

# New technique can help diagnose mesothelioma

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A new technique may help clinicians hone in on a diagnosis in patients presenting with a pleural effusion of unknown cause.

The study, led by principal investigator Y.C. Gary Lee, Ph.D., appears in the September 1 issue of the *American Thoracic Society's* [American Journal of Respiratory and Critical Care Medicine](#).

"Pleural effusion, or the accumulation of fluid in the pleural cavity, can be maddeningly difficult to diagnose as a wide variety of malignant and benign causes exist," said Helen Davies, M.R.C.P., specialist registrar and research fellow at the Oxford Centre for Respiratory Medicine and Oxford University, lead author of the study. "One of the causes, malignant pleural mesothelioma, is a relatively rare cancer, but its incidence is rapidly increasing on a global scale".

Currently, the first-line test for mesothelioma in patients with a pleural effusion is pleural fluid cytology, but this test is not very sensitive. Dr. Davies and her colleagues undertook the study to determine whether there would be additional clinical benefit to looking at pleural fluid mesothelin, a protein released in high quantities into the pleural fluid of most patients with mesothelioma.

They obtained pleural fluid samples from 209 patients referred to a specialized respiratory clinic. Levels of soluble mesothelin were measured in all samples.

Their results demonstrated median pleural fluid mesothelin levels were over six times greater in patients with mesothelioma than in patients with metastatic carcinomas, and ten times greater than in patients with benign effusions.

Using mesothelin levels at a cut-off of 20nM, they found that it had an overall negative predictive value of 95 percent, meaning that a patient with a mesothelin level less than the cut-off of 20nM could be 95 percent confident they did not have malignant mesothelioma. There were 12 false positive results with metastatic adenocarcinomas accounting for over 90 percent of these cases. However, all patients with pleural fluid cytology suspicious for mesothelioma and an elevated mesothelin level had mesothelioma.

"This study suggests a way for clinicians to more readily identify these cases from the start," said Dr. Davies.

Obtaining a prompt diagnosis of mesothelioma has benefits for patients and physicians alike. "Because mesothelioma has a median survival time of 12 months, minimizing the number of invasive procedures and tests patients require is crucial to reduce morbidity and the time they need to spend in hospital," said Dr. Davies. "An earlier diagnosis also allows speedier interventions to relieve symptoms as well as initiation of other treatments such as chemotherapy or radiotherapy if appropriate. Claims for worker's compensation may also be instigated once the diagnosis is confirmed."

Exposure to asbestos is the main risk factor and accounts for the majority of mesothelioma cases. Legislation to prevent occupational exposure to asbestos has been enforced in the developed world; however, unrestricted contact continues in developing countries. Over 90 percent of patients with mesothelioma present with a pleural effusion and its incidence is predicted to peak within the next two decades.

"Pleural fluid mesothelin provides a valuable adjunct in the diagnostic assessment of patients presenting with pleural effusions, especially when cytological examination is not definitive, and can improve clinical practice," said Dr. Davies.

Source: American Thoracic Society ([news](#) : [web](#))

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