

Awareness ved gastroskopi September 2020

S. Meisner

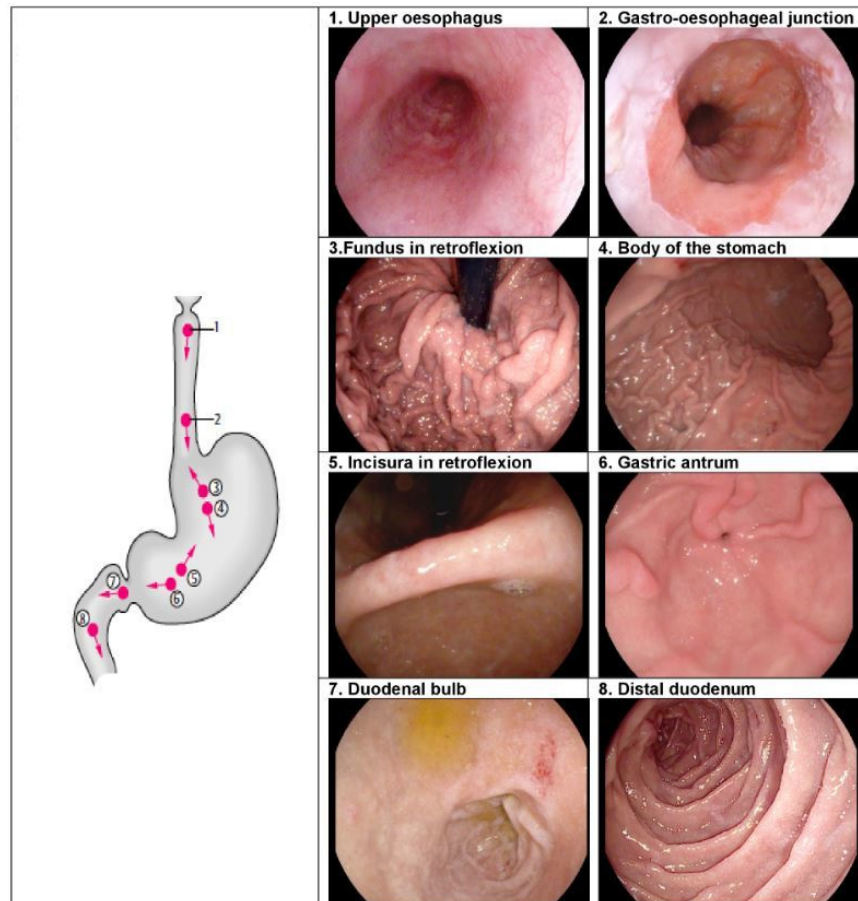
How...

- Adequate mucosal visualisation should be achieved by a combination of adequate air insufflation, aspiration and the use of mucosal cleansing techniques.
 - Mucosal cleansing can be made more convenient with the use of a pump-controlled water jet
 - The addition of mucolytic and defoaming agents such as simethicone, N-acetylcysteine or pronase enables the dispersion of bubbles and mucous.
 - Premedication with a swallowed mucolytic has been shown to reduce the need for washing during procedures and consequently procedure time is lower, appearing is improved to offer superior mucosal views.

- It is suggested that the inspection time during a diagnostic OGD should be recorded for surveillance procedures, such as Barrett's oesophagus and gastric atrophy/intestinal metaplasia surveillance
 - The procedure should take on average 7 min

How...

- Photo-documentation should be made of relevant anatomical landmarks and any detected lesions.



Detection and characterisation of neoplastic findings

- Barrett's oesophagus
 - Prague classification
 - BING classification (NBI classification of Barrett's epithelium)
 - Acetic acid – is it useful?
 - Where and how to biopsy?

Detection and characterisation of neoplastic findings

- SCC
 - Detection, delineation and characterisation of SCC
 - NBI background colour for SCC detection
 - IPCL classification
- Atrophic gastritis & intestinal metaplasia in the stomach
 - OLGA & OLGIM score system
 - How to MAP (biopsy) the stomach
- Early gastric cancer

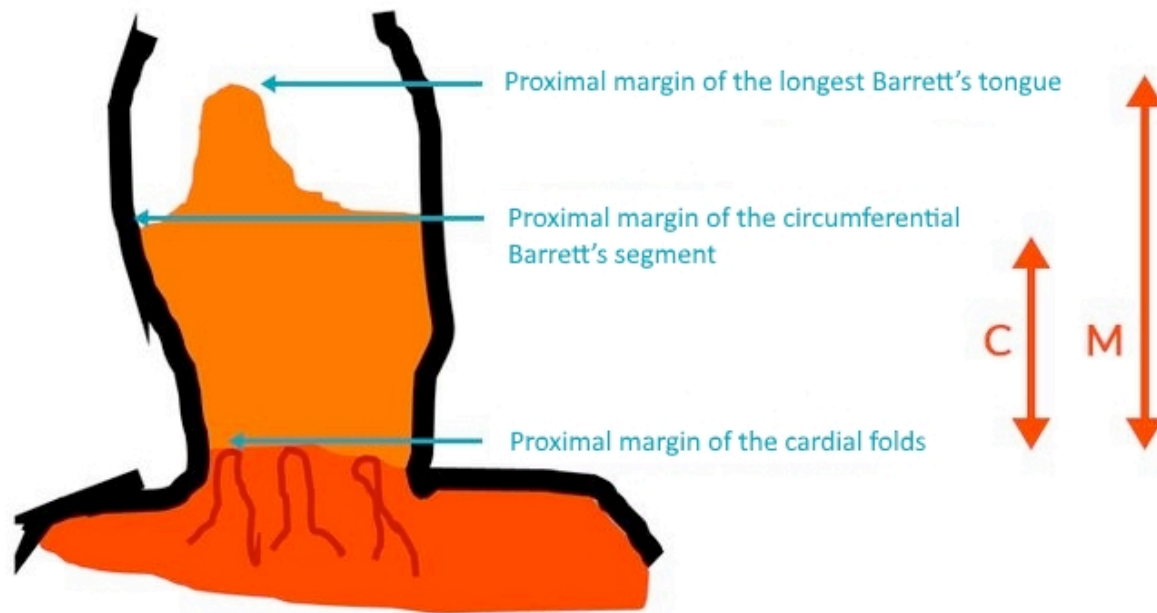
How to do a diagnostic oesophago-gastro-duodenoscopy?

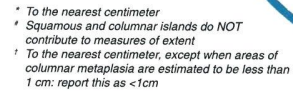
- What to look for?
- How to photo document the procedure (and findings)?

How...

- UGI endoscopy should be performed with high-definition video endoscopy systems, with the ability to capture images and take biopsies.
- A complete OGD should assess all relevant anatomical land-marks and high-risk stations.
 - upper oesophageal sphincter
 - include the upper oesophagus
 - gastro-oesophageal junction
 - fundus
 - gastric body
 - incisura,
 - antrum,
 - duodenal bulb and distal duodenum
 - fundus should be inspected by a J-manoeuve in all patients
 - with a hiatus hernia the diaphragmatic pinch should be inspected while in retroflexion

Barrett's oesophagus - Prague classification







BING classification (NBI classification of Barrett's epithelium)

Characterisation of Barretts tissue

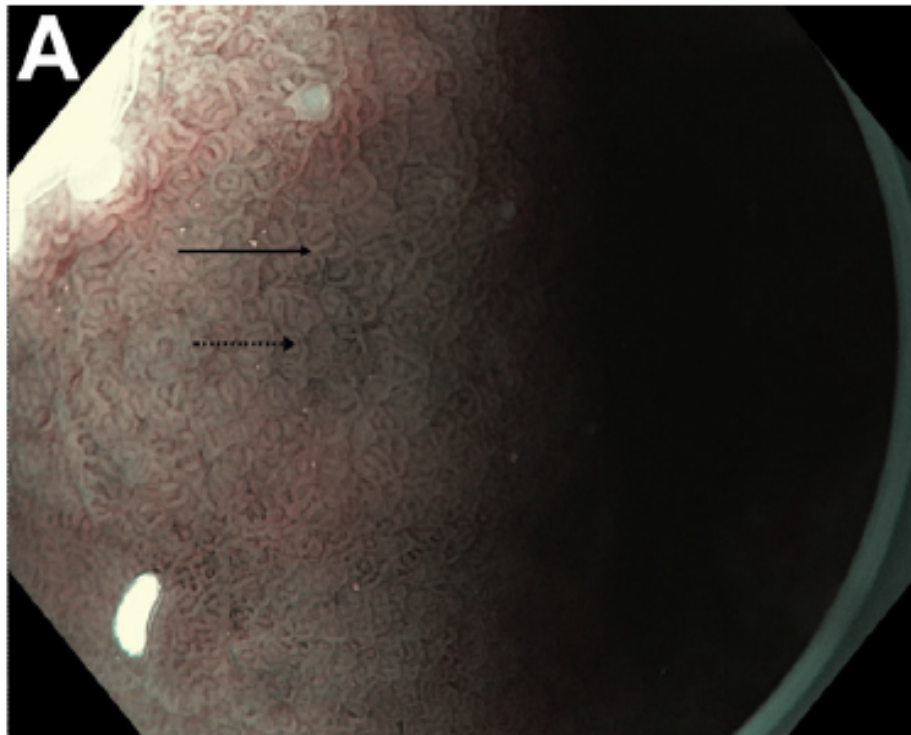
BING criteria

Diagnostic criteria for the identification of high-grade dysplasia and esophageal adenocarcinoma

Likely Diagnosis	Nondysplastic Barrett	Dysplastic Barrett
Mucosal pattern	Regular = Circular, ridge/villous or tubular patterns	Irregular = Absent or irregular
Vascular Pattern	Regular = Blood vessels regular along or between mucosal ridges and/or those showing normal, long, branching patterns	Irregular = Focally or diffusely distributed vessels not following normal architecture of the mucosa

