

# Malignant Pleural Mesothelioma



Melanie C. Bois, MD; Hee Eun Lee, MD, PhD; and Lori A. Erickson, MD

**M**alignant pleural mesothelioma may track along pleural surfaces, which invaginate into the lung into the interlobular space, as is demonstrated by the tan-white thickening and nodularity along the pulmonary fissures in this pneumonectomy specimen (arrows).<sup>1</sup>

From the Department of Laboratory Medicine and Pathology, Mayo Clinic, Rochester, MN.

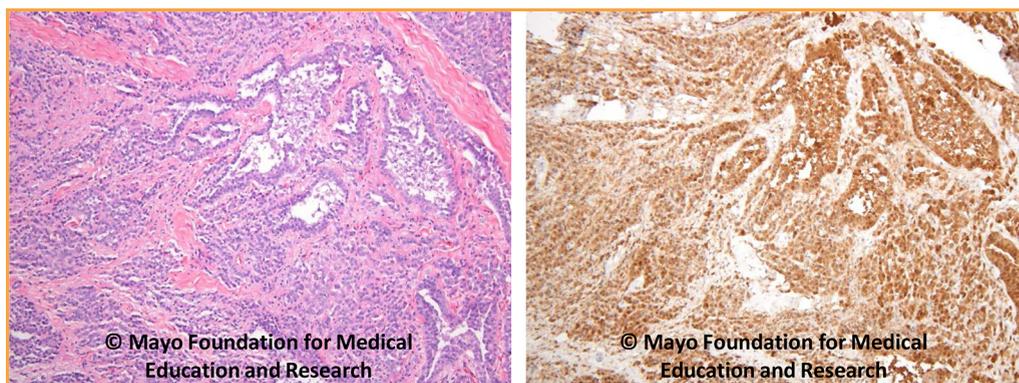
Aside from asbestos exposure, which of the following are associated with increased incidence of pleural mesothelioma?



- a. Therapeutic radiation exposure, erionite, and germline *BAP1* mutations
- b. Exposure to Epstein-Barr virus and alkylating agents
- c. Lead toxicity and exposure to Epstein-Barr virus
- d. Multiple endocrine neoplasia and alkylating agents

(see page e104 for answer)

**Answer: a. Therapeutic radiation exposure, erionite, and germline *BAP1* mutations**



Hematoxylin-eosin–stained sections of malignant pleural mesothelioma, epithelioid type, forming an infiltrating mass of malignant tubulopapillary structures (100× original magnification). Malignant pleural mesothelioma is immunoreactive with calretinin antibodies (100×), as well as cytokeratin 5/6, WT1, and D2-40.

In addition to asbestos exposure, a history of therapeutic radiation, in regions in which erionite is common, including Turkey, North Dakota, and Mexico, and hereditary *BAP1* mutations (also associated with uveal melanoma, clear cell renal cell carcinoma, and cholangiocarcinoma) are associated with an increased incidence of malignant pleural mesothelioma. Exposure to the Simian virus 40 has been associated with mesothelioma in animal studies; however, data in humans are currently inconclusive.

## REFERENCE

1. Travis WD, Brambilla E, Burke AP, Marx A, Nicholson AG, eds. *WHO Classification of Tumours of the Lung, Pleura, Thymus and Heart*. Lyon, France: International Agency for Research on Cancer; 2015.