

Retroperitoneal silicosis mimicking pancreatic carcinoma in an Alpine miner with chronic lung silicosis

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Abstract

A miner, known to have had lung silicosis for 30 years, was investigated for abdominal pain. A retroperitoneal mass was found, in which histological examination showed an inflammatory reaction to silica.

Silicosis of the lung typically develops years after exposure to silica and is characterised by slow progression of fibrosis.¹ Extrapulmonary silicosis is rare and usually asymptomatic.² We report a patient who had had lung silicosis for 30 years and who developed severe and persistent abdominal pain due to silicotic nodes in the retroperitoneal space. This appears to be the first case of an abdominal silicotic mass to be resected successfully.

Case report

A 71 year old man was admitted to hospital in 1988 because of persistent abdominal pain. From 1932 to 1952 he had worked as a miner drilling tunnels in the Swiss Alps. In 1961, nine years after his last exposure to granite dust, his chest radiograph showed for the first time fine disseminated reticular lesions compatible with silicosis. In 1969 he had a cavitated left upper lobe lesion due to culture positive tuberculosis. He received 18 months' antituberculosis treatment (streptomycin, para-aminosalicylic acid, viomycin, cycloserine, thiacetazone) with a good outcome. Since 1974 he had developed progressive dyspnoea. His chest radiograph showed typical egg shell calcification of hilar and paratracheal lymph nodes and progressive coalescence of the silicotic pulmonary nodules with silicotic pseudotumours in both upper zones. His sputum was again culture positive for tubercle bacilli in 1978 and he responded to two years' antituberculosis treatment (isoniazid and rifampicin). Since then repeated sputum cultures have been negative. In 1987 he lost weight and became febrile. His chest radiograph was unchanged. Bronchial washing via a bronchoscope showed tubercle bacilli sensitive to antibiotics in culture. The patient again received treatment—this time nine months of isoniazid and rifampicin. In 1988 he developed abdominal pain in the right para-umbilical region radiating to the back and resistant to opiate drugs. Physical findings and liver and pancreatic enzymes were normal. The chest radiograph was unchanged (fig 1) and the abdominal radiograph did not show calcification. Computed tomography showed an 8 cm retroperitoneal uncalcified mass invading the head of the pancreas and the right crus of the diaphragm (fig 2). The radiologist's differential diagnosis was pancreatic carcinoma with local invasion, retroperitoneal lymphoma, or sarcoma of the right crus of the diaphragm. In view of the patient's age and poor general condition we advised him to avoid surgery. Because of the severity of the pain, however, he insisted on an operation. At surgery confluent anthracotic nodes were found to have formed a 10 cm diameter mass in the preaortic and retropancreatic region without local invasion. The mass was successfully resected and cultures from resected material were negative for mycobacteria and other microorganisms. Histological examination showed many silicotic nodules with silica particles seen in the centre under polarised light. Most of the nodules showed no fibrosis, suggesting recent formation.³ After surgery his abdominal pain resolved completely and has not recurred in three years of follow up.

Discussion

Our patient had a long and typical history of lung silicosis with its known complications. Nine years after cessation of exposure he developed slowly progressive lung silicosis complicated by tuberculosis, which recurred twice in 18 years.

Despite the great number of patients with silicosis followed in our Alpine chest hospital,

