CASE REPORT

INTRODUCTION

A myriad of hematological abnormalities have been reported in association with tuberculosis (TB) such as anemia, leucocytosis, and pancytopenia.[1] Thrombocytopenia occurring in association with TB is often induced by antituberculous drugs.[2] It can also occur via non-immunogenic means in the context of pancytopenia that develops secondary to granulomatous infiltration of the bone marrow. A causal association between TB and immune thrombocytopenia is extremely rare. We report a case of pulmonary TB with immune thrombocytopenia as the presenting manifestation. High dose intravenous immunoglobulin therapy along with antituberculous drugs corrected the thrombocytopenia and also cured pulmonary tuberculosis. This case report illustrates the causal association between immune thrombocytopenia and tuberculosis.

CASE REPORT

A 25-year-old previously healthy, non-smoker female was admitted in our hospital with history of fever and productive cough for 1 month and purpuric spots over all limbs for last 2 weeks. There was no history of arthralgia and weight loss. She was not on any medication at the time of admission. Past history and family history were non-contributory. On physical examination, she was alert and well–nourished. Her blood pressure was 110/82 mm Hg, pulse rate 100 beats/min; respiratory rate 20 breaths/min and oral temperature 38.0°C. She had non-tender, non-palpable purpuric spots over the all 4 limbs [Figure 1]. She had no pallor, sternal tenderness or mucosal bleeding. There was no hepatosplenomegaly or lymphadenopathy. Occasional coarse inspiratory crepitations were heard over the left infraclavicular area. Initial investigations revealed Hb- 9.2 g/dL with MCV- 78.9fl, WBC count 10,400/mm³ with 68% neutrophils, 30% lymphocytes, and 2% eosinophils. Platelet count was 36,000/mm³ and ESR 90 mm/1st hour. Peripheral blood smear was remarkable for paucity of platelets. Hemoglobin electrophoresis was normal. Bone marrow biopsy revealed a cellular marrow with normal maturation of myeloid and erythroid series. Megakaryocytes were increased in number with normal morphology. No granuloma was detected. Bone marrow culture for Mycobacterium tuberculosis was negative. Coagulation profile and blood biochemistry were normal. Antinuclear factor and Rheumatoid factor were negative. Serology for an HIV
Bairagya, et al.: Purpura in pulmonary tuberculosis

was non-reactive. Sputum smear microscopy was positive for acid fast bacilli (AFB). Chest radiograph revealed an infiltration in the left upper zone [Figure 2].

From these clinical, microbiological, hematological, and radiological findings, she was diagnosed to be having immune thrombocytopenia along with new sputum smear positive pulmonary TB. She was put on WHO Category-I antituberculous drugs with isoniazid, rifampicin, pyrazinamide and ethambutol. High dose intravenous immunoglobulin (IVIG) infusion (0.5 g/kg/day) was started on day 1 and continued for total 5 days. The platelet count normalized on 3rd day [Figure 3] and remained normal during the course of treatment. Sputum smear was negative for AFB at the end of 2nd, 4th and 6th month of chemotherapy. Thrombocytopenia did not recur during follow-up for 1 year after completion of chemotherapy.

DISCUSSION

Thrombocytopenia in TB is usually a complication of therapy with antituberculous drugs like rifampicin, ethambutol, and pyrazinamide.[2] However, many mechanisms specific for the disease itself can produce thrombocytopenia. Bone marrow changes like fibrosis, granulomatosis, amyloidosis, and necrosis can cause thrombocytopenia along with decrease in other cell lines.[1,3] Other causes of non-immune thrombocytopenia in association with tuberculosis include hypersplenism,[4] intravascular coagulation,[5] thrombotic thrombocytopenic purpura[6] and hemophagocytic syndrome.[7]

Immune thrombocytopenia in association with or as a presenting manifestation of TB is very rare. Though usually reported in association with pulmonary TB,[8] it is also documented with mediastinal,[9] disseminated,[10] and lymph node TB.[11] Immunological basis of TB-induced thrombocytopenia was supported by the presence of either platelet antigen specific antibodies or by platelet surface membrane IgG in few case reports.[12,13] It is postulated that Mycobacterium tuberculosis could stimulate a clone of B lymphocytes directed against autologous platelets and produce antiplatelet antibodies.[12] Moreover, purified protein derivative of tuberculin may be a non-specific stimulator for B lymphocytes.[14] Boots et al.[13] described a case of immune thrombocytopenia where platelet surface membrane IgG was detected by immunoflouresence study, but there was no circulating autoantibody.

There is sufficient reason to consider thrombocytopenia in our case to be due to immune mechanism. Normal bone marrow examination excluded production defect or hemophagocytic syndrome. Absence of hepatosplenomegaly as a possible cause of platelet consumption, absence of other major illness or relevant drug therapy and rapid recovery of platelet count with IVIG therapy are other clues. However, we could not assay antiplatelet antibody or platelet-associated IgG in

Figure 1: Showing purpuric spots in the upper limb

Figure 2: Chest X Ray (PA) showing infiltration in the left upper zone

Figure 3: Normalization of platelet count following therapy
our patient although their absence does not invalidate the diagnosis of immune thrombocytopenia. In fact, the guideline by the American Society of Hematology (1996) considers them as ‘unnecessary’ tests for diagnosis of immune thrombocytopenia.[13] Temporal association of TB with purpura, recovery of platelet count after stopping antituberculous drugs and IVIG, and absence of recurrence of thrombocytopenia after stopping antituberculous drugs are further evidences to suggest that thrombocytopenia was not co-existent with TB but was causally related to it.

CONCLUSION

The actual pathophysiology, clinical importance, and therapy of TB-related immune thrombocytopenia is not fully known. But, it is important that we recognize and consider TB as a treatable secondary cause of immune thrombocytopenia, especially in areas of high endemicity of TB.

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