

Lymphoscintigraphy for Extremity Edema

Special Instructions Prior to administering the radiopharmaceutical, the radiologist will protocol the site to be injected (typically between the 1st and 2nd interspace of the feet for lower extremity edema and between the 1st and 2nd interspace of the hands for upper extremity edema).

Patient should not have active infection (cellulitis) at injection site (e.g., in the 1st and 2nd interspaces of toes for lower extremity or fingers for upper extremity injection).

To be performed at UNMH only.

Radiopharmaceutical: Tc-99m sulfur colloid in 5 syringes (4 provided to the administering physician, 1 held in reserve)

Dose (Adult/Pediatric): Refer to Nuclear Medicine Dose Chart

Route of Administration: Intradermal

Patient Preparation: No special preparation for lymphoscintigraphy prior to appointment.

Lymphoscintigraphy patients should arrive **1 hour** prior to the examination to have EMLA cream placed over the planned injection site per physician protocol. (Longer times are preferred when possible; EMLA cream is most effective when in place for 1-2 hours.) Follow the instructions on the package insert for application of the EMLA cream.

Injection sites will typically be in the 1st and 2nd interspaces of both extremities (toes for lower extremities, fingers for upper extremities)

Equipment Setup: Collimator: High resolution

Computer set up:

Immediate anterior/posterior static image of the liver: to assess for counts in the liver. 2-minute acquisition

15-30-minute sequential statics: Multiple static acquisitions, 128 x 128 matrix (~5 min/image without transmission, followed by ~1 min transmission scan of same region), for ~15-30 minutes. Follow leading edge of activity superiorly into the pelvis (lower extremity injection) or torso (upper extremity injection).

Sweep at ~1 hour post-injection (region to be specified by radiologist; likely shoulders through toes for lower extremity injections and shoulders through fingertips, with arms down for upper extremity injections):

All: 256 x 1024 matrix, scan 10 cm/min

Additional delayed views (only if needed; also check with the radiologist for longer delays): Static acquisition, 256 x 256 matrix, 5 min/view without

Lymphoscintigraphy for Extremity Edema

transmission, 1 min/view with transmission. Will likely continue imaging until at least inguinal nodes are visible. The radiologist may alternatively request an additional sweep performed as above.

Goal is to identify liver activity confirming transit of activity through the thoracic duct.

Patient Positioning: Supine

Procedure: The radiopharmaceutical is prepared in 5 syringes: 4 provided to the administering physician, 1 held in reserve. Lidocaine (WITHOUT epinephrine) should be added to each syringe, with goal of total volume roughly 0.2 ml/syringe. Using 1% lidocaine (without epinephrine), add 1 part lidocaine (~0.1 mL) and 1 part sulfur colloid (~0.1 mL) to total ~0.2 mL/syringe

The injection of the radiopharmaceutical is performed by a radiologist.

Injection sites: In the 1st and 2nd interspace of the feet for lower extremity edema or of the hands for upper extremity edema.

Movement of the tracer away from the injection sites to the lymph nodes is slower with a subcutaneous injection than with an intradermal injection. Under most circumstances, it is preferable to attenuate the activity coming from the injection site itself (with lead).

Immediately following the injections, a static image is obtained over the liver to assess for any intravenous component of the injection (liver activity visible) versus no intravenous injection (no liver activity). A subsequent sequential static examination (with parameters as described above) is obtained, following the leading edge of the activity as it tracks along the extremities towards the pelvis (LE injection) or torso (UE injection). Brief transmission scans should be obtained after each acquisition to delineate the anatomy.

A 5-minute static anterior image of the inguinal regions (or axillary regions for upper extremity injections) should be obtained 30 minutes following the injection, or sooner if the activity has reached the pelvis (LE injection) or axillary regions (UE injection). If possible, upper extremity imaging should go from fingertips to shoulders (with arms down and including the liver).

Exercise stimulates lymphatic flow, so patients with lower extremity edema should be encouraged to walk after the initial ~30 minutes (i.e., before the 1-hour sweep), and patients with upper extremity edema should be encouraged to open and close their hands between images and after the initial ~30 minutes.

Check images with the radiologist. At approximately 1 hour, perform a sweep of the distal extremity through the liver (for lower extremity) and axillary region (for upper extremity).

If needed, based on the discretion of the attending radiologist, additional anterior

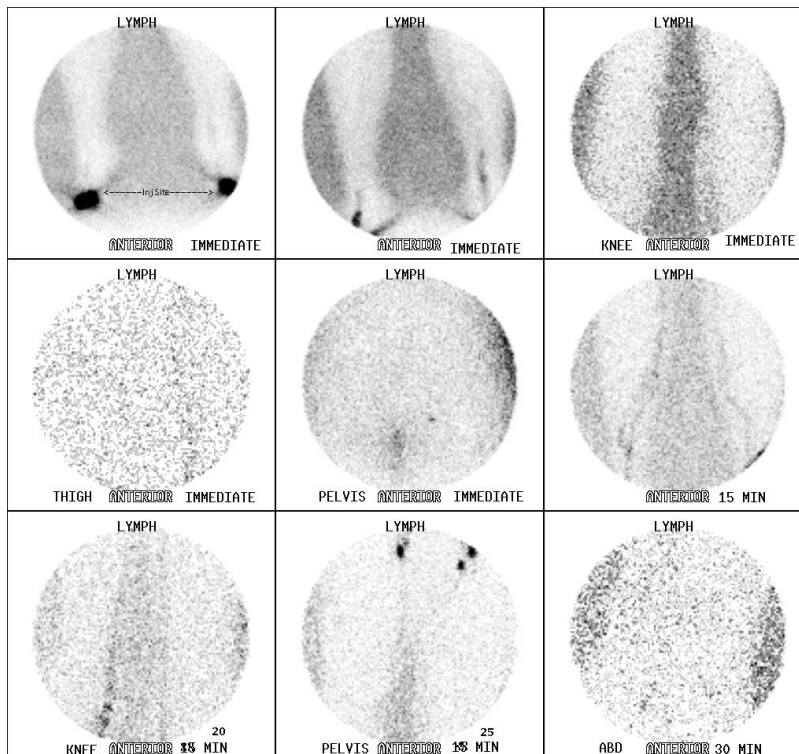
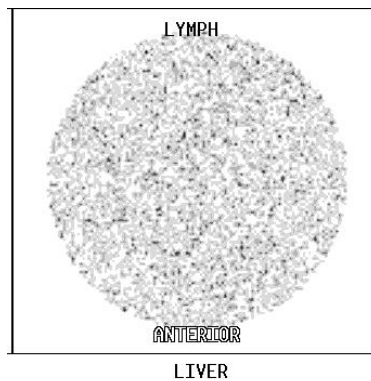
Lymphoscintigraphy for Extremity Edema

images of the distal extremity and the draining lymph nodes should be obtained at 2-4 hours after the injection. Depending on the findings, an additional sweep may be obtained

When preparing images, label the injection site and anatomy (e.g., left/right, pelvis, etc) as appropriate.

Items Required For Complete Study:

- Lightboxes/savescreens of all images. Label the injection site and anatomy (e.g., left/right, pelvis, etc) as appropriate, with transmission and emission images displayed together.
- Transfer of all digital images to PACS
- Complete the examination in RIS



Lymphoscintigraphy for Extremity Edema

