Malignant Pleural Effusions

Malignant pleural effusion, a major complication of certain types of cancer, is fluid around the lungs that can be difficult to permanently remove.

What Is a Pleural Effusion?
An effusion is a collection of fluid in the body where it should not be. A pleural effusion is a fluid collection in the pleural space, between the outside of the lung and the inside of the chest wall. As the fluid collects, it often causes increasing shortness of breath and, less commonly, increasing cough or chest discomfort. Normally, a pleural effusion flows with gravity, settling along the back of the lung when the patient is lying on his or her back and along the bottom of the lung when sitting up. Scar tissue can sometimes form around the effusion, however, which can create pockets of fluid that do not flow freely. The JAMA Patient Page from January 21, 2009, discusses general causes, symptoms, and treatments of pleural effusions.

What Is a Malignant Pleural Effusion (MPE)?
Cancer is a major cause of pleural effusions. Pleural effusions related to cancer are called malignant pleural effusions (MPEs). Most MPEs are caused by lung or breast cancer and are diagnosed by analyzing a fluid sample withdrawn from the effusion by thoracentesis and finding cancer cells. Sometimes more than 1 sample is required to find the cancer cells.

How Are MPEs Treated?
Most MPEs can be treated by draining the fluid by thoracentesis. Treatment of the underlying cancer with systemic therapy and/or radiation therapy is also important and can lead to sustained control of the MPE. However, most MPEs recur after treatment. This is referred to as a recurrent MPE. There are 3 major approaches for treating a recurrent MPE.

Serial Thoracenteses
Repeating a thoracentesis each time a pleural effusion occurs is a good option if needed only every few weeks, but it is a poor choice if the procedure is needed every few days. Each time a thoracentesis is performed, there is a small risk of infection, bleeding, or a collapsed lung (pneumothorax). A pneumothorax can be dangerous and may require hospitalization for treatment.

Pleural Catheter
Another option is to insert a pleural catheter, a thin, flexible, removable tube that is passed through the chest wall and into the pleural space and left there to drain the fluid over time. The patient or a family member can attach a vacuum-pressurized bottle or bag to the catheter to drain fluid as needed. When not in use, the pleural catheter is tucked against the skin and covered by a bandage.

Pleurodesis
Pleurodesis, a minor surgical procedure, can provide a permanent solution for recurrent MPEs. This involves introducing an inflammatory chemical into the pleural space prompting an inflammatory response that creates scarring between the lung and chest wall. The scarring eliminates the space between the lung and chest wall, so fluid can no longer collect there. Instead, the fluid distributes and is reabsorbed by the body more easily. Pleurodesis is unsuccessful in approximately 30% of patients. When it works though, patients require no further interventions for recurrent MPE.

For More Information
- JAMA Patient Page
  http://dx.doi.org/10.1001/jama.301.3.344
- JAMA RCE
  http://dx.doi.org/10.1001/jama.2014.5552

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