

# Gynecologic Cancer Lymphoscintigraphy

Updated

9/8/2024

- **Indications**

- To localize sentinel lymph nodes in the setting of early stage cervical cancer, stage 1 and 2 high-risk endometrial cancer, vulvar squamous cell carcinoma <4 cm, vaginal cancer (investigational) and low-risk ovarian cancer (investigational).

- **Radiopharmaceutical:**

- Day of surgery - 500 microCi Tc-99m Lymphoseek (tilmanocept) divided into 4 syringes (each containing 0.1 mL fluid)
- Afternoon before surgery - 2 mCi Tc-99m Lymphoseek (tilmanocept) divided into 4 syringes (each containing 0.1 mL fluid)

- **Method of Administration:**

- Vulvar lesions: The Radiologist will inject radionuclide intradermally around the 12, 3, 6 and 9 o'clock positions of the lesion.
- Cervical/endometrial lesions: The Radiologist will inject radionuclide around the 12, 3, 6 and 9 o'clock positions of the cervix.

- **Patient Preparation:**

- No specific preparation prior to radionuclide administration.

- **Conflicting Examinations/Medications:**

- No Nuclear Medicine exams within the previous 24 hrs.

- **Pregnancy/Lactation:**

- Pregnancy status does not need to be assessed due to short  $t_{1/2}$ , low administered activity and extremely low radiation risks.
- Breast feeding mothers should discard breast milk for 24 hrs following Tc-99m Lymphoseek / sulfur colloid administration.

- **Imaging Technique:**

- Collimator - LEHR or LEAP
- Photopeak - 140 keV 20% window for Tc-99m
- Image Preset Counts
  - Static - 3-5 mins/image
  - SPECT - 64 stops, 25 secs/stop
- Matrix Size - 256 x 256 (static), 128 x 128 (SPECT)
- Zoom - none
- Patient Positioning - supine

- **Images/Views:**

- Static Images
  - A Co-57 sheet flood source should be placed under the patient to outline his/her anatomy.
  - Obtain anterior and lateral images of the abdomen and pelvis at 30 mins, 60 mins and 120 mins after radionuclide administration.
  - Place shielding over the injection sites to decrease scatter artifact.
- SPECT Images - can be obtained as requested by the Radiologist or Surgeon.
- Have the Radiologist / Radiologist Assistant mark any node(s) with a permanent marker if the exam is ordered with imaging.

- **Notes:**

- Lymphoseek targets dextran-mannose receptors on the surface of macrophages / dendritic cells in lymph nodes.
- Contraindications to sentinel lymph node biopsy in gynecologic cancers include suspected extrauterine involvement, pathologic pelvic or para-aortic lymph nodes on imaging and a previous history of surgery or radiotherapy to nodal areas under study.
- Locoregional nodal invasion is the most important prognostic factor in cervical cancer.
- Cervical cancer spreads to lymph nodes in the following order: obturator, external iliac, common iliac and para-aortic.
- 80% of nodal metastases are ipsilateral when vulvar cancers are unilateral.
- Inguinofemoral lymphadenectomy in vulvar cancers is only performed when there is sentinel lymph node involvement.
- 55% of vaginal cancers drain to bilateral lymph nodes (most frequently inguinal nodes).
- 64% of ovarian cancers drain to bilateral lymph nodes.
- Nonvisualization of sentinel nodes occurs in 1-3% of vulvar cancers.

- Nonvisualization of sentinel nodes occurs in 10-15% of cervical and endometrial cancers.