

CORRESPONDENCE

Cancer mortality in a northern Italian cohort of rubber workers

Sir,—I read with great interest the paper by Negri *et al* (1989;46:624-8) concerning the mortality experience of rubber workers employed in rubber tyre manufacturing. Their observation of excess mortality of "cancer of the pleura," which appears to be limited to those employed before the 1940s, is of special interest. The possibility of exposure to fibres is discussed, either to fibre containing talc or to products handled by workers in the maintenance trades. The possibility of exposure to asbestos before work in tyre manufacturing was also mentioned.

We have recently noticed chest radiographic signs consistent with effects of exposure to airborne asbestos containing materials and other inorganic dusts among workers with a history of long term employment in tyre manufacturing plants. As expected, the radiographic signs were generally observed decades after first employment. The following is a description of the findings in one case.

A male worker began employment as an electrician in a tyre manufacturing plant in 1951. He worked there for 26 years. There was no history of employment in any asbestos related trade before the work in the rubber plant. Medical history was non-contributory. He reported indirect and direct exposure to soapstone and asbestos containing insulation materials in the course of his work in the plant. A chest radiograph taken in 1986 showed extensive pleural abnormalities characteristic of effects of air-born asbestos dust (fig).

Pleural changes, some associated with interstitial lung disease, have been noted in chest radiographs of workers employed in various tyre manufacturing plants in the United States suggesting that our initial observations are not unique to one plant (A F Fischbein *et al*, VII International Pneumoconioses Conference, Pittsburgh, 1988). In another recent radiographic survey of nine tyre/tube manufacturing plants a high prevalence of pleural abnormalities (12%) was found to be clustered within one facility, albeit the overall

prevalence of reported pleural abnormalities was low, 2.2%.¹ Our observations should be viewed in the light of previous clinical reports of pleural and interstitial pulmonary disease related to exposure to talc, soapstone, and asbestos in workers employed in rubber and rubber tyre manufacturing and reclaiming.²⁻⁵ The diagnostic characterisation of the radiographic manifestations that may occur subsequent to such exposures is often complex but is a function of the mineralogical composition of the various dusts to which exposure can occur.^{6,7} In one clinical report of talcosilicosis in a worker engaged in rubber tyre reclaiming (grinding) reference was made to extensive use of asbestos and cases of asbestosis in the rubber plant in which the patient had been employed.³ Thus potential simultaneous exposure to both talc, soapstone, and asbestos appears to be not uncommon in this trade.

The complex consequences of exposure to talc contaminated with tremolite and anthophyllite asbestos are illustrated by early reports of radiographic findings among talc miners who showed signs that were reminiscent of asbestos related abnormalities, particularly some of the pleural changes described.⁸ These

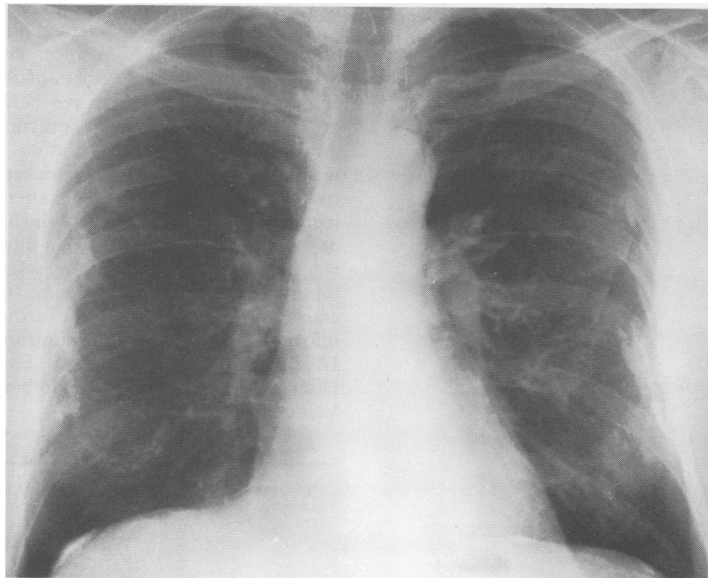
were related to talc per se and not to asbestos by some investigators.⁹

