

The Use of Endoscopic Ultrasound in Gastric Cancer

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Upper GI & Hepatobiliary Cancer Update
October 23, 2010

Objectives

- ▶ To understand the use of EUS in staging of gastric cancer
 - ▶ To understand the use of EUS in the diagnosis of gastrointestinal stromal tumors
 - ▶ To review gastric cancer screening
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Gastric adenocarcinoma



Gastric cancer

Staging

- ▶ T stage
 - EUS is the most accurate imaging modality in determining tumor depth
 - Accuracy is over 90% for experienced operators
 - But typically does not change management decisions
 - Usefulness in determining candidates with early T1 lesions for endoscopic resection? ¹
- ▶ EUS nodal staging is similar to CT scan
 - Addition of FNA will change management in 15% ²
 - Beware false positive FNA – luminal fluid cytology positive in 48% gastric cancers ³

1) Choi Endo 2010

2) Hassan GIE 2010

3) Levy AJG 2010

Gastric cancer

Staging

- ▶ Metastatic disease
 - Celiac nodes in GE junction cancers
 - Malignant ascites
 - Left lobe liver lesions
 - Limited due to depth of penetration

EUS in Gastric Cancer

Summary

- ▶ EUS FNA may be helpful in distinguishing a malignant from benign ulcer
 - ▶ EUS staging does not impact management decisions in most patients with gastric cancer
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GIST



EUS for GISTs

- ▶ Hypoechoic lesion (usually) arising from the muscularis mucosa or propria of the stomach or duodenum
- ▶ All GISTs have metastatic potential
 - Important to distinguish from other mesenchymal tumors which are benign and rarely undergo malignant transformation
- ▶ EUS features associated with malignancy:
 - > 3 cm in size
 - Irregular extraluminal border
 - Echogenic foci
 - Cystic spaces
 - Enlarged lymph nodes
- ▶ FNA and/or core biopsy can be performed at the time of EUS

GIST

Diagnosis

- ▶ Cytology – spindle or epithelioid cells
 - Does not differentiate between other mesenchymal tumors
- ▶ 95% are CD-117 positive
 - Antigen on the c-kit tyrosine kinase receptor

A CD-117 mesenchymal lesion = GIST

- ▶ Not all FNA specimens contain enough cells to perform immunohistochemical staining

GIST

Diagnosis

Hoda et al GIE 2009

- ▶ Retrospective study of 112 patients with MP lesions undergoing EUS FNA
 - FNA diagnostic (cytology + staining) 62%
 - FNA suspicious (cytology +, staining not done) 22%
 - FNA non-diagnostic 16%
- ▶ 31% GIST (27% leiomyomas)
- ▶ 13% Trucut biopsy diagnostic in 50%
- ▶ Histology was not gold standard

GIST

Diagnosis

Sepes et al GIE 2009

- ▶ Retrospective study of 37 patients with c-kit positive tumors resected who had undergone EUS FNA
 - ▶ Sensitivity of EUS FNA 78% = spindle cells
 - ▶ FNA diagnostic 100% when cytologist present (vs 73%)
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GIST

Diagnosis

Fernandez et al Endoscopy 2010

- ▶ 40 patients with 4th layer lesions randomized to FNA or Trucut biopsy
- ▶ No difference in diagnostic yield
 - Due to high rate of technical failure of Trucut
- ▶ FNA: 70% diagnostic cytology, 52% diagnostic staining
- ▶ Trucut: 64% diagnostic cytology, 55% diagnostic staining

GIST

Diagnosis

- ▶ EUS FNA can distinguish mesenchymal from non-mesenchymal in 70–80%
 - ▶ EUS FNA can distinguish GIST from other mesenchymal tumors in 50–60%
 - ▶ Improvements in core biopsy needle performance will increase the diagnostic yield
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GIST

Management

- ▶ If FNA is diagnostic of a GIST, do all need resection?
- ▶ If FNA is non-diagnostic, do all 4th layer lesions need resection for diagnosis/management?

GIST

Surveillance

Surveillance

- ▶ Frequently used in practice for “low risk lesions” based on size < 2 or 3 cm
- ▶ Poor surgical candidates
- ▶ Asymptomatic

- ▶ Yearly interval

Gill et al JCG 2009

- 51 asymptomatic patients with < 3cm 2nd and 4th layer lesions
- Followed for median 24 months
- 14% patients had increased size of tumors

Gastric cancer screening



Gastric Cancer Screening

- ▶ Population-based screening underway in countries with a high incidence of gastric cancer
- ▶ In North America, screening is indicated for individuals at higher risk
 - EGD is the recommended screening test
 - H. pylori eradication
- ▶ No recommendations on appropriate age range for screening or intervals

High-risk for gastric cancer

- ▶ Familial adenomatous polyposis
 - ▶ HNPCC
 - ▶ Family history of gastric cancer
 - 1st degree relative
 - ▶ Partial gastrectomy
 - ▶ Pernicious anemia
 - ▶ Sporadic gastric adenoma
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Thank you

