

Asbestos Bodies in Human Lungs at Autopsy

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The incidence of asbestos bodies in the lungs was investigated in 100 autopsies of adults. Lung smears were taken from the sectioned surfaces of the upper and lower lobes of both lungs. The slides were dried and mounted without staining, and approximately 400 low-power fields were examined in each slide. Routine histological sections of unexpanded lungs were also examined in all cases. Asbestos bodies were found in 41% of the subjects. They were not encountered in persons up to 24 years of age. Among males the incidence was 47%, and in females 34%. Although significant microscopic pulmonary fibrosis was encountered in two positive cases, no instance of classical asbestosis was found. Mesothelioma of the pleura was not encountered. Primary lung carcinoma occurred in one patient with asbestos bodies and in one without.

Wagner and associates¹ reported on the occurrence of diffuse pleural mesothelioma in persons from a large asbestos mining area in the northwest of Cape Province, South Africa. Since mesothelioma of the pleura was regarded as an uncommon tumor, and was rarely seen elsewhere in South Africa, they undertook an investigation of these cases. In ten cases, lung tissues were available for microscopic examination and asbestosis was found in eight.

Thomson² reported seven cases of mesothelioma, four in the pleura and three in the adjacent peritoneum, encountered over a period of three years in the autopsy service of one teaching hospital in Cape Town. In all seven cases the microscopic picture was that of pulmonary asbestosis, with abundant asbestos bodies and fibrosis in the basal portions of the lower lobes. Since only one of these seven patients had a history of occupational exposure to asbestos, Thomson and his associates³ undertook an investigation on the frequency of asbestos bodies in the lungs in general population of Cape Town in routine autopsies. Of 500 cases examined, 132 were positive for asbestos bodies. These results suggested that asbestos was becoming a modern urban hazard. According to Thomson et al,³ world consumption of this mineral had increased from 300,000 tons in 1934 to 2,400,000 tons in 1961. It is used in a wide variety of industrial

products such as asbestos roofing, roof tiles, ceilings, floor tiles, pipe and electrical insulation, car-brake linings, cement, etc. Since asbestos is virtually indestructible they predicted that the amount of air-borne asbestos fibers in cities would increase in the future and become a contaminant of the air. They further suggested that the results of life-long inhalation of these fibers might lead to almost universal basal asbestosis in adults, and a frequency of mesothelioma of pleura or peritoneum higher than that of bronchial carcinoma today. Asbestos has also been implicated as a possible factor

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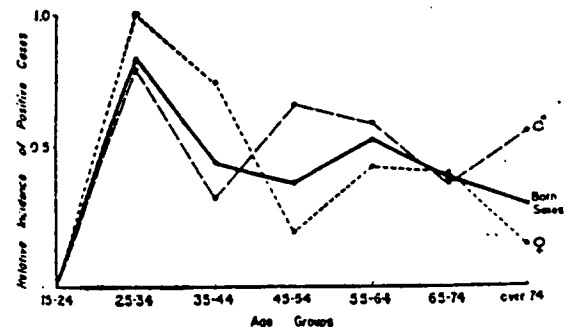
in the development of carcinoma of the lung.⁴ According to Doll⁵ the risk of developing a lung cancer is increased among asbestos workers, but this is denied by others.^{6,7}

As the United States accounts for roughly over one third of the world's consumption of asbestos, Thomson² initiated an investigation of the frequency of asbestos bodies in lungs in Miami, Fla, where even higher positive figures were obtained than in Cape Town.

Pittsburgh and its environs are free of asbestos mines, but it is a large industrial center with an expanding modern building program. The purpose of this investigation was to obtain preliminary data on the incidence of asbestos bodies in the lungs of patients who died at Presbyterian-University Hospital.

Material and Methods

The work was carried out in the Presbyterian-University Hospital, which receives patients mainly from the city of Pittsburgh and the surrounding area. The material consisted of 100 routine autopsy



1. Incidence of positive cases relative to age groups.

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