

# When, how, where, how many biopsies should we take during upper endoscopy?

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**BSGIE Annual Meeting 30-1-2010:**

**A walk through the gastrointestinal  
tract**

I. Demedts

# Why biopsy?

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- ✦ **Characterisation /differentiation of visible process**
  - ✦ Mass
  - ✦ Erosions (viral, IBD)
- ✦ **Detection of invisible/subtle pathologies causing symptoms**
  - ✦ Dysphagia: eosinophilic esophagitis
  - ✦ Dyspepsia: HP
- ✦ **Screening/surveillance**
  - ✦ HP in peptic ulcer disease
  - ✦ Dysplasia in Barrett

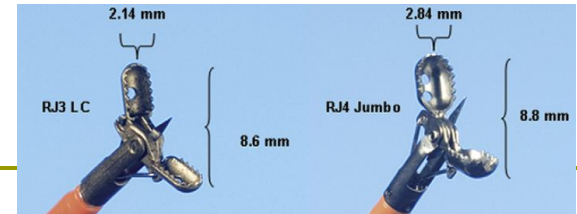
# When

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- ✦ **If indicated, biopsies should be taken**
- ✦ **Biopsy is NOT contra-indicated**
  - ✦ Under aspirin, dipyridamole, NSAID
  - ✦ Under ticlopidine, clopidogrel
  - ✦ Under LMW-heparin
  - ✦ Under coumarines, if  $INR \leq 2,5$

# How: forceps

## Size may matter



## Does size matter?

### Jumbo size vs Standard size

Prospective study; 32 patients BE, 712 biopsies: *Komanduri et al, GI Endosc 2009*

5/6 dysplasia only with jumboforceps

Adequate samples in 16% of standard vs 79% of jumbo

BUT: Adequate = depth, muscularis mucosae, non significant trend for jumbo

= absence of crush artefact (in all biopsies)

= good fixation (in all biopsies)

Retrospective study; 28 patients BE-HGD: *Falk et al, GI Endosc 1999*

Missed carcinoma's 4/12 (33%) jumbo vs 6/16 (38%) standard:  
NS

### Small size vs Standard size

Prospective study; *Walter et al, J Clin Gastroenterol 2010*

300 consecutive patients: 109 small size vs 191 normal size

Smaller biopsies with small size forceps

No significant difference in depth: full mucosal thickness in 68% small size, in 71-84% standard size

No significant difference in rate of definitive histologic diagnosis

# How: forceps

Type does not matter (much)

## ✦ Does type matter?

### ✦ 6 different types Woods et Al, GI Endosc 1999

- ✦ Prospective study
- ✦ Sample depth: better if alligator-shape, no spike
- ✦ Adequacy for histologic diagnosis: no significant difference



### ✦ Needle or no needle? Abudayyeh et al, Dig Liv Dis 2009

- ✦ Prospective study, 3 needle forceps, 1 no needle, 191 biopsies
- ✦ 13% (needle) vs 2% (no needle) specimens  $\geq 3$  pieces ( $p < 0,05$ )
- ✦ No significant difference in sample depth
- ✦ No significant difference in adequacy for interpretation: 81-85% (needle) vs 96% (no needle)

# How: technique

2 bites is OK, unless sample is important

## ✦ 1 vs 2 bites per passage?

*Padda et al, GI Endosc 2003*

✦ Prospective study, 16 patients, 288 biopsies

✦ Missing samples:

✦ more in 2-bite (18% vs 2%)

✦ more first sample (25%) than second (12%)

✦ more in no-needle forceps (28% vs 13%)

✦ Histopathologic evaluation (adequacy, depth, integrity):

✦ no difference 2- vs. 1-bite

✦ no difference needle vs. no needle

# How many?

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## ✦ **Tumor** *Graham et al, Gastroenterology 1982*

✦ Prospective study, 47 carcinoma's in 202 patients

✦ correct diagnosis

✦ 1 biopsy: 70% gastric Ca; 93% esophageal Ca

✦ 4 biopsies: >95%

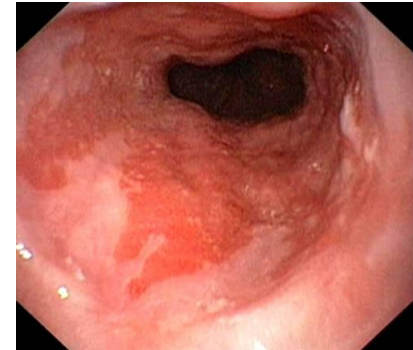
✦ 7 biopsies: 98%

# Where: esophagus

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## ✦ **Barrett's esophagus: always biopsy**

