

# Pleural Plaques Caused by Possible Non-Occupational Asbestosis

## *Placas pleurales por probable asbestosis no ocupacional*

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### ABSTRACT

In the context of an isolated bronchial hyperreactivity condition, the patient presents bilateral pleural images consistent with chronic asbestos exposure

**Key words:** Bronchial Hyperreactivity; Asbestos; Pleura

### RESUMEN

Paciente masculino, sin antecedentes conocidos, nunca tabaquista, que en el contexto de un cuadro de hiperreactividad bronquial aislado, se evidencian imágenes pleurales bilaterales compatibles con exposición crónica a asbesto.

**Palabra clave:** Hiperreactividad bronquial, Asbestos, Pleura

We present the case of a frequent user of the Metro B line in the City of Buenos Aires. Due to a respiratory condition as an isolated finding, calcified pleural images compatible with pleural asbestosis were detected.

Male patient, 68 years old. No clinical history. Non-smoker. Retired teacher.

When exposed to wood dust in a confined environment, the patient experienced an episode of bronchial hyperreactivity that resolved with inhaled budesonide/formoterol, and symptoms did not recur subsequently.

A simple chest X-ray was performed, revealing two heterogeneous radiopacities for the right cardiac silhouette and one opacity for the left cardiac silhouette (Figure 1).

Subsequently, a chest computed tomography (CT) was performed, revealing bilateral calcified

pleural plaques (Figure 2) and a solid nodule in the lower left lobe of approximately 15 mm (Figure 3).

The problem oriented medical record didn't report any recent travel, contact with animals, or exposure to inhaled toxic substances in the context of the patient's working environment. But the individual did confirm that between 2005 and 2019 he commuted daily in Line B of the Buenos Aires underground system, traveling from the first to the last station.

### DISCUSSION

There is extensive knowledge that exposure to asbestos can lead to pulmonary conditions. Such exposure can be either *occupational* or *non-occupational*, and within the latter, it is further



**Figure 1.** Heterogeneous radiopacity in the right para-hilar region. Heterogeneous radiopacity in the left mid-zone.



**Figure 2.** Bilateral calcified pleural plaques in the right hemithorax.

described as *environmental*, for cases where the patient resides near establishments where hygiene and industrial safety conditions are not adequately implemented, and *domestic* or *household*, especially when industrial substances are brought home by the worker, for example, through their work clothing.<sup>1</sup>

Another described para-occupational exposure is through exposure to commercial products containing asbestos that are used globally or are

already established. These products are diverse and include automobile brakes, asbestos cement products, textiles, adhesives, insulation, duct parts, and materials for roofing and flooring.<sup>2</sup>

Health conditions caused by this mineral in humans are also classified into two groups: *non-neoplastic*, such as pleural plaques, “round atelectasis,” or asbestos-related pulmonary fibrosis, and *neoplastic*, among which pleural mesothelioma (MTM) and bronchopulmonary cancer stand out.<sup>3</sup>



**Figure 3.** Solid homogeneous nodule in the left lower lobe.

Non-occupational asbestosis could account for nearly 20% of MTMs in industrialized countries.<sup>4</sup> Although the relationship between asbestos and pulmonary fibrosis has been known since the last century, the production of this mineral on an international level continued until the 1940s. It was only in the 1980s that its carcinogenic properties became clearly recognized, through Wagner's initial article that associated asbestos with malignant pleural mesothelioma (MPM). From that moment, efforts were made to reduce asbestos production and promote its replacement with other materials.

In our country, starting from Resolution No. 823/2001 of the Ministry of Health, the production, importation, commercialization, and use of asbestos fibers, specifically the chrysotile variety, and products containing them, are prohibited as from January 1, 2003.<sup>5</sup>

Between 2011 and 2013, 8 years after the aforementioned resolution, the Government of the City of Buenos Aires acquired old metro wagons that

belonged to the metro of Madrid and Japan, manufactured during the 70s and 80s, respectively, to be used for the city's underground system.

In 2017, workers from the *Metro de Madrid* informed their counterparts in Buenos Aires that the trains they had acquired were contaminated with asbestos. This situation came to light when Spanish workers were found to be ill due to asbestos exposure; even one of them had died. Up to that point, 84 workers were identified as affected by exposure to asbestos, 6 of which developed cancer, and 3 passed away.<sup>6</sup>

In the case we are presenting, there are no precedents of occupational exposure, no residence near factories with potential use of asbestos, and no family members with high-risk occupations. It appears to be a case of non-occupational asbestosis, in which the only record of contact with this mineral is the daily commute in a means of transportation where asbestos contamination has been confirmed.<sup>7</sup>

#### Acknowledgment

To Pleural Plaques and Asbestosis

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