ROUTINE VIDEO-ESOPHAGRAM GUIDELINES

VIDEO FLUORO POSITION	OBJECTIVE	SPOT
SCOUTS- PA/LAT CHEST/ SUPINE ABD Anatomy, aspiration, HH, Ca++, etc. Add scouts PRN		
RAO PRONE – 5 Swallows	Esophageal motility, anatomy	2 spot full, mucosal
RAO PRONE – 2-3 Gulps	Esophageal distensibility, motility	1 spot distended
RAO PRONE – Stomach/Outlet	Gastric motility, emptying	1 spot with wave
LPO Supine/Supine – 1-2 swallows	GE Junction position/function	1 spot junction
PA UPRIGHT – 1 swallow	Swallow & Full length esophagus	1 spot GE jct prn
L LATERAL UPRIGHT – 1 swallow	Swallow & Full length esophagus	1 spot GE jct prn
30-60® LPO - 1-2 swallows (meat)	Esophagus/GE junction	1 spot prn
ADD/SUBTRACT/MODIFY FOR *EVERY* PATIENT		

Protocol for Pre-Op Esophagrams

Indications:

This examination is performed to evaluate pharyngeal and esophageal motility; for suspected or known mass and mucosal lesions; prior to planned foregut surgery such as a fundoplication.

Preparation:

- Nothing by mouth except water and oral medications after midnight or for 8 hours prior to examination.
- Patient to disrobe except for undergarments and change into hospital gown.

Supplies:	1 - 10 cc syringe 1 - K-50 extension tubing with distal (male end) 40 cm cut off 2 - 6.2 oz cup E-Z-Paque. Add water to the “45% w/w” mark. Shake to mix and add large plastic straw 1 - 12 oz cup E-Z-HD to which one measuring cup of water added (65cc). Shake to mix and add straw 1 packet of E-Z-Gas II in 1 oz medicine cup Esophotrast 1 - cooked hamburger patty or marshmallow
Scouts:	PA & Lateral AP Abdomen
Spot Films:	3 - 14x14

Patient:	Patient to disrobe except for undergarments and change into gown.

Examination:

Prone RAO Position:

- Give five separate 10 cc swallows of E-Z- Paque, using syringe and extension tubing, allowing 15 seconds between swallows, and following tail of bolus while recording. Instruct the patient to swallow the whole 10 cc at once and not to divide it up into several swallows. Ask that the patient now swallow between boluses.
- Record one swallow over G-E junction without panning.
- Have patient swallow several gulps of E-Z-Paque rapidly to distend esophagus. Obtain 3-on-1 non digital spots of the distal ¾ of esophagus during maximum distention. Be sure to include GE junction.
- Record activity of stomach and duodenum for 20 seconds in prone position (enough time to see an antral wave progress to pylorus).

Supine:

- Have patient swallow individual swallows of E-Z-Paque and record over distal esophagus at GE Junction. In straight AP or slightly LPO position (to optimally demonstrate position of GE junction with respect to diaphragmatic hiatus). Record one bolus at this location without panning.

Erect:

- Record swallows in lateral and AP position of oropharynx and upper esophagus using E-Z-HD (Do Not Pan!). In addition, obtain digital spots @ 4/seconds in AP and lateral position during a swallow.
- Obtain additional 3-on-1 non digital spots (14x14) with esophagus collapsed for mucosal detail after a swallow of E-Z-HD.
- Record images over GE junction in straight AP or slightly LPO position (to optimally demonstrate position of GE junction with respect to diaphragmatic hiatus) during 2 swallows of E-Z-HD. Make sure you record long enough to document both filling and emptying of distal esophagus/hiatal hernia. Do Not Pan.
- Give E-Z-Gas and water followed by two or more gulps of E-Z-HD. Rabidly obtain 3-on-1 non digital spots (14x14) of gas distended distal ¾ of esophagus in various positions.
- Obtain digital spots (15” mode) of stomach + DB in right lateral, prone AP, and prone RAO. Also, obtain digital spots (6” or 10” mode) of duodenum and stomach-air-contrast, full-column, and compression.
- In the erect position, record images of passage of two large esophotrast-coated hamburger boluses, panning from oropharynx to stomach. Record long enough to document clearance of hamburger from the esophagus. Ask patient to continue dry swallowing to clear any residual barium burger while recording the result.

