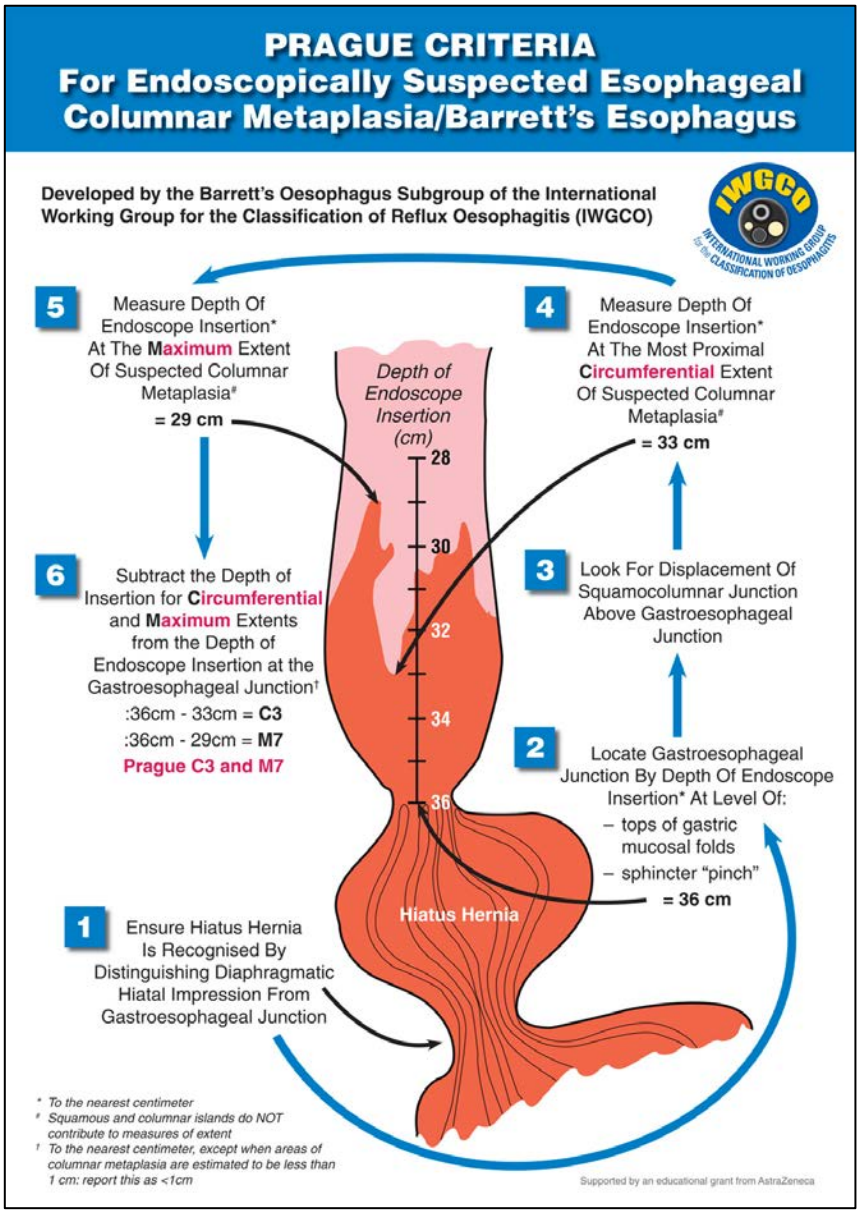
ALBERTA SOCIETY OF ENDOSCOPIC PRACTICE
ASEP

# Posters for your Endo Suite


# ESOPHAGEAL

# Wong, Endoscopy Skills Day 2018



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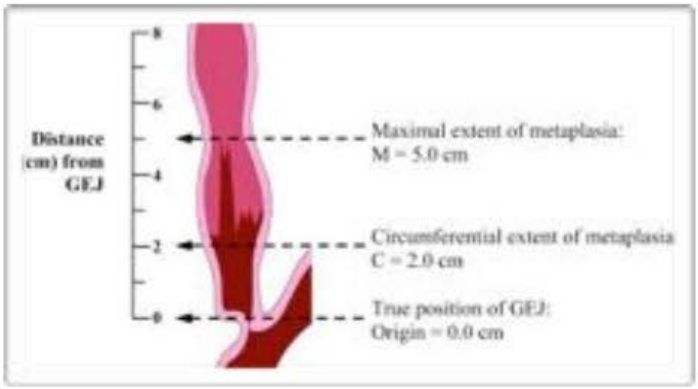
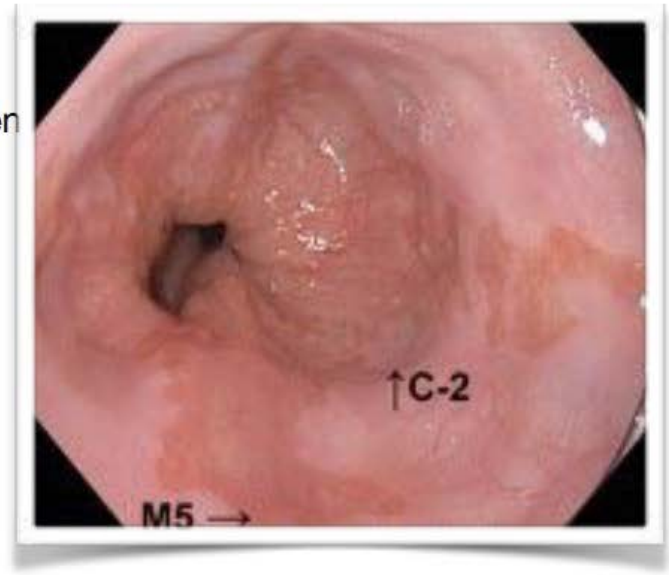
UNIVERSITY OF ALBERTA
FACULTY OF MEDICINE & DENTISTRY

