# Pathology of Malignant Mesothelioma

Françoise Galateau-Sallé

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With 169 Figures, 158 in Full Color

International Mesothelioma Panel
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# Preface

## The Urgency of Improving and Standardizing Diagnostic Methods for Mesothelioma

Recent decades have seen substantially increased worldwide incidence and mortality rates for mesothelioma. Studies in many countries have confirmed its association with asbestos exposure. Nonetheless, important scientific and public health questions still need answers.

What morphologic and chemical characteristics of these fibers explain their carcinogenic effects? Is there a threshold below which asbestos exposure would be harmless? What risks are associated with the current conditions of occupational exposure—which are much shorter and much less intense than those observed in the historical cohorts that enabled identification of the risks associated with this material? Does spending time in buildings with asbestos have carcinogenic effects when the asbestos fibers are observed at levels substantially lower than those associated with occupational exposure? What about environmental exposures from either natural (fibers in the soil) or industrial (asbestos mines, asbestos processing plants) sources? Can asbestos induce primary pleural tumors of a histologic type other than mesothelioma? Are the man-made mineral fibers used as asbestos substitutes likely to induce mesothelioma? Are there other agents capable of such an effect? How will the mesothelioma epidemic develop in the decades to come in different countries?

Quantification of the risks associated with asbestos is also a major scientific and public health issue. Controversy surrounds the models currently used, which postulate a linear no-threshold relation, and the parameters that characterize the dose–risk curve. Risk assessments based on these models play a determinant role in forecasting incidence trends and estimating the scale of asbestos impact on populations, and they have various concrete consequences, including financial.

These questions are therefore not at all academic: They are important when determining prevention policies and financial compensation. An international mobilization of biologic, experimental, clinical, and epidemi-

ologic research has sought to improve our understanding of these questions.

One of the most important pathways to a better understanding of all these questions involves the improvement and standardization of diagnostic methods for mesothelioma.

Scientists face many difficulties in understanding the mechanisms of this cancer's development, the role of the several varieties of asbestos and of a wide range of other factors, and the extent of the consequences of asbestos exposure. More problems come when interpreting past incidence trends and when forecasting future trends. Many of these issues are related to limitations in our capacity to diagnose mesothelioma and in the difficulty pathologists face in finding methods that are sensitive, specific, and reproducible from an international perspective. The subsequent failure to identify cases and the inaccurate diagnoses of metastases and other forms of pleura-based tumors such as mesotheliomas cause individual harm; bias epidemiologic surveys, mesothelioma incidence estimates, and international comparisons; and impede the study of changes in this cancer's incidence over time. These factors have led to important scientific (and legal) debates in a variety of circumstances.

Publication of this work by the International Mesothelioma Panel is therefore particularly welcome. It provides information about recent advances—some quite spectacular—in methods for diagnosing mesothelioma. Let us hope that this volume will promote diffusion of the most effective of these methods to the vast number of pathologists who are not specialized in this domain but who must occasionally examine this tumor.

Mesothelioma is still a complex scientific and public health problem, and all the forecasts indicate that it will remain with us for at least several more decades. Constant improvement of diagnostic methods is urgently needed to improve our understanding and management of it. Future work by the International Mesothelioma Panel to improve early detection through the new tools now available to pathologists (e.g., molecular biology, immunohistochemistry) will help with the international resolution of this question, a resolution today still in its first stages.

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I dedicate this book to our readers, hoping they will find in this monograph assistance and answers to their questions.

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