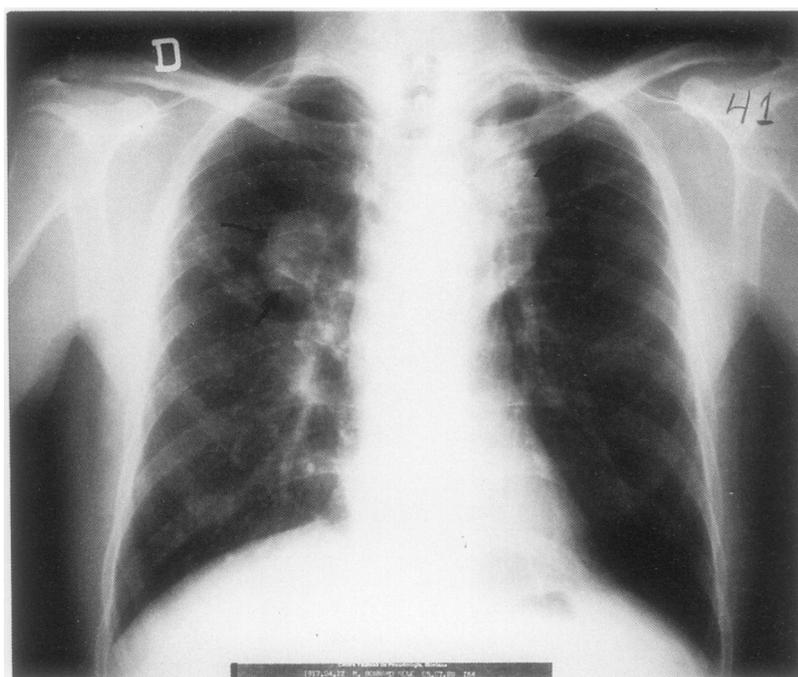


Figure 1 Radiograph showing egg shell calcification of hilar and paratracheal lymph nodes and silicotic pulmonary nodules in the parenchyma. There are two silicotic pseudotumours in both upper zones (arrows).

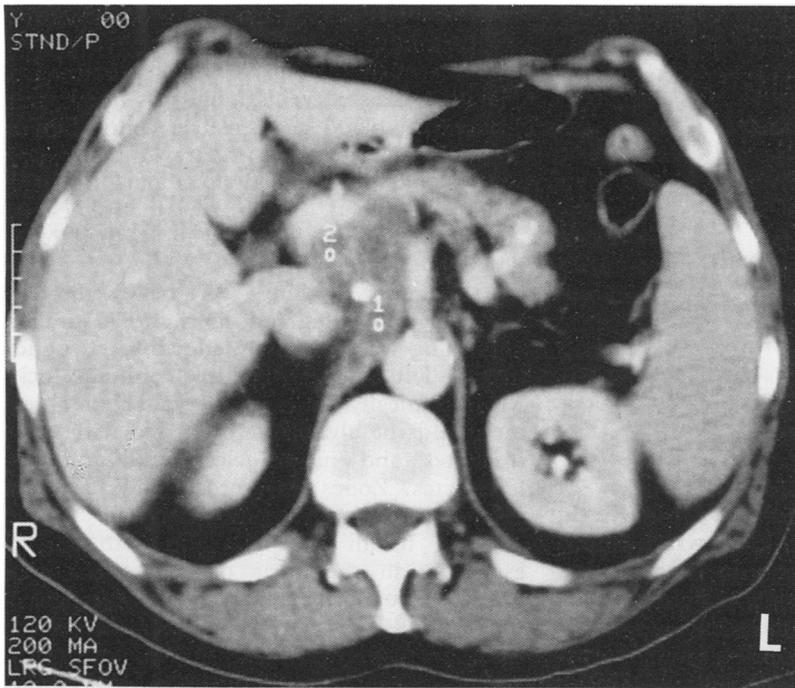


Figure 2 Computed tomogram of the abdominal silicotic mass invading the head of the pancreas (20) and the right crus of the diaphragm (10).

we were surprised that such a large abdominal mass could be due to retroperitoneal silicotic nodes. The abdominal radiograph and computed tomogram showed no calcification. Abdominal silicosis, normally asymptomatic, is a rare finding, usually suggested by calcification on an abdominal radiograph and only diagnosed at necropsy.^{2,4,5}

Spread of silica to extrathoracic sites occurs by the lymphohaematogenous route from lungs and tracheobronchial lymph nodes as silica cannot be contained or degraded by phagocytosing cells.⁶ Slavin *et al*³ described two cases with extrathoracic silicotic nodes found at necropsy. They then performed necropsy in 13 control cases of known lung silicosis and found silica particles in the hepatic parenchyma in all cases, though no patient had complained of abdominal symptoms. Lymph node inflammation was present in only a few of the 13 cases.

Silicotic changes of different histological age were present in liver, spleen, lymph nodes, and bone marrow, suggesting three histological stages in the evolution of abdominal silicosis: the silicoconiotic nodule, the silicofibroconiotic nodule, and the sclerohyaline nodule. As in our case, these authors also found silicotic changes in abdominal nodes, suggesting that this is a "recent" histological feature with an absence of fibrosis in patients dying of chronic lung silicosis. It remains uncertain why silica may trigger a histological picture of recent inflammation, when (presumably) it has been present in retroperitoneal lymph nodes for years. The interaction of external factors with the immunological state of the patient is important⁶⁻⁸ and the recurrences of tuberculosis may have altered our patient's defence, causing the development of abdominal silicotic nodes.

In patients with lung silicosis abdominal silicosis should be included in the differential diagnosis of an abdominal or retroperitoneal mass irrespective of the presence or absence of calcification. Surgery should be offered to patients with symptoms. Because of the improved survival of these patients with modern treatment, more patients may present with symptomatic extrathoracic silicotic nodes mimicking abdominal carcinoma.

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