

PRIMARY PULMONARY TUBERCULOSIS IN A BOY WITH CHRONIC IMMUNE THROMBOCYTOPENIC PURPURA

Vojko ROŽMANIĆ, Kristina LAH-TOMULIĆ,
Vladimir AHEL, Miljenka SMOKVINA, Srđan BANAC, Neven ČAČE

Pediatric Clinic
Clinical hospital center Rijeka
Rijeka
University of Rijeka
Croatia

A case of a fifteen-year-old boy with chronic immune thrombocytopenia (ITP) who developed primary pulmonary tuberculosis (TB) is presented. Such association is extremely rare in children. Searching the literature we identified only a few articles in which tuberculosis and thrombocytopenia were associated. It remains unclear whether chronic ITP and pulmonary TB are really an association or just a coincidence.

Key words: Chronic immune thrombocytopenic purpura ▪
Primary pulmonary tuberculosis

Vojko Rožmanić
Children's Hospital "Kantrida"
Istarska 43
51000 Rijeka
Croatia
e-mail: vojko.rozmanic@medri.hr
Tel.: + 385 51 659 111

Introduction

Immune thrombocytopenic purpura (ITP) in children is mostly a benign disease presenting with skin purpura and minor bleeds. ITP in children has usually an acute sudden onset and history of recent viral infection. Chronic course, which is defined as persistence of thrombocytopenia for more than 6 months, is rare in children (1). Pathophysiology of chronic ITP suggests a dysregulated immune response leading to an autoimmune process. Sometimes it is associated with chronic diseases, such as HIV infection, systemic lupus erythematosus and lymphocytic leukaemia (2, 3). There are a few reports connecting ITP with tuberculosis (TB). ITP could be the only abnormality in about 1% cases with active TB (4). A case of a fifteen-year-old boy with chronic ITP who developed primary TBC is presented. To our knowledge such association is extremely rare in children. Just a few cases have been previously reported.

Received: September 30, 2009

Accepted: November 3, 2009

Pedijatrija danas 2010;6(2):207-210

Case report

A boy was admitted to our hospital for the first time as a nine-month-old infant because of patchy skin bleedings on legs and chest. Four weeks formerly he had a respiratory infection. Blood count showed mild anaemia (Hb 110 g/l) and decreased platelet count of $26\,300/\text{mm}^3$. Other laboratory findings including serum levels of immunoglobulins were within normal ranges. Two weeks later skin bleeding disappeared and platelet count increased to $38\,000/\text{mm}^3$. No pharmacotherapy was administered. Four months later the boy was without clinical manifestations of bleeding. Platelet count ($97\,000/\text{mm}^3$) was still low.

At the age of 2.5 the boy had mucous bleeding, petechia and bruising on the body. Platelet count decreased to $20\,000/\text{mm}^3$. In spite of the administration of intravenous gammaglobulin (IVIG) 0.4 g/kg platelet count ($18\,250/\text{mm}^3$) persisted to be low.

Through the following five years the boy experienced three more exacerbations of ITP. Platelet count ranged from 8000 to $55\,000/\text{mm}^3$. At the age of seven he had a persistent cough that lasted for one month. He was pale and tired. Lung radiography was normal. Laboratory findings showed elevated erythrocyte sedimentation rate (155/163), anaemia (Hb 55 g/l) and increased platelet count ($670\,000/\text{mm}^3$). Irregular antibodies, Coombs test and antierythrocyte antibodies were negative. The boy received erythrocyte transfusion and systemic treatment with glucocorticoids. Mild thrombocytopenia and bruising tendency persisted for the next five years.

At the age of 15 the boy had lasting fever and chronic cough again. Complete blood count showed to be normal except decreased platelet count of $40\,000/\text{mm}^3$. Lungs radiography showed infiltrate of the upper right lobe and hilar lymph node enlargement (Figure 1).

