Pediatric Gastric Emptying Study (Liquid)

**Primary Indications:** This study is primarily performed in children who have suspected pulmonary aspiration of presumed gastric contents. Delayed gastric emptying may be a contributing factor in such patients. In addition, children who are scheduled for gastric fundoplication surgery may undergo this study to exclude gastric outlet obstruction before surgery.

**Rational:** A liquid gastric emptying study is indicated when a child is referred for a gastric emptying study and a liquid meal is the child’s ordinary source of nutrition.

**Interfering Conditions:** None

**Radiopharmaceutical:** 99mTc-sulfur colloid mixed with the child’s usual feeding (volume and composition). If the patient gets continuous feeding, an amount equal to the volume of formula or other liquid infused over 1 hour should be used.

**Pediatric Dosage:** 7 µCi/kg, with a minimum dosage of 200 µCi and a maximum dosage of 1.0 mCi

**Route of Administration:** Orally

**Patient Scheduling:** The study is scheduled by the scheduling desk.

**Patient Preparation:** The patient should be fasting for a minimum of 4-6 hours before the procedure unless they are getting continuous feedings.

**Equipment Setup:** LFOV scintillation camera. A SFOV or zoomed LFOV camera can be used for studies in small children.

- Collimator: Low-energy, all-purpose
- Energy Window: 140 keV with 20% window

**Procedure:** The patient should be positioned supine. Position the detector over the upper abdomen to include the stomach. Children will ingest fluid (usually from a bottle) until sated. The volume administered should be recorded.

Obtain dynamic images in anterior projection for 60 minutes.

After the study is completed and the data have been transferred, the study will be analyzed using the Lasix renal program.
If the indication for the study is to detect pulmonary aspiration, delayed imaging of the chest may be necessary. Consult with the attending nuclear medicine physician.

**Data Processing:** Use the Lasix renal program to calculate the T1/2 of emptying. Normal T½ for milk/formula is approximately 50-60 minutes and the range of gastric retention at one hour is between 40% and 70%. However, normal ranges have not been established by well-controlled studies in normal children.

<table>
<thead>
<tr>
<th>View</th>
<th>Digital Acquisition</th>
<th>Screenshots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior</td>
<td>20 sec anterior dynamic images, 128x128 matrix, word mode for 60 minutes</td>
<td>Use Display Renal Lasix.</td>
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</tbody>
</table>

**Items Required For Complete Study:**

1. Dynamic images.
2. Transfer of all digital images to work station