



DISSEMINATED MILLIARY SILICOTUBERCULOSIS – A CASE REPORT AND REVIEW

Pulmonary Medicine

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ABSTRACT

Silicosis, one of the most common forms of pneumoconiosis, is ancient disease which probably dates from the Stone Age. This serious and potentially fatal occupational lung disease remains prevalent throughout the world despite of the knowledge of the cause of this disorder, that is by inhalation of dust containing respirable crystalline silica. The coexistence of silicosis and tuberculosis has been called Silicotuberculosis. The present case highlights the importance of early detection and prompt treatment of silicotuberculosis. The patient's condition improved significantly after initiation of anti tuberculosis treatment. The patient responded very well to the treatment and showed clinical, radiological improvement and microbiological clearance.

KEYWORDS

silicosis, silicotuberculosis, anti- tuberculosis treatment

INTRODUCTION:

Silicosis is an occupational lung disease attributable to the inhalation of silicon dioxide, commonly known as silica, in crystalline forms, usually as quartz, but also as other important crystalline forms of silica (i.e. cristobalite and tridymite)¹. This serious and potentially fatal occupational lung disease remains prevalent throughout the world despite the knowledge of the cause of this disorder. The coexistence of silicosis and tuberculosis has been termed as Silicotuberculosis.

From India, a few studies are available which have shown a higher incidence of TB in patients with silicosis^{2,3}. In 1949, Sikand and Pamra reported tuberculosis in 28.6 percent of patients with silicosis⁴. Other workers have reported three to seven times higher incidence of TB in persons with silicosis compared to those without silicosis among persons working at the same place. Overall, it appears that TB occurs in as many as 20 to 25 per cent of all silicosis patients in their lifetime. The risk increases with severity of silicosis. The risk is considerably higher in patients with acute and accelerated silicosis^{5,6}. The prevalence is estimated to be <8/1000 miners currently. We present an interesting case of silicotuberculosis on account of it's unusual presentation.

CASE REPORT

A 55 years old male patient, chronic alcoholic and diabetic actively working in cement industry for more than 20 years presented with dry cough, loss of weight and appetite, exertional breathlessness, low grade fever for 3 months, abdominal distension and swelling of feet for 7 days. On clinical examination patient's vitals were stable. There was icterus, bilateral pitting pedal oedema up to mid-shin. The respiratory system examination was normal and PA examination revealed ascites and splenomegaly.

The diagnosis of Disseminated Miliary Silicotuberculosis was made on the basis of clinical history, microbiological results and radiological findings. The sputum CBNAAT revealed M.TB detected Rifampicin sensitive. Chest radiograph showed the presence of bilateral reticular nodular shadows. CECT Thorax showed the presence of diffuse nodular opacities with alveolar, interstitial and peri bronchial thickening giving a ground glass appearance with crazy paving pattern in the upper zones. Focal fibronodular lesions ranging in diameter between 1 to 2 cms in size were noted in bilateral upper zones suggestive of silicotuberculosis. CECT Abdomen showed significant stranding of the omental fat along the anterior abdominal wall as well as the mesenteric fat observed with multiple enlarged discrete lymph nodes noted at the mesenteric root and within the stranded fat suggestive of peritoneal tuberculosis. Hepatic cirrhosis, splenomegaly,

portal hypertension along with moderate ascites noted. Ascitic fluid reports were also suggestive of tuberculosis.

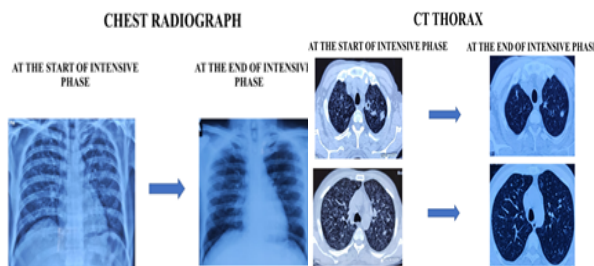


Figure 1

Figure 2

The patient was started on anti-tuberculosis treatment with Fixed Dose Combination under hepatoprotective cover and liver function tests were monitored along with the treatment of comorbidities. On subsequent follow up visits patient showed clinical improvements in terms of weight gain and improved appetite. The sputum CBNAAT at the end of intensive phase was negative for M.TB. Currently the patient is in continuation phase and radiological assessment at the end of intensive phase showed significant resolution of the lesions on chest radiograph, CECT Thorax and abdominal ultrasound.

DISCUSSION:

Many of the pathogenic mechanisms are common to tuberculosis and silicosis which have synergistic effect in producing more fibrosis and in enhancing susceptibility to mycobacterial infection or reactivation of a latent focus of infection. The present case highlights the importance of early detection and prompt treatment of silicotuberculosis. The patient's condition improved significantly after initiation of anti-tuberculosis treatment. The patient responded very well to the treatment and showed clinical, radiological improvement and microbiological clearance. Early diagnosis can be made in high suspects by frequent sputum examination for AFB, Mycobacterial culture and for early and accurate diagnosis bronchoscopy, bronchoalveolar lavage, transbronchial biopsy can be done. Also, immunodiagnostic studies like levels of total IgE and IgG, ↑ Fibronectin, ↑ CD4+ and CD20+ markers, ↓ Concentration of the mucin antigen 3EG5 can be used. The use of a complex of immunological studies promoted the better early diagnosis of silicotuberculosis.

In silicotuberculosis longer duration of antituberculosis treatment is advocated as relapse rates are higher in silicotuberculosis⁷. Long-term

follow-up is recommended to diagnose possible relapse after the completion of treatment. If tuberculin skin test is positive a 6 months course of isoniazid at 300mg/day should be given^{8,9,10}. Besides chemoprophylaxis, engineering measures to reduce or eliminate the exposure to silica dust are important in reducing the incidence of both silicosis and silicotuberculosis. There is a strong evidence to support the view that silica dust control is associated with a major reduction in risk of TB in silica-exposed patients¹¹. An active surveillance of the workers should be carried out in both pre-employment and post-employment periods. This involves performing periodic chest radiographs and tuberculin skin tests. Careful clinical investigations and close follow-up of tuberculin converters are essential to reduce the risk of TB. As a synergistic effect is seen between tuberculosis and silicosis resulting in fibrosis high degree of suspicion of tuberculosis is must in patients with silicosis. Tuberculosis is one of the important predictors of mortality in patients with silicosis¹². For the same radiological extent of silicosis, the mortality risk is higher than expected if TB develops. It appears that the relative risk of death from TB is three- to six-fold greater in patients with silicosis than in the general population. If the preventive measures as discussed above are followed properly silicosis associated complications can be prevented. The key in management of silicotuberculosis is early diagnosis and prompt treatment.

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