

Case Report

Anticoagulation in pulmonary TB induced deep vein thrombosis is it always warranted: a case report

Binal Nitin Lodaria*, Prasad Muley, Dhrumika Sheth

Department of Pediatrics, SBKS MIRC, Waghodia, Vadodara, Gujarat, India

Received: 30 April 2020

Accepted: 28 May 2020

*Correspondence:

Dr. Binal Nitin Lodaria,

E-mail: binal.lodaria94@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

India is a densely populated developing country and accounts for one quarter of the total tuberculosis cases reported worldwide. Deep vein thrombosis (DVT) has been associated with 1.5-3.4% cases of tuberculosis. A 14 year female presented with complaints of cough with progressive breathlessness (NYHA Grade III) since 15 days along with easy fatigability and fever for 3 days. The patient was started on Anti-Tubercular Treatment (ATT) as per RNTCP guidelines after thorough investigations. One week after the patient was started on ATT, the patient developed edema of the right lower limb accompanied by pain. Color doppler was suggestive of thrombosis in the superficial and deep veins. Early immobilization and physiotherapy was started immediately. Over a period of 10 days, the swelling gradually decreased, and pain subsided. Tuberculosis is an independent risk factor for the development of venous thromboembolism irrespective of the presence of other risk factors. Emphasis is thus laid on high index of suspicion and early diagnosis to control and prevent further complications like pulmonary embolism. We can propose that in patients diagnosed with pulmonary tuberculosis, early immobilization and physiotherapy can prevent the development of DVT.

Keywords: ATT, Anti-coagulation, Deep vein thrombosis, Pulmonary tuberculosis

INTRODUCTION

India is a densely populated developing country and accounts for one quarter of the total tuberculosis cases reported worldwide.¹ Owing to its chronicity and long-term treatment regimes, it has a long-lasting effect on the human body and is associated with many complications including the ones which are less common and life-threatening. Deep vein thrombosis (DVT) has been associated with 1.5-3.4% cases of tuberculosis.²

Most of the patients presenting with venous thromboembolism which ranges from DVT to pulmonary embolism have an idiopathic cause and occurrence with tuberculosis is a rare entity. Timely suspicion of DVT due to tubercular origin and initiation of the treatment in

the form on AKT along with anticoagulant therapy reduces the risk of adverse outcomes due to such complications.³ We hereby report a pediatric case of pulmonary tuberculosis with deep vein thrombosis which is a rare presentation.

CASE REPORT

A 14 year female presented with complaints of cough with progressive breathlessness (NYHA Grade III) since 15 days along with easy fatigability and fever for 3 days. Cough was wet in nature and more during the early morning and evening hours. There was significant weight loss of about 5 kilograms in past 4 months. On examination, vitals were stable, pallor present and had acute under nutrition. Systemic findings were within

normal limits. Investigations revealed severe microcytic hypochromic anemia with severe anisopoikilocytosis with thrombocytopenia, elevated ESR (118mm) and three consecutive sputum samples positive for acid fast bacilli (RNTCP grade II). Chest Xray showed bilateral patchy consolidation with hilar lymphadenopathy (Figure 1). The patient was started on Anti-Tubercular Treatment (ATT) as per RNTCP guidelines. She also continued to run multiple fever spikes daily during the hospital stay and received symptomatic treatment. One week after the patient was started on ATT, the patient developed edema of the right lower limb. Also, she had pain in the limb with inability to walk. Color doppler was suggestive of thrombosis in superficial femoral vein, great saphenous vein, common femoral vein and sapheno-femoral junction (Figure 2).

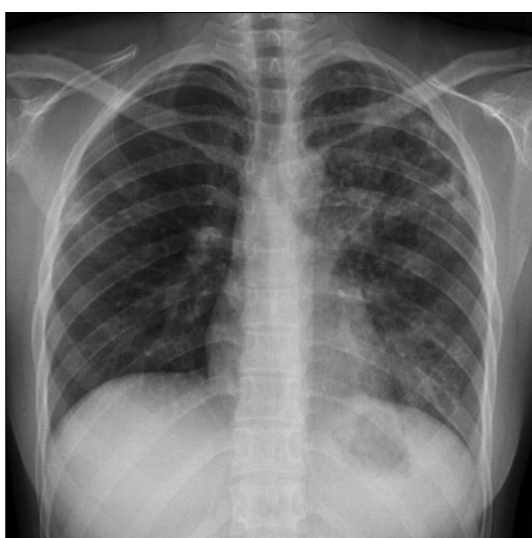


Figure 1: Chest Xray.

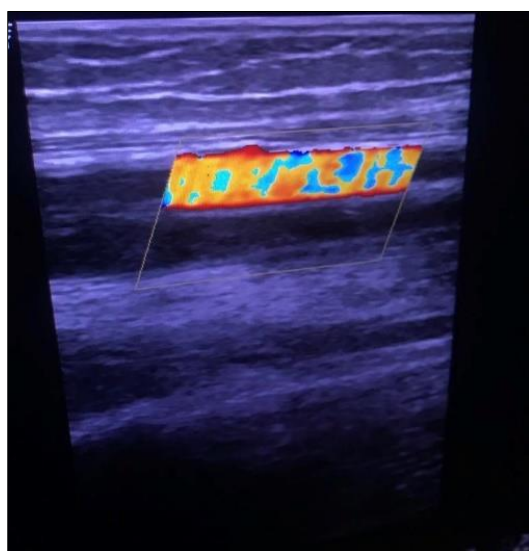


Figure 2: Color doppler.

