

Short reports

Metastases in diffuse pleural mesothelioma: influence of histological type

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Mesothelioma is a rare tumour with an annual age adjusted incidence of 0.9 per 100 000 among white men and 0.3 per 100 000 among white women in the United States (calculated for the years 1973-8).¹ Asbestos is the primary causal factor in the development of this disease and the recent increase in its incidence closely parallels its increased use and the concomitant widespread exposure to asbestos fibres.²

Several previous reports have tended to emphasise the infrequent occurrence of metastases in cases of diffuse pleural mesothelioma,³⁻⁵ although more recent studies suggest that cell type (that is, epithelial, sarcomatous, or mixed) may influence the clinical course of this disease, blood borne metastases being characteristic of mesothelioma of the sarcomatous type.^{6,7}

The present study was conducted to evaluate the frequency of metastases in a group of necropsy confirmed cases of diffuse pleural mesothelioma and to relate these findings to histological type.

Methods

This series consisted of 42 cases of diffuse pleural mesothelioma (40 men, two women), proved histologically after a complete necropsy. In all cases the diagnosis was confirmed on review of the histological material by a pathologist of the Canadian Tumor Reference Center. Complete postmortem reports were available in all cases. Occupational and asbestos exposure histories were also available and reviewed for all but three men.

After review of the medical records and necropsy and pathology reports, the following information was recorded on a standard data form for each subject: age, sex, location of primary tumour, histological type, location of metastases if present, asbestos exposure history, latent period, clinical course, and occupation. Duration of exposure to asbestos was expressed as the total number of years during which the subject was exposed to asbestos. Histologically, the tumour tissue was classified into one of three categories—that is, epithelial, sarcomatous or mixed. Total number and site of metastases were tabulated and a χ^2 analysis was used to determine the relationship between cell type and presence of distant metastases.

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Accepted 18 February 1987

Summary of histology and metastatic spread of 42 cases of pleural mesothelioma

Histological type	n	No (%) with metastases	No (%) with lymph node affected
Epithelial	20	15 (75)	9 (45)
Sarcomatous	10	7 (70)	4 (40)
Mixed	12	10 (83)	6 (50)
Total	42	32	19

Results

The median age was 62 (range 45-80) years. In 17 patients (40%) the primary site of the mesothelioma was the left pleura and in 23 (55%) the right pleura. Two patients (5%) had bilateral tumours.

Distant metastases were found at necropsy in 32 of the 42 cases (76%). The most common sites of metastases were: contralateral lung (16 cases), kidney (11 cases, bilateral in 6), liver (9 cases), and adrenals (8 cases, bilateral in 3). Metastatic spread to spleen, brain, pancreas, and bone marrow (one case each) was also observed. Regional lymph node metastases were found in 19 cases (45%).

Thirty eight subjects (90%) had documented occupational histories of exposure to asbestos (37 men, one woman; mean exposure 20.9 years, range 1 month to 46 years). Occupational histories were not available for three cases (all male), while one woman had a history of domestic asbestos exposure.

Distant metastases were found with all three cell types (table). Metastases were present in 75% of patients with epithelial tumours, in 70% of those with sarcomatous tumours, and in 83% of those with mixed tumours. There was no statistically significant association between histological type and presence of metastases, or between histological type and age at diagnosis.

Discussion

Reports on mesothelioma have tended to emphasise the infrequent occurrence of metastases, and in the past the finding of metastatic disease has often cast doubt on the diagnosis.⁸ Recent reports, however, have suggested that metastatic spread may occur more commonly than was previously thought.⁹

Malignant mesotheliomas are conventionally divided histologically into three types—epithelial, sarcomatous, and mixed—and some authors have indicated that metastases occur more frequently with sarcomatous pleural tumours than with the epithelial type.⁷ No such difference in frequency of metastases was found in the present series.

Of particular importance is the fact that complete necropsy reports were available for all cases in the present series. This lends additional support to the diagnosis of mesothelioma by ruling out the presence of a primary tumour elsewhere in the body. Furthermore, the diagnoses were confirmed by an independent pathologist. In summary, the data provide evidence that distant metastases are a common feature of diffuse pleural mesothelioma and that all three cell types are associated with metastatic spread.

We gratefully acknowledge the support of WTE McCaughy for providing pathology reports and medical records for this analysis.

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