How to report Barrett’s esophagus?

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Introduction

• Barrett’s esophagus
  – is an acquired condition resulting from chronic gastro-esophageal reflux
  – characterised by the displacement of the squamocolumnar junction proximal to the gastroesophageal junction
    • with the presence of intestinal metaplasia (everybody)
    • which is visible macroscopically (BSG) : no SIM required

Sharma et al Gastroenterology 2004; 127: 310–330
Introduction

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  – is an acquired condition resulting from chronic gastro-esophageal reflux
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First step in diagnosis is endoscopic identification of a columnar lined esophagus to take a biopsy to confirm columnar lined esophagus (CLE) or specialized intestinal metaplasia (SIM)
Example 1
Example 1

This is a Barrett’s Esophagus

1. Yes

2. No
Example 1

A biopsy should be taken

1. Yes
2. No
Example 1

I believe that the biopsy will contain SIM

1. Yes

2. No
Example 2

Who thinks this is a Barrett’s Esophagus?

1. Yes

2. No
Example 2

How long is this Barrett?
1. >2 cm
2. <2 cm
Example 2

I would take a biopsy?

1. Yes
2. No
Example 2

Was there SIM in the biopsy? YES!
How to report Barrett endoscopically
Prague classification

Developed by the Barrett’s Oesophagus Subgroup of the International Working Group for the Classification of Reflux Oesophagitis (IWGCO)
Prague classification

Ensure Hiatus Hernia Is Recognised By Distinguishing Diaphragmatic Hiatal Impression From Gastroesophageal Junction

Developed by the Barrett’s Oesophagus Subgroup of the International Working Group for the Classification of Reflux Oesophagitis (IWGCO)
Step 1:
recognize hiatal hernia
Prague classification: Step 2

1. Ensure Hiatus Hernia is recognised by distinguishing diaphragmatic hiatal impression from gastroesophageal junction.

2. Locate gastroesophageal junction by depth of endoscope insertion at level of:
   - tops of gastric mucosal folds
   - sphincter “pinch”

3. Look for displacement of squamocolumnar junction above gastroesophageal junction.

4. Measure depth of endoscope insertion at the most proximal circumferential extent of suspected columnar metaplasia:
   - 33 cm

5. Measure depth of endoscope insertion at the maximum extent of suspected columnar metaplasia:
   - 29 cm

6. Subtract the depth of insertion for circumferential and maximum extents from the depth of endoscope insertion at the gastroesophageal junction:
   - 36 cm - 29 cm = 7 cm
   - 36 cm - 33 cm = 3 cm

Prague C3 and M7

Developed by the Barrett’s Oesophagus Subgroup of the International Working Group for the Classification of Reflux Oesophagitis (IWGCO)
How to determine GEJ?

Anatomically the GEJ is defined as the level of the Angle of His.

This corresponds best with endoscopically defined top of gastric folds.

The difference between GEJ and endoscopic junction was < 5 mm.
Prague classification: step 3

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   - :36 cm - 33 cm = C3
   - :36 cm - 29 cm = M7
   - Prague C3 and M7

Developed by the Barrett’s Oesophagus Subgroup of the International Working Group for the Classification of Reflux Oesophagitis (IWGCO)
Prague classification: step 3
What is a regular Z-line

• Savary and Miller: “It is serrated and shows 4 to 6 small, long or short tongues toward the esophagus.”

• DeNardi and Riddell: “The Z-line consists of small projections of red gastric epithelium, up to 5 mm long and 3 mm wide, extending upward into the pink-white squamous epithelium”

What is a regular Z-line

ZAP grade 0.
The Z-line is sharp and circular. The Z-line may be wave-like, due to the mucosal folds, but no tongues or islands of columnar epithelium is allowed in the esophagus.

ZAP grade I.
The Z-line is irregular and shows tongue-like protrusions (filled arrows) and an island (open arrow) of columnar epithelium.

Wallner et al GIE 2002;55:65-9.)
What is a regular Z-line

Table 2. $\kappa$ values among the observers

<table>
<thead>
<tr>
<th></th>
<th>Median $\kappa$ value</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interobserver reproducibility</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All obs (n = 10)</td>
<td>0.73</td>
<td>0.54-1.0</td>
</tr>
<tr>
<td>Obs without experience of the ZAP classification (n = 7)</td>
<td>0.73</td>
<td>0.55-1.0</td>
</tr>
<tr>
<td>Obs who had performed more than 3000 endoscopies (n = 6)</td>
<td>0.73</td>
<td>0.54-0.97</td>
</tr>
<tr>
<td>Obs who had performed less than 3000 endoscopies (n = 4)</td>
<td>0.77</td>
<td>0.55-1.0</td>
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<tr>
<td>Obs who had performed less than 500 endoscopies (n = 3)</td>
<td>0.72</td>
<td>0.55-0.82</td>
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<tr>
<td><strong>Intraobserver reproducibility</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All obs</td>
<td>0.90</td>
<td>0.72-1.0</td>
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<tr>
<td>Obs without experience of the ZAP classification (n = 7)</td>
<td>0.81</td>
<td>0.72-1.0</td>
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<tr>
<td>Obs who had performed more than 3000 endoscopies (n = 6)</td>
<td>0.86</td>
<td>0.72-1.0</td>
</tr>
<tr>
<td>Obs who had performed less than 3000 endoscopies (n = 4)</td>
<td>0.90</td>
<td>0.73-1.0</td>
</tr>
<tr>
<td>Obs who had performed less than 500 endoscopies (n = 3)</td>
<td>0.85</td>
<td>0.73-1.0</td>
</tr>
</tbody>
</table>