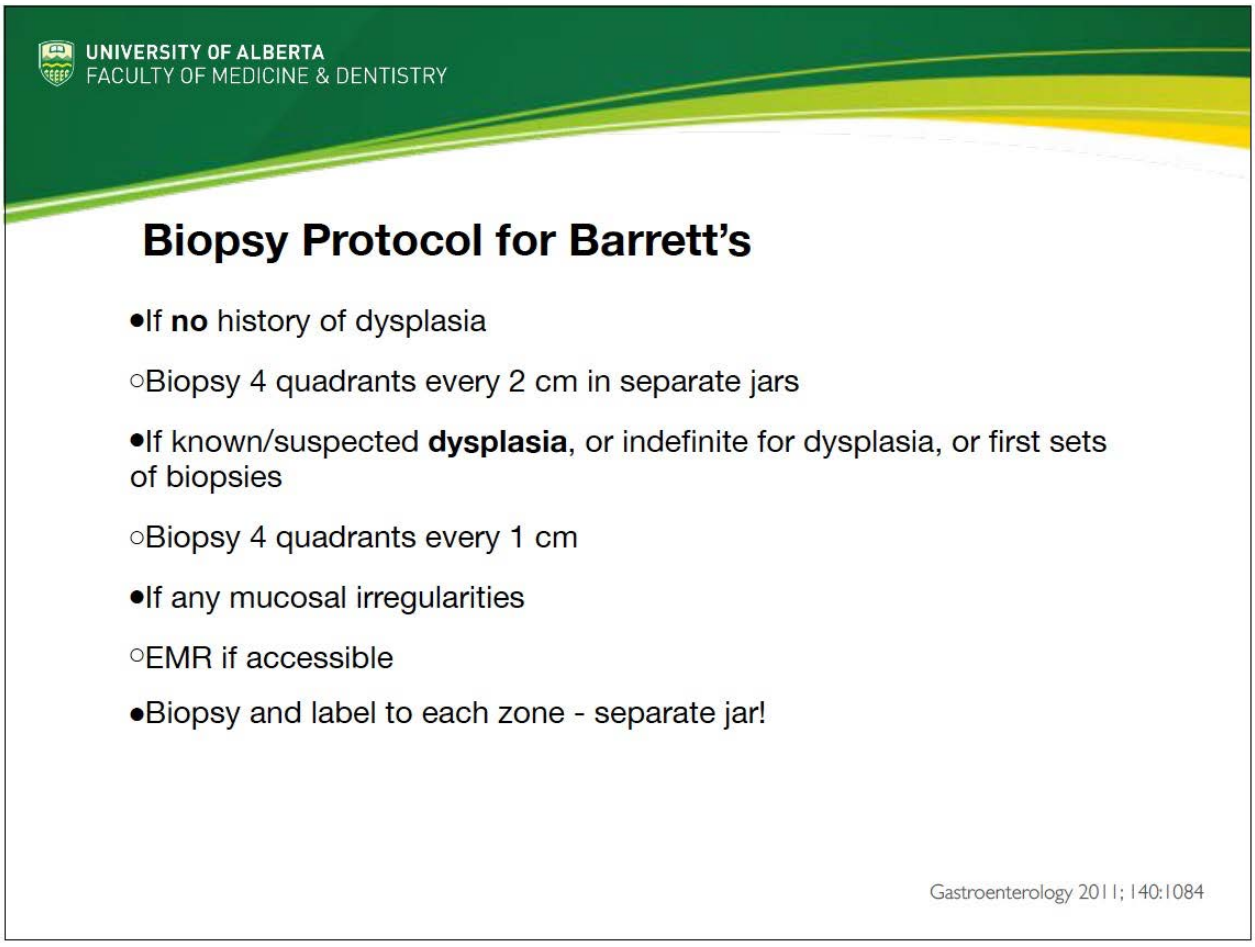
## Prague Classification

1. Find Top of Gastric Folds (TGF)
2. Measure length of circumferential exten
3. Measure maximal extent of BE

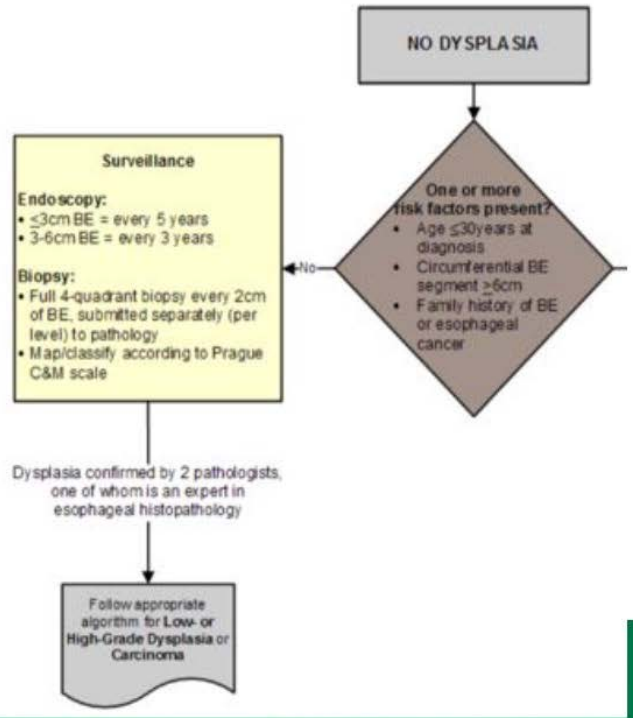


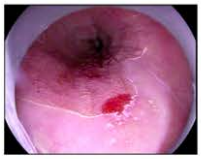
# Wong, Endoscopy Skills Day 2018



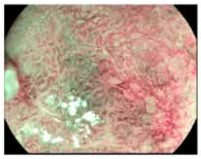
# BE-No dysplasia



# Tips for Barrett's Exam



- Spend *at least* 1 min/cm of Barrett's examining→ **improved detection of HGD/EAC ~6x**
- Pay close attention to proximal segment/right wall→ **Higher incidence of HGD/EAC ~6x**
- Use acetic acid (1.5-3%)→ **increases yield detection HGD/EAC ~15x vs random Bx**