Sharma et al. Gastroenterology 2016 Mar; 150(3):591-8

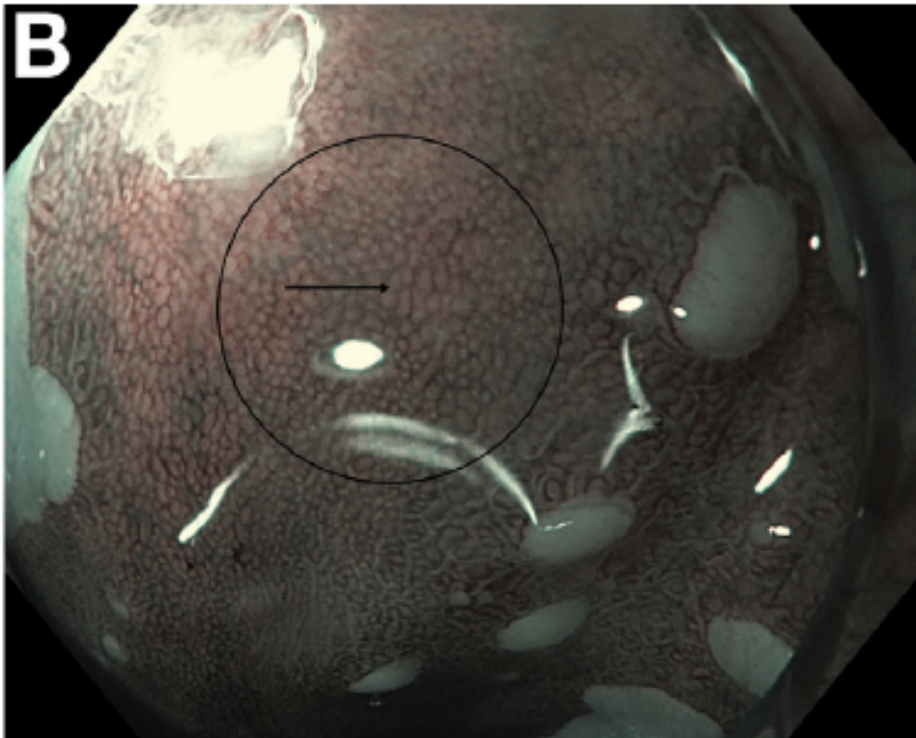
Non-dysplastic BE



Solid arrow indicates circular mucosal patterns that are arranged in orderly fashion.

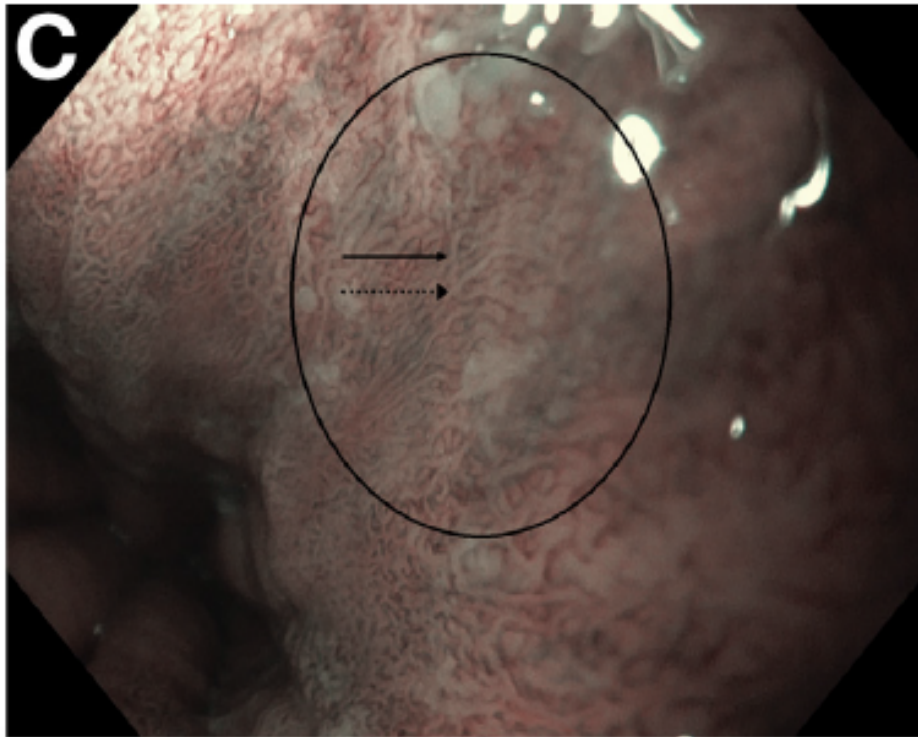
Dashed arrow indicates blood vessels clearly follow the mucosal architecture.

Non-dysplastic BE



Solid arrow indicates circular mucosal patterns arranged in orderly fashion and blood vessels following the architecture of mucosal ridges.

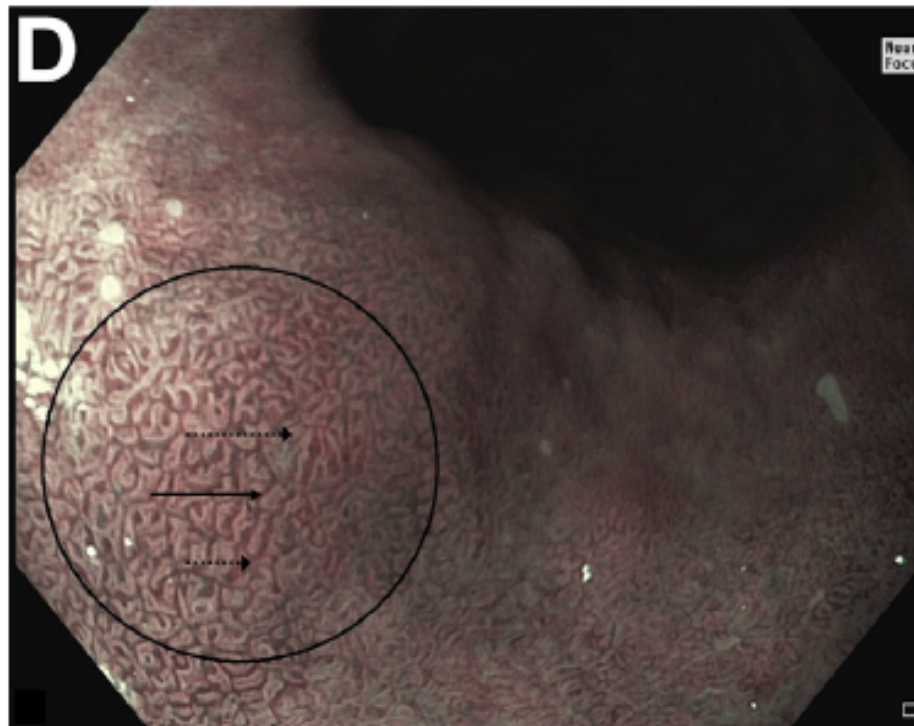
Non-dysplastic BE



Solid arrow indicates circular mucosal patterns arranged in orderly fashion.

Dashed arrow indicates blood vessels clearly following the architecture of the mucosal ridges.

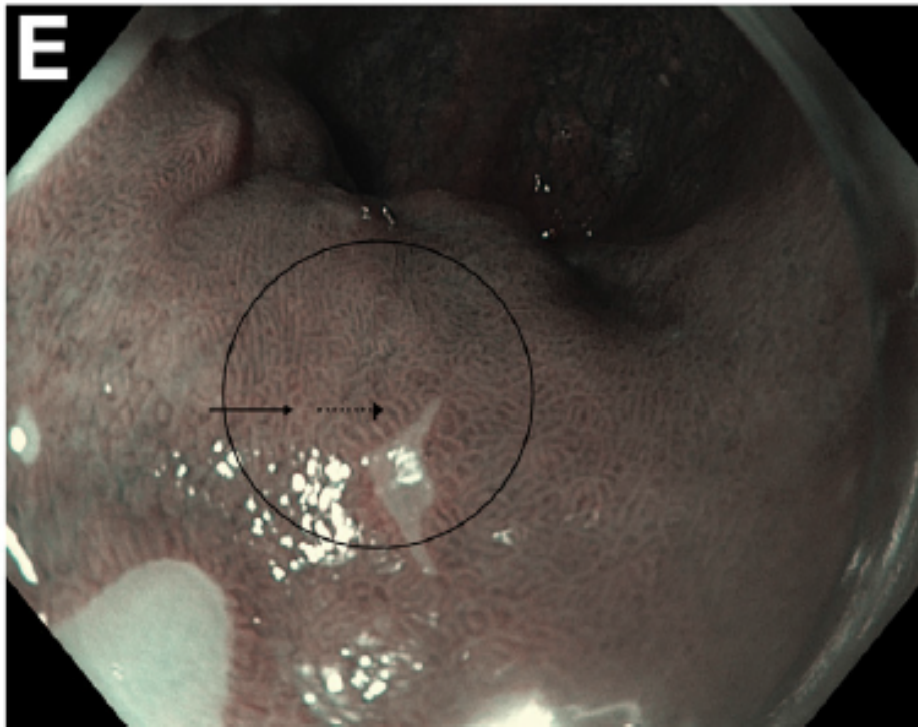
Non-dysplastic BE



Solid arrow indicates ridge/villous mucosal patterns that are arranged in an orderly fashion.

Dashed arrows indicate blood vessels that are arranged in regular fashion between mucosal ridges.

