



EXAGGERATED MANTOUX – REACTION OR CAUTION?

Pulmonary Medicine

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ABSTRACT

Tuberculosis is a major health problem in India and India accounts for a significant global burden of the disease. It is, therefore, important to actively screen for Tuberculosis in routine practise. Tuberculin Skin Test or the Mantoux test is a commonly used tool for active screening of tuberculosis in India. Tuberculin injection stimulates Type-4 Hypersensitivity Reaction in an individual. Thus we report a case of a rare presentation of the injection in a 31 year old female.

KEYWORDS

Tuberculin Skin Test, Mantoux Test, Tuberculosis, Hypersensitivity Reaction

INTRODUCTION:

Identification and treatment of individuals with tuberculosis infection is of utmost importance for TB control. The Tuberculin Skin Test (TST) is used to elicit prior TB infection. The TST is performed via Mantoux technique, in which an intradermal injection of a 0.1 ml of a standard dose of 5 tuberculin units (PPD-RT 23 with Tween 80) on the inner surface of the forearm. The sensitivity and specificity for this test is 94% and 88% respectively. The Positive Predictive Value (PPV) and Negative Predictive Value (NPV) for TST is 98% and 84% respectively. (1)

Case History:

A 31 years old female presented to the OPD with complaint of a maculopapular rash over left forearm since 1 day. Rash developed around 24 hours after Mantoux test was done. Mantoux test was done due to background history of low grade fever on and off since 2 years. However, there were no complaints of cough, shortness of breath, chest pain, haemoptysis, night sweats or weight loss. On examination, induration was found to be 21mm in transverse diameter. The area also had other signs of inflammation like rubor, calor and dolor. History and examination showed that the patient did not get vaccinated with BCG vaccine in childhood. She was also incidentally diagnosed with sub-nephrotic proteinuria but autoimmune profile was negative. Quantiferon TB Gold assay was found to be positive in this patient. The lesion was managed with anti-histaminics, in response to which the erythema and induration subsided.

DISCUSSION:

Exaggerated responses to tuberculin testing are rare. Active TB, high-mycobacterial antigen load or lepromatous leprosy have been reported to be associated with an exaggerated Mantoux response. Tuberculin injection stimulates a Type 4 or delayed-type of hypersensitivity response to M.TB antigen. T-cells sensitized by prior infection are recruited to the skin site where they release lymphokines. These lymphokines induce induration at the injection site within 48 to 72 hours through local vasodilatation, edema, fibrin deposition and recruitment of other inflammatory cells to the area. The transverse diameter of the induration (not erythema) should be demarcated, measured and recorded in millimetres, within 48-72 hours after which the test becomes unreliable. Patients who have an induration of more than 20 mm have a higher chance of developing active TB than those with 10 mm induration, which can be clinically relevant in this case.

The local reaction at TST site can be managed conservatively and does not require a biopsy if responding well to anti-histaminics. An exaggerated response to tuberculin may also reflect an atopy but in that case the reaction does not last longer. Although the exact reason for such unusual reaction is poorly understood, it is believed that combined delayed hypersensitivity to tuberculin and less delayed phenomenon of excessive local exudation due to systemic features may be responsible.



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