- Use NBI( BLI/OE1)→ **improved detection of HGD/EAC**

Gupta, N. *et al.* Longer inspection time is associated with increased detection of high-grade dysplasia and esophageal adenocarcinoma in Barrett's esophagus. *Gastrointestinal endoscopy* **76**, 531-538, (2012).
Pech, O. *et al.* Prospective evaluation of the macroscopic types and location of early Barrett's neoplasia in 380 lesions. *Endoscopy* **39**, 588-593, (2007).
Enestvedt, B. K. *et al.* Location, location, location: does early cancer in Barrett's esophagus have a preference? *Gastrointestinal endoscopy* **78**, 462-467, (2013).
Kandiah, K. *et al.* International development and validation of a classification system for the identification of Barrett's neoplasia using acetic acid chromoendoscopy: the Portsmouth acetic acid classification. *Gut* **67**, 2085, (2018).
Song J, Zhang J, Wang J, et al. Meta-analysis of the effects of endoscopy with narrow band imaging in detecting dysplasia in Barrett's esophagus. Dis Esophagus 2015;28:560-6.
Sharma, P. *et al.* Standard endoscopy with random biopsies versus narrow band imaging targeted biopsies in Barrett's oesophagus: a prospective, international, randomised controlled trial. *Gut* **62**, 15-21, (2013).

Bechara – Endo Skills Day 2020

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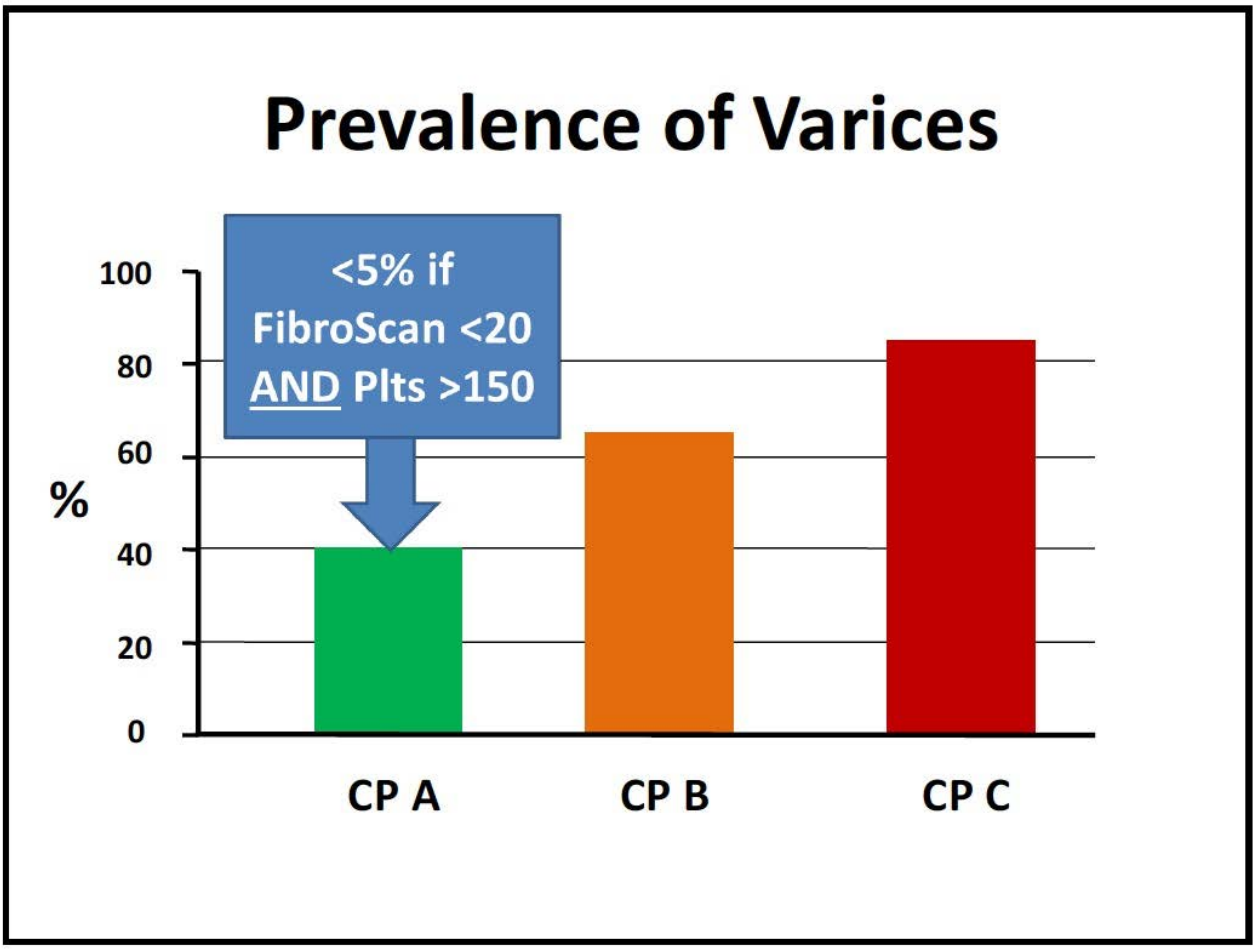
Burak, Endoscopy Skills Day 2018