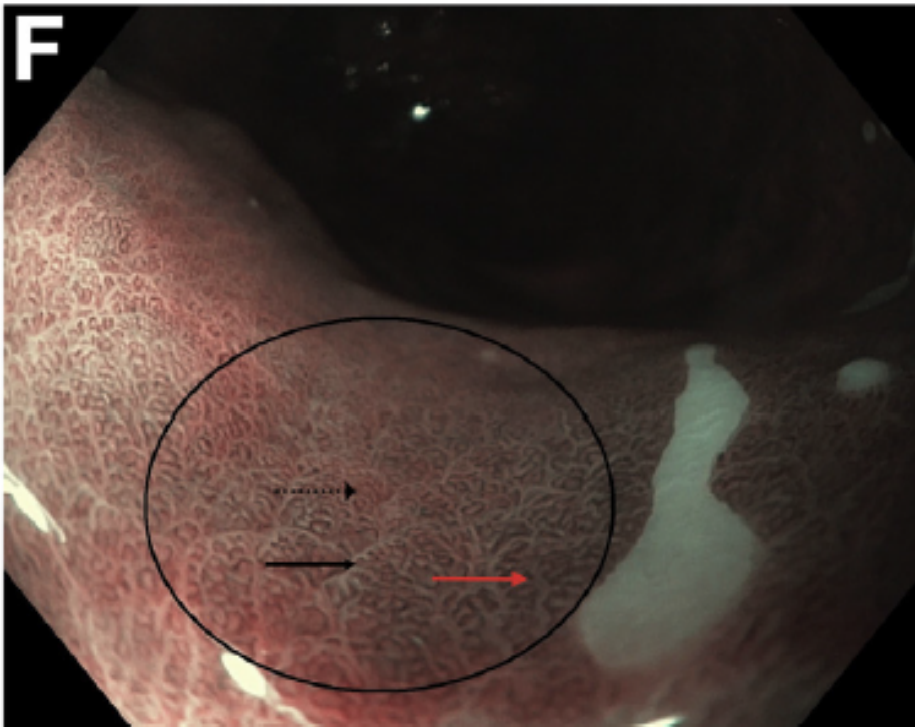
Non-dysplastic BE



Solid arrow indicates circular mucosal patterns arranged in orderly fashion.

Dashed arrows indicate blood vessels that follow the architecture of the mucosa.

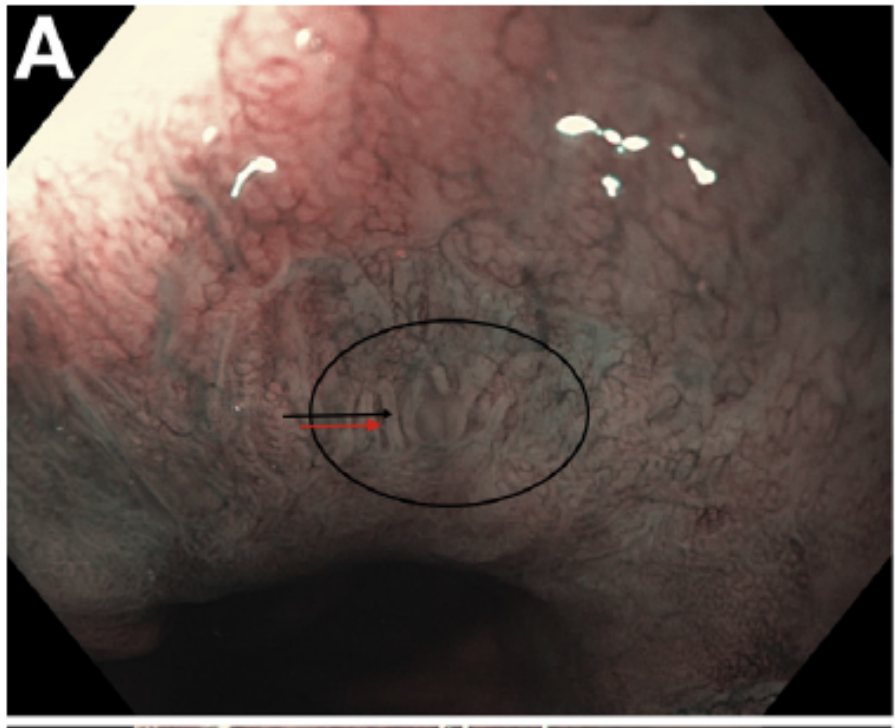
Non-dysplastic BE



Solid black arrow indicates circular and ridge/villous (red arrow) mucosal patterns arranged in orderly fashion.

Dashed arrows indicate blood vessels that follow the mucosal ridge architecture.

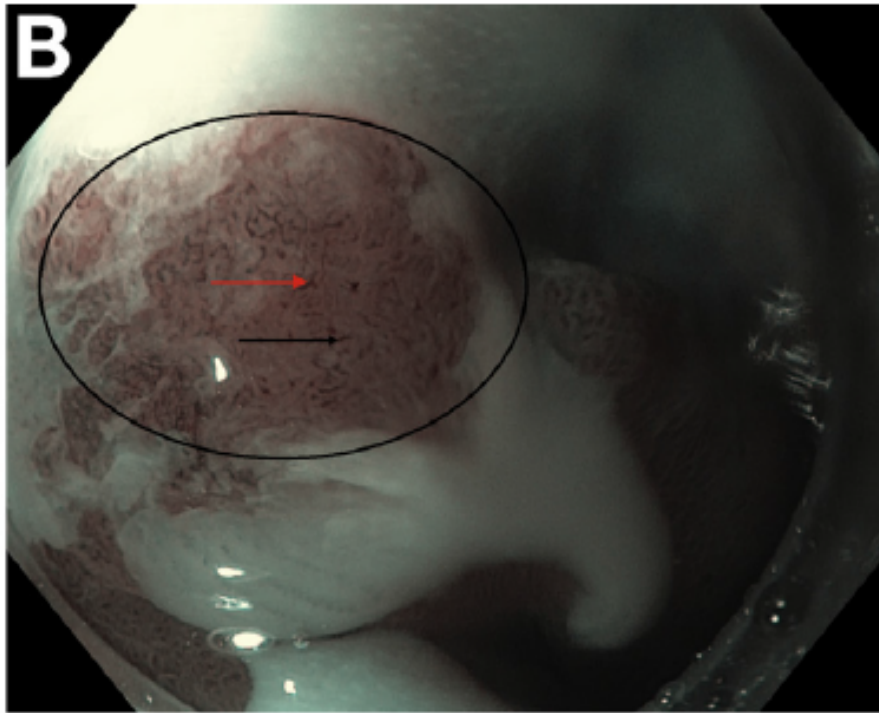
Dysplastic BE



Solid black arrow indicates irregular mucosal patterns

Red solid arrow indicates irregular vascular patterns.

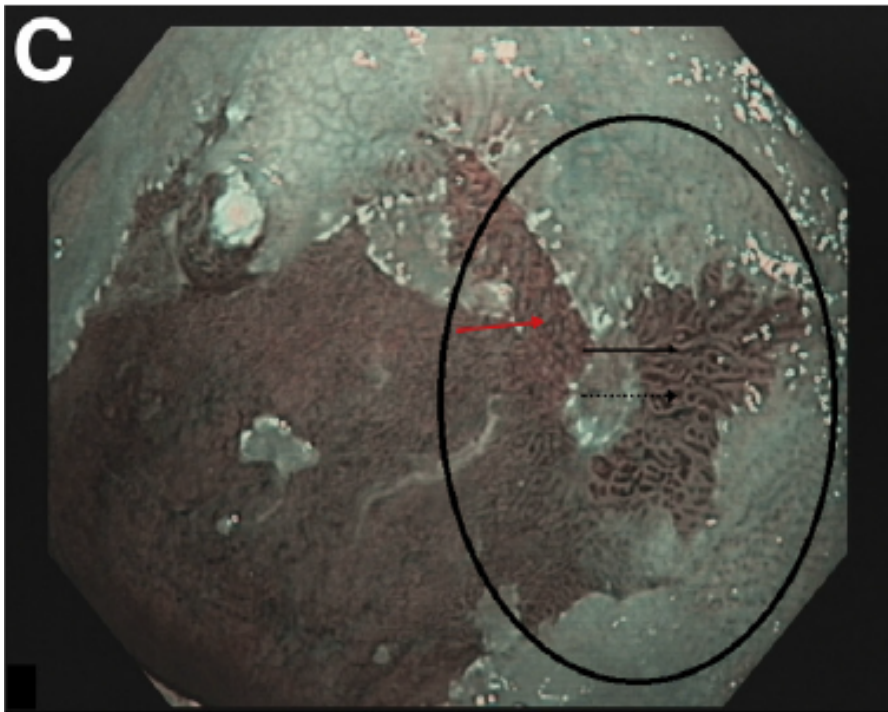
Dysplastic BE



Solid black arrow indicates irregular mucosal patterns

Red solid arrow indicates irregular vascular patterns. Vessels do not follow the normal architecture of the mucosa.

