

# Changing role of Nuclear Medicine for the Evaluation of focal Hepatic Tumors: From Detection to Tissue Characterization

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In the past, colloid liver scanning was the primary scintigraphic study used for the detection of focal hepatic lesions including metastases, and for the evaluation of other diffuse liver diseases. With the advent of ultrasonography (US), computed tomography (CT) and magnetic resonance imaging (MRI), the primary role of scintigraphic liver imaging has become the tissue characterization of lesions in order to narrow the differential diagnosis. Colloid imaging is now primarily used for subtraction purposes in conjunction with other radionuclide imaging techniques that display liver activity, and to characterize focal lesions detected by anatomical imaging. At present, other radionuclides are used more frequently to evaluate focal hepatic lesions.

Recent advances in single photon emission computed tomographic (SPECT) imaging technique, particularly the development of the stable multidetector gamma camera, have dramatically improved the accuracy of radionuclide studies. Tomographic display has provided an additional advantage, i.e. the capability of direct comparison of radionuclide imaging with other cross sectional imaging. With the exception of rapid dynamic study, such as early flow study, SPECT imaging must be performed as a routine part of all static radionuclide imaging studies for the evaluation of the liver. The development of new radiopharmaceuticals has also significantly improved the efficacy of scintigraphic

imaging with expanded clinical applications. The following subjects will be discussed.

## Malignant Neoplasms

### 1. Metastatic disease

- 1) Colloid scintigraphy
- 2) Positron Emission Tomography
- 3) Hepatic arterial perfusion scintigraphy, hepatic perfusion index, and infusion pump study
- 4) Monoclonal antibody imaging
- 5) Peptide receptor imaging for carcinoid and other astroenteropancreatic tumors

### 2. Hepatocellular carcinoma

- 1) Colloid scanning
- 2) Hepatobiliary scintigraphy
- 3) Gallium scintigraphy
- 4) Other radionuclide techniques

## Benign Neoplasms

- 1) Hepatic Cavernous Hemangioma
- 2) Focal Nodular Hyperplasia
- 3) Hepatocellular Adenoma

## References

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