

EXAM:       **Barium Swallow**

PATIENT PREP:

- N.P.O. 8 hours prior to exam
- Ask patient if prep was followed
- Obtain brief history

SUPPLIES:

- 1/2 cup thick barium (Liqui-Coat HD)
- 1 container thin barium (Liquid E-Z-Paque) with straw
- E-Z-Gas granules in Styrofoam cup
- 10cc H<sub>2</sub>O in medicine cup
- Barium pill ready in a medicine cup.

ROOM SET-UP:

- Table upright
- Fluoro carriage engaged
- Bucky tray at foot end of table
- Overhead tube in park position

ROUTINE VIEWS at discretion of radiologist:

- RAO drinking esophagus
- RAO stomach
- Slight LPO abdomen

COMMENTS:

- Routine views vary with radiologist
- At completion of exam
  - Patient to clean barium off mouth before leaving room
  - Instruct patient to drink fluids for rest of day to minimize constipation.
- Remind patients that the barium goes in white comes out white.

If exam is R/O Zenkers Diverticulum have the ruler in the room to get at least image with the ruler and the barium filled Zenkers.  
(Tape it to the table during swallow)

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**Barium Swallow**  
**"Mouth to Fundus"**

1. Drink crystals mixed with water - quickly, "don't burp"
2. LPO, cup in L hand; gulps of thick barium
  - air esophagram
  - mid, sl hi, sl low
3. Lower table - 2 complete rolls
4. upright lateral view of fundus- distended, double contrast
5. RAO position - thin barium
  - observe single swallows, wait 20 sec. Between swallows
  - videotape  $\Psi$  for dysphagia pts.(OPTIONAL)
  - pt. Takes 2 large swallows; when pt distal esoph is full - valsalva
  - flouro store an image of the esophagus, EMPTY
6. 3-5 sips of thick, AP & Lateral of pharynx - neutral/ phonation/ puffed cheeks. Watch the pt phonate - Look for symmetrical motion of the vocal folds.
7. Rapid sequence - 5/sec.
  - Frontal and lateral swallow - include the mouth
8. Barium pill if indicated by hx
9. RAO overhead drinking esophagus film
10. overhead -usually RAO stomach and LPO abdomen

\*\*\* In a combined swallow -

do a **complete** barium swallow, Then, do a complete modified barium swallow

**Modified Barium Swallow - include step 6.**

\*\*\*I do not routinely get a scout for Barium Swallows

## UPPER G.I. SERIES

"Mouth to Ligament"

Start with a scout centered ~~the~~ the crest

1. EZ gas crystals mixed with ~1/2 oz. water, pt. drinks immediately.
2. Upright, LPO - rapid gulps of HD barium - air esophagram - mucosal display, stricture, etc.
3. Table is lowered, pt turns left to start - two 360° revolutions.  
3 spots of the stomach:   LPO   -   antrum, pylorus  
                                  Supine -   body (Try to document the ligament)  
                                  RPO -   -ant/post walls, fundus, cardia  
  (Schatzki view)
4. Raise table, ~45°, watching, stomach - lesser curvature.
5. Right lateral upright, arms extended - stomach - cardia, fundus (document duod)
6. RAO, then lower table (is easier).
7. Regular barium, watch drinks, mouth to fundus - filled distal esophagus with valsalva - motility, hiatal hernia, reflux, webs, stricture, etc.
8. Still RAO - stomach, bulb, C-loop - filled view. Can do compression at this point.
9. Turn pt Left lateral, slowly turn to LPO (watch) for air antrum/bulb/c-loop (Hampton view)
10. Table upright, LPO - air fundus and CAREFUL COMPRESSION of stomach and bulb
11. If the pharynx is not well coated, give 3-4 slow sips of thick barium and observe the pt in phonation (make sure vocal fold move symmetrically). In most cases, (older pts, smokers, etc) take AP and Lateral views of the pharynx - neutral, during phonation and with their cheeks puffed out.
13. If there is any question of a problem w/swallowing, take AP and Lateral rapid sequence views of the pt as they swallow.

