


The upholsterer and the asbestos

We report an unusual occupational exposure to asbestos, confirmed by lung fibre burden analysis, in a patient affected by malignant mesothelioma. The job involved in this case does not apparently represent a danger for asbestos-related diseases. The causal role of occupational exposure was detected as a result of the work performed by Lombardy Mesothelioma Registry. The Registry has been collecting all incident cases of malignant mesothelioma occurring in residents in the Lombardy Region of northern Italy (total population of 9.1 million) since 1 January 2000. Cases are reported to the Registry by the pathology, pneumology, surgery, and oncology departments of each regional hospital. For each case, all available clinical records are collected and reviewed by a panel of pneumologists, oncologists and pathologists. Evaluation of asbestos exposure (in the workplace or environmental settings) is based on information collected through a standardised questionnaire, administered by trained interviewers to the patient or his/her next of kin, and discussed with an industrial hygienist, occupational health physicians and epidemiologists.

The case of interest is that of a 63-year-old man diagnosed with malignant pleural mesothelioma by clinical, radiological, surgical, and histological tests, including immuno-histochromistry. Neither extra-occupational nor environmental sources of asbestos exposure were found. The patient worked from the ages of 24 to 52 as an independent upholsterer. He manufactured covers, stuffing and padding for mattresses, sofas and armchairs. Until the early eighties, he used, for stuffing, about 200 kg of cotton waste and wadding every day, collecting dark-grey-coloured bales of recycled cotton, wool rags and cloth transported from Tuscany and Brianza (an area in central-northern Lombardy).

The association between asbestos exposure and handling of second-hand clothes, especially those from Tuscany, has already been described, but only in workers directly involved in these activities. The investigation revealed that handling or cleaning jute sacks containing asbestos increased environmental asbestos levels up to 10–15 fibres/cm³. The majority of asbestos left in those bags was chrysotile, but amosite and crocidolite were also found. The clothing and rags, after sorting, were piled in bales of like fabrics for shipping, and covered with the recycled asbestos bags (previously cut and opened flat in order to be wrapped around the cloth) and pressed. People who received and opened those bales were probably exposed to asbestos. Furthermore, jute bags were also shredded to be used as padding in mattresses, and potentially asbestos-contaminated sacks were finely chopped and added to the mixture of raw material.

The incidence of malignant mesothelioma in rag sorters and in workers recycling jute sacks, from the year after World War II up to 1982 (when a law forbade re-use of sacks material.) has been studied in Italy. Based on these reports, we suspected it was possible that our patient was exposed to asbestos; fortunately, four specimens of lung tissue were available, so the asbestos fibre burden could be measured. Scanning electron microscope (SEM) analysis showed a mean (SD) concentration of up to 1 872 000 (429 000) fibres (mainly chrysotile) per gram of dry tissue. The mean (SD) length was 9.3 (5.6) μm, and the mean (SD) diameter was 1.2 (0.7) μm. According to Movev, a burden of more than 1 million per gram of dried lung tissue analysed by SEM is associated with occupational asbestos exposure. The finding of so many chrysotile fibres in our patient’s lung tissue confirms an intensive occupational asbestos exposure that otherwise would have been only hypothesised.

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