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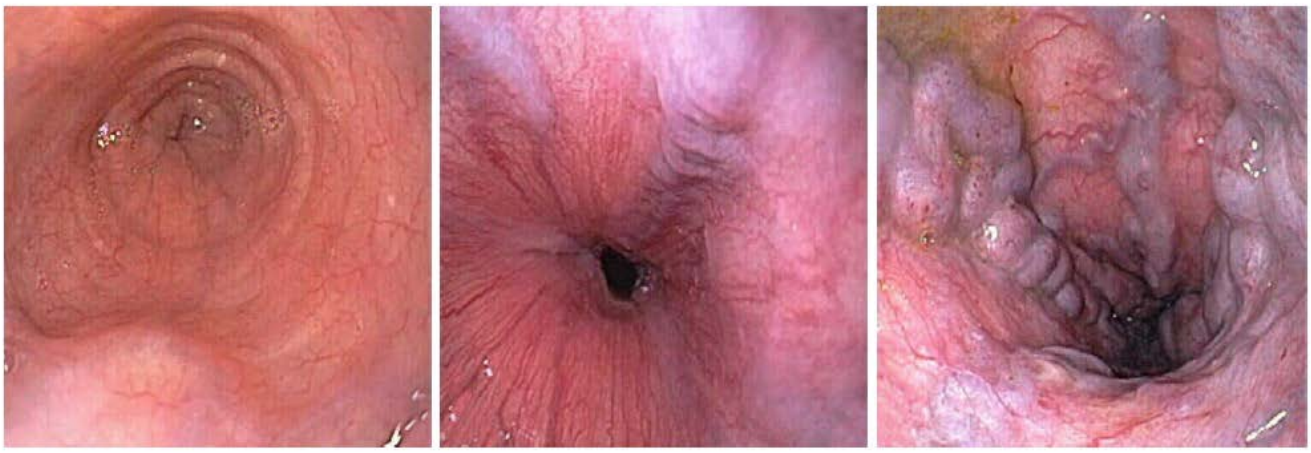
# Child Pugh (CP) Class

| Criteria | 1 | 2 | 3 |
|---|---|---|---|
| Encephalopathy | None | Mild | Severe |
| Ascites | None | Controlled | Uncontrolled |
| Bilirubin | ≤ 33 | 34-50 | ≥ 51 |
| Albumin | ≥ 36 | 28-35 | ≤ 27 |
| INR | ≤ 1.6 | 1.7-2.2 | ≥ 2.3 |

