

## Fluoroscopic Hysterosalpingogram

### PURPOSE / CLINICAL INDICATION:

- Infertility
- Recurrent miscarriage
- Confirm tubal occlusion after tubal ligation if cross section of tube not confirmed in pathology
- Confirm tubal occlusion after Essure – scheduled 3 months after Essure microinsert placement

### SPECIAL CONSIDERATIONS / CONTRAINDICATIONS:

- Contraindications include active pelvic infection, pregnancy, & heavy bleeding
- For Essure evaluation:
  - [Refer to manual for interpretation](#)
  - Use metallic measurement marker
  - Evaluate microinsert location (see manual)
    - Expulsion or proximal placement (not far enough into tube)
    - Satisfactory placement
    - Peritoneal location or distal placement (too far into tube)
  - If not in satisfactory placement, patient should **NOT** rely on Essure for contraception
  - Evaluate tubal occlusion (see manual)
    - Tube is occluded at cornua
    - Contrast seen in tube but not past a specific microinsert marker (see manual)
    - Contrast seen in tube past the microinsert or in the peritoneal cavity
  - If tubal occlusion is achieved and microinsert location is satisfactory, then patient can discontinue alternative contraception.
  - If there is no tubal occlusion and microinsert location is satisfactory, then patient should remain on alternative contraception and have a repeat HSG in 3 months.
    - If there is no tubal occlusion on repeat HSG, then patient should **NOT** rely on Essure for contraception

	ORDERABLE NAME:	EPIC BUTTON NAME:	NOTES:
UTSW	XR Hysterosalpingogram		
PHHS	XR Hysterosalpingogram XR Hysterosalpingogram Injection		Need both orderables for this exam

### EQUIPMENT / SUPPLIES / CONTRAST:

- HSG Kit
  - 18 G needle
  - 20 cc syringe(s)
  - Connector tubing
  - Cotton swabs x 3
  - Betadine
  - 4x4 gauze
  - Surgilube
  - Speculum
  - 5 Fr & 7 Fr plastic dilators
  - 5 Fr or 7 Fr balloon catheter
- Speculum light
- Sterile gloves

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- Non-ionic iodinated contrast
- Optional supplies available but unopened include various sized plastic & metal speculums, balloon tip catheters, acorn-tip catheter/apparatus, tenaculum, anesthetic gel

### **PATIENT PREPARATION:**

- Review for contrast allergy
- Confirm antibiotic prophylaxis in the setting of (Remind patient to take antibiotics, if prescribed, per referring MD)
  - Chronic PID
  - Known hydrosalpinx
- Technologist to obtain patient history
  - LMP/Day of cycle (Day #5-10)
  - Obstetrical history (gravida, para, abortus)
  - Active/heavy bleeding
  - Active pelvic infection (chronic PID requires antibiotic prophylaxis)
  - Pertinent surgical history
  - Reason for exam
  - Recent U/S and results
- Technologist to explain exam to the patient and allow questions
- Talk to patient before and during exam
  - Many of these patients are extremely anxious about pain and results of study
  - Tech should have already explained the procedure
  - Ask patient if she has any other questions
  - Inform patient of every step before it happens, what she can expect to feel/hear (or have tech help you talk her through study)
  - Any pain felt during the study should simulate menstrual cramps
  - Gauge patient's pain throughout study (use pain scale, deep breathing is helpful)

### **PROCEDURE IN BRIEF:**

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### **COMPLETE PROCEDURE TECHNIQUE:**

