ORIGINAL RESEARCH PAPER

Paediatric Medicine

A RARE HEMATOLOGICAL MANIFESTATION OF MILIARY TUBERCULOSIS

KEY WORDS: Immune thrombocytopenia, Miliary TB, Antitubercular therapy

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ABSTRACT

Background: This case highlights a different way tuberculosis (TB) may present and that, in an at-risk population, it should remain at the top of your differentials. Immune thrombocytopenia is a relatively rare hematological manifestation in tuberculosis. **Clinical Description:** An 11 years old male child presented to ER with profuse nasal bleeding along with rashes present all over body. On blood investigation there was severe thrombocytopenia and bone marrow biopsy revealed increased number of megakaryocytes. A BAL Xpert study and a high-resolution CT of the chest confirmed miliary tuberculosis (TB). He was initiated on anti-TB medication and made a rapid recovery. **Management And Conclusion:** Tuberculous etiology of thrombocytopenia was confirmed on CT scan and bronchoalveolar lavage that was positive for GeneXpert. Patient responded to antitubercular therapy with increase in platelet count.

CASE REPORT

An 11 years old male child presented to the emergency department with profuse nasal bleeding following a acute history of rashes all over the body. He had also noticed multiple petechial rashes first developing on face and then over entire body predominantly on both lower limbs. In addition, he had complaint of blood in sputum 1 day back.

Patient was taken to nearby private hospital 1 day back where blood investigation was done (Hemoglobin: 12, Total leucocyte count: 12870, Platelet: 90000, Urine microscopy: Normal and OPD based treatment given (tablet amoxicillin and symptomatic treatment)

On onset of nasal bleeding patient was taken to tertiary centre for further management.

He had no significant family history or past history of illness, admission, operation or blood transfusion.

Patient was partially immunised with BCG scar present.

On initial assessment she was afebrile, normal heart rate but mildly tachypnoeic, oxygen saturation at room air was 97%. Blood clots were seen in nose and petechie observed over face and limbs. Of note, he had no peripheral lymphadenopathy but had some pallor with no icterus, clubbing or cyanosis. His chest was clear on auscultation.

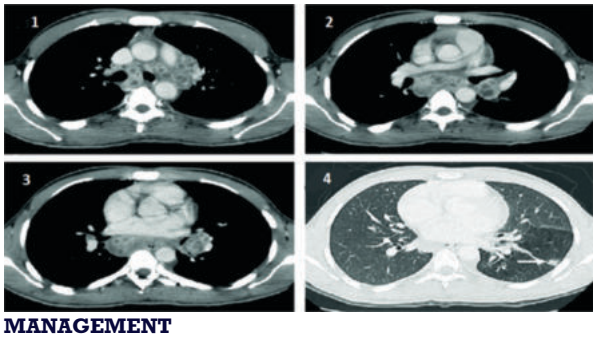
Hemogram showed low platelets (15,000/ cu.mm), total leucocyte count of 1000 with neutrophile predominance (80%) and erythrocyte sedimentation rate (ESR) of 33 mm/h. Peripheral smear showed severe thrombocytopenia and no blast cells.

Coagulation profile along with renal function test and liver function test was normal.

Chest X ray revealed hilar lymphadenopathy and posterior mediastinal mass.

High resolution computed tomography (HRCT) of lungs showed miliary spread of infection with conglomerated necrotic mediastinal lymph adenopathy. Sputum for acid fast bacilli (AFB) was negative but bronchoalveolar lavage (BAL) Xpert was positive and sensitive to Rifampicin. Ultrasound of the abdomen was normal. Bone marrow aspirate showed normocellular marrow, normal maturation of erythroid and myeloid precursors and increased megakaryocytes. No hemophagocytic cells were seen. D-dimer and fibrinogen level were all within the normal limits. Direct Coombs test, serological tests for Hepatitis B virus, Hepatitis C virus and HIV were negative.

