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High Amylase Levels in Pleural Effusion

To the Editor:

High amylase levels in pleural fluid have been reported frequently in pancreatic diseases, esophageal rupture, and malignant pleural effusion.1,2 Increased concentrations of amylase in pleural fluid has been considered to be suggestive of the presence of malignancy, and, in fact, malignant disease is the only cause of amylase-rich pleural effusion in some series.3 Nevertheless, benign diseases such as pneumonia, liver cirrhosis, hydropneumothorax, and tuberculosis can increase amylase concentration in pleural fluid.4

We studied 397 consecutive patients with pleural effusion from December 1991 to December 1994. We were able to determine amylase levels in pleural fluid in 380 of them. We considered those to be amylase-rich pleural effusions with amylase levels higher than the upper normal serum limit: 200 IU/L. Table 1 summarizes the causes of pleural effusion in this group of 380 patients. In the group with pleural effusion of undetermined origin, amylase level in pleural fluid was high in a patient with bronchogenic carcinoma and pneumonia and in a patient with a history of gastric carcinoma, hypoadrenocorticism, and a pleural effusion classified as a transudate according to Light’s criteria. The cytologic analyses of pleural fluid from both patients were negative.

Acute pancreatitis and parapneumonic effusion often have been reported in cases of amylase-rich pleural fluid. However, as far as we know, only one other case of tuberculous pleural effusion with increased amylase levels has been reported.4 This may be because tuberculosis is less prevalent in other series. On the other hand, we had one patient with liver cirrhosis and a transudative pleural effusion with high amylase levels. Joseph et al4 and Enke5 reported high amylase levels in pleural fluid and in ascitic fluid, respectively, from patients with liver cirrhosis. In such cases, high amylase levels have been attributed to chronic inflammation of the pancreas.5 Our patient with liver cirrhosis had another transudate pleural effusion 1 year later and amylase levels in pleural fluid again rose.

In our group of pleural effusions due to malignant disease, one pleural mesothelioma produced an amylase-rich pleural effusion. Therefore, we agree with Foresti et al5 that amylase levels should not be used to differentiate adenocarcinoma from mesothelioma.6

We did not measure amylase isoenzyme, which is unfortunate because amylase isoenzyme levels in pleural fluid have not been reported in tuberculosis, liver cirrhosis, or mesothelioma.

Overall, at least 7 patients had a benign disease other than pancreatitis vs 12 patients who had malignant pleural effusion. We want to emphasize that although high amylase levels in pleural fluid should suggest the possibility of malignant disease in the absence of pancreatic disorders, in series that have a low prevalence of tumors, benign disease must be considered as a likely cause of amylase-rich effusions.

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Erratum

In the responding letter by Bartter et al (CHEST 1995; 105:265), “Evaluating Pleural Effusion” in the July issue, the fourth author’s name should be spelled Melvin R. Pratter.