

Hematological manifestations in patients with newly diagnosed pulmonary tuberculosis

Introduction

Tuberculosis (TB), particularly TB is still a major public health problem of the world. Pulmonary eosinophilia,^{1,2} Hypereosinophilia,³ Reactivethrombocytosis,⁴⁻⁶ Thrombocytopenia,⁷ Disseminated intravascular coagulation,⁸ Deep venous thrombosis,⁹ Henoch-Schonlein purpura,¹⁰⁻¹² Leukocytosis with neutrophilia,^{7,13} Lymphocytopenia,^{11,14} Monocytopenia,¹⁵ Lymphocytosis,¹⁶ Monocytosis,⁷ Severe leucopenia,^{7,15} Idiopathic thrombocytopenic purpura,^{16,17} Pancytopenia^{7,13,18} Could be found in patients with newly diagnosed pulmonary TB.

Hereditary glucose-6-phosphate dehydrogenase deficiency and pulmonary tuberculosis

A study in Azerbaijan, a state of former Soviet Union demonstrated that the etiological role of this abnormality as a genetic marker for pulmonary TB was 14% in associated pulmonary tuberculosis and alcoholism, it grew to 18%.¹⁹ Another study in this region also showed a high incidence of this hereditary disorder among patients with pulmonary TB.²⁰

Hematological malignancies and pulmonary tuberculosis

Pulmonary military TB have been reported among patients with acute myeloid leukemia, chronic myeloid leukemia, acute lymphocytic leukemia, Hodgkin's disease, T-cell lymphoma and myelodysplastic syndrome.²¹⁻²³

Sickle cell disease and tuberculosis

Sickle cell disease was reported in patients with TB in France and Africa.²⁴⁻²⁶ Many reports suggest that severe pulmonary TB in association with reduced tissue cellular reaction may cause blood dyscrasias. Anemia was present in 32% of cases. Leucopenia with neutropenia and lymphopenia was seen in 15% of patients with very severe clinical TB. Active tuberculosis was associated with significant reductions in absolute numbers of B lymphocytes, but there were no significant differences in total T8-cell counts.¹⁵ There was reversal of T4/T8 ratio due to T4 lymphopenia. A study in Nigeria showed that 95% had normochromic picture while 5% demonstrated anisopoikilocytosis and polychromasia. The mean platelet counts did not change significantly from the initial value.²⁷

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Conflict of interest

The author declares no conflict of interest.

References

1. Vijayan VK, Reetha AM, Jawahar MS, et al. Pulmonary eosinophilia in pulmonary tuberculosis. *Chest*. 1992;101(6):1708-1709.

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Attapon Cheepsattayakorn,¹ Ruangrong Cheepsattayakorn²

¹Department of Disease Control, 10th Zonal Tuberculosis and Chest Disease Center, Thailand

²Department of Pathology, Chiang Mai University, Thailand

Correspondence: Attapon Cheepsattayakorn, Department of Disease Control, 143 Sridornchai Road Changkhan Muang, Chiang Mai 50100, Thailand, Tel 66-53-140767, Fax 66-53-140773, Email attaponche@yahoo.com