Dysplastic BE

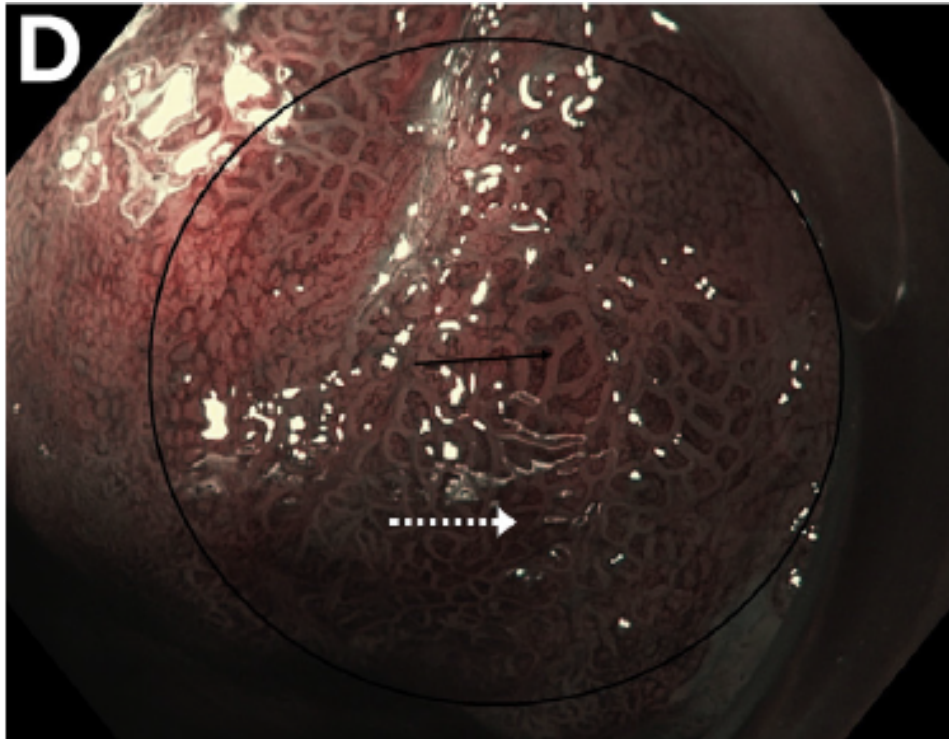


Solid black arrow indicates irregular mucosal patterns.

The dashed black arrow indicates irregular vascular patterns.

The red solid arrow however shows area where vessels are regular following the normal architecture of the mucosa.

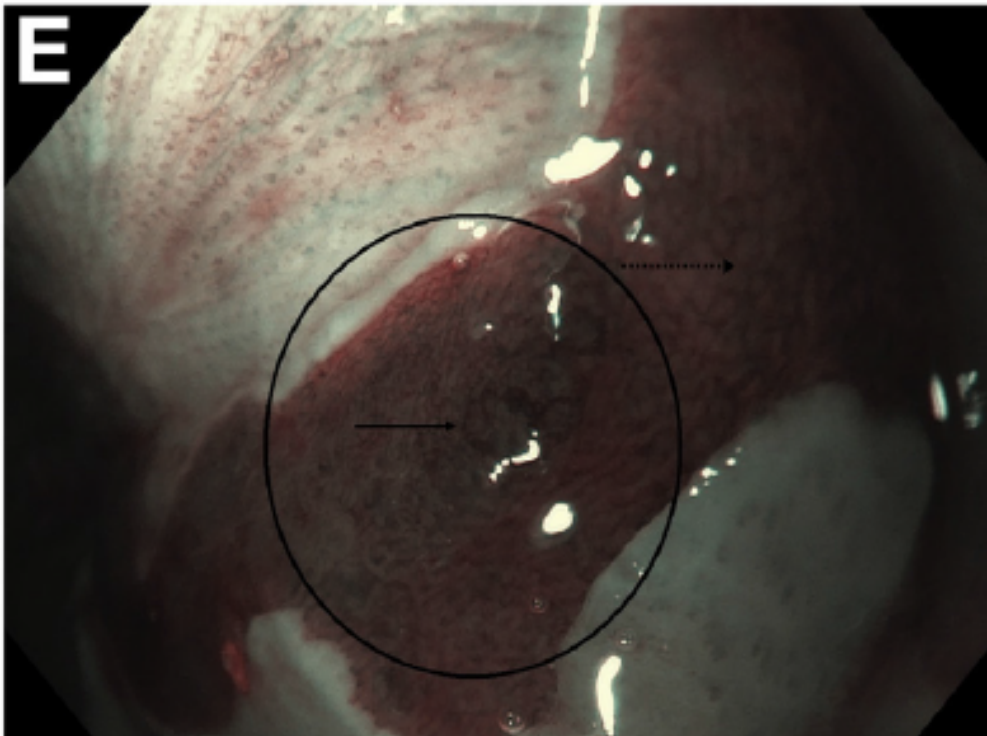
Dysplastic BE



The dashed arrow indicates irregular mucosal and irregular vascular patterns.

The focally or diffusely distributed vessels do not follow the normal architecture of the mucosa.

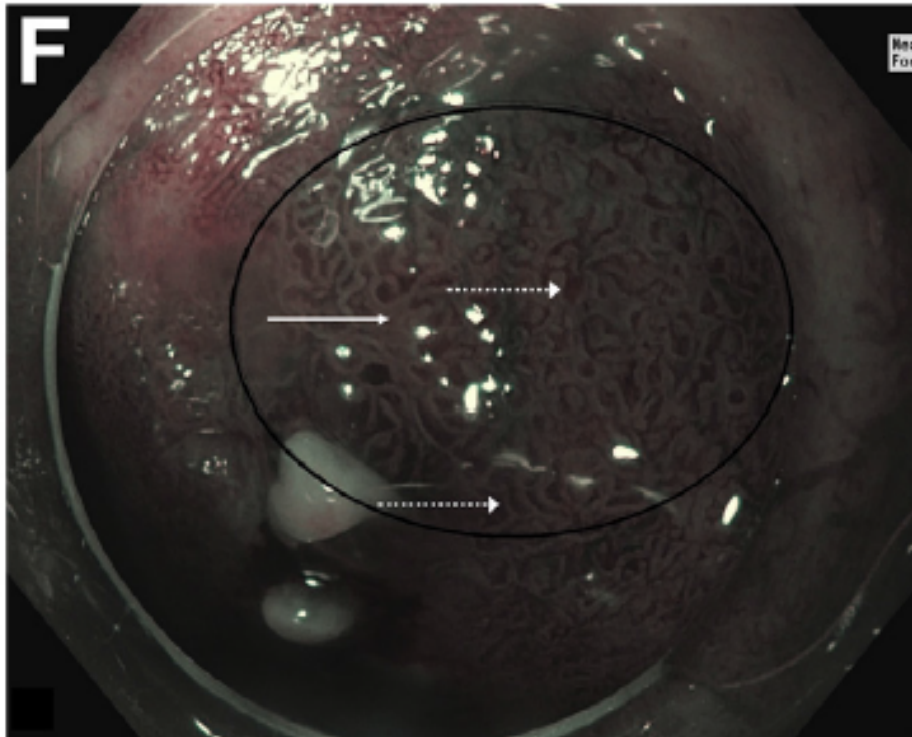
Dysplastic BE



The solid arrow indicates irregular mucosal and vascular patterns.

The dashed arrow indicates regularly arranged mucosal and vascular patterns.

Dysplastic BE



The solid arrow indicates irregular mucosal patterns.

The dashed arrow indicates irregular vascular patterns.



Barrett's esophagus: Acetic acid chromoendoscopy – is it useful?

Acetic acid chromoendoscopy

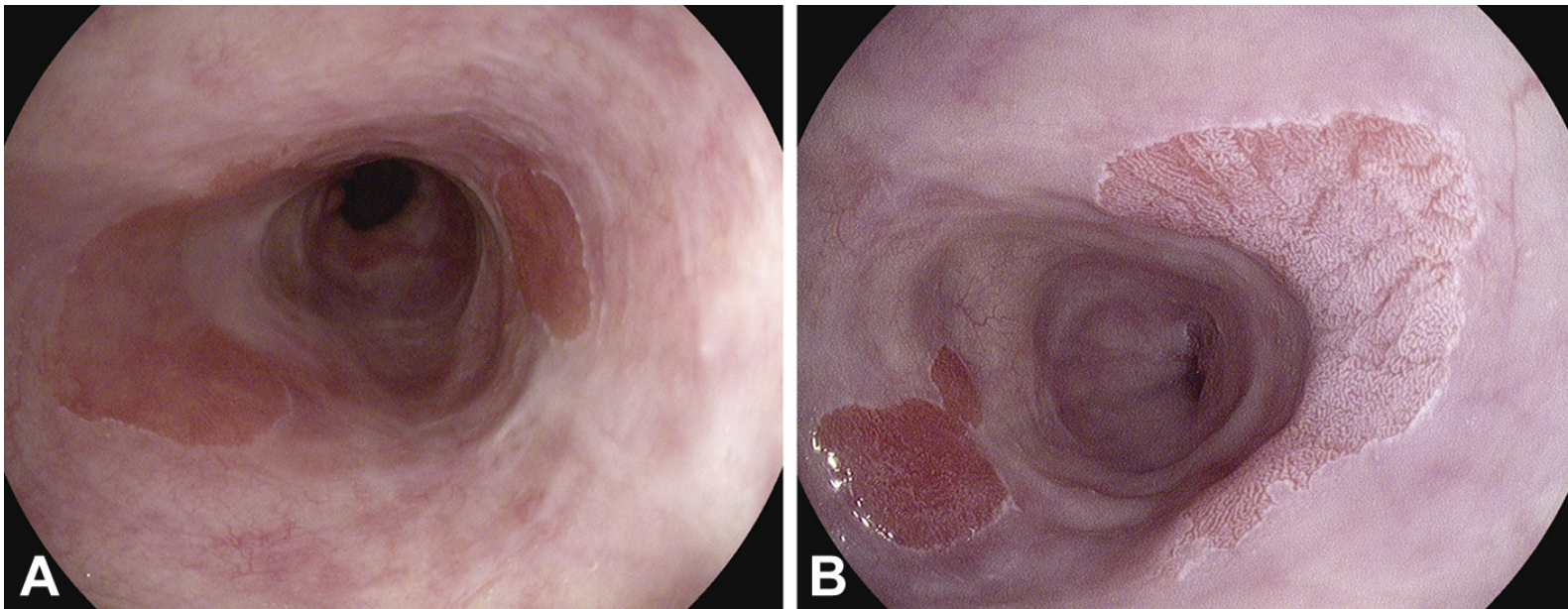
- 2.5% of acetic acid
- spray catheter
- The esophageal mucosa is sprayed with 5 to 10 ml acetic acid

- After the acetic acid spray, the following features is assessed endoscopically:
 - (1) surface pattern (regular, irregular)
 - (2) vascular pattern (regular or irregular)
 - (3) focal loss of **acetowhitening** reaction (normal or abnormal).

