

## Esophagram: Water Soluble Protocol

### PURPOSE / CLINICAL INDICATION:

- Pneumomediastinum on other imaging exams
- Evaluate for esophageal injury following surgery or trauma
- Evaluate for food impaction or foreign body in esophagus

### SPECIAL CONSIDERATIONS / CONTRAINDICATIONS:

- For a post esophagectomy patient, follow the Esophagram: Post Esophagectomy protocol
- Water-soluble contrast (low-osmolar, nonionic) is the preferred initial contrast agent in the settings of suspected perforation and foreign body impaction:
  - In case of suspected esophageal perforation/extravasation; it minimizes complications from contrast extravasation into the mediastinum or pleural space.
  - Should endoscopy be necessary, it is easier for the endoscopist to see through a transparent contrast medium than through opaque barium.
- Maximum volume of low-osmolar nonionic administered orally is 100 mL.
- It should be noted that CT without contrast has been demonstrated to be the more sensitive method for identifying retained chicken and fish bones in the pharynx and cervical esophagus.

|      | ORDERABLE NAME: | EPIC BUTTON NAME: | NOTES: |
|------|-----------------|-------------------|--------|
| UTSW |                 |                   |        |
| PHHS | XR Esophagram   | Esophagram        |        |

### EQUIPMENT / SUPPLIES / CONTRAST:

- Cup and straw x 2
- Water-soluble contrast – low-osmolar, nonionic
- Thin barium

### PATIENT PREPARATION:

- Review for contrast allergy
- Review patient's history and prior radiological exams.
- If patient cannot take contrast orally, then will require enteric tube for contrast delivery
  - High cervical esophagus tube position during the procedure will increase the risk for aspiration
  - Contrast will exit both the side hole and end hole

### PROCEDURE IN BRIEF:

- Focused region of interest imaging, preferably in 2 projections if possible.
- Start with water soluble contrast
- Repeat with thin barium if no extravasation identified

### COMPLETE PROCEDURE TECHNIQUE:

- Subtle perforations can be missed by using a water-soluble agent only.
  - If no perforation is demonstrated using water-soluble contrast, the esophageal study should be repeated immediately with thin barium sulfate.
- Position patient as upright as can be tolerated
- If delivering through enteric tube, position tube end hole above the level of suspected injury or foreign body
  - Keep note of side hole location
  - High cervical esophagus position will increase the risk for aspiration. Take extreme caution during contrast administration.

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- If area of concern is cervical esophagus (possible extravasation), the cervical esophagus should be evaluated in at least 2 projections (AP and oblique versus bilateral obliques) and rapid cine sequences.
  - In possible neck injury or ICU patient status, you may be limited to 1 projection for the cervical esophagus.
- Image during contrast administration, evaluate the entire region of concern.
  - If no contrast extravasation or other issue identified, reimage in as close to orthogonal to first imaging as possible
- If using water soluble contrast and no contrast extravasation identified, re-image using thin barium contrast as small extravasations can be missed with water soluble contrast alone

### IMAGE DOCUMENTATION:

- Region of interest
  - Scout
  - Orthogonal projections (if possible)
  - Repeat with thin barium if no extravasation identified

### ADDITIONAL WORKFLOW STEPS:

- Review the images carefully for any perforation or aspiration.

### REFERENCES:

- [General Fluoroscopy Considerations](#)
- [Procedure Contrast Grid](#)
- ACR Practice Parameter for the Performance of Esophagrams and upper Gastrointestinal Examinations in Adults, amended 2014

Last Edit Date: 6/30/2015

Last Review Date: 6/30/2015