- ✦ Seattle protocol
  - ✦ 4 quadrant biopsies every 2 cm +
  - ✦ every visible mucosal abnormality
- ✦ No dysplasia: 1y-1y-3y



## ✦ **GERD: biopsy if**

- ✦ immunocompromised patient
- ✦ proximal distribution of esophagitis
- ✦ irregular/deep ulceration
- ✦ irregular or malignant-appearing stricture
- ✦ mass lesion or nodularity

## ✦ **Eosinophilic esophagitis:**

- ✦ 4 quadrant biopsies in lower-, mid-, upper-third



# Where: stomach

## ✦ Ulcer: always biopsy

- ✦ Biopsies in edge of each quadrant + ulcer base

## ✦ H pylori:

- ✦ Biopsy if:
  - gastric cancer

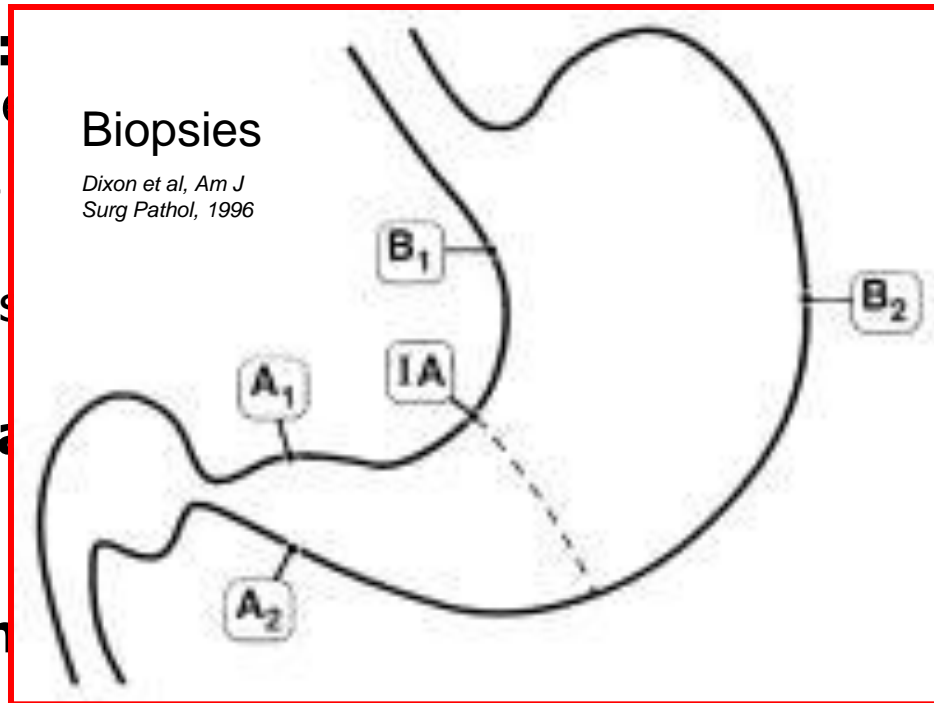
### ✦ Where: 1

- ✦ Antral
- ✦ Corpus
- ✦ Antral

### ✦ False - (a

- ✦ Atrophy, angulus

### ✦ How man



...sepsia, early

...Am L Gastroenterol 1997

B, bismuth

: maximal at

Pathology	Diagnoses	Diagnoses	Sensitivity	Negative PV	Accuracy	Diagnoses	Sensitivity	Negative PV	Accuracy
H. pylori	205	205	100	100	100	203	99	94	99
Atrophy	152	146	96	93	97	125	82	76	88
Metaplasia	135	129	95	94	97	111	82	81	89
Dysplasia	22	21	95	99	99	18	81	98	98

+ 5%

✦ 15%

# Where: duodenum

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## ✦ Celiac disease:

### ✦ Multiple ( $\geq 3$ ) biopsies, distal from bulb

*Mee et al, Br Med*

*J 1985; Olds et al, GI End 2002*

### ✦ Duodenal biopsies

✦ 112 children, serology+, biopsies D1,D2,D3+Treitz *Ravelli et al, Gastroenterol 2005*

✦ No duodenal part is histologically normal

✦ 85% villusatrophy, total villusatrophy more frequent D3+Treitz

✦ 23 celiac, villusatrophy on endoscopic image+biopsy *Cellier et al, GI Endosc 1999*

✦ 19/23: duodenum = jejunum

✦ 4/23: duodenum > jejunum



# Biopsies

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**Questions?**