Bronchobiliary Fistula Detected With Hepatobiliary Scintigraphy

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Abstract: Bile leakage into the thoracic cavity is a rare complication of invasive cancer. A 12-year-old boy was diagnosed with undifferentiated sarcoma of the right lobe of the liver invading the diaphragm. An extended right hepatectomy and total resection of the mass was performed, leaving a patchy tumoral invasion at the anterior diaphragm. Surgery was followed with a combined chemotherapy regimen. In the sixth postoperative month, he was readmitted with bilious expectoration. Tc-99m mebrofenin hepatobiliary scintigraphy revealed radiotracer accumulation in the right hemithorax. Bile leakage into the right thoracic cavity was diagnosed based on the hepatobiliary scintigraphic findings. For this patient, hepatobiliary scintigraphy, which is routinely used to visualize the liver and biliary tree, provided a noninvasive mean for the precise diagnosis of a bronchobiliary fistula. The fistula was then confirmed and corrected with surgery. The patient recovered uneventfully.

Key Words: bile leakage, scintigraphy, bronchobiliary fistula, undifferentiated sarcoma, liver


REFERENCES

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FIGURE 1. Axial CT scan with contrast showed a complex multiloculated mass with cystic components and air–fluid level (arrow) invading the right hemidiaphragm.
FIGURE 2. Hepatobiliary scintigraphy was performed with Tc-99m N-3-bromo-2,4,6 trimethylphenylcarbamoylmethyl iminodiacetic acid (mebrofenin) to diagnose bile leakage.1–8 Serial images (1 min/frame for 29 frames) (A) and a static image at 30 minutes (B), all in the anterior position, showed minimal leakage of tracer. Late imaging (2 hours) (C) demonstrated tracer accumulation at both sides of the diaphragm (arrows), which increased over time (4 hours) (D). The tracer was concluded to be in the lung rather than the pleural cavity, as confirmed with the clinical finding of bilious expectoration, as well as a positive radiotracer count in the expectorated specimen. H, heart; arrowhead: left lobe of liver; arrow: abnormal radiotracer accumulation in the right thoracic cavity.
FIGURE 3. Right thoracotomy revealed a tumor mass invading the diaphragm, adjacent to the base of the right lung, and a bronchobiliary fistula (arrow) between the tumor mass and the bronchial system.2,5,8