$\kappa$, Observers.

tongue is clearly shorter than the

height.

Wallner et al GIE 2002;55:65-9.)
What is the prevalence of SIM at the GEJ?

• Retrospective analyses of 2000 gastroscopies
  – 166 identified with “irregular Z-line”
  – No previous diagnosis of Barrett
• 43.5% of these had specialized intestinal metaplasia
  – Risk factors: male, hiatal hernia

Dickman et al Eur J Gastro Hep 2010;22:135
ProGERD study

• PROGERD trial: endoscopic and symptomatic follow-up of 6215 GERD and NERD patients

• Subgroup analysis of patients without visible Barrett but SIM +.

• Biopsies were taken under Z-line and at 2 cm to distinguish also histologically if there was Barrett or not.

ProGERD study

Baseline 171 (3%) patients with SIM without BE

125 follow-up at 2 year and 68 at 5 year

ProGERD study

• Risk factors for progression
  – All patients had esophagitis at baseline, so none of the NERDs progressed
  – Multivariate analysis:
    • Smoking
    • Long history of GERD (> 5 years)
    • Severe esophagitis
  – Male (13.9%) more than women (7.9%)

Prague classification: Step 4

Developed by the Barrett’s Oesophagus Subgroup of the International Working Group for the Classification of Reflux Oesophagitis (IWGCO)
Step 4: determine C

GEJ 40 cm
C = 39 cm
Prague classification: step 5

Measure depth of endoscope insertion at the maximum extent of suspected columnar metaplasia.
Step 5: determine M

GEJ 40 cm
C = 39 cm
M = 36 cm
Prague classification: step 6

Subtract the depth of insertion for circumferential and maximum extents from the depth of Endoscope insertion at the Gastroesophageal Junction.
Step 6: calculate CM

GEJ 40 cm
C = 39 cm
M = 36 cm
C1
Step 6: calculate CM

GEJ 40 cm
C = 39 cm
M = 36 cm
C1 M4
How to take biopsies and report on them?
Where to look and how?

• Depends on the patient setting
  – No known dysplasia
    • Use high definition endoscopy
    • LOOK FIRST BEFORE TAKING BIOPSIES
    • Currently, no technique can substitute the Seattle protocol !!
  – In case of previous dysplasia
    • Advanced imaging can help to localize lesions
Barrett screening

USE YOUR BEST AVAILABLE ENDOSCOPE

Fiberoptic

Standard high resolution endoscope

High definition endoscope

Courtesy Dr Bergman
Where is the cancer?
INSPECT BEFORE TAKING BIOSPESIES
INSPECT PRIOR TO TAKING BIOPSIES

HD-endoscopy
INSPECT PRIOR TO TAKING BIOPSIES

HD-endoscopy
Retroflex !
Retroflex !
Where to look for cancer?
Where to look for cancer?

388 neoplastic lesions

How to take biopsies?

• Seattle protocol: AFTER inspection
  – First targeted biopsies of suspicious areas
    • Use Paris classification to describe the lesions
  – 4 quadrant biopsies each 2 cm
  – Preferably in different containers
How to report biopsies?

- Proposal for use of a standardized reporting system (xxyy)
  - $xx =$ distance from incisors
  - $yy =$ orientation circumferentially (clock system) (from 01-12)
  - $yy=00$ for random biopsies

![Lesser curvature of stomach](image)
How to report biopsies?

- C8M9 Barrett
- Lesion at 5 o’clock 32 cm from incisors
- IIb lesion at 3205
How to report biopsies?
How to report biopsies?
Summary

Lisbon Coding for BE biopsies
Random
E.g. : 3600 : random at 36 cm from incisors
Targeted biopsies:
E.g. : 3603 : biopsy taken at 36 cm from incisors at the 3 o’clock position
Conclusion

• Quality in reporting Barrett’s esophagus:
  – Using Prague classification
  – Pay attention to the identification of GEJ
  – Measure hiatal hernia
  – Measure C and M (islands do not count)

• Quality biopsies in Barrett’s esophagus
  – FIRST look and target biopsies
  – Seattle protocol
  – Mark different containers according to xxyy principle: Lisbon coding?