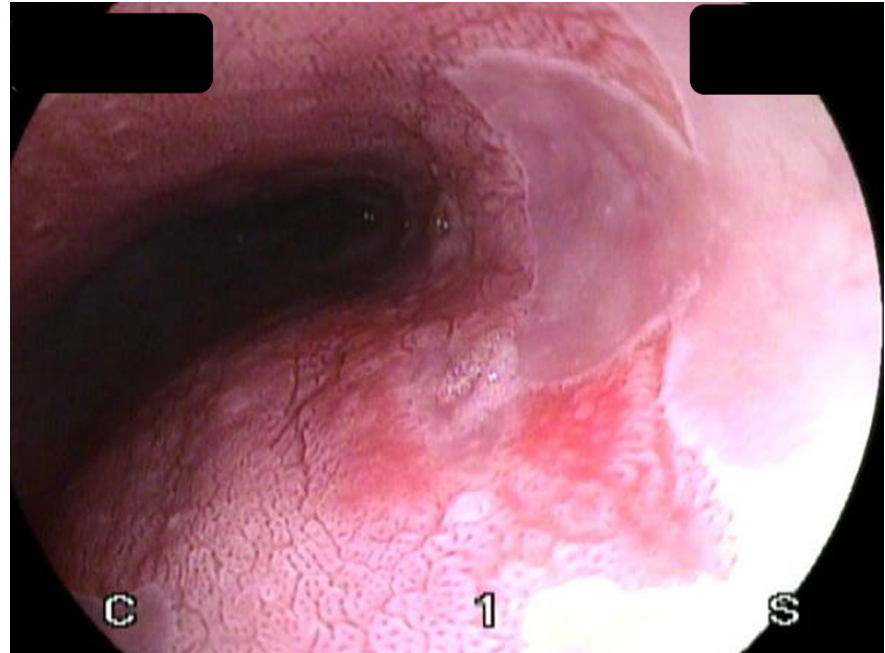
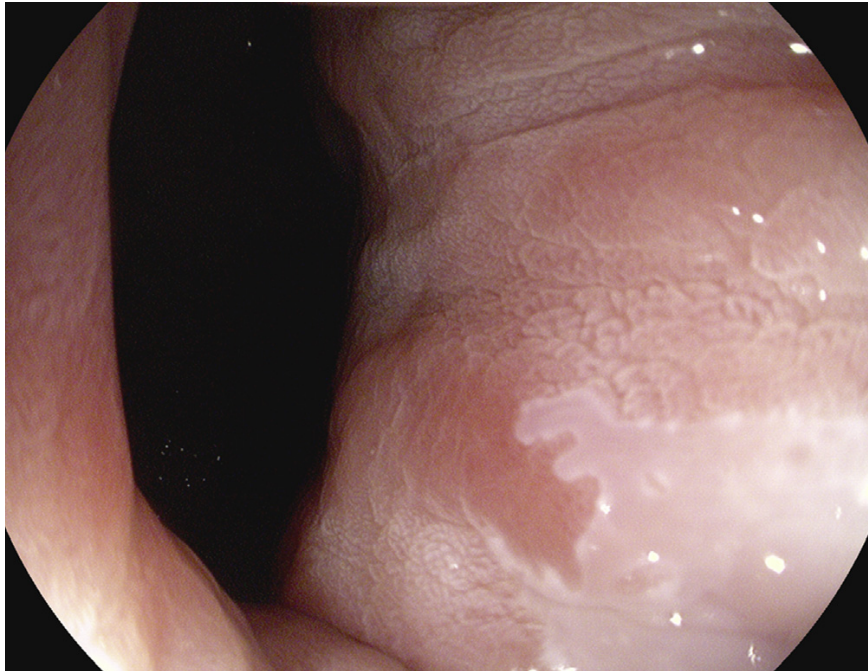
Acetic acid chromoendoscopy



Acetic acid chromoendoscopy



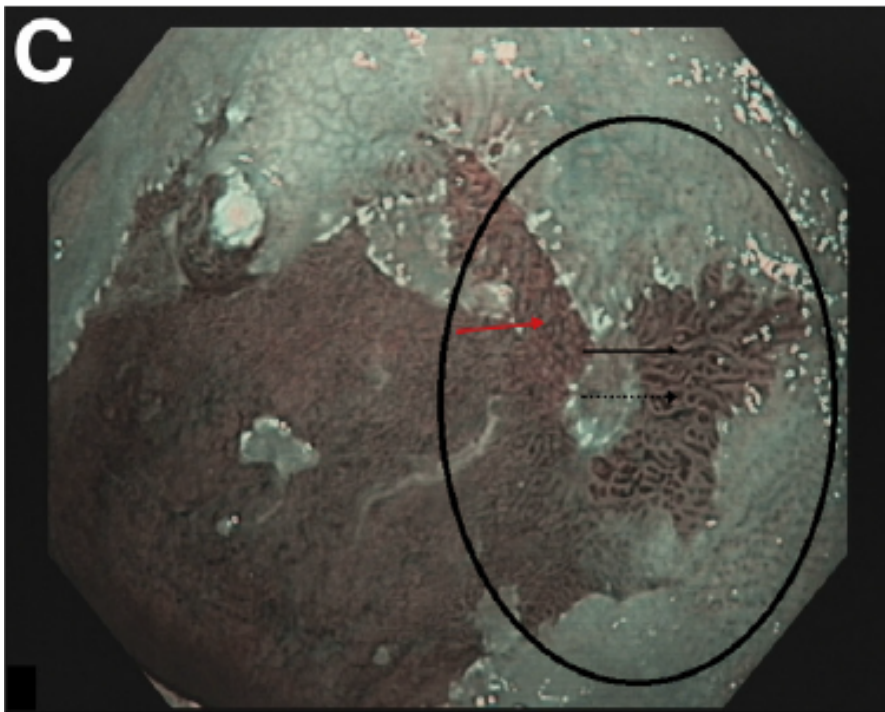
Acetic acid chromoendoscopy



Acetic acid chromoendoscopy – is it useful?

- Acetic acid chromoendoscopy is an inexpensive and effective method and has been proven in high-risk populations.
- Acetic acid detects more neoplasias than conventional protocol-guided mapping biopsies and requires 15 times fewer biopsies to detect neoplasia.

Where to biopsy?

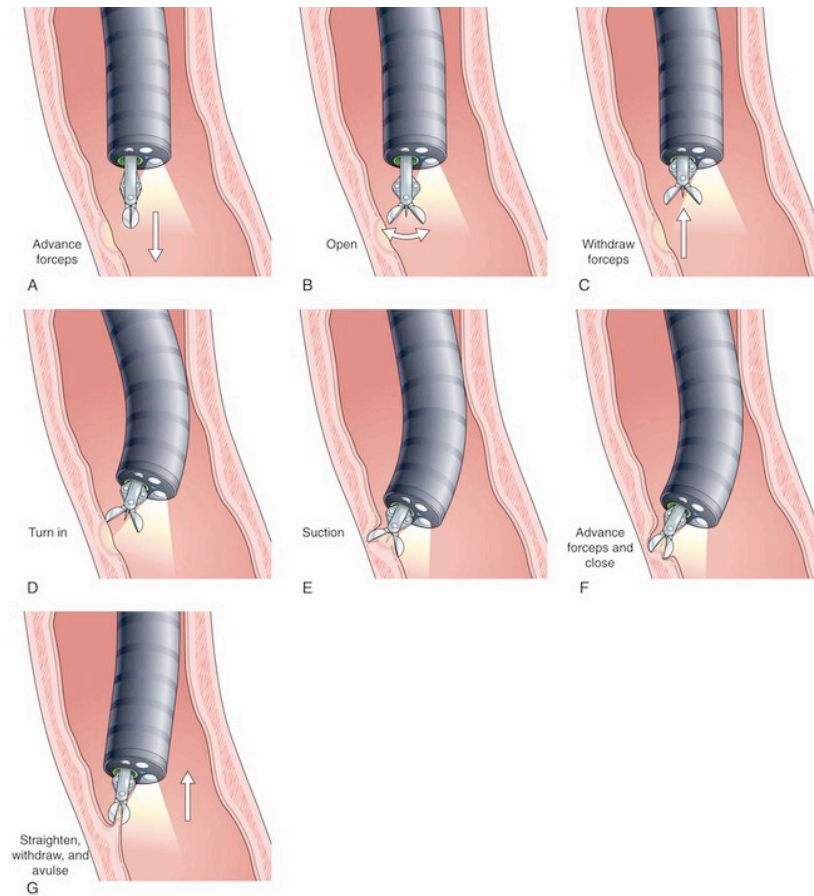


Solid black arrow indicates irregular mucosal patterns.

The dashed black arrow indicates irregular vascular patterns.

The red solid arrow however shows area where vessels are regular following the normal architecture of the mucosa.

How to biopsy?



