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SILICO-TUBERCULOSIS MIMICKING CARCINOMA LUNG: A CASE REPORT

Medicine

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ABSTRACT

Silicosis is fibrosing disease of the lungs caused by inhalation, retention and pulmonary reaction to crystalline silica which contain silicon dioxide. The risk of developing pulmonary tuberculosis is reported to be 2.8 to 39-fold higher for patients with silicosis than for healthy controls. The incidence of tuberculosis in silicosis is 28.6% in India. Out of extra pulmonary tuberculosis pleural form is most common, accounting for 61% of the cases, followed by the pericardial and least lymph node involvement. Regarding the relationship between mycobacterium-related diseases and different forms of silicosis, studies in the international literature have shown that the acute and accelerated forms present with the highest incidence. In our case report, patient has chronic history of silica exposure of more than 30 years, thus presenting as a case of chronic silicosis but the patient's presenting X- Ray picture was suggestive of a concomitant mass like lesion.

KEYWORDS

INTRODUCTION: -

Tuberculosis as a complication of silicosis has been a historical focus of attention over the last centuries [1, 2]. Beside that fact, there still persists is a possible positive association between silicosis and lung cancer [3]. The risk of developing pulmonary tuberculosis is reported to be 2.8 to 39-fold higher for patients with silicosis than for healthy controls [4,5,6]. Tuberculosis is common in silicosis because body iron is absorbed in silica crystals in the lung and mycobacteria are dependent on iron for growth and cell mediated immunity is reduced which leads to mycobacterial tuberculosis infection in the patient. The risk of a patient with silicosis developing extra pulmonary tuberculosis is also as much as 3 to 7 times higher than in healthy controls [5]. The incidence of tuberculosis in silicosis is 28.6% in India. Out of extra pulmonary tuberculosis pleural form is most common, accounting for 61% of the cases, followed by the pericardial and least lymph node involvement [5]. Regarding the relationship between mycobacterium-related diseases and different forms of silicosis, studies in the international literature have shown that the acute and accelerated forms present with the highest incidence [7]. In our case report, patient has chronic history of silica exposure of more than 30 years, thus presenting as a case of chronic silicosis.

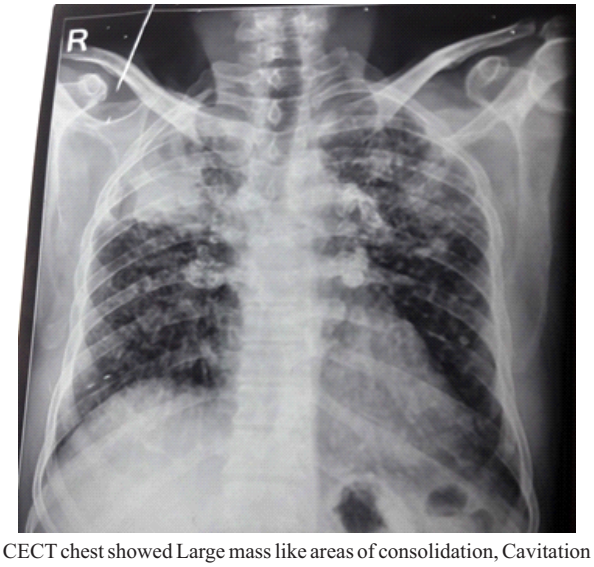
Even in patients with the chronic form, the progression of the disease can be rapid, leading to death within a few months or years. From a histopathological point of view, silicosis is characterized by the presence of granulomas, with collagen nuclei surrounded by epithelioid cells, giving rise to silicotic nodules, which are diffusely distributed in the lungs and, with the progression of the disease, can coalesce and form large masses leading to progressive massive fibrosis distorting the parenchyma [2, 8]. In addition to its importance as an occupational disease, silicosis or even exposure to silica without established disease is associated with increased risk of developing various pulmonary and systemic co- morbidities. Higher prevalence of mixed airway disease (restrictive and obstructive), lung cancer, mycobacterium tuberculosis, non-tuberculous mycobacterium-related diseases, glomerulonephritis, rheumatoid arthritis, scleroderma, and other autoimmune diseases have been documented among patients with silicosis [4, 9]. This one case report focuses on the association between silicosis and the development of tuberculosis.

Case report

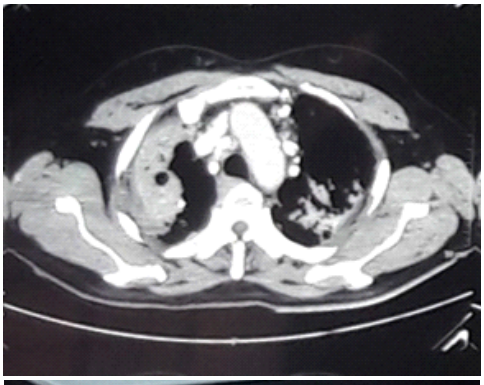
A 50-year-old male patient was admitted with chief complaints of generalized weakness for last 10 years, shortness of breath for last 5 years, cough with expectoration for last 3 months and fever for last 4 months. He had occupational history of stone crushing for 30 years. Patient has history of 60 pack years and now has left for last 10 years. Patient's physical examination revealed blood pressure 120/70mmhg, pulse rate 80/min, respiratory rate 18/min and spo2 95% at room air. Respiratory examination revealed B/L extensive rhonchi present. Clubbing present.

