

Dyspnea And An Abnormal Chest Roentgenogram In An Elderly Housewife

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A case of dyspnea and an abnormal chest x-ray in a 66-year old housewife is presented as a diagnostic challenge. Asbestos-related pulmonary and pleural changes are discussed with possible relevance to this patient's clinical findings.

Case Report:

A 66-year old housewife who had never worked outside her home was seen by her physician for chronic chest pain, dyspnea, and lethargy. In addition to the retrosternal chest pain, precipitated by exertion, she also complained of intermittent, vague chest pains which at times were worsened by inspiration. The dyspnea had worsened to the point that she was hardly able to walk one block without rest. She had never smoked cigarettes or drunk alcohol. She had been diagnosed as having coronary artery disease and was taking nitroglycerin and inderal.

On auscultation, bilateral basal end-inspiratory crackles and a left pleural friction rub were heard. Pulmonary function tests revealed a mild restrictive ventilatory defect and hypoxemia. Posteroanterior and lateral chest roentgenograms are shown. (Figures 1, 2).

Asbestos-related pulmonary and pleural changes

The chest roentgenograms show characteristic lung and pleural changes associated with exposure to asbestos^{1,2}. There are reticular linear markings in both lung fields that are more prominent in middle and lower lung zones and are suggestive of pulmonary fibrosis (asbestosis). Pleural changes are present on both sides. There is diffuse pleural thickening measuring about 5 mm along the lower two-thirds of the lateral chest wall. There are two areas of enface pleural thickening, one in the upper zone of the left lung, each measuring about 4-5 cm. There are bilateral calcified diaphragmatic pleural plaques which are better seen on the lateral view (Figure 2). In addition, there is bilateral mediastinal pleural thickening.

The patient had never worked outside her home. Her husband had worked as an insulator, covering pipes with

insulation material made predominantly of asbestos. The patient stated that before washing her husband's clothes, she would shake his dusty clothes and there would be a lot of dust all around her.

Asbestos-related problems have been reported in household contacts of the asbestos workers. Exposure to asbestos may occur from the dust adhering to shoes, hair, and work clothes brought home. Anderson, et. al³ surveyed 678 household contacts of insulation workers employed in an asbestos factory. None of these household contacts had worked in the asbestos factory. Chest roentgenographic abnormalities were found in 35% of the household contacts and in only 5% of the control population. Pleural thickening (19%), pleural plaques (8%), pleural calcification (8%), and parenchymal fibrosis (17%) were the common abnormalities.

Exposure to asbestos causes many pulmonary and pleural changes, which range from the mere presence of asbestos bodies in asymptomatic individuals to lung cancer and pleural mesotheliomas. Asbestos particles in the lungs occur commonly in normal lungs from environmental exposure, though the number of particles is very low as compared to the occupationally exposed worker. Pulmonary fibrosis (asbestosis) is more prominent in the lower zones of the lungs. Though there are still questions as to whether the exposure to asbestos alone causes lung cancer, the incidence of lung cancer is very high in cigarette smokers who have been heavily exposed to asbestos. Asbestos-related lung cancers are usually adenocarcinomas, occur in the lower zones, are peripheral in location, and occur in a background of interstitial fibrosis and pleural disease. Localized pleural thickenings (plaques) usually occur along the midlateral chest wall but may occur along the mediastinal pleura, pericardium, and the diaphragm. Calcification of plaques on diaphragmatic and lateral chest walls is pathognomonic for exposure to asbestos. Diffuse pleural thickening (hyalinosis complicata) may involve the pleura from the apex to the base and needs to be differentiated from mesothelioma. Benign pleural effusions are common in patients with history of exposure to asbestos, but malignancy should be ruled out. Malignant mesotheliomas are rare tumors and are usually diagnosed only in patients who have been exposed

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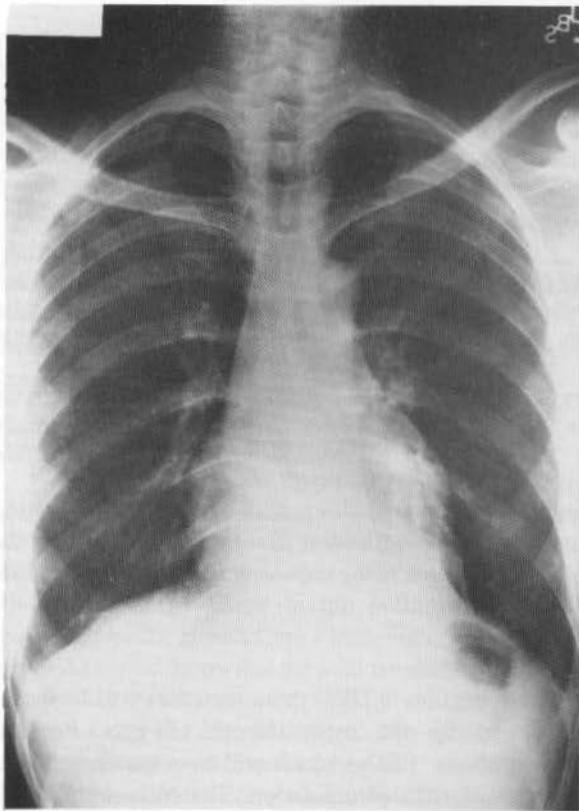


Fig.1. Posteroanterior chest roentgenogram showing parenchymal and pleural changes.

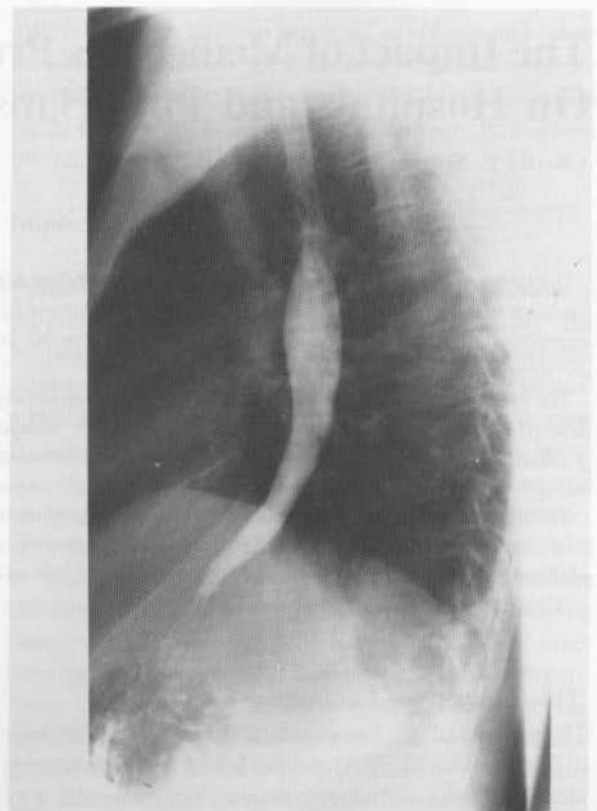


Fig.2. Lateral chest roentgenogram showing calcified diaphragmatic pleural plaques.

to asbestos. Malignant mesotheliomas usually appear as lobulated masses between the lung and the chest wall and are commonly associated with large effusion. There is a long latent period between the initial exposure to asbestos and the appearance of asbestos-related diseases. It has been estimated that the peak incidence of lung cancer and mesothelioma occurs after 30-40 years and asbestosis after 40-45 years.

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