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- Stepanian IE, Lovacheva OV, Dmitrieva LI, et al. Differential diagnosis of tuberculosis of respiratory organs and pulmonary eosinophilia. *Probl Tuberk Bolezn Legk*. 2006;8:13-17.
- Ray D, Abel R. Hypereosinophilia in association with pulmonary tuberculosis in a rural population in south India. *Indian J Med Res*. 1994;100:219-222.
- Baynes RD, Bothwell TH, Flax H, et al. Reactive thrombocytosis in pulmonary tuberculosis. *J Clin Pathol*. 1987;40(6):676-679.
- Unsal E, Aksaray S, Koksall D, et al. Potential role interleukin 6 in reactive thrombocytosis and acute phase response in pulmonary tuberculosis. *Postgrad Med J*. 2005;81(959):604-607.
- Turken O, Kunter E, Sezer M, et al. Hemostatic changes in active pulmonary tuberculosis. *Int J Tuberc Lung Dis*. 2002;6(10):927-932.
- Singh KJ, Ahluwalia G, Sharma SK, et al. Significance of hematological manifestations in patients with tuberculosis. *J Assoc Physicians India*. 2001;49:788,790-794.
- Fujita M, Kunitake R, Nagano Y, et al. Disseminated intravascular coagulation associated with pulmonary tuberculosis. *Intern Med*. 1997;36(3):218-220.
- Casanova-Roman M, Rios J, Sanchez-Porto A, et al. Deep venous thrombosis associated with pulmonary tuberculosis and transient protein S deficiency. *Scand J Infect Dis*. 2002;34(5):393-394.
- Kitamura H, Shimizu K, Takeda H, Tai H, et al. A case of Henoch-Scholein purpura nephritis in pulmonary tuberculosis. *Am J Med Sci*. 2007;333(2):117-121.
- Mishima Y, Takeuchi M, Kamisaka K, et al. Henoch-Scholein purpura associated with pulmonary tuberculosis. *Kekkaku*. 1994;69(1):21-25.
- Han BG, Choi SO, Shin SJ, et al. A case of Henoch-Scholein purpura in disseminated tuberculosis. *Korean J Intern Med*. 1995;10(1):54-59.
- Bozoky G, Ruby E, Goher I, et al. Hematologic abnormalities in pulmonary tuberculosis. *Orv Hetil*. 1997;138(17):1053-1056.
- Pilheu JA, De Salvo MC, Gonzalez J, et al. CD4+ T-lymphocytopenia in severe pulmonary tuberculosis without evidence of human immunodeficiency virus infection. *Int J Tuberc Dis*. 1997;1(5):422-426.

15. Mihaltan F, Lupu A, Ungureanu D, et al. Association of atypical pulmonary TB, polyserositis, severe leucopenia and panniculitis. Case report. *Pneumologia*. 2001;50(3):177–181.
16. Yasuda Y, Matsubara Y, Watanabe S, et al. A case of intractable pulmonary tuberculosis complicated by idiopathic thrombocytopenic purpura (IPT). *Nihon Kyobu Geka Gakkai Zasshi*. 1994;42(12):2301–2305.
17. Tsuro K, Kojima H, Mitoro A, et al. Immune thrombocytopenic purpura associated with pulmonary tuberculosis. *Intern Med*. 2006;45(11):739–742.
18. Francois B, Clavel M, Trimoreau F, et al. Pancytopenia and pulmonary tuberculosis. Significance of a hemophagocytic syndrome. *Rev Mal Respir*. 1998;15(5):668–670.
19. Insanov AB, Abdullaev FM, Ragimov AA, et al. Pulmonary tuberculosis in patients with hereditary glucose–6–phosphate dehydrogenase deficiency. *Ter Arkh*. 1989;61(11):75–77.
20. Insanov AB, Abdullaev FM, Kotsobashvili LJa, et al. Gene geography of hereditary glucose–6–phosphate dehydrogenase deficiency and pulmonary tuberculosis in Azerbaijan. *Probl Tuberk*. 1993;(2):5–8.
21. Uetake T, Sakamaki T, Onozawa Y, et al. Clinicopathological study of military tuberculosis in patients with hematologic disease. *Kekkaku*. 1990;65(4):273–283.
22. Adzic T. Pulmonary tuberculosis in patients with hematological malignancies. *Med Pregl*. 2004;57:65–68.
23. Kim HC, Goo JM, Kim HB, et al. Tuberculosis in patients with myelodysplastic syndromes. *Clin Radiol*. 2002;57(5):408–414.
24. Lionnet F, Bachmeyer C, Sloma I, et al. Tuberculosis in adult patients with sickle cell disease. *J Infect*. 2007;55(5):439–444.
25. Koffi N, Koffi KG, Sangare A. Prevalence of tuberculosis in sickle cell Africans. *Rev Pneumol Clin*. 2000;56(3):219–220.
26. Kehinde AO, Olaniyi JA, Fakunle EE. Case report: extra-pulmonary tuberculosis in sickle cell disease. *Afr J Med Med Sci*. 2006;35(3):381–384.
27. Dosumu EA. Pattern of some hematological indices in newly diagnosed pulmonary tuberculosis cases in Iwo, Nigeria: diagnostic and therapeutic implications. *Niger J Med*. 2001;10(1):18–20.