Peritoneovenous Shunt Scintigraphy

**Primary Indications:** Peritoneovenous shunt scintigraphy is indicated to confirm that a peritoneovenous shunt (e.g., Denver shunt) is operating correctly.

**Rationale:** If the shunt is working properly, Tc-99m MAA injected into ascitic fluid will flow through the shunt into the venous system and will be trapped in the lungs.

**Interfering Conditions:** None

**Contraindications:** None

**Precautions:** Paracentesis should only be performed by or under the guidance of an experienced physician. The nuclear medicine physician should supervise the injection of the radiopharmaceutical. The risk of bowel puncture is increased in patients with adhesions and in patients with only small amounts of peritoneal fluid.

**Radiopharmaceutical:** Tc-99m MAA

**Adult Dosage:** 5 mCi in 3 mL 0.9% saline solution

**Pediatric Dosage:** 70 μCi/Kg (minimum dose 1 mCi; maximum dose 5 mCi)

**Radiation Dosimetry:** Not available

**Route of Administration:** Intraperitoneal

**Patient Scheduling:** This study should be scheduled only after consultation with a nuclear medicine physician. At the time that the study is scheduled, the physician who will provide access to the peritoneal space needs to be identified and a tentative time for the performance of this study needs to be set. The contact numbers for the physician who will be responsible for providing peritoneal access need to be recorded.

**Patient Preparation:** None

**Equipment Setup:** Gamma camera: LFOV camera in adults; SFOV or zoomed LFOV camera for studies in small children.

Collimator: Low-energy all-purpose. For portable studies in adults, a diverging collimator should be used.

Energy Window: 140 keV with 20% window
Patient Positioning: Supine for injection and imaging.

Imaging Procedure: Once the radiopharmaceutical has been injected, the patient should roll up first on one side and then the other side for up to 5 minutes to help disperse the tracer throughout the abdomen. An initial set of anterior abdominal and chest images is obtained followed by repeat images of the chest at 60 minutes. In the period between the initial images and the 60-minute delayed image, the patient should be encouraged to take an occasional deep breath. Hyperventilation should be avoided. Further delayed images may be required, as directed by the physician. Use of markers or a transmission image is helpful to provide anatomic landmarks when necessary.

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<td>1. Anterior abdomen</td>
<td>5-minute images</td>
<td>3 x 5-minute images</td>
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<td>2. Anterior chest with diaphragm at the bottom of the field of view</td>
<td>256 x 256 matrix, word mode</td>
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<tr>
<td>60-minute Delayed Image</td>
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<td>Anterior chest with diaphragm at the bottom of the field of view</td>
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<td>Additional delayed images as needed</td>
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Items Required For Complete Study:

1. Static images
2. Transfer of all digital images to workstation
3. Consult with nuclear medicine physician before dismissing patient.