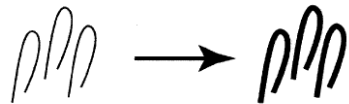
Esophageal squamous cell carcinoma (SCC)

Detection, delineation and characterisation of SCC

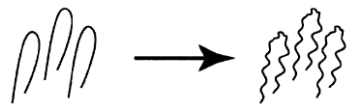
Inoue et al. IPCL classification

Intrapapillary capillary loops (IPCLs)

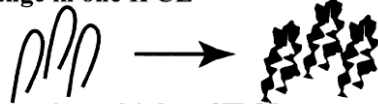
Dilatation



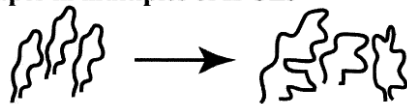
Tortuosity



Caliber change in one IPCL



Various shapes in multiples of IPCLs



Using a HQ190 endoscope in near-mode, changes in the form of the Intra-Papillary-Capillary-Loops (IPCLs) can provide information about the stage and extent of pre-cancerous and cancerous esophageal lesions

IPCL examination enables diagnosis of the depth of tumor invasion for squamous cell neoplasms

Key factors for analysis include dilatation, tortuosity and irregularities of shapes

As NBI enhances vascular patterns, IPCLs can be easily observed

Detection, delineation and characterisation of SCC

NBI background color for SCC detection

Clinical Study

Usefulness of Background Coloration in Detection of Esophago-Pharyngeal Lesions Using NBI Magnification

	BC positive (209 lesions)	BC negative (85 lesions)
Invasive squamous cell carcinoma	113 (99.1%)	1 (0.9%)
HGIN	74 (82.2%)	16 (17.8%)
LGIN	7 (20.6%)	27 (79.4%)
Nonatypia	15 (26.8%)	41 (73.2%)

Key results:

n=294

90% of BC positive HGIN or SCC

80% of BC negative noncancer ($p < 0.0001$)

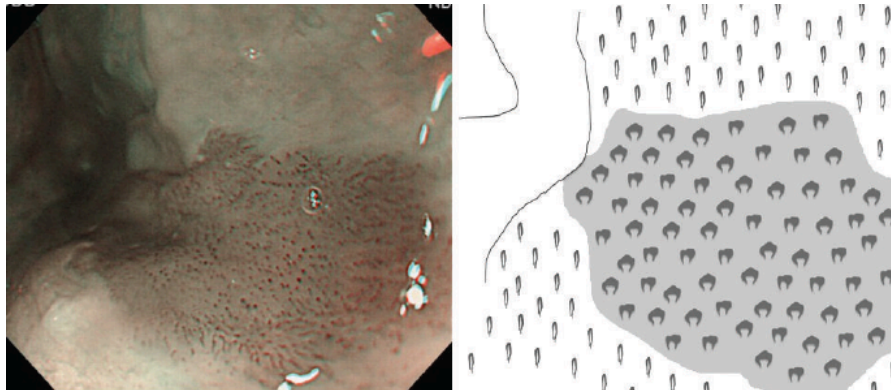
Conclusion:

„Background coloration is useful ... in differentiating between SCC/HGN and LGN/nonatypia ... when combined with IPCL pattern classification“

(intrapapillary capillary loop)

Detection, delineation and characterisation of SCC

NBI background color for SCC detection



Intrapapillary capillary loops (IPCLs)

Example of positive background coloration:

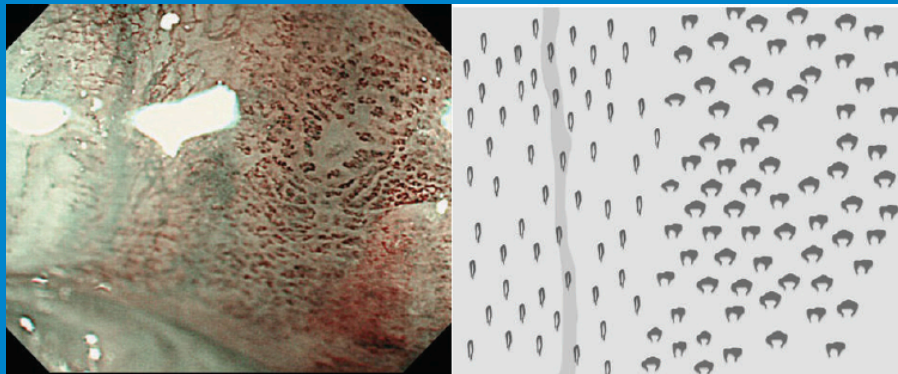
IPCLs show dilation (according to Inoue classification scheme)

Colour of the space between each dilated IPCL is **brown**

Larger lesions also determined positive if colouration is focal

Detection, delineation and characterisation of SCC

NBI background color for SCC detection



Example of negative background colouration:

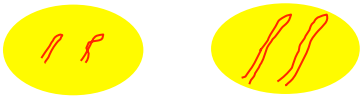
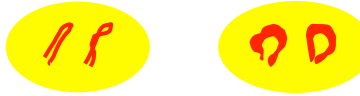



IPCLs show dilation (according to Inoue classification scheme)

Colour of the space between each dilated IPCL is **same** as surrounding area

Detection, delineation and characterisation of SCC

Inoue et al. IPCL classification

NEW IPCL classification

Group 1	Group 2	Group 3
Non-neoplastic	Borderline	Cancer
<p>IPCL-I, II</p> 	<p>IPCL-III, IV</p> 	<p>IPCL-V</p> <div> <div> <p>3A</p>  </div> <div> <p>3A'</p>  </div> <div> <p>3B</p>  </div> </div>
No treatment	Surveillance, prophylactic therapy	Therapy

Detection, delineation and characterisation of SCC

Inoue et al. IPCL classification

IPCL	Likely histology	Management
Type I	Normal	
Type II	Esophagitis	
Type III & IV	III: LGD IV: HGD*	Surveillance every year
Type V1 & V2	Carcinoma in situ or M2	EMR/ESD
Type V3	Carcinoma M3-SM1 (rarely SM2)	ESD or surgery
Type Vn	Carcinoma SM-d	Surgery

* Type IV is a borderline lesion between dysplasia and carcinoma. Endoscopic removal may be applied.

Atrophic gastritis & intestinal metaplasia in the stomach

How to perform an upper GI endoscopy in symptomatic patients to detect sporadic cases?

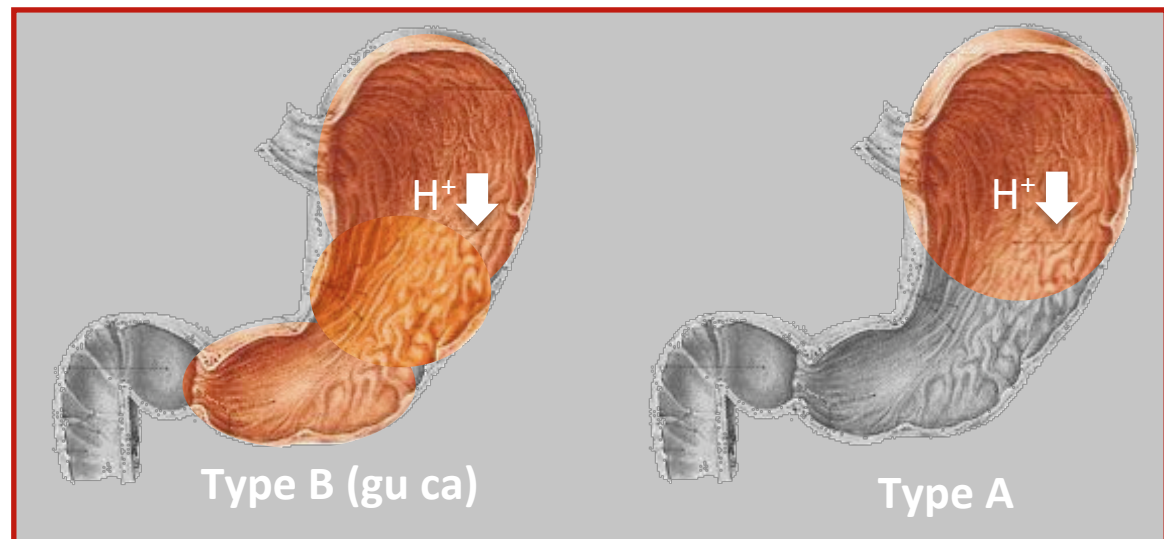
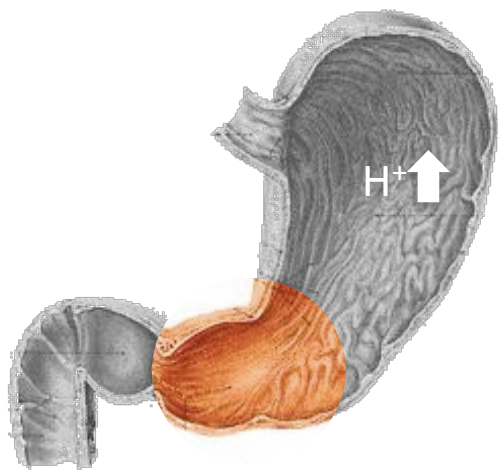
Management of epithelial precancerous conditions and lesions in the stomach (MAPS II): European Society of Gastrointestinal Endoscopy (ESGE), European *Helicobacter* and Microbiota Study Group (EHMSG), European Society of Pathology (ESP), and Sociedade Portuguesa de Endoscopia Digestiva (SPED) guideline update 2019



What should we look for during upper GI endoscopy?

