Case Report

Immune thrombocytopenic purpura secondary to tuberculosis

Rishab Bharadwaj^{1*}, Deenadayalan Munirathnam¹, Somu Sivabalan²

¹Department of Hemato-Oncology, ²Department of Pulmonology, Kanchi Kamakoti Childs Trust Hospital, Chennai, Tamil Nadu, India

Received: 26 May 2018

Accepted: 26 June 2018

*Correspondence:

Dr. Rishab Bharadwaj,

E-mail: rishab11@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Immune thrombocytopenic purpura (ITP) is a clinical syndrome characterized by reduced number of circulating platelets. The cause of ITP remains unknown in most cases, although it can be triggered by a viral infection or other immune trigger. Although tuberculosis is associated with a wide range of hematological manifestations, ITP secondary to tuberculosis is a very rare manifestation, especially in children. We describe an 11-year-old female child who presented with skin and mucosal bleeds, thrombocytopenia and chronic submandibular lymphadenitis. Blood and bone marrow investigations were suggestive of ITP. She received IVIg, but response was unsatisfactory, hence she was started on steroids. Concurrently, GeneXpert of lymph node biopsy was positive for tuberculosis. A diagnosis of ITP secondary to tuberculous lymphadenitis was made. She received 6 months of anti-tuberculosis therapy. Steroids were tapered and stopped within 2 months. She responded well with restoration of normal platelet counts and regression of lymphadenopathy. Tuberculosis should be considered as one of the secondary causes of ITP, especially in highly endemic countries.

Keywords: Immune thrombocytopenic purpura, Tuberculosis, Tuberculous lymphadenitis

INTRODUCTION

Immune thrombocytopenic purpura (ITP) is a clinical syndrome characterised by reduced number of circulating platelets. ITP in the absence of other causes or disorders that may be associated with the thrombocytopenia is known as primary ITP. Secondary ITP refers to immune-mediated thrombocytopenia with an underlying cause, such as drug-induced, or associated with systemic illness. Tuberculosis is one of the most widespread communicable diseases in developing countries, due to a wide variety of well documented predisposing factors. As of 2016, India has the highest incidence of the disease with an estimated 2.79 million cases, accounting for about 25% of the global incidence according to the World Health Organization statistics.¹ A wide spectrum of hematological manifestations of tuberculosis has been observed, although an association with immune

thrombocytopenia is quite rare and there have been few reports to date.^{2,3} We report the case of an 11-year-old girl diagnosed with tuberculous lymphadenitis induced immune thrombocytopenic purpura, who responded well to anti-tuberculosis therapy and steroids.

CASE REPORT

An 11-year-old girl was admitted to our hospital with complaints of new onset petechiae, ecchymoses and gum bleeds. She was recently evaluated for chronic right submandibular lymphadenitis. Her FNAC showed inflammatory changes and was attributed secondary to dental caries for which she was treated with antibiotics. On examination, she had petechiae and ecchymoses all over the body, more over the lower limbs. An isolated submandibular lymph node of approx. 2.5 cm × 2.5 cm was palpable on the right. Initial laboratory investigations

revealed Hemoglobin 10.9 g/dL, WBC count $4.6 \times 10^9/L$ and platelets $5 \times 10^9/L$. The peripheral smear showed marked thrombocytopenia with occasional giant platelets. In view of significant lymphadenopathy, skin bleeds and thrombocytopenia, bone marrow aspirate was done which showed increase in size and number of megakaryocytes, with normal erythroid and myeloid maturation, suggestive of ITP. The child received 1g/kg of IVIg. There was no satisfactory response, hence intravenous Methylprednisolone was given for 3 days.

On further evaluation, Ultrasonogram (USG) of neck showed lymph node with central caseation. USG abdomen showed multiple enlarged lymph nodes in retroperitoneum and paraaortic region. Computed tomography of abdomen showed multiple enlarged lymph nodes with ileocaecal thickening. Mantoux test was positive (20 mm induration with 2 TU). Hence, a lymph node excision biopsy was done which revealed confluent granulomatous lymphadenitis, suggestive of tuberculosis. Gene Xpert was positive. On careful probing, it was revealed that there was household contact with tuberculosis in a paternal uncle, who had completed treatment recently. She was started on anti-tuberculosis therapy (ATT) - Category I. Steroids were switched to oral Prednisolone. Platelets gradually increased to $79 \times 10^9/L$. She was discharged on Prednisolone (2mg/kg/day) and ATT. On follow up, her platelet counts improved further, and steroids were tapered.

She developed ATT induced hepatitis, ATT was stopped and re-introduced in a phased manner. ATT was given for 6 months (2HRZE + 4HRE). On a year follow up, her CBC showed Hemoglobin 11.1 g/dL, WBC count $5.2 \times 10^9/L$ and platelets $245 \times 10^9/L$ and she had no significant lymphadenopathy.

