



# Interventions to Treat Malignant Pleural Effusions

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Malignant pleural effusions (MPEs) are common complications that occur with advanced stages of cancer. In general, they indicate a poor prognosis and greatly affect quality of life (QOL). The treatment goal of MPEs is to provide relief of symptoms. The standard treatment for MPEs is talc pleurodesis; however, indwelling pleural catheters have become more frequently used. This article focuses on current management strategies for MPEs and assesses their influence on QOL.

## At a Glance

- Symptoms of malignant pleural effusions (MPEs), which involve the accumulation of fluid in the pleural space, include dyspnea, shortness of breath, chest pain, and other issues that decrease functional status.
- Treatment for MPEs should be palliative, achieving immediate symptom relief and improved quality of life.
- The optimal treatment strategy for MPEs should have minimal side effects, require minimal or no hospitalization, and have low rates of recurrence.

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**M**alignant pleural effusions (MPEs) are accumulations of fluid-containing cancer cells in the pleural space (Lombardi et al., 2010). MPEs are common and frequent complications that occur in advanced stages of cancer, affecting about 150,000 people in the United States each year (Hunt et al., 2012). Common malignancies associated with MPEs include lung, breast, gastrointestinal, and ovarian cancers (Thomas & Musani, 2013). Patients with MPEs often have a poor prognosis, with a life expectancy of 3–12 months (Bertolaccini, Viti, Gorla, & Terzi, 2012). MPEs greatly affect quality of life (QOL) by causing dyspnea,

shortness of breath, activity intolerance, and chest pain (Lombardi et al., 2010).

The treatment goal for patients with MPEs is to provide relief of symptoms, consequently increasing QOL (Sabur et al., 2013). Several methods are available to treat MPEs. Most treatments involve draining the fluid and preventing reaccumulation (Lombardi et al., 2010). The standard treatment is pleurodesis in which a sclerosing agent is injected, causing scarring and preventing MPE recurrence. An alternative and increasingly used therapy is indwelling pleural catheters (IPCs) in which patients and caregivers can drain fluid as needed (Fleming, Alvarez-Secord, Von

Gruenigen, Miller, & Abernethy, 2009). No treatment method has shown a superior control of symptoms for a reasonable duration of time. A review of the literature was conducted to identify and summarize management strategies contributing to symptom relief and increased QOL. The following medical subject heading (MeSH) phrases were used: “pleural effusion, malignant/complications” OR “pleural effusion, malignant/drug therapy” OR “pleural effusion, malignant/prevention and control” OR “pleural effusion, malignant/radiotherapy” OR “pleural effusion, malignant/rehabilitation” OR “pleural effusion, malignant/surgery” OR “pleural effusion, malignant/therapy.” Relevant studies (N = 36) were identified through PubMed and then analyzed according to Grading of Recommendations Assessment, Development, and Evaluation, or GRADE, criteria (Atkins et al., 2004).

## Pathophysiology

To comprehend treatment methods, understanding the pathophysiology behind MPEs is important. The space that exists between the visceral and parietal pleural layers, which is known as the pleural space, normally contains 10–20 ml of pleural fluid (Thomas & Musani, 2013). However, the pleural space inappropriately accumulates more fluid when the hydrostatic pressures and/or vascular permeability increase (Kara, Alzafer, Okur, & Halezeroglu, 2013). This increase can be attributed to the tumor blocking the lymphatic system and causing a barrier to drainage. Another mechanism for MPE formation is through the work of vascular endothelial growth factor, which is produced by tumors and causes increased vascular