- 1) Determination if atrophy is limited to the antrum or is extended to the corpus
- 2) Search for presence of intestinal metaplasia and determination if it is limited to the antrum or extended to the fundus

Atrophic gastritis with risk of cancer



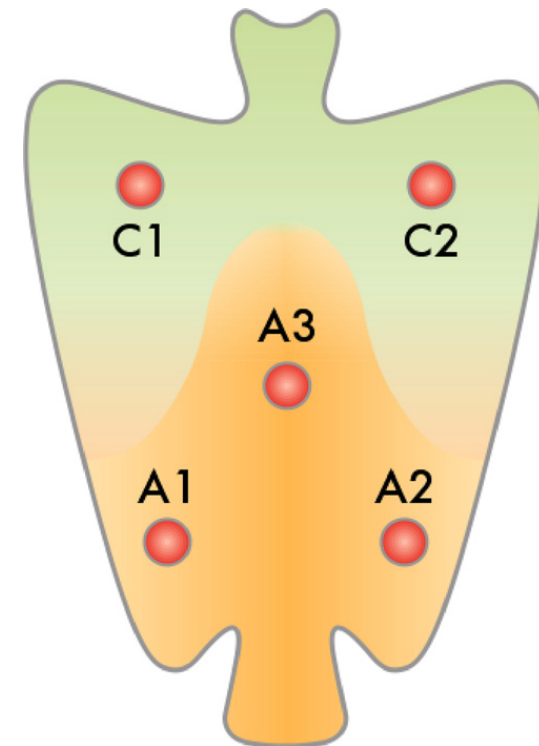
How many biopsies and where?

Gastritis

Biopsies should be focused on mucosal abnormalities

Take a systematic approach:

- 2 biopsies at the antrum
- 2 biopsies at the corpus
- 1 biopsy at the angulus



How to analyse the results? OLGA and OLGIM stages

OLGA: Operative link on gastritis assessment

GASTRIC ANTRUM	ATROPHY SCORE	GASTRIC CORPUS			
		Absence of atrophie (score 0)	Mild atrophy (score 1)	Moderate atrophy (score 2)	Severe atrophy (score 3)
	Absence of atrophy(score 0)	Stage 0	Stage I	Stage II	Stage II
	Mild atrophy (score 1)	Stage I	Stage I	Stage II	Stage III
	Moderate atrophy (score 2)	Stage II	Stage II	Stage III	Stage IV
	Severe atrophy (score 3)	Stage III	Stage III	Stage IV	Stage IV

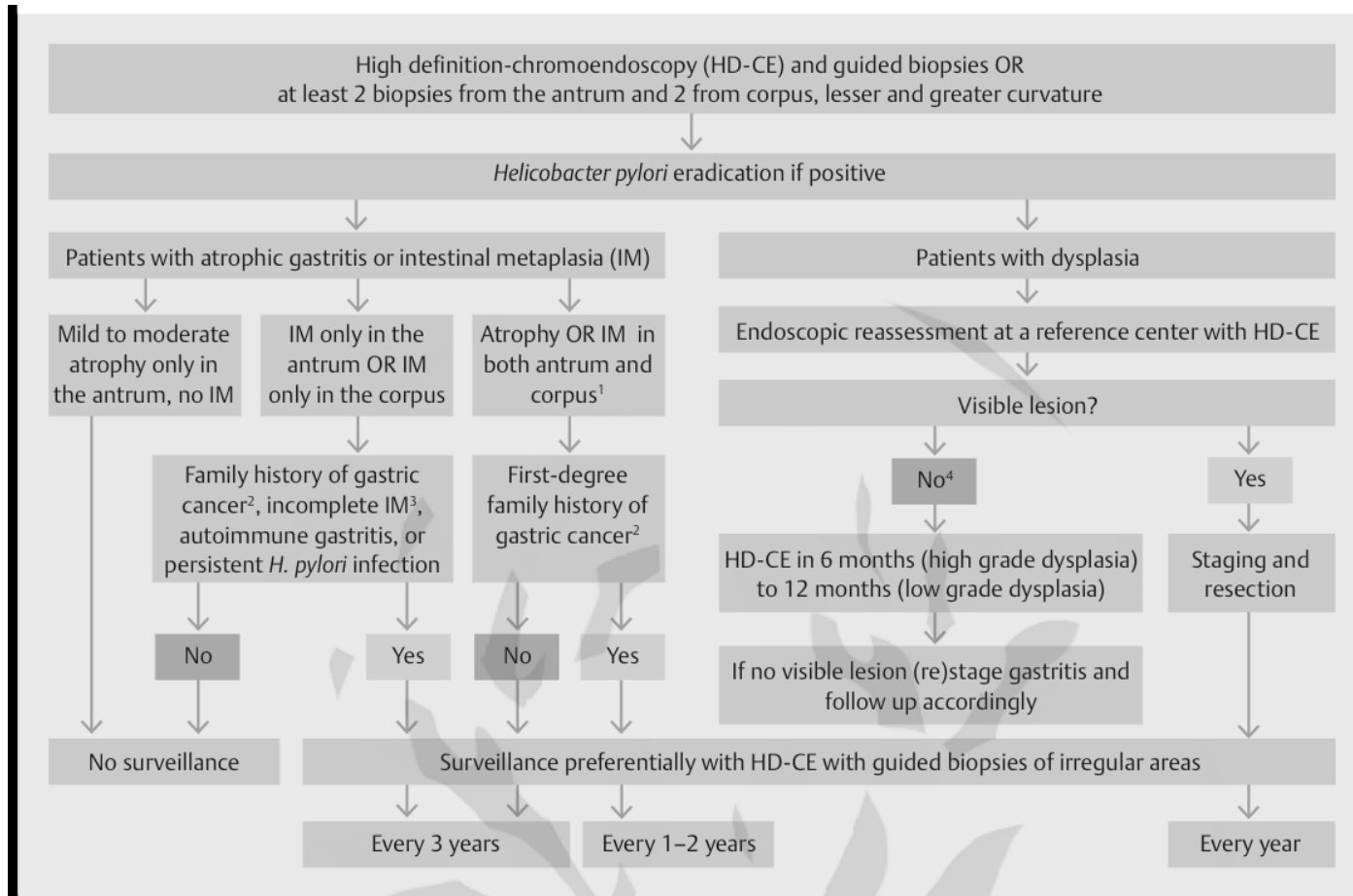
How to analyse the results? OLGA and OLGIM stages

OLGA: Operative link on gastric interstitial metaplasia assessment

GASTRIC ANTRUM	INTESTINAL METAPLASIA (IM) SCORE	GASTRIC CORPUS			
		Absence of IM (score 0)	IM mild (score 1)	IM moderate (score 2)	IM severe (score 3)
	Absence of IM (score 0)	Stage 0	Stage I	Stage II	Stage II
	IM mild (score 1)	Stage I	Stage I	Stage II	Stage III
	IM moderate (score 2)	Stage II	Stage II	Stage III	Stage IV
	IM severe (score 3)	Stage III	Stage III	Stage IV	Stage IV

ESGE guideline

- Patients with advanced stages of atrophic gastritis (severe atrophic changes or intestinal metaplasia in both antrum and corpus, OLGA/OLGIM III/IV) should be followed up with a high quality endoscopy every 3 years



Early gastric cancer

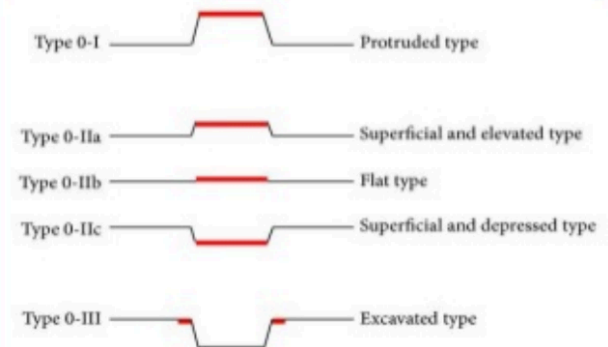
Classification of Early Gastric Cancer

Macroscopic classifications:

- Three macroscopic types (o-I, o-II, and o-III)

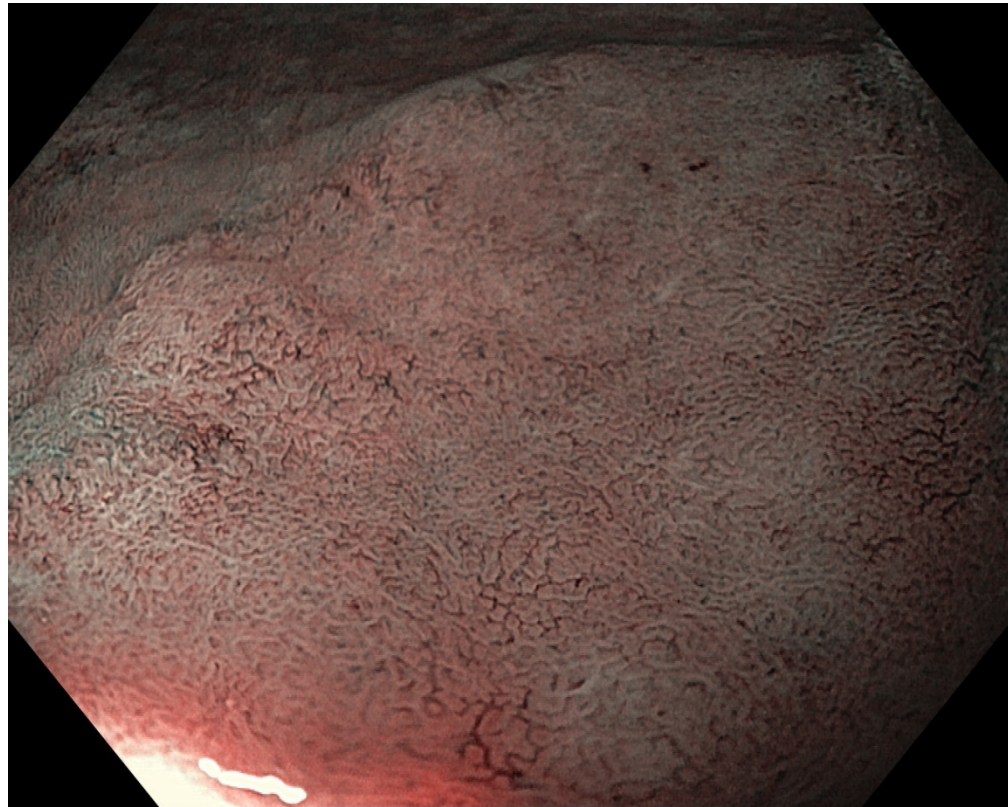
- o-II is subclassified into o-IIa
o-IIb
o-IIc

