

## A rare case of pulmonary embolism simultaneously with large right subdiaphragmatic biloma, diagnosed by nuclear medicine

Dear Editor,

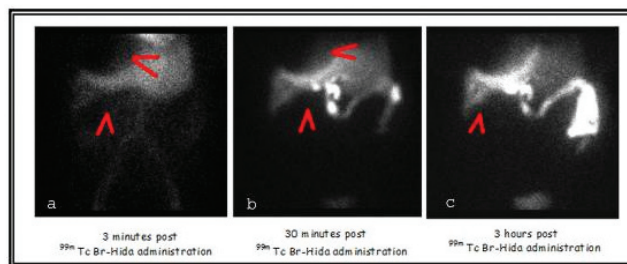
With the constant increase of laparoscopic surgical procedures, we come over adverse effects, mimicking or even coexisting with other clinical conditions. A 72-year-old Caucasian woman was admitted to our hospital due to sudden onset of dyspnea.

A ventilation/perfusion scan was performed to rule out the possibility of pulmonary embolism (PE), as well as a spiral computed tomography (CT) to investigate for other possible pathology of the abdomen and thorax. Both methods confirmed the presence of an acute PE episode. A coincidental finding, noted at the CT, was a large, subcapsular, well defined fluid collection occupying mainly the right lobe of the liver.

According to her past medical history, she had undergone laparoscopic cholecystectomy for excision of a big calculus a month before. Post operatively she remained afebrile, though complaining for a mild, constant pain radiating to her right scapula, but without serious abdominal discomfort. To clarify the nature of this collection (haematoma, abscess, billomaetc) hepatobiliary scintigraphy was performed, using the hepatobiliary agent  $^{99m}\text{Tc}$  Br-HIDA (hepato-imino-diacetic acid) according to established imaging protocol<sup>1</sup>.

At the initial view (up to 5 minutes) two photopenic areas at the right hepatic lobe were depicted (Figure 1a), corresponding to the CT lesion, while there was normal distribution of the radiopharmaceutical to the remaining liver parenchyma, with rapid clearance and unobstructed flow to the duodenum. At the late views, 30 minutes and 3 hours post injection (Figure 1b & 1c) there was evidence of radiotracer accumulation to one of the lesions (at the lower part of the right hepatic lobe) which established the diagnosis of billoma<sup>1</sup>. At the most delayed view, there was also enrichment of radioactivity to the second lesion. Consequently, the biloma was surgically drained, PE was treated medically and the patient was discharged from the hospital in good general condition

Bile leak due to bile duct injury may occur after a contusion at the abdominal area, as well as a postoperative adverse effect. The post-laparoscopic cholecystectomy, bile leaks, are due to laceration of the bile ducts and are quite uncommon, seen up to 0.9% of the cases<sup>2</sup>. They are usually seen as perihepatic, subhepatic or diffusely located at the peritoneal cavity lesions, being a real challenge for a non-invasive diagnosis. Ultrasonography, CT and Magnetic Resonance Imaging, even after contrast-enhancement<sup>3</sup> do not have the desired accuracy to distinguish between haematoma, billoma, abscess or hexidroma<sup>4</sup>. Hepatobiliaryscintigraphy has a high specificity in diagnosing bile leaks<sup>3</sup>. It is necessary though to acquire late views, in order to increase not only the sensitivity but also the specificity of the method<sup>4</sup>.



**Figure 1:** Static views post  $^{99m}\text{Tc}$  Br-HIDA administration: A. at 3 minutes showing a large photopenic area at the dome and a smaller one at the lower part of the right hepatic lobe, B. at 30 minutes showing a central radiotracer enrichment of the photopenic area located in the lower part of the right lobe and, in a minor degree, at the lesions located at the upper part and at the dome, C. at 3 hours showing even more prominent radiopharmaceutical enrichment of the three above mentioned areas, fact that established the diagnosis of billoma.

### Conflict of interest

There is no conflict of interest

### References

1. Tulchinsky M, Ciak BW, Delbeke D, Hilson A, Holes-Lewis KA, Stabin MG, et al. SNM practice guideline for hepatobiliary scintigraphy 4.0. *J Nucl Med Technol.* 2010; 38: 210-218.
2. Andersson R, Eriksson K, Blind PJ, Tingstedt B. Iatrogenic bile duct injury--a cost analysis. *HPB (Oxford).* 2008; 6: 416-419.
3. Laurent V, Corby S, Barbary C, Kermarrec E, Béot S, Régent D. [New possibilities to study biliary tree and gallbladder: functional magnetic resonance cholangiography contrast-enhanced with mangafodipir trisodium (Mn DDP)]. *J Radiol.* 2007; 88: 531-540.
4. Ramachandran A, Gupta SM, Johns WD. Various presentations of postcholecystectomy bile leak diagnosed by scintigraphy. *Clin Nucl Med.* 2001; 26: 495-498.

**Key words:** hepatobiliary scintigraphy, billoma, haematoma

**Corresponding Author:** I.P. Iakovou, Assist. Prof. in Nuclear Medicine, Aristotle University of Thessaloniki, +302310991491, e-mail: iakovou@otenet.gr

Iakovou I<sup>1</sup>, Boundas D<sup>2</sup>, Doumas A<sup>1</sup>

<sup>1</sup> Nuclear medicine department Papageorgiou Hospital

<sup>2</sup> Nuclear medicine department "HIPPOCRATES" Thessaloniki, Greece