*** Exam may need to be abbreviated in cases of severe achalasia, hypomotility, or other cases in which diagnosis is obvious or severe motility disorder limits passage of bolus.**

Format for Dictation of Video Esophagrams

Enclosed are examples of proper video esophagram dictations. Please review them. If you use the Esophagram Worksheet you will be able to follow the format more easily. The following format should be followed:

1. **Clinical History:** Take a history yourself and include a paragraph at the beginning to show that you understand why the exam is being requested.
2. **Preliminary film finding**
3. **Procedure:** Explain how the study was performed and what type of contrast and images were taken.
4. **Oral and pharyngeal phase:** Ventricular penetration, dilatation, webs, diverticula, cricopharyngeal bars?
5. **Esophageal body motility:** How many swallows were abnormal? How were they abnormal? What is the size of the esophageal body?
6. **Gastroesophageal junction:** Hiatal hernias? Rings? Strictures? Esophagitis or scarring?
7. **Gastric, duodenal and small bowel pathology:** Antral waves? Gastric emptying? Residual gastric fluid? Deformity from peptic disease? Previous surgery?
8. **Conclusion**

Definitions:

Diagnostic Swallow	Single complete swallow of bolus followed by no additional swallows. Tail of peristaltic wave visualized from pharynx to stomach fluoroscopically.
Normal Peristalsis	A progressive aboral stripping wave which traverses the entire esophagus resulting in complete clearance of barium.
Non-occlusive Peristalsis	A progressive aboral stripping wave which traverses the entire esophagus but fails to result in complete clearance of barium (see Stasis).
Failed Peristalsis	A stripping wave which begins at the pharyngoesophagela junction but fails to traverse the entire length of the esophagus.
Tertiary Contractions	Non-peristaltic contractions of the barium-filled esophagus.
Non-occlusive (non-segmental) tertiary contractions	Non-lumen obliterating non-peristaltic indentations along the barium-filled esophagus.
Occlusive (segmental) tertiary contractions	Lumen obliterating non-peristaltic indentations along the barium-filled esophagus.
Stasis (Liquid Bolus)	Residual bolus left in esophagus after passage of peristaltic wave. Small amount of barium delineating the longitudinal mucosal folds is normal. May be graded in the following manner: Grade I: Small collection of contrast only few cm in length. No esophageal dilitation. Grade II: Moderate collection of contrast occupying at least 1/3 length of esophagus. No esophageal dilitation. Grade III: Large amount of contrast occupying 1/3 or greater length of esophagus. Esophagus dilated.
Corkscrew or rosary bead tertiary contractions	Multiple simultaneous non-peristaltic contractions producing the appearance of a corkscrew or rosary beads. May be non-occlusive or occlusive, respectively.
Absent Motor Activity	No visible motor activity. Usually associated with marked esophageal dilitation.
Retrograde Peristalsis	Orad peristaltic wave.
Piecemeal Swallowing	During the 10 cc liquid bolus swallows, an involuntary response, characterized by repetitive swallowing of small amounts of bolus. Commonly seen in presence of abnormal motility.

Esophagram Worksheet

Patient:		**Primary Sx:**	
MR#		**Secondary Sx:**	
Date:		**Radiologist:**	

Pharynx:			
Aspiration/Laryngeal penetration	□ No	□ Yes:	
Stasis in recesses	□ No	□ Yes:	
Pharyngeal pouches	□ No	□ Yes:	
Pharyngeal dilitation	□ No	□ Yes:	
Zenkers's diverticulum	□ No	□ Yes:	
Webs	□ No	□ Yes:	
Other:			
Cricopharyngeus: % diameter narrowing of distended pharynx			
Max diameter of esophageal body below aortic arch on full-column films =		X 0.8 =	mm

Esophageal Body- Liquid Bolus:								Diagnostic Swallow?*
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Swallow #**
								Normal peristaltic wave*
								Non-occlusive peristalsis*
								Failed peristalsis*
								Non-segmental tertiary contractions*
								Segmental tertiary contractions*
								Grade of stasis*
								Piecemeal swallowing *
								Absent motor activity*

1 = proximal 1/3 (above transverse aorta); **2** = middle 1/3; **3** = distal 1/3

Questions:			
Is the esophagus collapsed on "mucosal relief" films?	□ Not Done	□ Yes	□ No
Is the esophagus distended on "air-contrast" films?	□ Not Done	□ Yes	□ No

Solid Bolus: □ **Not Done**

					Diagnostic Swallow?
1	**2**	**3**	**4**	**5**	**Swallow #**
					Normal transport

					Stasis in body of esophagus
					“free fall”
					Stasis in hernia sac

Associated Abnormalities:

Hiatal Hernia: □ Yes □ No

Type: I II III

Size: □ GEJ above hiatus _____ cm

Reducible: □ Yes □ No (partial complete)

Mucosal Abnormalities:

Esophagitis: □ Yes □ No _____

Scarring: □ Yes □ No _____

Narrowing: □ Yes □ No

#1 Diameter: _____ X 1.08 = _____ mm

Length: _____ X 1.08 = _____ mm

Location: 1 2 3 GEJ

Description: _____

#2 Diameter: _____ X 1.08 = _____ mm

Length: _____ X 1.08 = _____ mm

Location: 1 2 3 GEJ

Description: _____

Gastric Motility:

Antral waves present:

Residual fluid in stomach:

Duodenum and Small Bowel: _____

Comments and Conclusions: _____

_____

_____

_____