

# Diffuse Malignant Pleural Mesothelioma: Part I. An Overview of Diagnosis, Staging, and Treatment Options

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**D**iffuse malignant mesothelioma is an uncommon, aggressive malignancy that occurs in the lining of the chest and abdominal cavity, and the most commonly affected site is the pleura (Lee, Light, & Musk, 2000). This review focuses on diffuse malignant pleural mesothelioma (DMPM).

Asbestos exposure is the primary cause of DMPM in 60%–80% of cases (Moskel, Urschel, Anderson, Antkowiak, & Takita, 1998). Asbestos exposure was highest in the United States during World War II because it was used commonly by manufacturing, construction, and shipbuilding industries. The incidence of DMPM increased by approximately 50% from 1990–2000, reflective of the 30- to 45-year latency period between asbestos exposure and disease presentation (Calvert & Plante Washart, 2001). Approximately 2,200 new cases of DMPM are diagnosed yearly in the United States (Antman, Pass, & Schiff, 2001). According to data from the 1990s, the incidence of mesothelioma cases peaked in the United States in 2000 (Price, 1997); experts predict that the incidence in the United States will decrease in 2000–2050 because of legislation that has reduced or eliminated workplace exposure to asbestos (Calvert & Plante Washart; Moskel et al.). Asbestos exposure in western European

Diffuse malignant mesothelioma is an uncommon, aggressive malignancy that occurs most often in the pleura of the lung. This article reviews the risk factors, incidence, signs, symptoms, diagnosis, staging, treatment options, and follow-up care of diffuse malignant pleural mesothelioma (DMPM). Curative approaches for treating DMPM are limited, and survival rates rarely exceed two years. Treatments such as surgery, chemotherapy, and radiotherapy have shown limited benefit in improving survival. Extrapleural pneumonectomy combined with multimodal treatments provides a potentially curative approach, and newer efforts in multimodality therapy are promising. Clinical trials utilizing intrapleural chemo-, photodynamic, gene, and immunotherapies currently are under way.

**Key Words:** mesothelioma; carcinogens, asbestos; pulmonary surgical procedures; combined modality treatment

countries was greatest in the 1960s and 1970s; therefore, in these countries, the annual incidence is expected to increase steadily until 2020 (Bradshaw, 2000; Butchart, 1999; Lee et al., 2000; Peto, Decarli, LaVecchia, Levi, & Negri, 1999; Peto, Hodgson, Matthews, & Jones, 1995; Price).

Individuals at highest risk for developing DMPM are those who work with asbestos, such as insulators, pipefitters, shipyard workers, brake mechanics, and railroad workers, and those in construction trades (Calvert & Plante Washart, 2001; Huncharek, 1992). Men are five times more likely

to develop DMPM than women because they are employed more frequently in work settings where asbestos products are used (Churg, 1988). However, many women diagnosed with DMPM have had secondary exposure to asbestos when family members who have been exposed wear contaminated clothing home (Dodson, O'Sullivan, Brooks, & Hammar, 2003). DMPM is diagnosed most often in individuals aged 50–70 years (mean age = 60 years) (Calvert & Plante Washart), and the average survival for those diagnosed with the disease is 4–18 months (Antman et al., 2001; Calvert & Plante Washart).

Spontaneous cases of DMPM are rare; however, this malignancy may result from genetic

abnormalities or exposure to other environmental carcinogens, such as zeolite, erionite,

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