GI/GU FLUROSCOPY: Goals and Objectives

ROTATION 1 (Radiology Year 1):

MEDICAL KNOWLEDGE

At the end of the rotation, the resident should be able to:

- Discuss the proper clinical and radiologic indications for the following studies:
  - Barium swallow
  - Upper gastrointestinal series (UGI)
  - Barium enema (BE)
  - Air contrast barium enema (ACBE)
  - Small bowel follow through (SBFT)
  - Fistulograms
  - Intravenous Urogram (IVU)
  - Cystogram
• Voiding cystourethrogram
• Hysterosalpingogram (HSG)

• State the physiologic properties, proper concentrations and proper indications for the use of the following contrast material:
  o Barium
  o Water soluble contrast media (oral Hypaq® or Gastrografin)
  o Ionic intravenous contrast media
  o Non-ionic intravenous contrast media

• Discuss the following information about Glucagon:
  o Proper indications and dosages used in GI radiology
  o Physiologic effects
  o Side effects
  o Contraindications

• List the high risk factors for allergic reaction to intravenous contrast media.
• State the proper assessment and treatment for allergic reactions to contrast media.
• Recognize the normal radiographic appearance of structures of the GI/GU tract.
• Given an appropriate radiograph, demonstrate a basic knowledge of radiographic abnormalities of the GI/GU tract.

PRACTICE BASED LEARNING

• Review the request and all applicable clinical history and previous laboratory tests and previous imaging studies to be certain that the proper test has been ordered and that the patients condition is such that the examination is safe and that any necessary preparation for
the test has been completed before the starting the examination

- If the indication for the examination is unclear contact the referring physician or another of the patient’s appropriate and knowledgeable health care providers.
- Perform all examinations in the appropriate way. If you have a question - ask before performing the examination.
- Demonstrate basic knowledge of the equipment to be used during fluoroscopy, including proper KV techniques for the various procedures, radiation safety features of the machines, and proper radiation safety techniques.
- Demonstrate fluoroscopy techniques for performing the following procedures:
  - Barium swallow
  - UGI
  - BE
  - ACBE
  - SBFT
  - IVU
  - Cystogram
  - Voiding cystourethrogram
  - HSG
- Accurately dictate all studies in a timely fashion

SYSTEMS BASED PRACTICE

State the physiologic properties, proper concentrations and proper indications for the use of the following contrast material:
• Barium
• Water soluble contrast media (oral Hypaque or Gastrografin)
• Ionic intravenous contrast media
• Non-ionic intravenous contrast media

PATIENT CARE

• List the high risk factors for allergic reaction to intravenous contrast media.
• State the proper assessment and treatment for allergic reactions to contrast media.
• Accurately dictate all studies in a timely fashion
• Communicate effectively and courteously with referring clinicians
  o Including obtaining relevant history for study interpretation
  o Regarding important findings on studies performed

INTERPERSONAL AND COMMUNICATION SKILLS

• Accurately dictate all studies in a timely fashion
• Communicate effectively and courteously with referring clinicians
  o Including obtaining relevant history for study interpretation
  o Regarding important findings on studies performed
• Facilitate the learning of medical students, peers, other professionals participating in the service including technologists, nurses, nurse practitioners, other residents and physicians.
• Build confidence in reading routine and STAT GI/GU studies.
PROFESSIONALISM

- Demonstrate responsible work ethic.
  - This would include being present at the GI/GU station at 9A.M, and throughout the work day
  - Completion of dictation of all reviewed studies in a timely manner
  - Attendance at all departmental teaching conferences, and grand rounds presentations.
- Facilitate the learning of medical students, peers, other professionals participating in the service including technologists, nurses, nurse practitioners, other residents and physicians.
- Build confidence in reading routine and STAT GI/GU studies.

ASSESSMENT TOOLS UTILIZED

- Global ratings by faculty including rotation evaluation sheet
- Conference attendance logs
- In-service examination

ROTATION 2 (Radiology Year 2)

MEDICAL KNOWLEDGE
At the end of the rotation, the resident should be able to:

- Build on the knowledge gained on Rotation 1 as well as be able to
- Demonstrate review and/or retention of knowledge requirements set forth for the first rotation.
- Describe and/or discuss GI/GU tract pathology in specific detail.