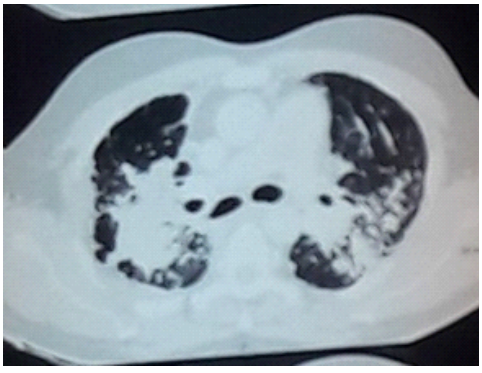
Blood investigations shows HIV- non-reactive, RBS, RFT and LFT were within normal limits, CBC: Hemoglobin – 12.7 gm%, TLC - 12,300, DLC - P75%,L15%,E08%,M02%, ESR 120 mm AT 1ST hour, Platelet count 3,84,000/cu mm, Sputum positive (9/40).

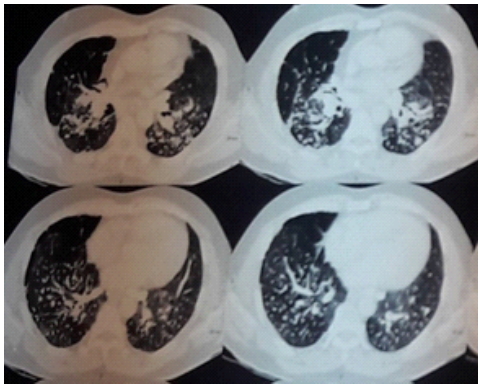
Chest X-Ray PA view shows homogenous mass like opacity on right side in upper zone with hyper-dense nodular opacities distributed throughout the lung with predominance in upper and middle zone. X-ray also revealed bilateral egg shell calcification in hilar region.



CECT chest showed Large mass like areas of consolidation, Cavitation in bilateral upper lobe extending towards hila, Multiple nodular opacities, Extensive calcific and hypodense mediastinal egg shell calcification likely suggestive of complicated silicosis with massive fibrosis (in view of H/O stone crushing)







CBNAAT showed AFB detected and sensitive to rifampicin and sputum for AFB culture also showed growth of mycobacterium tuberculosis. Transthoracic fine needle aspiration from mass like lesion did not reveal any malignant cells

DISCUSSION

Silicosis is fibrosing disease of the lungs caused by inhalation, retention and pulmonary reaction to crystalline silica which contain silicon dioxide. Occupational exposure to silica particles of size 0.5- 5 microns is associated with mining, quarrying, drilling, tunneling and abrasive blasting with quartz containing material(sandblasting). Silicosis risk is also recognized in masonry and refractory operations, cement and concrete production and highway repair as well as working in potteries, foundries and dental laboratories.

Silicosis and pulmonary tuberculosis are not uncommon diseases in low income countries [10]. As both diseases have a similar initial presentation, and there is a strong possibility of concurrent existence of both diseases in one patient [4]. The occupational history of exposure to silica dust, progressive nature of breathlessness and classical radiological findings are the main clues for the diagnosis of silicosis. Exclusion of other conditions, especially non-mycobacterium infection, is important before confirmatory diagnosis of silico-tuberculosis is made. Patients suffering from silico-tuberculosis are often misdiagnosed leading to late onset of adequate treatment and multiple complications and possible fatal outcome

In our case at starting we were having suspicion of malignancy in right upper lobe with suspicion of silico-tuberculosis but on CT chest there is large mass like areas of consolidation with eccentric cavitation extending towards hila with multiple nodular opacities and extensive calcific and hypo-dense mediastinal egg shell calcification likely suggestive of complicated silicosis with massive fibrosis (in view of H/O stone crushing) which directs towards silico-tuberculosis with progressive massive fibrosis as it is further proven by CBNAAT report and culture report. Usually patient of silicosis has bilateral symmetrical progressive massive fibrosis but in our case the conglomeration of nodular opacities that was predominantly in right upper zone thereby mass like lesion so possibility of carcinoma was also kept. FNAC from chest wall was done but it did not reveal any malignancy. Therefore, in our case patient of silico-tuberculosis was mimicking carcinoma lung which is unusual presentation.

Conflict of interest – None
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