- Tech – Prepare patient for exam.
  - Do not empty bladder prior to exam.
  - Offer patient socks.
  - Position patient in lithotomy position at foot of table with a pillow for head, doubled towel under buttocks, knees in stirrups, legs opened wide, and properly draped.
  - Buttocks should extend slightly beyond edge of table
- MD/Midlevel/Tech – Draw up contrast and label syringe
- Tech – Place light in speculum
- MD/Midlevel – Choosing and inserting/removing speculum
  - Pick size appropriate speculum (adult small/medium/large and pediatric speculums. Plastic speculums separate; metal speculums do not)
  - Use back of hand from outer thigh inward, then fingers and speculum
  - 45° downward insertion then rotate horizontal (avoid sensitive anterior wall/urethra)
  - Open speculum completely only after cervix is seen (manual exam to assess cervical position is optional)
  - Try Valsalva or manual pressure on abdomen to bring cervix in view
  - Upon removal, open speculum slightly to clear cervix before gradually closing speculum and rotating 45° on withdrawal (prior to injection of contrast/saline, removal of

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- speculum is optional for HSG)
- Take care not to pull on hair or pinch skin/mucosa
- MD/Midlevel – Placement of catheter (5 Fr & 7 Fr available)
  - Some women experience cramping during placement, others do not
  - Prime and clamp catheter to expel air bubbles (may cause intraluminal pseudomass or cornual/tubal pseudo-obstruction)
  - Optimal location is low intrauterine cavity or upper/mid cervical canal
  - Usually no more than ~5-6 cm of catheter is inserted into the cervical os, but at minimum balloon (~2 cm) is completely inserted in cervical os
  - Do not place too high (to prevent uterine perforation, touching the fundus may induce severe pain or vasovagal response)
  - Consider smaller caliber catheter (smaller caliber is less stiff and less directable, smaller balloon may increase success in lower cervical canal placement)
  - Use of tenaculum as initial approach is discouraged due to patient discomfort/pain
- MD/Midlevel – Inflating balloon on catheter
  - Some women experience cramping during inflation, others do not
  - Slow inflation (may depend on resistance felt)
  - No need to inflate fully, usually ~1-1.5 cc of air (except multiparous women)
  - Do not overinflate (may feel resistance on syringe plunger or pulling of catheter, patient experiences increased pain, catheter may pop out if low in cervical canal)
- MD/Midlevel – Confirmation of balloon catheter placement
  - Gently tug on balloon to make sure it is secure/well-seated
  - If so, remove speculum for patient comfort during HSG
- Tech – After catheter insertion, technologist to disconnect speculum light.
  - If radiologist removes speculum, technologist to assist with disposal.
- Tech – Slide patient back on table. Adjust legs into frog lateral position. Place fluoroscopy tower over patient's pelvis.
- MD/Midlevel /Tech – Take scout view. As radiologist injects contrast, fluoro pelvis and take exposures in AP and bilateral oblique views. Radiologist will instruct when to take exposures and when to turn patient.
- MD/Midlevel – Injecting contrast and obtaining images
  - Some women experience cramping during injection, others do not
  - Wait until tech is ready for imaging to inject (after scout view)
  - Slow intermittent injection (may depend on resistance felt from uterine compliance or tubal efflux)
  - No need to inject while patient is switching positions for HSG
  - Use pulse fluoro to monitor progression of contrast (minimize radiation exposure)
  - Usually ~4-6 ccs in nulliparous women for HSG. Enlarged uterus due to fibroids or multiparity may require up to/greater than 20 ccs. If suspected, have a second syringe filled and ready.
  - Sufficient contrast is achieved for HSG with bilateral tubal spillage, patient intolerance, resistance to injection, or intravasation
  - Avoid excessive contrast administration and radiation exposure
- MD/Midlevel – Readjusting catheter for imaging lower uterine segment/cervix
  - For HSG, deflate balloon, then inject contrast while withdrawing catheter
- Troubleshooting the procedure

