

MESOTHELIOMA—LIEBEN & PISTAWKA

561

ant Pathologist

Asbestos
Bodies

No lung tissue
Yes
No lung tissue
Yes
Yes
No lung tissue
Yes
No lung tissue
No lung tissue
No lung tissue
No lung tissue
No lung tissue
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No lung tissue
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tional asbestos exposure. Her work was always secretarial; she was born and lived until the age of 8, in the immediate neighborhood of an asbestos textile and friction material plant where patient 1-0 had worked for 35 years. From the age of 18 she lived for 30 years across the street from the plant where patient 6-0 had worked for 15 years.

Patient 2-N, a clergyman from 1935 until his death in 1961, never had any occupational asbestos exposure. Prior to becoming a minister he lived for 19 years within one half of a mile of the insulation plant where patients 3-0, 4-0, and 5-0 had worked as insulation manufacturing workers.

Patient 3-N never had any occupational asbestos exposure except that, 20 years prior to his death, he had worked for one year across the street from the insulation plant mentioned in the history of patient 2-N.

Patient 4-N worked for 26 years across the street from the insulation plant mentioned in connection with patients 2-N and 3-N.

Patients 5-N, a nurse, and 6-N, a meat distributor, had no occupational exposure nor family contact with asbestos. They both lived within three fourths of a mile of two asbestos plants in a town with the greatest incidence of mesotheliomas in this study.

Patients 7-N and 8-N were both foremen in a storage battery plant. A careful check of the plant and their employment records revealed no asbestos exposure, past nor present. The plant is located less than 1½ miles from an asbestos textile plant. The exposure of these two cases is questionable.

Patients 1-N and 4-N had peritoneal and patients 2-N, 3-N, 5-N, 6-N, 7-N, and 8-N had pleural mesotheliomas.

Mesothelioma Patients With Family Contacts Exposed to Asbestos.—Patient 1-F, a 3-year-old child, was the daughter of a ceramic engineer who worked in an insulation plant that utilizes 400 tons of Canadian chrysotile and 1,500 tons of South African amesite annually.

Patient 2-F, a 40-year-old nurse, never had any occupational asbestos exposure, but her father had worked for 35 years in the insulation plant where patients 3-0, 4-0, and 5-0 had worked and which was also credited with three neighborhood cases. The nurse's brother also had worked in this plant for one year.

Patient 3-F, a 67-year-old woman, never had any asbestos exposure nor had she lived near an asbestos plant. She had two sons who worked as insulators in a shipyard for six years. These sons lived at home until 15 years prior to their mother's death.

Patients 1-F and 3-F had peritoneal and patient 2-F pleural mesotheliomas.

Mesothelioma Patients With Questionable Asbestos Exposure.—A study of these ten men elicited either a relatively minor or questionable exposure to asbestos.

Patient 1-Q was a welder for 35 years. According to a common reference,¹³ eight out of 12 welding electrodes contain asbestos, which is used as a filler.

Patient 2-Q was a self-employed Swiss-born Swiss cheesemaker. A thorough study of the processes of Swiss cheese manufacture revealed no use of asbestos. During the study of the manufacturing process a 500-gal boiler was noticed. This boiler was covered with a friable asbestos insulation which flaked off on contact.

Patient 3-Q, a 14-year-old boy with mesothelioma, had no occupational contact with asbestos nor did any of his family. On questioning, the boy's father told the authors that his boy had lived with him and had helped him while he had replaced most of the plaster board during extensive remodeling of his house. Plaster board contains a high percentage of asbestos.

Patient 4-Q is employed in industrial sales and never had any occupational asbestos exposure. Extensive questioning revealed that, on two occasions several years before, he applied asbestos insulation to boilers in his home, fixing asbestos cement himself. His total exposure during these applications was only a matter of hours.

Patient 5-Q was a brewery worker for 20 years. The brewery was no longer in business when the case was investigated. Reviewing the literature of beer production the following paragraph was discovered:

"When ready for packaging the beer is filtered through pulp filters consisting essentially of cotton fibers and asbestos. After each filtration this 'FILTERMASS' is removed, mangled, and washed in clear, warm water, then bleached and sterilized at 160 to 180 F with chlorine. The washed pulp then goes directly to a pad-forming machine where it is compressed at 89 to 90 pounds per square inch to form new filter pads.¹⁴"

Asbestos-containing pipe insulation is used in breweries.

Patients 6-Q, 7-Q, and 8-Q were all steel workers. Patient 6-Q was a crane operator; 7-Q a forger; and 8-Q a foreman and supervisor. In all cases the companies did not recall any asbestos exposure for these men. Pipe insulation containing asbestos is extensively utilized by steel companies.

Patient 9-Q was a spinner in a silk company