| Class | A = 5-6 pts | B = 7-9 pts | C = 10-15 pts |
|---|---|---|---|

# Growth of Varices



No varices → Small varices → Large varices

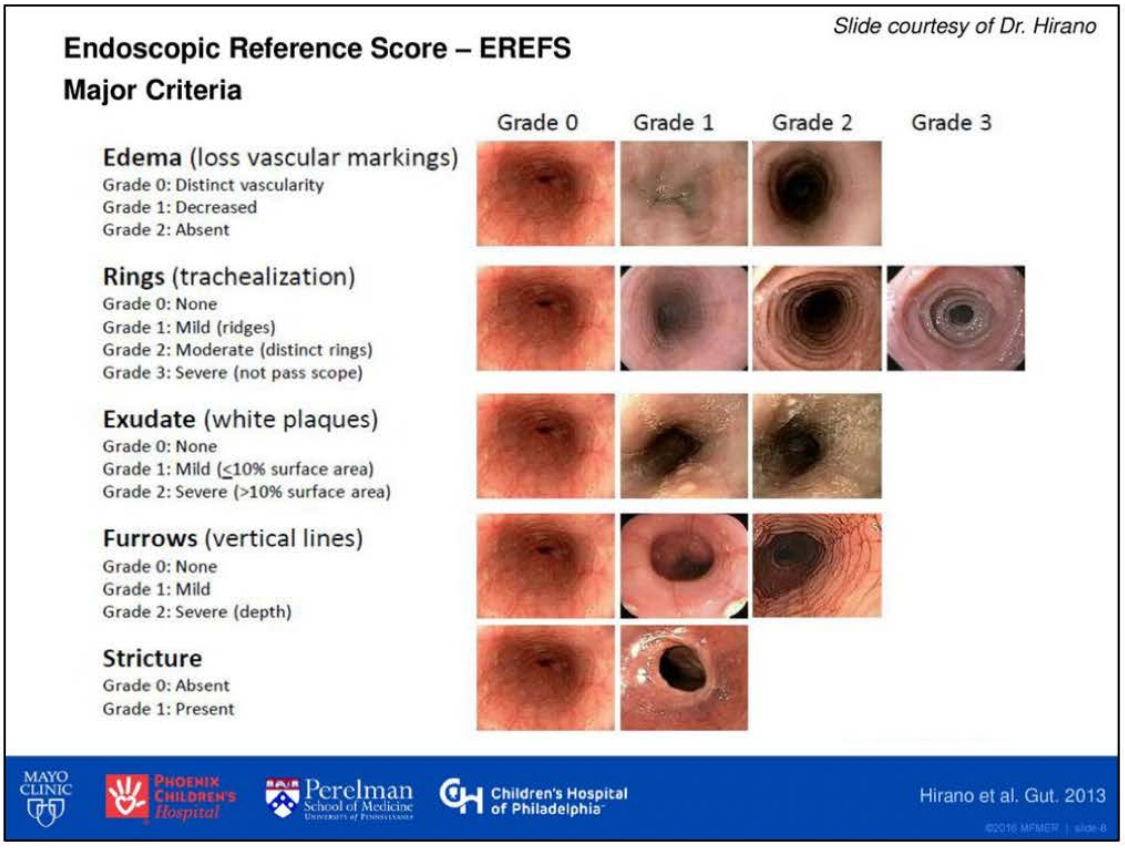
7-8% / year

7-8% / year

Merli et al. J Hepatol 2003; 38: 266

Wong, – Endo Skills Day 2020

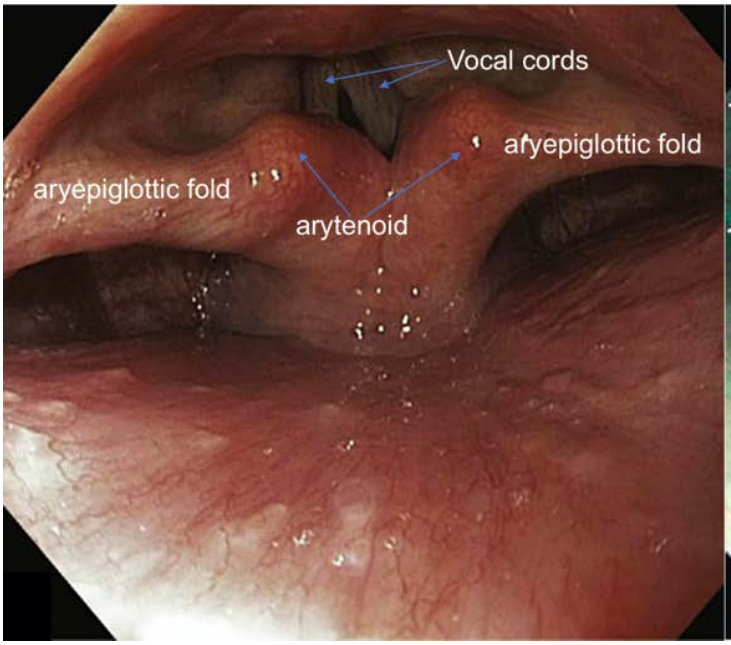
# Eosinophilic Esophagitis: EREFS

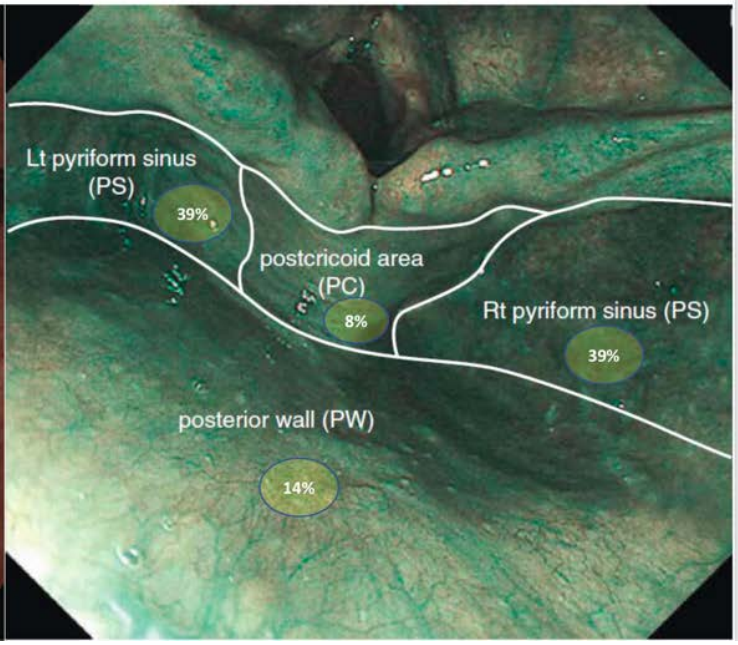



# GASTRIC

# High Quality Gastroscopy, Bechara – Endo Skills Day 2020

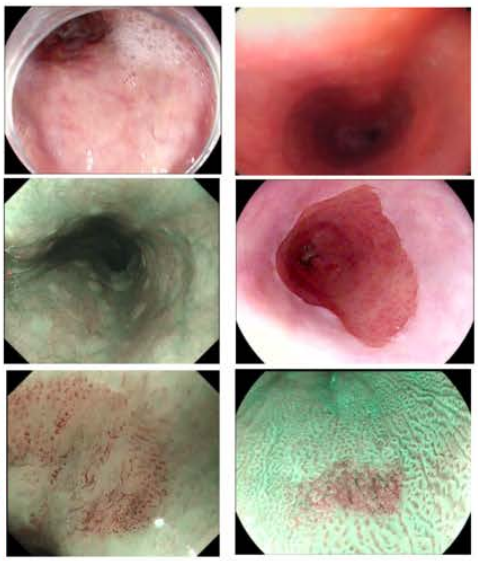
## Luminal Anatomy-The hypopharynx

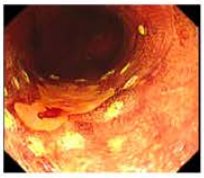


# My Approach: Esophageal Exam

- **Clean** the esophagus and identify landmarks
- **Macroscopic** examination
  - White light
  - Image enhanced endoscopy (NBI/BLI/OE-1) for squamous
  - Image enhanced endoscopy all modalities for Barretts
- **Microscopic** exam of specific lesions
  - White light, image enhanced endoscopy
  - Compare to adjacent normal mucosa
- **+/- Supplemental**
  - Squamous Lugols 2.5%: Repeat Macro/Micro
  - Barrett's Acetic Acid 1.5%: Repeat Macro/Micro





