Pleural Effusion from Leaky Diaphragm—the Hepatic Hydrothorax

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Figure 1. Intense uptake of technetium noted in the perihepatic region, with diffusely increased uptake of lesser intensity in the right hemithorax with minimal or no uptake in the left hemithorax.

A 76-year-old woman with liver cirrhosis presented with six weeks of progressive shortness of breath, and was found to have a large right pleural effusion with minimal ascites. Echocardiogram showed normal left ventricular ejection fraction. The portal venous system was patent by Doppler ultrasound. Pleural fluid analysis revealed a transudative effusion without evidence of infection or malignancy. Despite drainage and diuretics, her effusion recurred. When technetium was injected into the peritoneal cavity for nuclear imaging, there was strong uptake in the perihepatic fluid collection and diffuse uptake into the right hemithorax, suggesting a peritoneo-pleural communication, confirming the diagnosis of hepatic hydrothorax (Figs. 1 and 2). The patient underwent a transjugular intrahepatic portosystemic shunt (TIPS) procedure with improvement of symptoms.

Hepatic hydrothorax is a complication of portal hypertension and usually affects the right side of the chest. Leakage of fluid

Figure 2. Sagittal view showing diffusely increased uptake in the hemithorax.

from the peritoneal to the pleural cavity through sub-centimeter diaphragmatic defects is the likely mechanism.¹ Once cardio-pulmonary causes of effusion are excluded, the investigation of choice is radioisotope-based nuclear imaging.^{2,3} Chest tube placement should not be performed, as it can cause large amounts of fluid loss, leading to renal failure and even death.² TIPS procedure is recommended in diuretic resistant patients with recurrent effusions, although eventually a liver transplantation should be considered.^{1,3}

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REFERENCES

1. Krok KL, Cardenas A. Hepatic hydrothorax. *Semin Respir Crit Care Med*. 2012;33(1):3–10.
2. Alonso JC. Pleural effusion in liver disease. *Semin Respir Crit Care Med*. 2010;31(6):698–705.
3. Roussos A, Philippou N, Mantzaris GJ, Gourgouliannis KI. Hepatic hydrothorax: pathophysiology diagnosis and management. *J Gastroenterol Hepatol*. 2007;22(9):1388–1393.

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