### OVERHEADS:

1. AP, slight LPO - 14 x 17 abdomen - CR 3" above crest.
2. RAO - 10 x 12 stomach
3. RAO drinking esophagus, if indicated

The tech needs to watch the pt during phonation and nod to the rad when the pt is puffing their cheeks properly.

10/11 CSC

EXAM:     **G.I. Series - Single Contrast**

PATIENT PREP:

- N.P.O. 8 hours prior to exam
- Ask patient if prep was followed
- Obtain brief history

SUPPLIES:

- 1 bottle of thin barium with straw (Liquid E-Z-Paque) or  
       Or Omni 300 to r/o leak.

ROOM SET-UP:

- Table upright
- Fluoro carriage engaged
- Bucky at foot end of table
- Overhead tube in park position

ROUTINE VIEWS at discretion of radiologist:

- Scout AP abdomen (digital if pediatric) newborn
- RAO drinking esophogram
- AP slightly LPO
- RAO stomach

COMMENTS:

- Routine views vary with radiologist
- At completion of exam
  - Patient to clean barium off mouth before leaving room
  - Instruct patient to drink fluids for rest of day to  
           minimize constipation
- explain that the barium goes in white and comes out white.



EXAM: **G.I. Series - Double Contrast**

PATIENT PREP:

- N.P.O. 8 hours prior to exam
- Ask patient if prep was followed
- Obtain brief history

SUPPLIES:

- 1/2 cup thick barium (Liqui-Coat HD)
- 1 container thin barium (Liquid E-Z-Paque) with straw
- E-Z-Gas granules in Styrofoam cup
- 10cc H<sub>2</sub>O in medicine cup

ROOM SET-UP:

- Table upright
- Fluoro carriage engaged
- Bucky at foot end of table
- Overhead tube in park position

ROUTINE VIEWS at discretion of radiologist:

- Scout AP abdomen (digital or CR at discretion of radiologist) to include both hemi diaphragms
- RAO drinking esophogram
- AP slightly LPO
- RAO stomach

COMMENTS:

- Routine views vary with radiologist
- At completion of exam
  - Patient to clean barium off mouth before leaving room
  - Instruct patient to drink fluids for rest of day to minimize constipation

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**EXAM: G.I. Series - Neonatal**

**PATIENT PREP:**

- None

**SUPPLIES:**

- Heat lamps
- Omnipaque 240 or 300
- 1 - 20 cc syringe (for contrast)
- 1 - 18g needle (to draw contrast from vial)

**ROOM SET-UP:**

- Room thermostat set at 80° (reset to 68° at completion of exam)
- Table horizontal with mat
- Fluoro carriage engaged
- Bucky at foot end of table
- Overhead tube in park position

**ROUTINE VIEWS:**

- Possible AP and lateral decubitus scout images. At discretion of the Radiologist.

**COMMENTS:**

- Nurse to hold infant's upper torso, tech to hold lower.
- Contrast injected through NG tube.
- Infant rotated into left lat, supine, right lat and return to supine.
- Infant must be perfectly supine to assess location of Ligament of Treitz (determines presence of malrotation).

EXAM: **Modified Barium Swallow**

PATIENT PREP:

- None

SUPPLIES:

- 1 bottle Varibar Nectar
- 1 bottle Varibar Honey
- 1 bottle Varibar Pudding
- 1 Bottle Varibar Thin Liquid (after put it in the refrigerator)
- 1 package Lorna Donne cookies

ROOM SET-UP:

- Table upright
- Fluoro carriage engaged
- Bucky tray at foot end of table
- Overhead tube in park position
- DVD programmed with blank disc

ROUTINE VIEWS:

- Continuous fluoro recorded on DVD

COMMENTS:

- Make sure the DVD is recording.
- At completion of exam
  - Patient to clean barium off mouth before leaving room
  - Label DVD disc with Pt name, MRN and acc #'s and date

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EXAM: **Barium Enema - single contrast**

PATIENT PREP:

- Ask patient if prep was followed
- Obtain brief history

SUPPLIES:

- 400ml Liquid E-Z-Paque in double contrast bag filled to 2000ml with water at body temperature
- 2 clamps (1 for bag tube, 1 for balloon tube)
- Balloon insufflator
- Lubricant
- Enema retention ring