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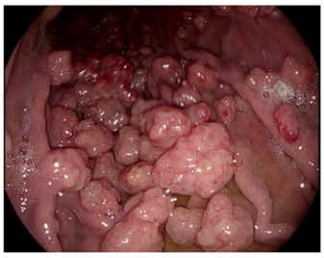
# Summary

- Pharyngeal and Esophageal squamous neoplasia
  - NBI/BLI/OE-1 are the preferred modes for detection
- Identify Esophageal/Gastric landmarks
- Barrett's Neoplasia
  - Acetic acid and NBI are useful for improving detection of HGD/EAC
  - Spend at least 1min/cm Barrett's and pay attention to proximal area and right hemisphere
- Gastric Neoplasia
  - Use defoaming agent and mucolytic to achieve clear views
  - Spend at least 7 minutes on EGD exam maximize detection of neoplasia
  - Systematic examination of the stomach to improve detection of neoplasia

# Gastric Polyps, Bechara - Endo Skills Day 2020

Clinical
Endoscopic Appearance
**Management**
Follow-up

## Fundic Gland Polyps



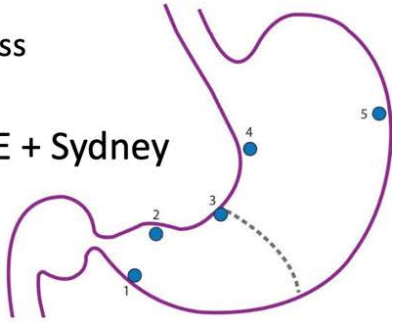
- Document: size, number, location
- If:
  - <1cm→ representative bx
  - >1cm→ generally recommend resection
  - >20, LGD or duodenal adenomas
    - Sample based on above and also C-scope
- Resection tips*
  - Use a thicker, braided snare (offers more coagulation)
  - Ensure you get snare to base of FGP (can be aided by injection)
    - Careful around the stalk may cold cut through→ minor bleeding

Management of epithelial precancerous conditions and lesions in the stomach (MAPS II). Endoscopy 51, 365-388, (2019).
*Based on my experience, not evidence based

Clinical
Endoscopic Appearance
**Management**
Follow-up

# Hyperplastic polyps

- <1cm representative sample via bx
- If >1cm generally resect
  - If <3cm and known H.P +ve, recommend eradication and repeat EGD 3-6 months *prior to resection* as likely to regress
  - If >3cm, resect regardless of H.P status as unlikely to regress
- Thorough assessment of background mucosa with IEE + Sydney protocol for mapping Bx

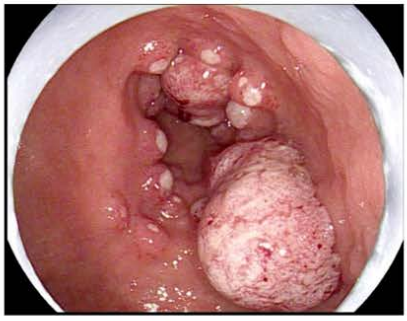



Ahn, J. Y. *et al.* Neoplasms arising in large gastric hyperplastic polyps: endoscopic and pathologic features. *Gastrointestinal endoscopy* **80**, 1005-1013.e1002, (2014).
Ohkusa, T. *et al.* Endoscopic, Histological and Serologic Findings of Gastric Hyperplastic Polyps after Eradication of Helicobacter pylori. *Digestion* **68**, 57-62, (2003).

**Clinical**
Endoscopic Appearance
Management
Follow-up

# Hyperplastic polyps

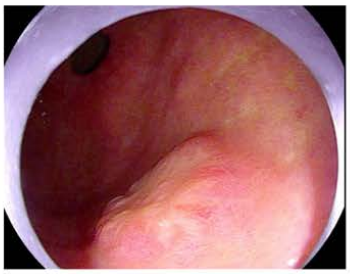
- Second most common type gastric polyp
- Usually as result of recurring insult
  - Chronic gastritis (chemical, reactive, H.pylori), portal HTN
- Risk of dysplasia
  - ~2-20%
- Risk of carcinoma ~0.5-2%



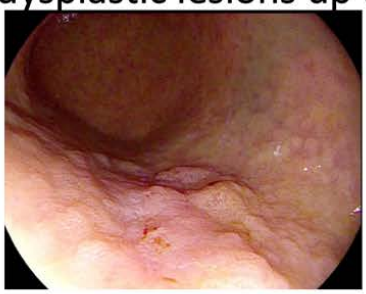
braham SC, Singh VK, Yardley JH, et al. Hyperplastic polyps of the stomach: associations with histologic patterns of gastritis and gastric atrophy. Am J Surg Pathol 2001;25:500-7.
rlowska J, Jarosz D, Pachlewski J, et al. Malignant transformation of benign epithelial gastric polyps. Am J Gastroenterol 1995;90:2152-9.