Elevated prothrombin time and INR was present, hence anti-coagulation was deferred. Early immobilization and

physiotherapy was started immediately. Over a period of 10 days, the swelling gradually decreased, and pain subsided. On follow up after 4 months, repeat color doppler and coagulation profile was normal.

DISCUSSION

Several mechanisms have been known to cause a hypercoagulable state leading to thromboembolic phenomenon in pulmonary tuberculosis. High levels of plasma fibrinogen, impaired fibrinolysis associated with a decrease in antithrombin III, protein C and platelet aggregation result in a hypercoagulable state perpetuating the development of deep vein thrombosis in patients with pulmonary tuberculosis.⁴ Further, rifampicin is an enzyme inducer and is attributed to alter the balance between the coagulant and anti-coagulant proteins produced by the liver increasing the risk of developing DVT.

Pulmonary tuberculosis with extensive involvement is not ambulatory for considerably long periods, this itself being a risk factor for the occurrence of venous thromboembolism. Suarez Ortega et al reported that the chances of developing DVT are directly proportional to the severity of tubercular disease.⁵ Also, close correlation has been seen between the hematological abnormalities and the severity of clinical findings in patients with pulmonary tuberculosis.

Venous thromboembolism is known to complicate severe pulmonary tuberculosis and can occur anytime during the course of the disease.⁶ As per a case report by Amitesh et al, all of the three tuberculosis patients with DVT responded well to ATT and anticoagulation.³ All the patients had limb edema with pain at the onset of disease and were started on anticoagulation and responded well. In our case report, the child was not started on any anticoagulation and improved only with ATT. This could indicate that DVT resolved with the control of the primary disease as the hypercoagulable state normalizes with treatment for tuberculosis.

Robson et al found 35 patients with pulmonary tuberculosis and DVT.⁴ In 33 of them, DVT occurred 7 days after the diagnosis of TB whereas it was the presenting feature in only 2 patients. Our patient presented with limb edema with swelling after 7 days.

Majority of the studies in the past have reported involvement of the deep veins.^{3,7,8} However, in our patient, deep as well as superficial veins of the right lower limb were involved.

In the previous cases of DVT reported by the author, anti-coagulation therapy was given in addition to ATT.⁹ But in this case, due to prevailing patient's condition, anti-coagulation therapy was not prescribed, and she responded to ATT alone along with early initiation of physiotherapy and immobilization.

CONCLUSION

Tuberculosis is an independent risk factor for the development of venous thromboembolism irrespective of the presence of other risk factors. In the Indian perspective, it may not be easy to diagnose and treat this complication due to the limited availability of resources. Emphasis is thus laid on high index of suspicion and early diagnosis to control and prevent further complications like pulmonary embolism. We can propose that in patients diagnosed with pulmonary tuberculosis, early immobilization and physiotherapy can prevent the development of DVT.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. World Health Organization. Report on the Tuberculosis Epidemic. Geneva: World Health Organization; 2014
2. White NW. Venous thrombosis and rifampicin. *Lancet*. 1989;2:434-5.
3. Gupta A, Mrigpuri P, Faye A, Bandyopadhyay D, Singla R. Pulmonary tuberculosis - An emerging risk factor for venous thromboembolism: A case series and review of literature. *Lung India*. 2017;34(1):65-9.
4. Robson SC, White NW, Aronson I, Woolgar R, Goodman H, Jacobs P. Acute-phase response and the hypercoagulable state in pulmonary tuberculosis. *Br J Haematol*. 1996;93:943-9.
5. Suárez Ortega S, Artiles Vizcaíno J, Balda Aguirre I, Melado Sánchez P, Arkuch Saade ME, Ayala Galán E, et al. Tuberculosis as risk factor for venous thrombosis. *An Med Interna*. 1993;10:398-400.
6. Ambrosetti M, Ferrarese M, Codecasa LR, Besozzi G, Sarassi A, Viggiani P, et al. Incidence of venous thromboembolism in tuberculosis patients. *Respiration*. 2006 May 1;73(3):396.
7. Kechaou I, Cherif E, Ben Hassine L, Khalfallah N. Deep vein thrombosis and tuberculosis: a causative link? *BMJ Case Rep*. 2014;2014.
8. Kouismi H, Laine M, Bourkadi JE, Iraqi G. Association of deep venous thrombosis with pulmonary tuberculosis. *Egyptian J Chest Dis Tuberculosis*. 2013 Jul 1;62(3):541-3.
9. Muley P, Shah U, Shah V, Gandhi D. Deep vein thrombosis with tuberculosis: A rare presentation of common disease. *Global J Med Public Health*. 2014;3:1-4.

Cite this article as: Lodaria BN, Muley P, Sheth D. Anticoagulation in pulmonary TB induced deep vein thrombosis is it always warranted: a case report. *Int J Res Med Sci* 2020;8:2678-80.