Figure 1- CT Thorax finding suggestive of hilar lymph nodes.



MANAGEMENT

A diagnosis of miliary TB with immune thrombocytopenia was made. Anti tuberculosis treatment including Isoniazid, Rifampicin, Ethambutol and Pyrazinamide was begun along with prednisolone 1 mg/kg/day.

Patient responded with increase in the platelet count and no repeat episode of bleeding was observed.

Patient and parents were counselled on the risks and side effects of his anti-TB medications.

DISCUSSION

As of 2012 India has the highest incidence of the disease with an estimated 2.2 million cases, accounting for 26% of the global incidence according to the World Health Organization statistics. The diagnosis of miliary TB can be fraught with difficulties. [1] The insidious course that the infection takes, the non-specific symptoms that it may present with and the delay in obtaining a microbiological or histological diagnosis all contribute to the delay to diagnosis and consequent high morbidity and mortality. Our patient had the constitutional symptoms associated with TB and was from a country with high TB prevalence.

However, his symptoms were predominantly hematological

and, although TB had been considered as part of the differential diagnosis initially, due to her relative lack of respiratory symptoms and negative sputum report, alternative diagnoses were considered more likely.

Thrombocytopenia in TB may occur owing to defective platelet production in the context of pancytopenia due to bone marrow infiltration, histiophagocytosis, thrombotic thrombocytopenic purpura, disseminated intravascular coagulation, immune mediated platelet destruction or as an adverse effect of therapy with rifampicin and isoniazid.[2]
The mechanism of TB-related immune thrombocytopenia is not clear. One theory is that antiplatelet antibodies may be produced by activation of a clone of B-lymphocytes by Mycobacterium TB.[3] Another is, Mycobacterium TB may share antigen with platelets leading to antiplatelet antibody.[4]

Our patient had petechiae and epistaxis without any significant constitutional symptoms and with chest Xray suggestive of mediastinal mass initially indicating towards malignancy. But CT scan done later confirmed miliary spread and necrotic hilar lymph adenopathy suggesting more of tubercular etiology. Tuberculous infection was later confirmed on bronchioalveolar lavage which was positive for GeneXpert.

Correction of platelet count on antitubercular therapy was suggestive of tuberculous etiology of thrombocytopenia Miliary TB is a life-threatening condition that if left untreated is often fatal, usually within a year.[5] The WHO and the National Institute for Health and Care Excellence (NICE) advocate 6 months of treatment with prolonged courses in the case of bone, joint or CNS involvement.[6][7] There is no clear evidence that shows the benefit of corticosteroids in the management of miliary TB alone. However, in the presence of hypoadrenalism there is an absolute indication for the use of corticosteroids. There is evidence of benefit in CNS involvement, pericardial or pleural effusions, endobronchial TB, IRIS, ARDS, immune complex nephritis or histiocytic phagocytosis syndrome but further work is needed in this field.[5]

CONCLUSION

TB-related immune thrombocytopenia is a rare hematological manifestation of a common disease. A prompt diagnosis and early intervention is key to survival in cases of miliary TB.

Given the barriers for prompt microbiological or histological diagnoses, much emphasis is placed on clinical judgement and this case highlights how important it is to revisit diagnoses and repeat investigations according to the patient's clinical course.

It may be treated with immunosuppressants along with ATT. TB should be considered as a cause of immune thrombocytopenia in endemic areas and more research is needed to elucidate the pathogenesis of TB-related immune thrombocytopenia.

LEARNING POINTS

1] Diagnosis of tuberculosis (TB) can be difficult, particularly in miliary TB.
2] Immune thrombocytopenia can be an uncommon but serious feature of tuberculosis.
3] If there is a high index of clinical suspicion of TB, treatment should be started promptly in conjunction with attempts to seek microbiological confirmation of the diagnosis.

Footnote
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Conflict of Interest: None declared
Patient consent: Obtained.

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