**Clinical**
Endoscopic Appearance
Management
Follow-up

# Adenomatous polyps

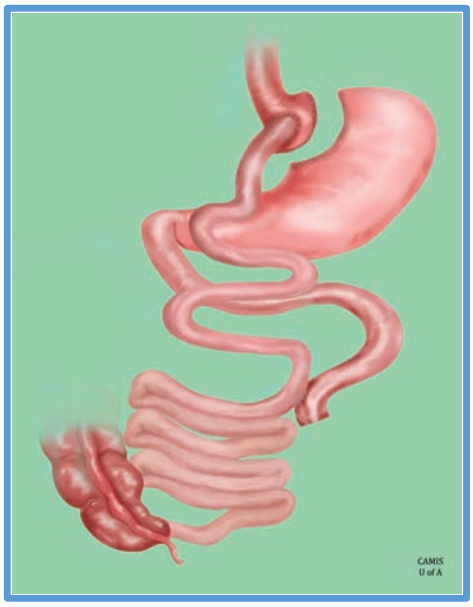


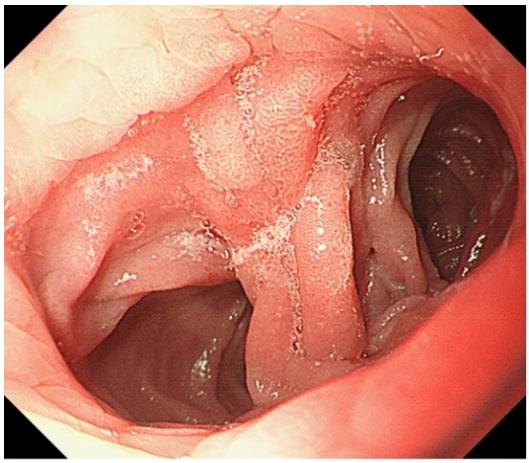
- Most common neoplastic polyp
- Typically associated with H.pylori, atrophic gastritis, intestinal metaplasia
- High incidence of synchronous dysplastic lesions up to ~30%
- Risk of carcinoma
  - For >2cm up to 40%

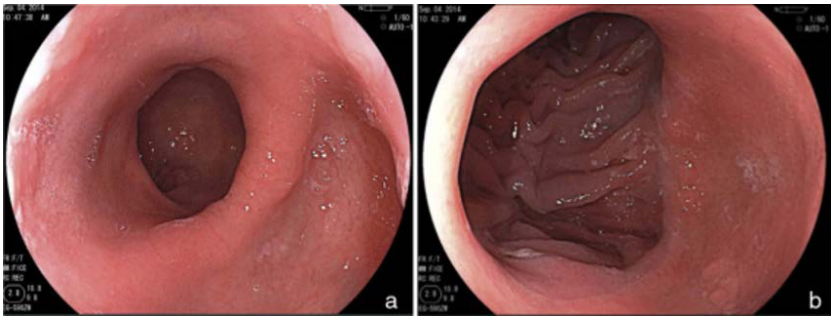


Rugge M, Farinati F, Baffa R, et al. Gastric epithelial dysplasia in the natural history of gastric cancer: A multicenter prospective follow-up study. Gastroenterology 1994;107:1288-1296.

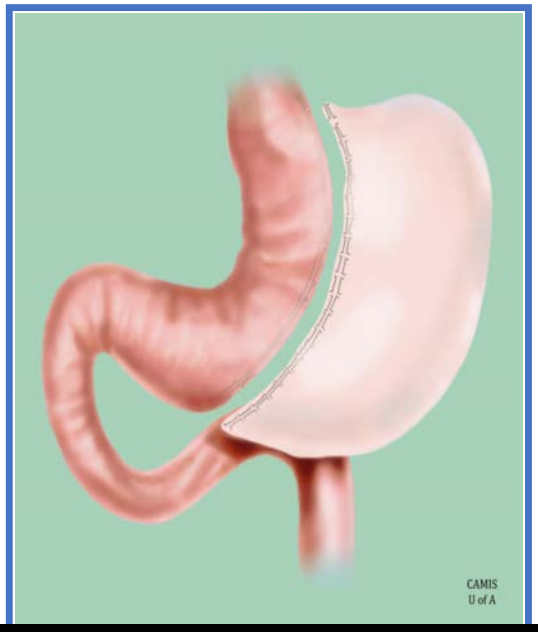
# Laparoscopic Roux-en Y Gastric Bypass (LRYGB), Karmali – Endo Skills Day 2019

