

A hepatic subcapsular hematoma detected on ^{99m}Tc -MAG-3 renal scintigraphy

To the Editor: It is of paramount importance to interpret a Nuclear Medicine study in context of the clinical history of the patient. We describe a case, in which activity was identified in proximity to the superior pole of the right kidney on a technetium-99m mercapto-acetyl-glycine (^{99m}Tc -MAG3) renal scan performed to evaluate renal function in a 16 years old female, with history of liver transplant for biliary atresia (Fig. 1A1). The extrarenal activity remained a diagnostic dilemma until a careful review of the history revealed that patient had percutaneous ultrasound guided biopsy of the liver transplant immediately prior to the study. An additional right lateral abdominal image localized this activity to the posterior aspect of the liver (Fig. 1).

The region of interest and a time-activity curve for right extrarenal perihepatic tracer accumulation were obtained (Fig. 2B1 and B2). The time-activity curve showed initial rise and thereafter, the curve remained flat throughout the study. The curve suggested that most of the activity was accumulated in the perihepatic area during the first minute after injection. This area became visible later by 16min into the study as the activity cleared from the surrounding background tissue.

Overall, impression was of a possible post liver biopsy bleeding subcapsular hematoma with preserved bilateral renal functions and no renal outflow tract obstruction. The patient did not develop any symptoms of pain or peritonitis following liver biopsy, and was managed conservatively

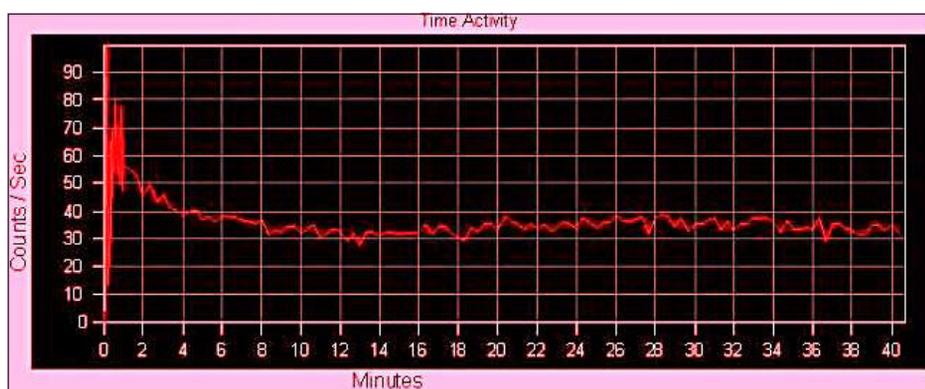
with uneventful hospital course, favoring the diagnosis of slowly bleeding subcapsular hematoma.

The radiopharmaceutical ^{99m}Tc -MAG3 employed in renal scintigraphy, primarily clears through the kidneys. The liver serves as the alternative route of its excretion; and the tracer may accumulate in the gall bladder or bowel [1-3]. The pattern of perihepatic activity does not conform to bowel or gall bladder pattern. Although rare, the intrahepatic bile leakage through the needle biopsy tract is one of the complications following percutaneous liver transplant biopsy [4]. Although, MAG3 concentration in the bile is expected to be low, particularly early in the study, however, no further tracer accumulation after brief initial activity rise for one minute favors absence of bile leak. Adjacent viscus perforation is another uncommon complication of percutaneous liver biopsy [5], although it would have to either bleed or form a fistula with urinary system. The absence of progressive accumulation of tracer with time suggests that the explanation is unlikely to be a urinary fistula. There is also no discrete photopenic region, which progressively refills with activity that might suggest an urinoma [6].

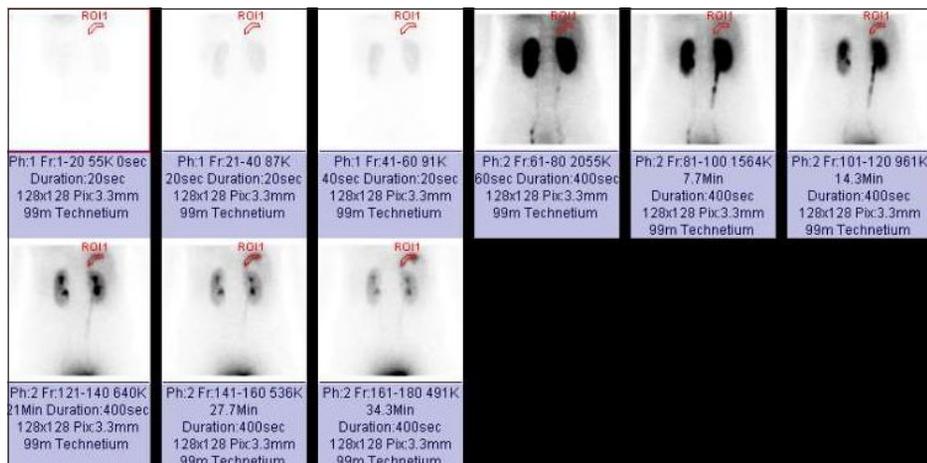
Percutaneous liver biopsy is considered as the gold standard for monitoring liver grafts and is used to detect graft rejection in liver transplant patients [7]. It is a relatively safe procedure, and most of the complications are minor. Major complications occur less frequently, the most important being bleeding, usually managed conservatively [5]. As in this



Figure 1. A1: Renal scintigraphic dynamic images with ^{99m}Tc -MAG3 show good uniform cortical uptake of the tracer to both kidneys; and prompt excretion of the tracer into the renal collecting system, bilaterally. There is satisfactory spontaneous clearance of the tracer from the collecting system of both kidneys. At 16min into the study, a collection of the tracer is seen in proximity to the superior pole of the right kidney, extending superolaterally in a curvilinear fashion. **A2:** The right lateral abdominal image localizes extrarenal activity to the posterior aspect of the liver.



B1



B2

patient a subcapsular hematoma is seen following percutaneous liver biopsy, which was managed conservatively. *In conclusion*, the awareness of the appearance of a hepatic subcapsular hematoma on ^{99m}Tc -MAG 3 renal scintigraphy should help to differentiate from entities such as bile or urinary leak that may require invasive intervention.

The authors have no conflicts of interest.

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