Original article
Scand J Work Environ Health 1994;20(2):146-147
doi:10.5271/sjweh.1418

Pleural mesothelioma in a cigarette filter factory worker.
by Huncharek M

Affiliation: Department of Radiation Oncology, Massachusetts General Hospital, Harvard Medical School, Boston 02114.

This article in PubMed: www.ncbi.nlm.nih.gov/pubmed/8079137
Pleural mesothelioma in a cigarette filter factory worker

by Michael Huncharek, MD

Pleural mesothelioma is a relatively uncommon tumor, although its incidence is increasing (1, 2). The etiologic link between asbestos and mesothelioma is well established (3, 4), many new occupational and nonoccupational risk groups having been identified over the last decade (5). In 1989, Talcott et al (6) reported the mortality and morbidity experience of a cohort of cigarette filter workers (33 men) exposed to crocidolite asbestos (6). A marked excess in mortality and morbidity from asbestos-related diseases was described, including lung cancer, mesothelioma, and asbestosis. This communication outlines a case of pleural mesothelioma which occurred in an office worker employed in the same cigarette manufacturing plant as described by Talcott et al in 1989. This patient was not, at any time, involved in the manufacturing process and had no other known source of asbestos exposure, although domestic exposure may have occurred.

Case report

The patient was a 53-year-old white female with a 90 pack-year smoking history who was well until four months prior to presentation. At that time she developed left-sided pleuritic chest pain initially treated with nonsteroidal antiinflammatory medication with complete resolution of her symptoms. Thereafter, the patient noted a gradual onset of dyspnea on exertion without chest pain or other symptoms. A chest radiograph (figure 1) showed a large left-sided pleural effusion and extensive pleural disease. A physical examination showed prominent veins on the left neck and overlying the anterior area of the left part of her chest. Breathing sounds were markedly diminished over the entire left hemithorax. The remainder of her examination was unremarkable. She reported no significant past medical history.

A thoracentesis was performed which was nondiagnostic. The results of a needle biopsy were suspicious for mesothelioma and on the second hospital day a bronchoscopy and thoracotomy were performed. No endobronchial tumor was noted although the left basilar segmental bronchus was occluded by extrinsic compression. A partial pleurectomy and decortication of the left lower lobe was carried out. Pathological examination showed malignant mesothelioma of the epithelial subtype with positive staining for cytokeratins. The tumor was carcinoembryonic antigen (CEA) and LUE-M1 negative. Examination by electron microscopy revealed large,

Figure 1. Chest radiograph showing pleural mass in the left hemithorax.
The incidence of pleural mesothelioma has risen over the last two decades. Data from the National Cancer Institute’s program of population-based registries, called SEER (surveillance epidemiological and end results), show that the annual age-adjusted incidence for the years 1973 to 1978 versus 1979 to 1980 increased by almost 10% per year (among men) (1). More recent data from SEER shows that the incidence rate among white men for the period 1973—1984 increased from 0.7 per 100 000 persons to 1.8 per 100 000 persons (1).

The etiologic link between asbestos and mesothelioma is well known. Disease risk is no longer confined to workers in the asbestos industry. Occupational groups using various asbestos products, for example, insulators, pipe fitters, construction workers, brake mechanics, and railroad workers, have been shown to experience a high incidence of this tumor. In addition, household contacts of asbestos industry workers have been described as being at risk, and this phenomenon demonstrates that “secondary” or “bystander” exposure to asbestos may represent a serious health hazard (7).

In 1989, Talcott et al (6) reported on the occurrence of asbestos-associated diseases in a cohort of workers employed in the same factory as the patient in this case report. The 33 men described by Talcott and his co-workers were all involved in the manufacturing process itself with exposure to crocidolite asbestos. Industrial hygiene surveys conducted at the plant in the 1950s revealed a very high airborne asbestos concentration (ie, 80 particles per milliliter of air). Overall mortality was increased in this group, 15 of 28 deaths being due to cancer as compared with the 8.3 expected. Eight died from lung cancer, five from mesothelioma, and two from other types of cancer.

The patient described in the present report had three potential sources of asbestos exposure, namely, (i) exposure during the workday via trips through the manufacturing plant to pick up payroll material, (ii) secondary exposure from contaminated workers entering the payroll office, which was her primary work area, and (iii) domestic exposure from her husband’s work clothes. It is important to note that the patient’s husband died from asbestosis secondary to heavy asbestos exposure at the same manufacturing plant.

This case report presents a case of pleural mesothelioma associated with unusual occupational and nonoccupational exposure to asbestos. Such exposures are often unrecognized and therefore have medical, legal, and public health implications. Physicians and public health professionals need to be aware of unusual sources of asbestos exposure in order to institute appropriate management and preventive measures.

**References**

1. Ries LAG, Hankey BF, Miller BA, et al. Cancer statistics review 1973—1988. Bethesda, MD: National Cancer Institute, 1991. (NIH pub no 91-2789.)
2. Churg A. Malignant mesothelioma in British Columbia in 1982. Cancer 1982;55:672—4.
3. Newhouse M. Epidemiology of asbestos related tumors. Semin Oncol 1981;8:250—7.
4. Huncharek M. The epidemiology of pleural mesothelioma: current concepts and controversies. Cancer Invest 1989;7:93—9.
5. Huncharek M. Changing risk groups for malignant mesothelioma. Cancer 1992;69:2704—11.
6. Talcott JA, Thurber WA, Kantor AF, et al. Asbestos associated diseases in a cohort of cigarette filter workers. N Engl J Med 1989;321:1220—3.
7. Anderson HA, Lils R, Daum SM, et al. Household contact asbestos neoplastic risk. Ann NY Acad Sci 1976;271:311—23.

Received for publication: 28 September 1993