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- For cervical stenosis with suboptimal placement of catheter
  - Study can still be salvaged with placement of catheter in mid/lower cervical canal
  - Can use either catheter size (smaller caliber catheter has smaller balloon but is less stiff/directable)
  - Try 5 Fr & 7 Fr plastic dilators with turning motion and firm pressure (may help determine direction of cervical canal or mildly open the os), may cause cramping, do not use strong pressure
  - Place catheter as far as possible in cervical canal (at minimum, balloon of catheter should be completely inserted in cervical os)
  - Inflate balloon ~1-1.5 cc
  - Do not overinflate balloon (patient feels increased pain, should not see inflated balloon popping out of os)
  - Can try to tug gently on balloon, but it will likely pop out
  - Steady hand is necessary so balloon is not dislodged, use plastic guide held firmly against cervix, use side of hand braced against patient's posterior thigh to maintain position while moving patient and during remainder of exam
  - During oblique imaging for HSG, patient should rock from side to side (significant body shifting or valsalva may dislodge the catheter)
- Tenaculum & acorn-tip catheter approach (after failed balloon catheter placement)
  - Pre-warm Hurracaine bottle in warm water bath. Apply Hurracaine topical anesthetic salve to cervix between 10:00 & 2:00 with cotton tip applicator. Absorption occurs immediately.
  - Patient should feel pressure during placement of tenaculum. Grasp cervix with tenaculum placing hooks between 10:00 & 2:00 position. Avoid 9:00 & 3:00 position containing greatest cervical vascularity.
  - Insert acorn-tip catheter into cervical os via stabilizing apparatus which then secures to the tenaculum (allows tenaculum and catheter to move as a unit)
  - Using the tenaculum, gently pull cervix to secure a tight seal while injecting contrast via the primed acorn-tip catheter
  - After procedure is complete, remove acorn-tip catheter first
  - Then gently remove the tenaculum hooks from the cervix (use speculum light for better visualization). Expect some bleeding.
  - With significant bleeding, use folded 4x4 gauze secured by long thongs to apply pressure to the hook sites for ~1 min. Bleeding usually stops quickly.
- For cervical stenosis with failed study
  - Consider asking a colleague for assistance
  - Call referring MD to dilate cervix and repeat study on same day as failed study
  - If referring MD is unable to dilate cervix on the day of the failed exam, then reschedule patient for same day dilation and HSG
- For newly diagnosed hydrosalpinx on HSG
  - Notify referring MD of finding for consideration of appropriate post procedure antibiotic prophylaxis

### IMAGE DOCUMENTATION:

- Routine protocol:
  - Scout (use "fluoro save" to minimize radiation exposure)
  - AP low fill uterine cavity (detection of small intraluminal filling defects)
  - AP fully distended uterine cavity

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- RPO and LPO with spillage (elongated views of fallopian tubes)
- AP lower uterine segment/cervix (omit if initial catheter placement in cervical canal)
- Optional: 3-5 minute delayed image for tubal obstruction or loculated spillage
- Essure protocol:
  - Scout
  - AP minimal fill of uterine cavity
  - AP partial fill of uterine cavity
  - AP fully distended uterine cavity (to patient tolerance or maximal cornual distension)
  - RPO and LPO of uterine cavity and tubal inserts
  - Optional: 3-5 minute delayed image for tubal opacification without spillage

### ADDITIONAL WORKFLOW STEPS:

- MD – Explanation of exam/images to the patient
  - If HSG is normal, at minimum, tell patient “study is normal/both tubes are open”
  - If study is abnormal, explanation is dependent on your level of comfort
  - Note: Nonopacification of a tube or lack of spillage in absence of hydrosalpinx or appropriate history may be temporary (cornual/tubal spasm) or permanent occlusion
- Tech – Allow patient to clean up and dress. Provide sanitary napkin.
- Tech – Review post procedural instructions with patient.
- Technologist
  - Document amount of contrast injected.
  - Label images with left/right marker.
  - Dispose of used supplies in appropriate receptacle.

### REFERENCES:

- [General Fluoroscopy Considerations](#)
- [Procedure Contrast Grid](#)
- Lindheim, SR, Sprague, C, & Winter, TC. (2006). Hysterosalpingography and Sonohysterography: Lessons in Technique. American Journal of Roentgenology, 186, 24-29.
- ACR Practice Guideline for the Performance of Hysterosalpingography. Revised 2006.

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