- The most common type - o-IIc

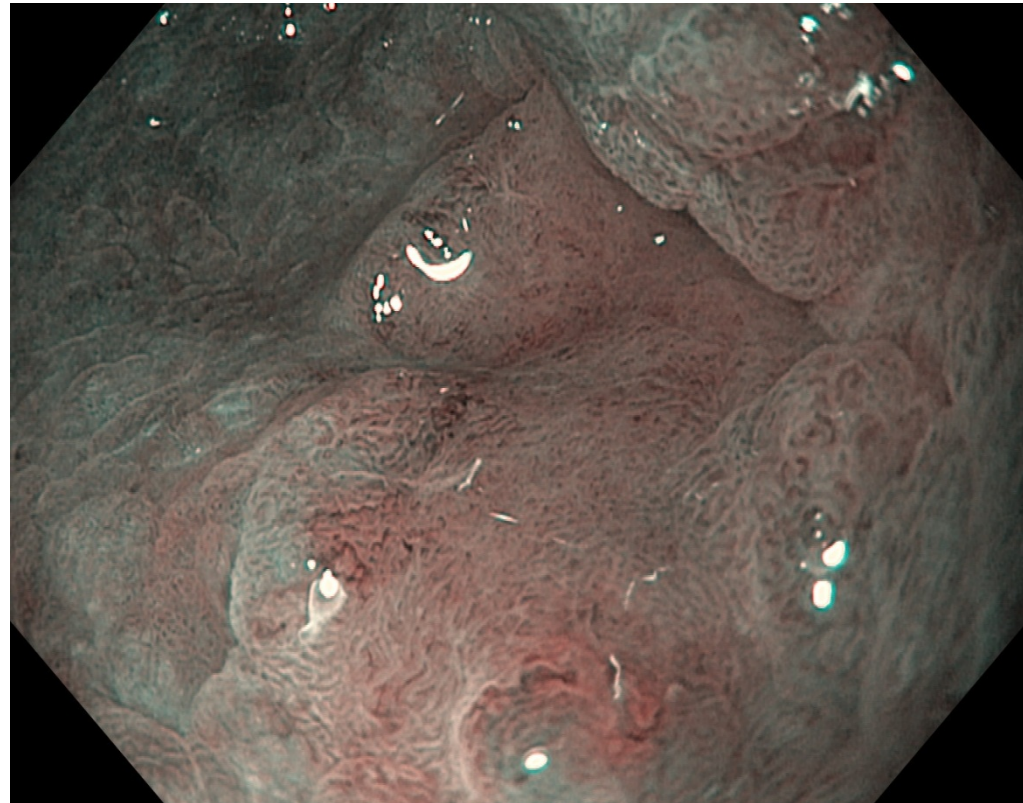


Japanese Gastric Cancer Association, "Japanese Classification of Gastric Carcinoma," Gastric Cancer, Vol. 1, 1998, pp. 10-24.

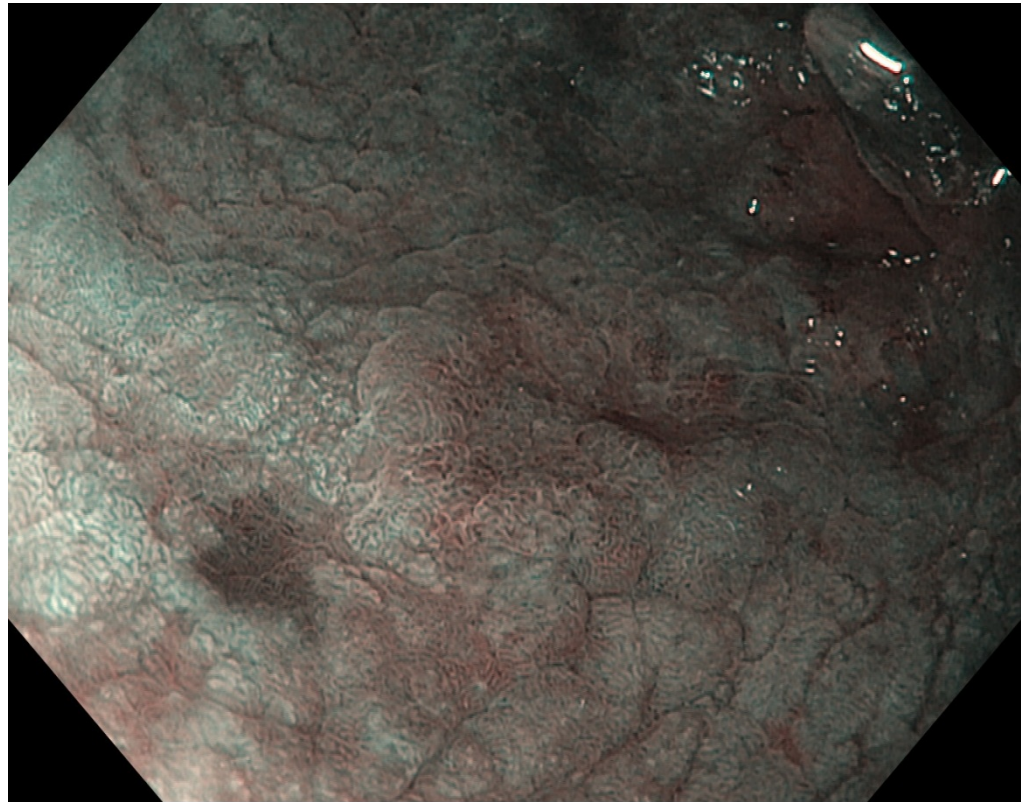
High grade dysplasia



Invasive carcinoma

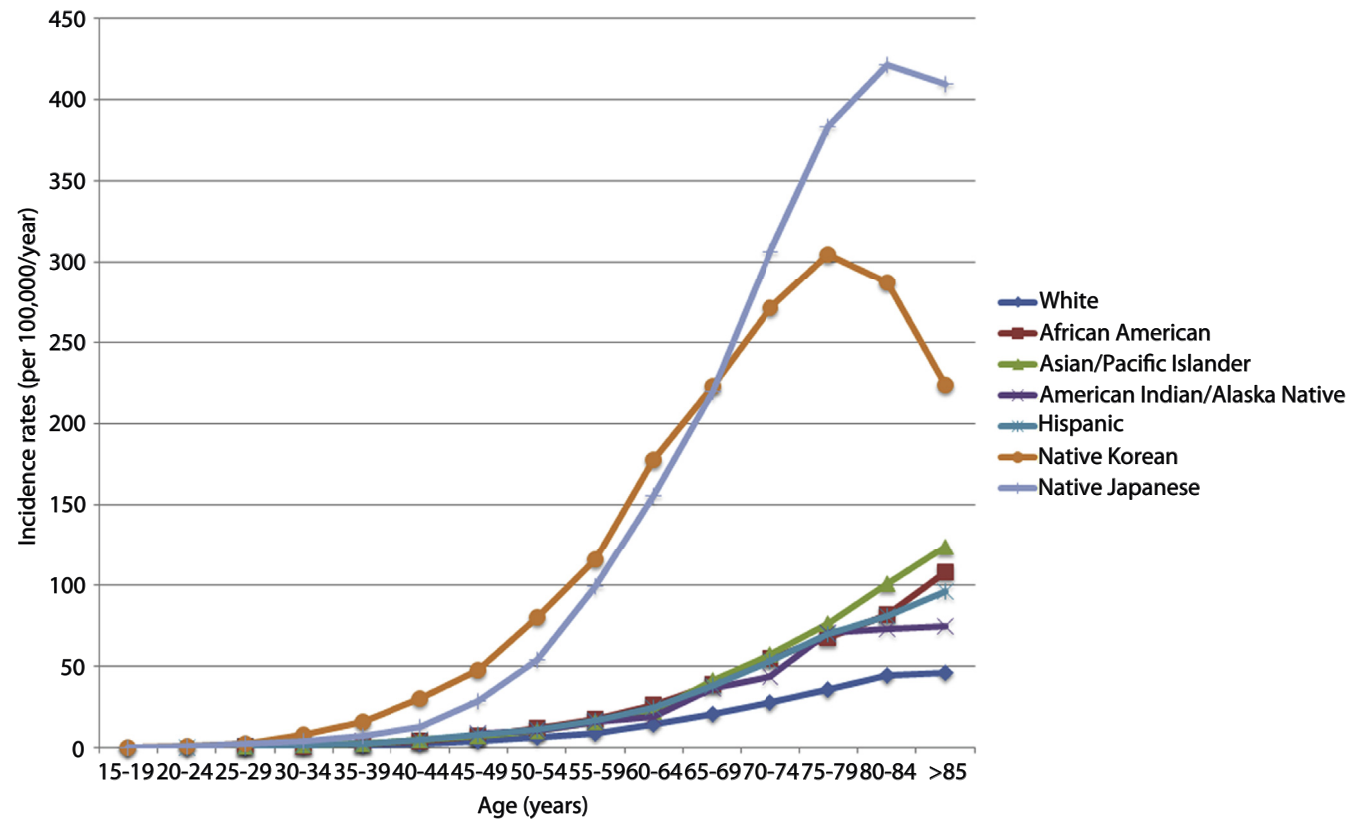


Invasive carcinoma





Incidence gastric cancer



Screening?

HP, H pylori

FHx, family history of gastric cancer

AG, atrophic gastritis

IM, intestinal metaplasia.