ROOM SET-UP:

- table horizontal
- fluoro carriage engaged
- bucky tray at foot end of table
- overhead tube in park position

ROUTINE VIEWS:

- Fluoro digital spot scout or CR scout image by technologist
- AP - include rectum
- 20 degree RPO to demonstrate splenic flexure
- 45 degree LPO to demonstrate hepatic flexure
- 15 degree LPO sigmoid with 30 degree cephalic angle to demonstrate opened sigmoid flexure
- Lateral rectum
- Post evac AP

COMMENTS:

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**EXAM: Barium Enema - double contrast**

**PATIENT PREP:**

- Ask patient if prep was followed
- Obtain brief history

**SUPPLIES:**

- double contrast enema bag filled with 1000ml Polibar undiluted
- 2 clamps (1 for bag, 1 for balloon)
- insufflator
- balloon insufflator
- lubricant

**ROOM SET-UP:**

- table horizontal
- fluoro carriage engaged
- bucky tray at foot end of table
- overhead tube in park position

**ROUTINE VIEWS:**

- Fluoro digital spot scout or CR scout image by technologist (after 360 degree rotation of patient - 1 or 2 puffs between views)
- AP
- 20 degree RPO to demonstrate opened splenic flexure
- 45 degree LPO to demonstrate opened hepatic flexure
- 15 degree LPO sigmoid with 30 degree cephalic angle to demonstrate opened sigmoid flexure
- PA
- 15 degree RAO with 30 degree caudad angle to demonstrate opened sigmoid flexure
- both lateral decubitus - *✓ films with Rad - they will come fluoro there*
- X-table lateral rectum with tip removed
- Fluoro digital spot or CR Post evac at radiologist's request

**COMMENTS:**

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EXAM: **Small Bowel Series without G.I. Series**

PATIENT PREP:

- N.P.O. 8 hours prior to exam
- Ask patient if prep was followed
- Obtain brief history

SUPPLIES:

- 2 containers thin barium (Liquid E-Z-Paque) with straw  
(Note: gastrografin may be added to barium at request of radiologist to decrease transit time)

ROOM SET-UP:

- Table horizontal
- Fluoro carriage engaged
- Bucky at foot end of table
- Overhead tube in park position
- Most Radiologists have the patient sit on the edge of the table and take 5 big gulps (the the DR in the room)and then fluoro.

ROUTINE VIEWS at discretion of radiologist:

- Scout images
- Radiologist will tell you when he/she would like the next Film.
- "Rolled Up Towel View" towel underneath lower abd. Center at crest (small of the lower back)with a 30degree caudal angle.

COMMENTS:

- At completion of exam
  - Patient to clean barium off mouth before leaving room
  - Instruct patient to drink fluids for rest of day to minimize constipation
  - Remind patients that what goes in white comes out white.

**EXAM: Small Bowel Series - post G.I. Series**

**PATIENT PREP:**

- N.P.O. 8 hours prior to exam
- Ask patient if prep was followed
- Obtain brief history

**SUPPLIES:**

- 1 container thin barium (Liquid E-Z-Paque) with straw  
(Note: gastrografen or water may be added to barium at request of radiologist to decrease transit time)

**ROOM SET-UP:**

- Table horizontal
- Fluoro carriage engaged
- Bucky at foot end of table
- Overhead tube in park position

**ROUTINE VIEWS** at discretion of radiologist:

- Post GI PA images at 15 - 30 minute intervals until terminal ileum visualized. Radiologist to fluoro spot TI.

**COMMENTS:**

- At completion of exam
  - Patient to clean barium off mouth before leaving room
  - Instruct patient to drink fluids for rest of day to minimize constipation
- - Remind patients that what goes in white comes out white

EXAM: **Cystogram**

PATIENT PREP:

- urinary catheter in place
- bladder drained prior to start of exam

SUPPLIES:

- 2 - 300 ml bottles of Cystografin 30%  
Iv Venoset
- female foley connector
- blue clamp (to clamp foley cath only between external end and balloon filling extention)
- Male urinal to drain bladder when done.

