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Néstor J. Martínez-Hernández, * José Marcelo Galbis-Caravajal, and Santiago Figueroa-Almanzar

Servicio de Cirugía Torácica, Consorci Hospital General Universitari de València, Valencia, Spain

*Corresponding author.

E-mail address: nessmartinez@hotmail.com
(N.J. Martínez-Hernández).

Solitary Pulmonary Nodule in a Patient Exposed to Welding Fumes

Nódulo pulmonar solitario en paciente con exposición a humos de soldadura

To the Editor:

Pneumoconiosis, especially less common forms of the disease, can sometimes be difficult to diagnose. We present the case of a patient who is suffering from one of the rarer forms, whose differential diagnosis is worth presenting.

The patient was a 53-year-old male, an ex-smoker (44 pack-year exposure), with history of gastric ulcers, prostatitis and manic-depressive disorder. The patient records showed that a pulmonary nodule had been removed three years before in the right superior lobe, being histologically diagnosed as benign. He was referred to our department because an 0.8cm solitary pulmonary nodule was found in the left superior lobe. A bronchoscopy was performed which did not show any endobronchial lesions. The bronchial aspirate showed a negative result for malignant cells and negative culture. The patient's medical records indicated that he had been working as an iron welder for 30 years, being exposed to welding fumes without protective measures. It was for this reason that the nodules were diagnosed as being associated with pneumoconiosis. The biopsy of the nodule removed 3 years before was studied: the lesion was formed by a dense, fibrous nodule made up of layered concentric collagen fibres surrounded by abundant siderophages which were on the fibrosis, filling the small airways. Abundant birefringent particles were detected with the polarizing microscope, meaning that the final diagnosis was siderosis. No changes were found in the 3-year radiology follow-up for the nodule in the left lung, and the patient remained asymptomatic.

Siderosis is a type of pneumoconiosis which is not considered as fibrotic. Pulmonary nodules are often detected in radiographs and in most cases do not involve a serious condition. Diffuse pulmonary nodules are easier to recognise, as a diffuse multinodular pattern is detected on the chest x-ray. From a clinical point of view, continuous exposure to iron dust or fumes can produce chronic bronchitis or unspecific persistent symptoms such as coughing, occasional wheezing or sporadic flu-like symptoms. Cases of spontaneous

pneumothorax have been noted in patients with siderosis,¹ while development of pulmonary fibrosis is rare.

Histological diagnosis of siderosis is of interest to us, given that there are no such cases published in Spain. However, the patient's medical records have also been highlighted as being important in the differential diagnosis of lung diseases. In effect, in cases where pneumoconiosis is presented in the form of solitary nodules,³ the exposure that the patient has had is essential information. However, neoplasm diagnosis should always be rejected, especially if the patient is a smoker. In the series published regarding pulmonary nodules that were surgically resected, pneumoconiosis ranges between 2 and 3% of all pulmonary nodules, and just under 20% of benign pulmonary nodules.²

Siderosis is related (but not exclusively) to prolonged inhalation of welding fumes.⁴ We believe that this case shows the need to emphasise how important it is for workers exposed to occupational agents, and more specifically welding fumes, to use preventative measures. Furthermore, we believe that pneumoconiosis and siderosis should be considered during the differential diagnosis of pulmonary nodules.

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Maria Asunción Seminario,^{a,b,*} María Ángeles Montero,^c and Jaume Ferrera,^b

^aServicio de Neumología, Hospital Universitario Vall d'Hebron, Universitat Autònoma de Barcelona (UAB), Barcelona, Spain

^bCIBER de Enfermedades Respiratorias (CIBERES), Instituto Carlos III, Madrid, Spain

^cServicio de Anatomía Patológica, Hospital Universitario Vall d'Hebron, Barcelona, Spain

*Corresponding author.

E-mail address: luceret_83@hotmail.com (M.A. Seminario).