



Editorial

Asbestos: Sleeping with the enemy[☆]

Amianto: durmiendo con su enemigo

Carmen Diego Roza

Complejo Hospitalario Universitario de Ferrol, Ferrol, A Coruña, Spain

The sentences handed down to the metro transport companies of Madrid and Barcelona with regard to pleural and lung diseases suffered by their workers due to exposure to asbestos have been reported recently in the media. This material was used extensively as a thermal insulator in the railway industry and other sectors. Its low thermal conductivity and high melting point made it the ideal insulation: more than 3000 industrial applications were described, and its use became ubiquitous. It should be remembered that asbestos affects not only the employees of companies handling this material, but also their family members. Indeed, jurisprudence exists to this effect in Spain.¹

All these events have focused the media spotlight on this old acquaintance of pulmonologists and thoracic surgeons. The scientific community has known for more than 100 years that asbestos causes respiratory diseases. Initially, the product was associated almost exclusively with occupational exposure, and, in particular, with jobs associated with heavy exposure, such as asbestos mining and manufacturing, shipbuilding, and insulation.^{2–4} However, we now know that exposure can occur in the domestic setting, among workers' families, from asbestos used in the home, or exposure of the mineral during renovation or maintenance work in buildings that may contain asbestos drainpipes and asbestos cement panels, among many other sources. Exposure can also be environmental, occurring among the inhabitants of communities living close to mines or asbestos-related industries or in areas where the subsoil is rich in asbestos fibers. Both domestic and environmental exposure can cause disease.⁵ In Spain, all use of asbestos has been banned since 2002,⁶ and regulations governing the handling of already installed asbestos have been in force since 2006, resulting in the implementation of very strict guidelines in this respect.⁷

Despite the Greco-Latin root of its name, meaning indestructible or incorruptible, asbestos can deteriorate over time and release fibers into the environment, putting the general population at risk of inhalation. In the 1970s, Selikoff et al. already warned of the danger that inhalation of asbestos fibers released into the environment could pose to the health of the general population of New York.⁸ More recently, in Spain, Tarrés et al.⁵ described asbestos-related

diseases among a population living in the proximity of a source of contamination, namely, the fiber cement factory in Cerdanyola. Mesothelioma is the best marker of exposure to asbestos, because it is an exceptionally rare neoplasm in the general population that is primarily caused by exposure to this material. The best-known studies on environmental exposure report a greater prevalence of mesothelioma in geographic areas where the content of asbestos in the subsoil is high, such as Anatolia in Turkey,⁹ although studies in certain communities have also been published, such as Cerdanyola in Spain, and in Trieste, the Veneto region, Monfalcone, Naples and Lombardy in Italy,¹⁰ where the presence of a manufacturing plant was a risk factor for the general population. We must also remember that a minimum threshold of exposure below which asbestos cannot cause mesothelioma has not been established.^{11,12} Despite predictions that mesothelioma would decline after asbestos was banned in most industrialized countries, its incidence is increasing globally, particularly in women. Occupational exposure is the most common cause of mesothelioma, so this entity appears more frequently in men, at a male-to-female (M:F) ratio of 4–8:1, with an mean age of 74 years. However, when mesothelioma is due to environmental causes the M:F ratio is 1:1 and the mean age is 60 years. The same data also emerged from the study of cases registered in the US Centers for Disease Control and Prevention who died of mesothelioma between 1999 and 2010. This also demonstrated that the M:F ratio has been falling to a rate of 1:1, suggesting that a greater proportion of mesothelioma is derived from environmental causes.¹³ A similar conclusion was drawn from a recent meta-analysis that included 44 studies from 18 countries¹⁰ which also found different odds ratios (OR) depending on the distance from the source of contamination, the concentration of fibers in room air, the type of activity leading to asbestos contact, and the fiber type.

This is, then, a global, worldwide public health problem.¹⁴ We physicians have 2 roles: the first is to diagnose and treat diseases associated with asbestos exposure. As such, it is essential that we obtain a comprehensive history of not only occupational, but also domestic and environmental exposure when we encounter a disease that may be caused by this exposure. The second is our social responsibility, which requires us to raise awareness of the problem and the need to completely eliminate the risk of current exposure to asbestos. A good way to start would be by implementing the 2013

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E-mail address: carmen.diego.roza@sergas.es

European directive that urges member states to register buildings containing asbestos and to proceed with its removal.¹⁵

References

1. Poyatos G, Diego Roza C. La justicia y el amianto. *Arch Bronconeumol*. 2017;53:5–6.
2. McElvenny DM, Darnton AJ, Price MJ, Hodgson JT. Mesothelioma mortality in Great Britain from 1968 to 2001. *Occup Med*. 2005;55:79–87.
3. Darnton AJ, McElvenny DM, Hodgson JT. Estimating the number of asbestos-related lung cancer deaths in Great Britain from 1980 to 2000. *Ann Occup Hyg*. 2006;50:29–38.
4. Van Oyen SC, Peters S, Alfonso H, Fritschi L, de Klerk NH, Reid A, et al. Development of a job-exposure matrix (AsbjEM) to estimate occupational exposure to asbestos in Australia. *Ann Occup Hyg*. 2015;59:737–48.
5. Tarrés J, Abós-Herrándiz R, Albertí C, Martínez-Artés X, Rosell-Murphy M, García-Allas I, et al. Enfermedad por amianto en una población próxima a una fábrica de fibrocemento. *Arch Bronconeumol*. 2009;45:429–34.
6. Orden de 7 de diciembre de 2001 por la que se modifica el anexo I del Real Decreto 1406/1989, de 10 de noviembre, por el que se imponen limitaciones a la comercialización y al uso de ciertas sustancias y preparados peligrosos. *Boletín Oficial del Estado*, 14 de diciembre de 2001, N.º 299; p. 47156–46157.
7. Real Decreto 396/2006, de 31 de marzo, por el que se establecen las disposiciones mínimas de seguridad y salud aplicables a los trabajos con riesgo de exposición al amianto. *Boletín Oficial del Estado*, 11 de abril de 2006, N.º 86; p. 13961–13974.
8. Selikoff IJ, Nicholson WJ, Langer AM. Asbestos air pollution. *Arch Environ Health*. 1972;25:1–13.
9. Metintaş S, Batirel HF, Bayram H, Yılmaz Ü, Karadağ M, Ak G, et al. Turkey National Mesothelioma Surveillance and Environmental Asbestos Exposure Control Program. *Int J Environ Res Public Health*. 2017;14, pii: E1293.
10. Liu B, van Gerwen M, Bonassi S, Taioli E. International Association for the Study of Lung Cancer Mesothelioma Task Force. Epidemiology of environmental exposure and malignant mesothelioma. *J Thorac Oncol*. 2017;12:1031–45.
11. Hillerdal G. Mesothelioma: cases associated with non-occupational and low dose exposures. *Occup Environ Med*. 1999;56:505–13.
12. Goldberg M, Luce D. The health impact of nonoccupational exposure to asbestos: what do we know? *Eur J Cancer Prev*. 2009;18:489–503.
13. Baumann F, Carbone M. Environmental risk of mesothelioma in the United States: an emerging concern-epidemiological issues. *J Toxicol Environ Health B Crit Rev*. 2016;19:231–49.
14. Landrigan PJ, Lemen RA. A most reckless proposal — a plan to continue asbestos use in the United States. *N Engl J Med*. 2019;381:598–600.
15. Resolución del Parlamento Europeo, de 14 de marzo de 2013, sobre los riesgos para la salud en el lugar de trabajo relacionados con el amianto y perspectivas de eliminación de todo el amianto existente (2012/2065 INI).