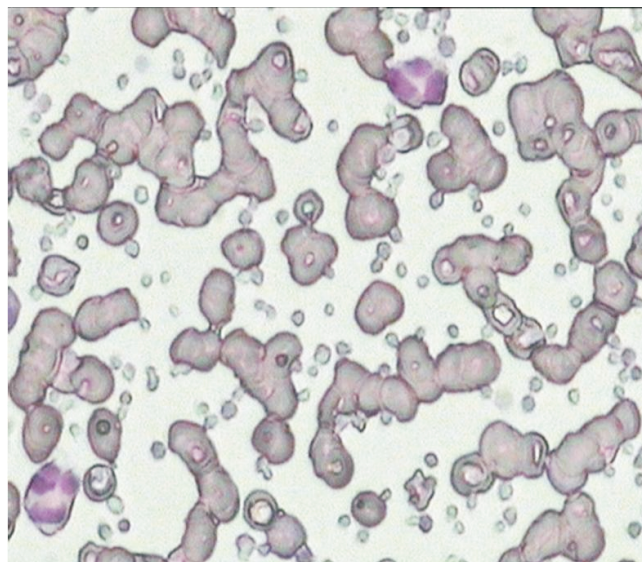
#### Case report

A 40 years female presented to medical out-patient department with history of decreased appetite of four months duration along with weight loss, low grade evening rise of temperature and malaise of one month duration. Past history and menstrual history were uneventful. She lived with her ex-serviceman husband.

Examination revealed mild pallor, glossitis, body mass index of 20.4 kg/sq. m, stage I hypertension, a left sided soft non-tender supraclavicular lymph node of size 0.5 cm, left pleural effusion and mild

splenomegaly. Cardiovascular system examination did not reveal any abnormality and there was no evidence of hepatomegaly or ascites.

Haematological investigations revealed total leucocyte count (TLC) of  $44.46 \times 10^9/L$ , haemoglobin of 11.6 g/dL, haematocrit 36.6% and platelet count of  $2550 \times 10^9/L$ . Differential leucocyte count (DLC) showed polymorphonuclear leucocytosis- 91% with



**Figure 1- Leishman stained Peripheral Blood Film showing innumerable platelets**

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marked shift to the left. Peripheral smear showed innumerable platelets (figure 1).

ESR and CRP were elevated. Her blood urea, creatinine, fasting blood sugar, fasting lipid profile, electrolytes, serum transaminases and TSH were within normal range. Alkaline phosphatase was mildly raised at 156 U/L, but serum iron, TIBC and % saturation were normal.

Her chest X-ray showed left sided pleural effusion. ECG was normal. Ultrasonography of abdomen showed mild splenomegaly, few enlarged lymph nodes at porta hepatis, minimal ascites and left sided pleural effusion. Her Mantoux test was negative. Sputum examination did not reveal any AFB. She was non-reactive for HIV-1 & 2 antibodies.

Bone marrow examination revealed myeloid hyperplasia and severe megakaryocytic hyperplasia. Stainable iron was present in marrow. JAK2 V617F mutation was not detected and karyotyping was normal. Bone marrow sample was sent for mycobacterial culture, which later did not show any growth.

FNAC from the cervical lymph node was consistent with tubercular lymphadenitis. The pleural fluid study revealed an exudative effusion.

A diagnosis of “disseminated tuberculosis with reactive thrombocytosis and leucocytosis” was made and the lady was initiated on anti-tubercular therapy (ATT) with Rifampicin (R), Isoniazid (H), Ethambutol (E) and Pyrazinamide (Z) for 2 months followed by RH for another 4 months along with treatment for hypertension. The lady was afebrile by 2nd week of therapy. Her TLC, Hb, platelet count and liver enzymes were monitored weekly for initial one month and monthly thereafter. Her TLC and platelet count started decreasing by 3rd week of ATT. TLC, DLC and platelet counts became normal by 5th month of ATT. Her blood pressure was controlled on telmisartan 40 mg daily. She gained 4 kg weight at the end of six months of ATT.

## Discussion

Haematological changes in disseminated tuberculosis are varied. Pancytopenia,

leukoerythroblastic anaemia, thrombocytopenia, marked thrombocytosis, neutrophilia, monocytopenia, monocytosis and anaemias of different types have been described [1, 2, 3]. Thrombocytosis and leucocytosis have been associated with tuberculosis but are uncommon findings. Chakrabarti et al have found thrombocytopenia and leucopenia to be much more common than thrombocytosis - single case [4]. Baynes et al found 9% patients with tuberculosis having thrombocytosis  $>1000 \times 10^9/L$  [5].

The pathogenesis of thrombocytosis in tuberculosis is not clear. It has variously been attributed to increased thrombopoietin [6] or production of platelets in pulmonary vasculature by fragmenting proplatelets [7]. Even in a diagnosed case of tuberculosis presence of marked thrombocytosis and leukocytosis with shift to the left in the same patient can be a diagnostic dilemma.

Other coexisting haematological conditions like myeloproliferative disorders need to be excluded as case reports of presence of atypical cells in peripheral blood picture have been reported earlier.

Jadhav et al described blast cells with Auer bodies in disseminated tuberculosis [8]. Subramanian et al had reported a case of acute myeloid leukaemia which showed disseminated tuberculosis but no leukaemia on autopsy [9]. Detection of JAK2 V617F mutation and karyotyping may be helpful to exclude coexisting myeloproliferative disorders. Since these tests are not easily available, the clue to the diagnosis of the haematological changes in such cases can be from meticulous physical examination along with different haematological, biochemical and radiological investigation besides response to ATT. Awareness of haematological abnormalities in tuberculosis will also help in diagnosis.

## Key Points

- Varied haematological manifestations can occur in Tuberculosis.
- Haematological findings can be a diagnostic dilemma.
- Haematological findings should be interpreted taking the entire clinical picture into consideration.

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