Residents should also be able to:

- Demonstrate an enhanced ability to perform decision-making and valuing requirements listed under the first rotation.
- Demonstrate more confidence when evaluating and integrating data from other studies (CT, MRI, sonography and nuclear medicine) of the GI/GU tract to make recommendations to the referring physician about more appropriate or additional diagnostic studies needed for evaluation of the patient's abnormality.
- Read and dictate studies with less assistance from the faculty radiologist.

**PRACTICE BASED LEARNING**

- Review the request and all applicable clinical history and previous laboratory tests and previous imaging studies to be certain that the proper test has been ordered and that the patients condition is such that the examination is safe and that any necessary preparation for the test has been completed before starting the examination.
- If the indication for the examination is unclear contact the referring physician or another of the patients appropriate and knowledgeable health care providers
- Perform all examinations in the appropriate way
- Demonstrate basic knowledge of the equipment to be used during fluoroscopy, including
proper KV techniques for the various procedures, radiation safety features of the machines, and proper radiation safety techniques

Residents should also be able to:

- Demonstrate further development of the technical skills of performing the GI/GU studies listed in the first rotation
- Given a fluoroscopic examination, demonstrate the ability to identify the abnormality at fluoroscopy and modify the technique or change the patient's position to take more diagnostic fluoroscopic spot films.
- Demonstrate the ability to perform efficiently through decreasing fluoroscopic time needed to perform a study without compromising diagnostic acumen
- Accurately dictate all studies in a timely fashion

SYSTEMS BASED PRACTICE

State the physiologic properties, proper concentrations and proper indications for the use of the following contrast material:
- Barium
- Water soluble contrast media (oral Hypaque or Gastrografin)
- Ionic intravenous contrast media
- Non-ionic intravenous contrast media
PATIENT CARE

- List the high risk factors for allergic reaction to intravenous contrast media.
- State the proper assessment and treatment for allergic reactions to contrast media.
- Accurately dictate all studies in a timely fashion
- Communicate effectively and courteously with referring clinicians
  - Including obtaining relevant history for study interpretation
  - Regarding important findings on studies performed

INTERPERSONAL AND COMMUNICATION SKILLS

- Accurately dictate all studies in a timely fashion
- Communicate effectively and courteously with referring clinicians
  - Including obtaining relevant history for study interpretation
  - Regarding important findings on studies performed
- Facilitate the learning of medical students, peers, other professionals participating in the service including technologists, nurses, nurse practitioners, other residents and physicians.
- Build confidence in reading routine and STAT GI/GU studies.

PROFESSIONALISM

- Demonstrate responsible work ethic
  - This would include being present at the GI/GU station at 9AM and throughout the
work day
  • Completion of dictation of all reviewed studies in a timely manner
  • Attendance at all departmental teaching conferences, and grand rounds presentations
• Facilitate the learning of medical students, peers, other professionals participating in the service including technologists, nurses, nurse practitioners, other residents and physicians
• Build confidence in reading routine and STAT GI/GU studies.

ASSESSMENT TOOLS UTILIZED

• Global ratings by faculty including rotation evaluation sheet
• Conference attendance logs
• In-service examination

ROTATION 3 (Radiology Year 3)

MEDICAL KNOWLEDGE

At the end of the rotation, the resident should be able to:

• Demonstrate continued knowledge of requirements for previous rotations
• Discuss, with increased understanding, GI/GU tract pathology
• Integrate knowledge of all radiologic imaging modalities for evaluation of GI/GU pathology
so that the most appropriate study will be done and be done in the proper sequence.

**PRACTICE BASED LEARNING**

- Review the request and all applicable clinical history and previous laboratory tests and previous imaging studies to be certain that the proper test has been ordered and that the patient’s condition is such that the examination is safe and that any necessary preparation for the test has been completed before starting the examination.
- If the indication for the examination is unclear contact the referring physician or another of the patient’s appropriate and knowledgeable health care providers.
- Perform all examinations in the appropriate way. If you have a question - ask before performing the examination.
- Demonstrate basic knowledge of the equipment to be used during fluoroscopy, including proper KV techniques for the various procedures, radiation safety features of the machines, and proper radiation safety techniques.