The mortality study by Negri *et al* suggests that occupational exposures in this part of the rubber trade are associated with a risk of pleural cancer and our observations of radiographic signs consistent with exposure to airborne asbestos containing materials lend support to the notion that exposure to asbestos may be the cause for their findings. This is in addition to the neoplastic risk for other organs, including lung and stomach, which has been documented by others and related to the complex work environment that characterises rubber manufacturing.¹⁰

We suggest that workers of various trades with a history of long term employment in tyre manufacturing plants should receive medical surveillance aimed at the early detection of asbestos related disorders.

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Posteroanterior projection of chest radiograph taken of worker 35 years after onset of employment as electrician in tyre manufacturing plant. Extensive pleural abnormalities are noted such as bilateral thickening of lateral costal pleura, pleural thickening seen face on, and diaphragmatic calcifications characteristic of asbestos induced effects.

- 1 National Institute for Occupational Safety and Health. *Health hazard evaluation determination report—interim report No 1, MHETA 87-017*. US Department of Health and Human Services, Centers for Diseases Control and updated report No 87-017, February 1989. Health Hazard Evaluation/Technical Assistance Program, Division of Respiratory Disease Studies, National Institute for Occupational Safety and Health, Morgantown, West Virginia 26505, USA.
- 2 McLaughlin AIG, Rogers E, Dunham KC. Talc pneumoconiosis. *Br J Ind Med* 1949;6:184–94.
- 3 Graham WGB, Gaensler EA. Talc-silicosis in a rubber worker. *Med Thorac* 1965;22:590–604.
- 4 Manfredi F, Krumholz R. Percutaneous needle biopsy of the lung in evaluation of pulmonary disorders. *JAMA* 1966;198:176–80.
- 5 Gaensler EA, Kaplan AI. Asbestos pleural effusion. *Ann Intern Med* 1971;74:178–91.
- 6 Feigin DS. Talc: understanding its manifestations in the chest. *American Journal of Roentgenology* 1986;146:295–301.
- 7 Feigin DS. Misconceptions regarding the pathogenicity of silicas and silicates. *J Thorac Imag* 1989;4:68–80.
- 8 Siegal W, Smith AR, Greenburg L. The dust hazard in tremolite talc mining, including roentgenologic findings in talc workers. *American Journal of Roentgenology* 1943;49:11–29.
- 9 Smith AR. Pleural calcification resulting from exposure to certain dusts. *American Journal of Roentgenology* 1952;67:375–82.
- 10 International Agency for Research on Cancer. *Monographs on the evaluation of the carcinogenic risk of chemicals to humans*. Vol 28. *The rubber industry*. Lyon: IARC, 1982.

NOTICES

4th International Conference on the Combined Effects of Environmental Factors, Baltimore, MD, 1–3 October, 1990

The subject of this meeting is the Health Effects of Exposures to Multiple Environmental Agents. Health effects of chemical and physical agents in both laboratory animals and working populations will be highlighted. Presentations dealing with mechanisms underlying interactions of environmental factors or prediction of interactions are especially welcome. Both platform and poster presentations are invited. For further information contact Dr Jacqueline K Corn, Department of Environmental Health Services, The Johns Hopkins University, 615 North Wolfe Street, Room 1003, Baltimore, MD 21205, USA.

Risk assessment in the process industries, Chester, Cheshire, 5–7 March 1990

This intensive workshop is intended to provide information and guidance to those who need to understand how QRA is used in the chemical and extractive industries. Features of the course will include: extensive background information, practical guidance on use and application of techniques, tutorials based on realistic case studies. Those who should attend include: managers in industry who use or need to understand QRA, those who need to prepare CIMAH safety reports, local authority planners, and emergency planning staff. For further information contact: Sara Mountford, IBC Technical Services Ltd, Bath House (3rd Floor), 56 Holborn Viaduct, London EC1A 2EX.



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