DISCUSSION

Various hematologic abnormalities such as anemia, leukocytosis, monocytosis, lymphopenia, leucopenia, thrombocytopenia, thrombocytosis, leukemoid reactions and pancytopenia have been seen in tuberculosis.⁴ The occurrence of thrombocytopenia in tuberculosis could be due to a variety of causes such as granulomatous infiltration of bone marrow causing pancytopenia, thrombotic thrombocytopenic purpura or hemophagocytic lymphohistiocytosis.⁵

Immune thrombocytopenic purpura in association with tuberculosis infection is extremely rare in the paediatric population which is evidenced by the paucity of literature on the same.⁶⁻⁹ A review of the published paediatric case reports of immune thrombocytopenia associated with tuberculosis has been summarised (Table 1).

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 tuberculosis*.⁹ Another is, *Mycobacterium tuberculosis* may share antigen with platelets leading to antiplatelet antibody.¹⁰ In two case reports immunofluorescence studies with platelets and mycobacteria showed the presence of platelet surface membrane IgG.^{9,11}

Although we could not perform immunofluorescence studies to detect anti-platelet antibodies, it does not invalidate the diagnosis of immune thrombocytopenia. The American Society of Haematology's 2011 guidelines considered platelet associated IgG assay unnecessary to confirm the diagnosis of ITP.¹²

Table 1: Clinical profile of pediatric cases with immune thrombocytopenia associated with tuberculosis.

Report	No. of cases	Pathology	Plt on admission	Treatment
Present report	1	Cervical lymphadenitis	5000/cu.mm	IVIg + ATT + steroids
Jurak et al ⁹	1	Cervical lymphadenitis	42000/cu.mm	ATT only
Singh et al ⁸	1	Cervical lymphadenitis	29000/cu.mm	ATT + steroids
Bakhshi et al ⁶	1	Cervical lymphadenitis	28000/cu.mm	ATT only
Krishnamurthy et al ⁷	1	Mediastinal lymphadenitis	21000/cu.mm	ATT only

Immune thrombocytopenic purpura is a diagnosis of exclusion. In the patient, there was no hepatosplenomegaly to suggest platelet consumption. Bone marrow study was also highly suggestive of ITP and excluded any production defect or hemophagocytosis. Absence of renal insufficiency, hemolytic anemia and neurological signs made TTP unlikely.

Although it could be considered that immune thrombocytopenia was a coincidental presentation with

TB lymphadenitis, the temporal association of both and the response of the child to ATT was quite significant in establishing tuberculosis as the trigger for ITP. Treatment decisions in the paediatric population have varied between ATT only or a combination of ATT with steroids.⁶⁻⁹ Steroids were administered to our patient in combination with ATT as there was active mucosal bleeding.

To summarize, a high index of suspicion for TB is essential and should be considered as one of the

secondary causes of ITP, more so in high endemic countries.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not Required

REFERENCES

1. World Health Organization. Global tuberculosis report. 2016. Available at: <http://www.searo.who.int/tb/documents/global-tuberculosis-report-2016/en/>
2. Kashyap R, Chaudhary VP. Haematological manifestations of tuberculosis. Tuberculosis, New Delhi: Jaypee Brothers Medical Publishers (P) Ltd; 2006;370-9.
3. Kakil IR, Mubarak AA, Al Suob H, Burney MA, Al Azawi SH, Aboudi K. Tuberculosis presenting as immune thrombocytopenia: a case report and review of the literature. Qatar Med J. 2006;2006(1):20.
4. Goldenberg AS. Hematologic abnormalities and mycobacterial infections. Tuberculosis. 1996;645-55.
5. Madkaikar M, Ghosh K, Jijina F, Gupta M, Rajpurkar M, Mohanty D. Tuberculosis and immune thrombocytopenia. Haematol. 2002;87(8):ELT38.
6. Bakhshi S, Kabra M, Iyer VK, Arya LS. Thrombocytopenic purpura as a presenting manifestation of tubercular lymphadenitis. Indian J Pediatr. 2003;70(12):993-4.
7. Krishnamurthy S, Yadav S. Immune thrombocytopenic purpura as a presentation of childhood tuberculosis. Indian J Pediatr. 2007;74(9):853-5.
8. Singh SP, Misra GC, Prusty PK, Das RK. Tubercular lymphadenitis with purpura. J Indian Med Assoc. 1986;84:247-9.
9. Jurak SS, Aster R, Sawaf H. Immune thrombocytopenia associated with tuberculosis. Clinic Pediatr. 1983;22(4):318-9.
10. Cines DB, Blanchette VS. Immune thrombocytopenic purpura. N Engl J Med. 2002;346(13):995-1008.
11. Boots RJ, Roberts AW, McEvoy D. Immune thrombocytopenia complicating pulmonary tuberculosis: case report and investigation of mechanisms. Thorax. 1992;47(5):396-7.
12. Neunert C, Lim W, Crowther M, Cohen A, Solberg L, Crowther MA. The American Society of Hematology 2011 evidence-based practice guideline for immune thrombocytopenia. Blood. 2011;117(16):4190-207.

Cite this article as: Bharadwaj R, Munirathnam D, Sivabalan S., Immune thrombocytopenic purpura secondary to tuberculosis. Int J Contemp Pediatr 2018;5:2008-10.