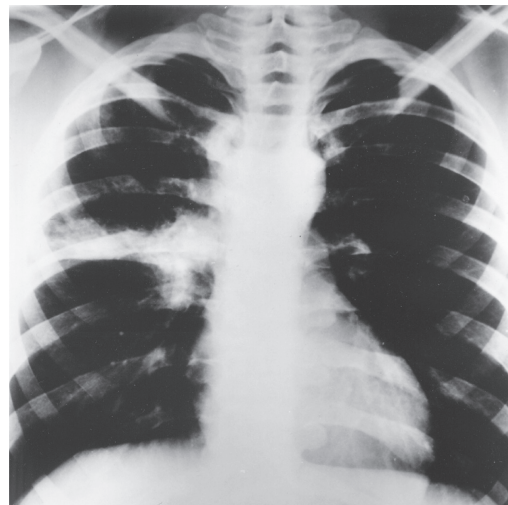


Figure 1 Infiltrate of the upper right lobe and hilar lymph node enlargement

Slika 1 Infiltracija gornjeg desnog reznja i uvećanje hilarnog limfnog čvora

Bronchoscopy revealed extramural compression of the posterior wall of the right principal bronchus and secretion of pus-like material originating from segmental bronchal orifices of the right upper lobe. Computerized tomography of lungs confirmed former diagnosis (Figure 2)

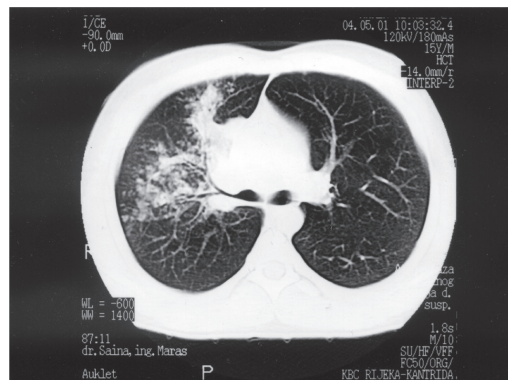


Figure 2 Computerized tomography of lungs: extramural compression of the posterior wall of the right principal bronchus

Slika 2 Kompjuterizirana tomografija pluća: ektramuralna kompresija stražnje stijenke desnog glavnog bronha

Tuberculin skin test was positive. *Mycobacterium tuberculosis* was detected in cultures of sputum and bronchal aspirate. Serological tests for hepatitis A, B, C, and for HIV-1 were negative. Serum levels of immunoglobulins, complement activity, CD4 count and CD4/CD8 ratio were all normal. Additional laboratory studies including rheumatoid factor, antinuclear and antiphospholipid antibodies were negative. The boy had a positive history of bacille Calmette-Guerin (BCG) vaccination according to the non selective obligatory national vaccination programme (3th day of life) and a negative history of close household contact with TB infected person. A triple regimen of antituberculous drugs (isoniazid, rifampin, ethambutol) has been introduced for two months. It was followed by direct observed therapy with isoniazid and rifampin twice weekly for the next seven months. So far the boy was without symptoms. Sputum cultures were negative. Platelet count (20000/mm³) was still decreased.

Discussion

IITP is a common acquired bleeding disorder occurring usually among previously healthy children. Children with IITP typically present with an acute sudden onset of signs of hemorrhagic diathesis. The onset of IITP is usually associated with a history of an acute viral infection that precedes IITP for several weeks. It is mostly a self limited condition with spontaneous recovery in 80-90% of pediatric patients. In 10-20 % cases thrombocytopenia can persist for more than six months and takes a chronic course. The pathogenesis is related to platelet antigen-specific antibodies. The antibodies are not demonstrable in all patients, and their presence is not important for further management decisions. Chronic IITP in children is an autoimmune process which seems to be reversible in many cases (5). Pharmacotherapy is usually not required. Systemic administration of glucocorticoids and IVIG, or splenectomy

should be considered in severe cases. The incidence of TB cases in developed countries has increased mostly because of patients with HIV infection and because of immigrants and refugees coming from countries where TB is endemic (6,7). The occurrence of TB in children implies recent transmission in the community and reflects the effectiveness of national TB control programs. Although primary infection occurs in children without specific immunity at any time during childhood, adolescence is the peak time of risk for TB infection. Despite to BCG vaccination in the number of TB cases have increased in some countries over the past decade. There is no evidence that the protection induced by bacille BCG vaccination lasts for more than 15 years (8).

The presented patient suffered from chronic IITP and primary pulmonary tuberculosis. Searching of the MEDLINE database only a few articles were detected in which tuberculosis and thrombocytopenia were associated (4, 9, 10, 11, 12). Clinically significant haematological abnormalities, particularly thrombocytopenia, are rarely observed in active TB. Haematological discrasia is likely to be associated with antituberculous therapy, especially with administration of rifampin and isoniazid. Among 846 cases of active TB, in only 9 (1%) patients seemed that IITP was as the leading clinical manifestation (4).

