



Clinical Note

Silicosis: a Disease with an Active Present

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ABSTRACT

Silicosis, is an interstitial lung disease caused by inhaling crystalline silica dust. Despite it being one of the oldest occupational diseases, it continues being a cause of morbidity and mortality all over the world. The World Health Organisation and the International Labour Organisation (WHO/ILO) are aware of the current problem and have designed the International Programme on the Global Elimination of Silicosis, which identifies occupational groups at risk. We present 3 cases of silicosis in young construction workers, who are exposed to high concentrations of silica due to handling artificial silica conglomerates. The main objective of this study is to identify new risk sources, to highlight the dangers involved when the substance is used without any preventative measures, and to outline the importance of the occupational history to avoid under-diagnosis of this disease.

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Silicosis, una enfermedad con presente activo

RESUMEN

La silicosis, enfermedad pulmonar intersticial causada por la inhalación de polvo de sílice cristalina, a pesar de ser una de las enfermedades de origen ocupacional más antiguas, continúa siendo causa de morbilidad y mortalidad en todo el mundo. La Organización Mundial de la Salud y la Organización Internacional del Trabajo (OMS/OIT), conscientes de la vigencia del problema, han diseñado el Programa Mundial para la Eliminación de la Silicosis, que incluye entre sus acciones la identificación de los grupos de trabajadores en riesgo. Presentamos 3 casos de silicosis en trabajadores jóvenes del sector de la construcción, con exposición a concentraciones elevadas de sílice por manipulación de conglomerados artificiales de sílice. El principal interés de esta observación radica en la identificación de nuevas fuentes de riesgo, en la necesidad de llamar la atención sobre la peligrosidad que entraña su uso sin medidas de prevención, y en la importancia de la historia laboral para evitar el infradiagnóstico.

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Introduction

Silicosis is a lung disease caused by the inhalation crystalline silica dust. It is included in the group of pneumococci, which in turn are included among the diffuse interstitial lung diseases (ILD). The risk of disease is related to the amount of silica inhaled through a working life-time and, once established, there is not effective

treatment. The control of respirable dust and early diagnosis are the most effective measures against this disease.¹

Sources of occupational inhalation of silica are numerous, given that this mineral's dust is present in a broad industrial sector. There are many work positions in which objects that are shredded, cut, crushed, perforate, incised or ground where respirable aerosol of crystalline silica particles are liberated. The identification of these work posts with exposure to silica is vital to the prevention of the disease.

Three cases of silicosis observed in workers exposed to the dust generated by the manipulation of artificial quartz conglomerates are

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presented. This material is widely used in the decoration of interiors, kitchens and bathrooms, and is not included in the medical literature as a source of silicosis risk.

Clinical observation

Three males, active workers in a small ornamental rock company were studied. They had spent 17 years working in the placing of artificial quartz surfaces in houses and other buildings (fig. 1). They were referred to our consultation to assess the radiographic alterations observed in a periodical physical examination.

Case 1

A male patient, 32 years old with no harmful habits. He showed signs of grade 1 dyspnoea according to the Medical Research Council² score. There were no relevant findings in the physical examination.

The lung function tests revealed a restrictive ventilatory defect: forced vital capacity (FVC) of 3,660ml (82%), forced expiratory volume at 1 second (FEV₁) of 3,070ml (81%), FEV₁/FVC of 84%, total lung capacity of 4,280ml (68%), functional residual capacity of 1,200ml (72%) and a decrease in the carbon monoxide transfer factor, which was 21.5ml/min/mmHg (69%). The chest x-ray, according to the year 2000 International Labour Office (ILO) classification,³ displayed nodular q-r opacities with 2/2 profusion in both lungs, mainly in the mid lung zones. The high resolution computerised tomography confirmed a greater profusion of nodules in the posterior region, where they conglomerated to form a mass of progressive massive fibrosis (fig. 2A).

Case 2

A male patient, 34 years old with no harmful habits or respiratory symptoms. The chest x-ray (ILO 2000) displayed diffuse nodular type



Figure 1. Quartz panels and some of their uses

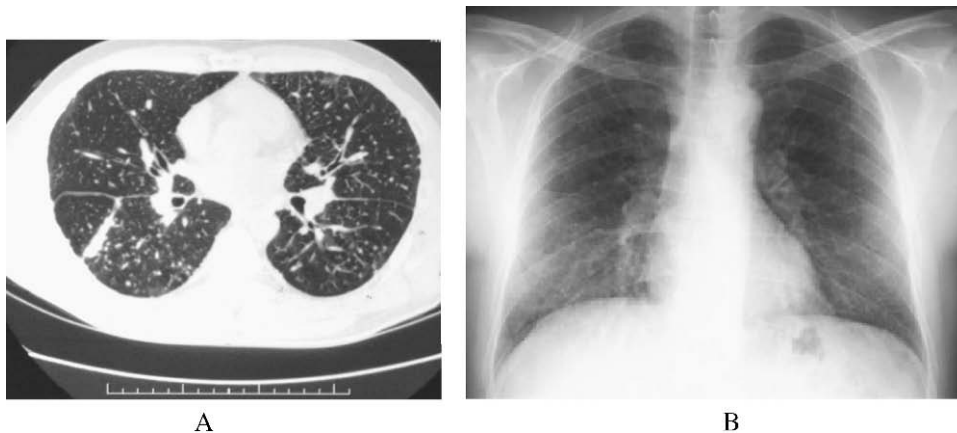


Figure 2. A: high resolution computerised tomography of case 1, in which parenchymatous nodes predominantly in posterior segments are observed, with formation of progressive massive fibrosis and subpleural nodulation. B: posteroanterior chest x-ray of case 3: size p-q, profusion 1/2 (International Labour Organisation 2000 classification).

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