ROOM SET-UP:

- Table horizontal
- Bucky tray at foot end of table
- Overhead tube in park position

ROUTINE VIEWS:

- Scout KUB
- Radiologist or technologist needs to take AP+LAT(sometimes a x-table lat) full and empty .

COMMENTS:

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EXAM: **Loopogram (Ileo-loop Bladder)**

PATIENT PREP:

- None

SUPPLIES:

- sterile foley cath in size determined by radiologist
- 2 - 50 cc syringes with Cystografin 30%
- sterile barrier
- sterile gloves
- Povidone-Iodine prep solution
- 10 pack gauze

or if radiologist prefers ostomy set-up

- E-Z-M cone colostomy enema tip
- Duolock curved tail clamp
- 300ml Cystografin 30%
- Primary Iv set (tubing)
- female foley connector

ROOM SET-UP:

- Table horizontal
- Fluoro carriage engaged
- Bucky tray at foot end of table
- Overhead tube in park position

ROUTINE VIEWS:

- Scout KUB

COMMENTS if ostomy set-up used:

- replace pt's ostomy bag with the Visi-Flow irrigation bag (2 flange sizes available to match pt's stoma wafer flange)
- clamp bottom of irrigation bag with a Duolock curved tail clamp
- place cone colostomy tip into stoma through the Ziplock opening in the top of the irrigation bag
- pt to hold cone in stoma with pressure during procedure
- at completion replace irrigation bag with bag supplied by pt or a Sur-Fit drainable pouch of appropriate size
- DELAYED FILM TO SEE IF EMPTIES.

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EXAM: **VCUG - ADULT Voiding CystoUrethrogram**

PATIENT PREP:

- urinary catheter in place
- bladder drained prior to start of exam

SUPPLIES:

- 2 - 300 ml bottles of Cystografin 30%
- Iv Venoset
- female foley connector
- blue clamp (to clamp foley cath only between external end and balloon filling extention)

ROOM SET-UP:

- Table horizontal
- Fluoro carriage engaged
- Bucky tray at foot end of table
- Overhead tube in park position

ROUTINE VIEWS:

- Scout KUB

COMMENTS:

Revised

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EXAM: **V.C.U.G. - INFANT/CHILD Voiding Cysto-urethrogram**

PATIENT PREPARATION:

- Bladder drained prior to start of exam
- 18 months and older are sometimes sedated,

SUPPLIES:

- Absorbent pad (chucks) under patient (3 chucks under pt if pt is under 1 year ).
- 2 - 250 ml bottles of Hypaque-Cysto 30%
- IV venoset
- Urinal for older male patients
- Catheterization supplies
  - 1000ml sterile water
  - Hibiclens
  - Urine specimen container
  - 2 sterile 4x3in cover sponges
  - 5fr for 1 year and younger; 8fr for 1 year and older
  - sterile gloves
  - sterile Barrier
  - tape (for taping cath to skin)

ROOM SET-UP:

- Table horizontal

ROUTINE VIEWS:

- Fluoro Digital spot scout
- Fluoro digital spots of full bladder including obliques
  - Under 1 yr - fill 3 times
  - Over 1 yr - fill once

COMMENTS:

- Urine specimen collected upon request and properly identified with pt info, wrapped and sealed with lab requisition and tube to the lab.

If you cathed the patient please note the sized used on the req.

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10/11 CSC

EXAM: **Sinus Tract (fistulogram)**

PATIENT PREP:

- None

SUPPLIES:

- 5 fr or 8 fr infant feeding tube or foley or red rubber catheter (whatever fits sinus tract opening)
- 1 50ml syringe to fit tube selected
- 50ml Omnipaque 300

ROOM SET-UP:

- table horizontal
- fluoro carriage engaged
- bucky tray at foot end of table
- overhead tube in park position

ROUTINE VIEWS:

- Scout of area of interest (CR or digital at discretion of radiologist)

COMMENTS:

10/11 CSC



## **EXAM: I.V.P. (Intravenous Pyelogram).**

PATIENT PREP: 4-5 Bisacodyl(Ducolax)tablets tablets at bedtime.

