

MECKEL'S DIVERTICULUM STUDY

Overview

- ? The Meckel's Diverticulum Study depicts the uptake of pertechnetate within the abdomen. As a small molecule with a single negative charge, pertechnetate is secreted into the stomach as well as any ectopic gastric mucosa. Because pertechnetate exhibits weak protein binding, it is filtered by the kidneys.

Indications

- ? Detection and localization of a Meckel's diverticulum containing functioning gastric mucosa.
- ? Detection and localization of other pathologic structures containing gastric mucosa .

Examination Time

- ? 1 hour 15 minutes.

Patient Preparation

- ? Administer cimetidine prior to injecting the radiopharmaceutical:
 - o Give 300 mg intravenously 30 minutes prior to the study. (Dilute to 20 mL and infuse over 5 minutes.).
 - o Give 300 mg orally 60 minutes prior to the study.

Equipment & Energy Windows

- ? Gamma camera: Large field of view.
- ? Collimator: Low energy, high resolution, parallel hole.
- ? Energy window: 20% window centered at 140 keV.

Radiopharmaceutical, Dose, & Technique of Administration

- ? Radiopharmaceutical: Tc-99m-pertechnetate as sodium pertechnetate.
- ? Dose: 5 mCi (185 MBq).

? Technique of administration: Standard intravenous injection.

Patient Position & Imaging Field

? Patient position: Supine

? Imaging field: Abdomen and pelvis (must include right lower quadrant).

Acquisition Protocol

? Acquire ANT images at 1, 5, 10, 15, 30, 45, & 60 minutes.

? Acquire the first image for approximately 500 K counts and the rest for the same time as the first image.

Data Processing

? None.

Optional Maneuvers

? Other projections: R LAT, L LAT, LAO, and RAO images may be obtained to help localize activity in 3 dimensions.

? Use of a nasogastric tube: A nasogastric tube may be inserted prior to the study and attached to suction to minimize the movement of radioactivity secreted by the stomach into small intestine.

? Other drugs: Some have advocated giving pentagastrin approximately 15 minutes prior to injection of the radiopharmaceutical in an attempt to increase the secretion of pertechnetate by ectopic gastric mucosa.

? Digital acquisition for cine display: The images may be recorded as 1 minute serial digital images and displayed in cine fashion to improve the detection of small accumulations of activity.

Principle Radiation Emission Data - Tc-99m

? Physical half-life = 6.01 hours.

<u>Radiation</u>	<u>Mean % per disintegration</u>	<u>Mean energy (keV)</u>
Gamma-2	89.07	140.5