TB and IITP are not rare diseases and the conjunction in this patient does not require a linked pathogenesis. However, paediatric cases of chronic IITP who developed pulmonary TB, to our knowledge, have not yet been reported. We believe that these two conditions may have some common underlying immunological disorders involving interleukins or cytokines, but in this case an extensive immunological evaluation that might clarify the nature of the exacerbation of IITP with the onset of the TB had not been performed. It remained unclear whether chronic IITP and pulmonary TB were really an association or just a coincidence.

Conflict of Interest: The authors declare that they have no conflict of interest. This study was not sponsored by any external organisation.

Sukob interesa: autori su se izjasnili da nisu u sukobu interesa. Studija nije bila sponzorirana od neke vanjske institucije.

References

1. Medeiros D, Buchanan GR. Major haemorrhage in children with idiopathic thrombocytopenic purpura - immediate response to therapy and long-term outcome. *J Pediatr.* 1998;133:334-9.
2. Levin M. Acute hypersplenism and thrombocytopenia - a new presentation of disseminated mycobacterial infection in patients with acquired immunodeficiency syndrome. *Acta Haematol.* 1994;91:28-31.
3. Mestanzaperalta M, Arizaariza R, Cardiel MH, Alcocervarela J. Thrombocytopenic purpura as initial manifestation of systemic lupus erythematosus. *J Rheumatol.* 1997; 24:867-70.
4. Almajed SA, Almomen AK, Alkassimi FA, Alzeer A, Kambal AM, Baaqil H. Tuberculosis presenting as immune thrombocytopenic purpura. *Acta Haematol.* 1995; 94:135-8.
5. Winiarski J. Mechanisms in childhood idiopathic thrombocytopenic purpura (ITP) *Acta Pediatr.* 1998;87(Suppl 424):54-6.
6. Rožmanić V, Ahel V, Kilvain S, Banac S, Gazdik M. Pulmonary tuberculosis with gallbladder involvement: a review and case report. *Pediatr Internat.* 2001;43:511-13.
7. Milburn HJ. Primary tuberculosis. *Curr Opin Pulm Med.* 2001;7:133-41.
8. Fine PE. BCG: the challenge continues. *Scand J Infect Dis.* 2001;33:243-5.
9. Talbot S, Dowling A, Dowling JP, Fuller A, Schwarz M: Medistinal nodal tuberculosis presenting as immune thrombocytopenia. *Aust N Z J Medicine.* 1988;28:465-6.
10. Ghohrial MW, Albornoz MA. Immune thrombocytopenia: a rare presenting manifestation of tuberculosis. *Am J Hematol.* 2001;67:139-43.
11. Garrido-Colino C, Saavedra-Lozano J. Severe thrombocytopenia in a child secondary to pulmonary tuberculosis. *J Pediatr Hematol Oncol.* 2008;30:407-8.
12. Krishnamurthy S, Yadav S. Immune thrombocytopenic purpura as a presentation of childhood tuberculosis. *Indian J Pediatr.* 2007 ;74:853-5.

Sažetak

PRIMARNA PLUĆNA TUBERKULOZA U DJEČAKA S KRONIČNOM IMUNOM TROMBOCITOPENIJOM

*Vojko ROŽMANIĆ, Kristina LAH-TOMULIĆ,
Vladimir AHEL, Miljenka SMOKVINA, Srđan BANAC, Neven ČAČE*

Klinika za dječje bolesti, Klinički bolnički centar, Sveučilište u Rijeci, Republika Hrvatska

Prikazan je slučaj dječaka s kroničnom imunom trombocitopenijom purpurom u kojeg se razvila primarna plućna tuberkuloza. Pregledom literature nađeno je samo nekoliko članaka koji povezuju kroničnu imunom trombocitopeniju u djece s primarnom plućnom tuberkulozom. Ostaje nejasno da li su ove dvije bolesti u svezi ili je njihova pojava samo koincidencija.

Ključne riječi: Kronična imuna trombocitopenija ■ Primarna plućna tuberkuloza

Primljeno: 30. 9. 2009.

Prihvaćeno: 3. 11. 2009.