- Fluids only during the evening (no breakfast).
- Obtain BUN and Creatine results prior to the exam
- Patient to void before exam
- Ask if prep was followed
- Review consent/allergy hx
  - no Glucophage or Metformin 48hrs after IVP
  - nursing mothers not to breast feed for 24hrs after
- Clamp urinary catheter if present

### **SUPPLIES:**

- 22g or 24 g Intacath
- Extension tubing
- 2 60 ml syringes
- Omni 300
- 10ml pre-filled Sodium Chloride syringe for flush after injection

### **ROUTINE VIEWS:**

#### **Pre-injection:**

- AP supine KUB scout.  
3- kidney 20degree tomo 1 cm apart (check with Rad if Patient under 20 years of age)

#### **Post-injection:**

- Check routine physician book.

### **COMMENTS: Contraindications for Compression:**

- |                           |                          |
|---------------------------|--------------------------|
| -ureteral obstruction     | -abd pain on compression |
| -abd aortic aneurysm      | -recent acute injury     |
| -recent abdominal surgery | -hx of renal transplant  |
| -urinary diversion        | -abd distention          |
| -pregnancy                | -bowel ostomies          |
| -severe hypertension      |                          |

**Radiologist permission required for compression**

**EXAM: Intravenous Pyelogram (I.V.P.)**

**PATIENT PREPARATION:**

- 4 -5 mg Bisacodyl (Dulcolax) tablets at bedtime the evening prior to the exam with as much water as necessary
- Fluids only during evening, no breakfast
- Obtain BUN and creatinine results
- pt. to void just prior to start of exam
- Ask patient if prep was followed
- Obtain history
- Clamp urinary catheter if patient has one

**SUPPLIES:**

- 20g, 22g, or 24g Autoguard-Winged catheter needle
- 20" extension tube
- 2 60 cc syringes filled with Omnipaque 300mgI/ml (from contrast warmer) *some radiologists use pt wt to decide amt of contrast*
- 0.9% Sodium Chloride in Carpojet syringe

**ROOM SET-UP:**

- table horizontal
- 20 degree tomography

**ROUTINE VIEWS:**

**Pre-injection scout film**

- AP supine 14 x 17
- 3-11x14 kidney tomo level equal to .4 body thickness
- example: Pt measures 25 cm x .4 = 10.0. 10 is middle cut. Cuts would be 9, 10, 11

**Post-injection films**

- 3-1 min. tomo's 1 cm apart
- 5 min. AP 14x17 then apply compression\* **SEE COMMENTS**
- 10 min. AP & both obl 11x14 kidney with compression in place
- Release compression AP 14x17 include bladder
- Collimated AP 10x12 bladder when filled (do both obl if abnormal)
- **Remove catheter clamp if applied**
- Post void 14x17 include bladder

**COMMENTS:\* Contraindications for compression**

- |   |                            |
|---|----------------------------|
| - ureteral obstruction (check 1 and 5 min. films)                       | - abd. pain on compression |
| - abd. aortic aneurysm  | - recent acute injury      |
| - recent abd. surgery   | - renal transplant         |
| - urinary diversion   | - abd. distension          |
| - pregnancy   | - bowel ostomies           |
| - severe hypertension   | - other: use common sense  |
| - Permission from radiologists must be given for the use of compression |                            |

EXAM: **Hysterosalpingogram**

PATIENT PREP:

- urine sample for pregnancy test prior to entry in room
- have patient bring clothes with them.

SUPPLIES: Sterile Tray Set UP:

- 2-Sterile Field Drapes
- 1 Omni 240
- 60 cc leur loc syringe
- 1 18g needle (to draw Omni up)
- 2- sterile 4X4's

ROOM SET-UP:

- Table horizontal with foot board removed and stirrups attached
- Fluoro carriage engaged
- Bucky tray at foot end of table
- Overhead tube in park position
- Goose neck lamp
- stool for OGYN physician

ROUTINE VIEWS:

- fluoro spots

COMMENTS:

- OBGYN physician to bring pad and tampon
- Pt provided towel and wash cloth when entering bathroom at completion of procedure

**Dr Mahlab : sterile tray, 2bottles of contrast, extention tubing, sterile saline, 18 gauge needle. He is really good about asking him what he wants.**