At the end of the rotation, the resident should be able to:

- Show improvement in performance of the skills listed in the previous rotations.
- Demonstrate improvement of decision-making skills listed in the previous rotations.
- Read and dictate studies with minimal assistance from the faculty radiologist.
SYSTEMS BASED PRACTICE

State the physiologic properties, proper concentrations and proper indications for the use of the following contrast material:

- Barium
- Water soluble contrast media (oral Hypaque or Gastrografin)
- Ionic intravenous contrast media
- Non-ionic intravenous contrast media

PATIENT CARE

- List the high risk factors for allergic reaction to intravenous contrast media.
- State the proper assessment and treatment for allergic reactions to contrast media
- Accurately dictate all studies in a timely fashion
- Communicate effectively and courteously with referring clinicians
  - Including obtaining relevant history for study interpretation
  - Regarding important findings on studies performed

INTERPERSONAL AND COMMUNICATION SKILLS

- Accurately dictate all studies in a timely fashion
- Communicate effectively and courteously with referring clinicians
- Including obtaining relevant history for study interpretation
- Regarding important findings on studies performed
  - Facilitate the learning of medical students, peers, other professionals participating in the GI/GU service including speech pathologists, nurses, nurse practitioners, speech therapy students
  - Build confidence in reading routine and STAT GI/GU studies.

PROFESSIONALISM

- Demonstrate responsible work ethic.
  - This would include being present at the GI/GU station at 9A.M, and throughout the work day
  - Completion of dictation of all reviewed studies in a timely manner
  - Attendance at all departmental teaching conferences, and grand rounds presentations.
- Facilitate the learning of medical students, peers, other professionals participating in the service including technologist, nurses, nurse practitioners, other residents and physicians
- Build confidence in reading routine and STAT GI/GU studies

ASSESSMENT TOOLS UTILIZED

- Global ratings by faculty including rotation evaluation sheet
- Conference attendance logs
- In-service examination
RECOMMENDED GI RESIDENT ROTATION

- 1st Rotation: GI ESSENTIALS
- 2nd Rotation: RADIOLOGY Review Manual (D'hner) 3rd or Current Edition
- ACR Self Evaluation Syllabus
- (Selected Tracts)
- 3rd Rotation: Radiological Clinics of North America (GI editions) 1990 or Current
- Reference Text Book

Textbook of GI Radiology Gore, Laufer and Levine (current edition)

The resident should read a Genitourinary Textbook, such as the Textbook of Uroradiology. 3rd. Dunnick NR, Sandler CM, Newhouse JH, Amis Jr. JH. Lippincott Williams & Wilkins.

Core Knowledge Presentation Topics

Abdominal Plain Radiographs: Overview

- Perforation and Obstruction of the GI Tract: Assessment by Conventional Radiology and Principles and Pitfalls of Double Contrast interpretation
- The Postoperative GI Tract and Treatment of Strictures and Leaks in the GI Tract

Pharynx and Hypopharynx

- Normal Anatomy; Structural and Functional Abnormalities; Inflammatory and Neoplastic Diseases

Esophagus

- Anatomy and Physiology and Structural Abnormalities (varices, webs, diverticula, perforation imprints of anomalous vessels, etc.)
• Functional Disorders (achalasia, Chaga's, scleroderma, spasm, etc.)
• Esophagitis (reflex, Barrett’s, infectious, chemical, etc.)
• Neoplastic Diseases (benign & malignant, intrinsic & extrinsic) and Diagnosis & Treatment of Esophageal Foreign Bodies and Food impactions

**Stomach and Duodenum**

• Developmental, Functional, and Structural Disorders (diverticula, webs, pyloric hypertrophy, varices, volvulus, SMA syndrome, etc.)
• Ulcers: Benign and Malignant and upper GI Tract Inflammatory Diseases
• Tumors and Tumor-Like Conditions (polyps, malignancies, extrinsic masses)

**Small Bowel**

• Diagnosis Using Radiographic Pattern Analysis and Developmental, Functional, and Structural Disorders
• Inflammatory Diseases of Small and Large Bowel
• Neoplastic Diseases (benign, malignant, extrinsic masses)

Large Bowel

• Developmental, Functional, and Structural Disorders (rotational anomalies, volvulus, intussusception, duplication, Hirschprung’s, pseudo-obstruction, etc.)
• Colon Polyps, Polyposis Syndromes, and Colorectal Malignancies

Hepatobiliary System

• Liver Masses
• Diseases of the Bile Ducts (ERCP, ET, T-tube cholangiography)

Pancreas

• Embryology and Anatomy and Diseases of the Pancreas