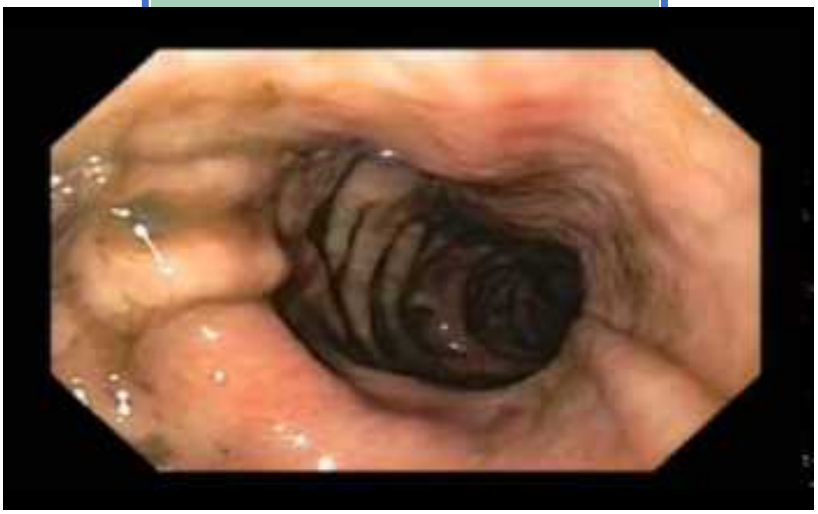


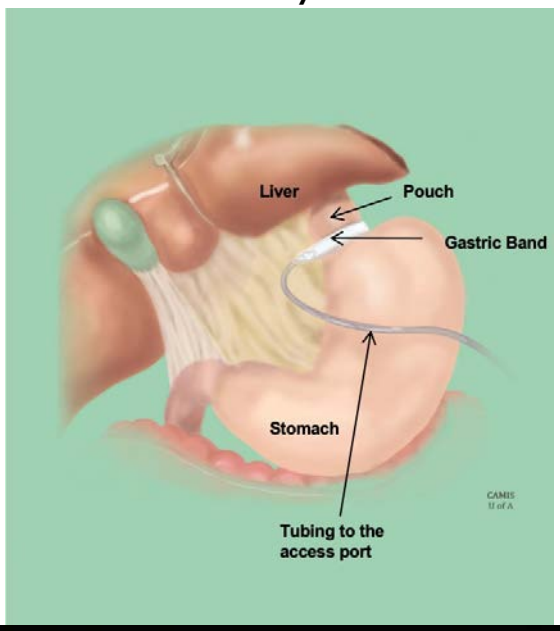


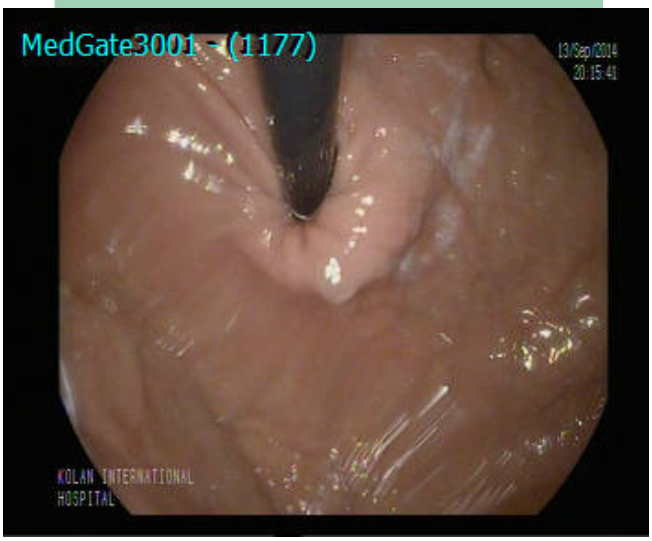
# Laparoscopic Sleeve Gastrectomy, Karmali, Endo Skills Day 2019



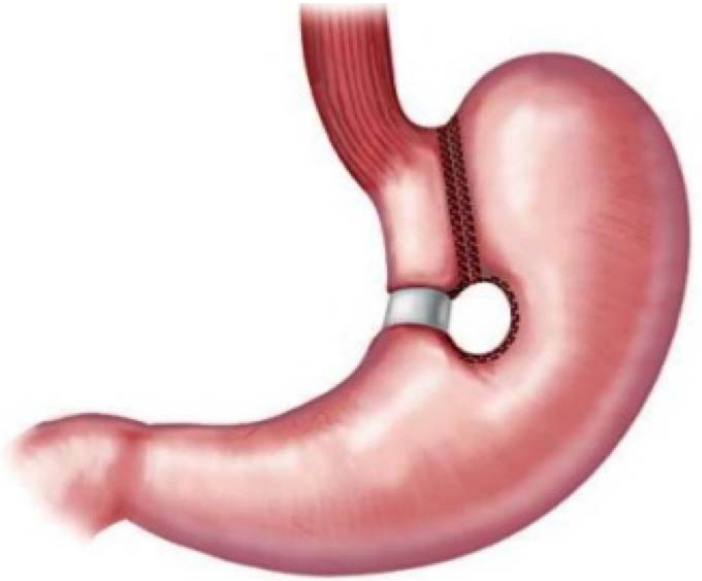



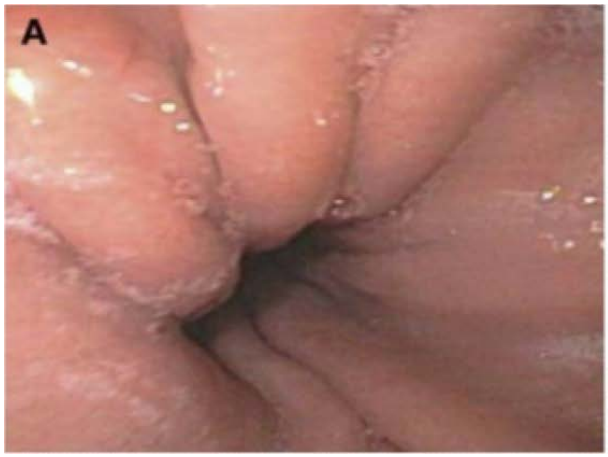
# Laparoscopic Adjustable Gastric Band, Karmali, Endo Skills Day 2019

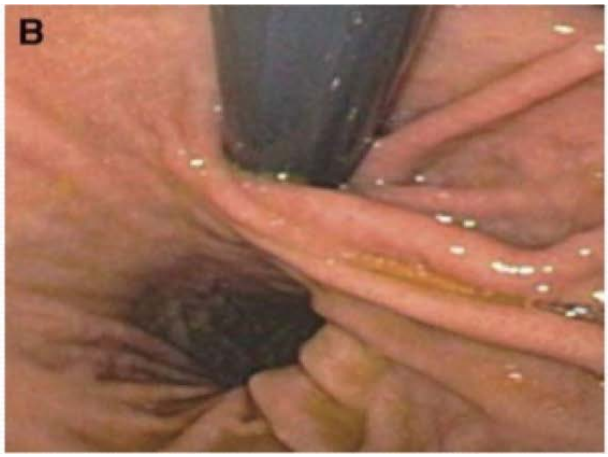


# Vertical Banded Gastroplasty, Karmali, Endo Skills Day 2019





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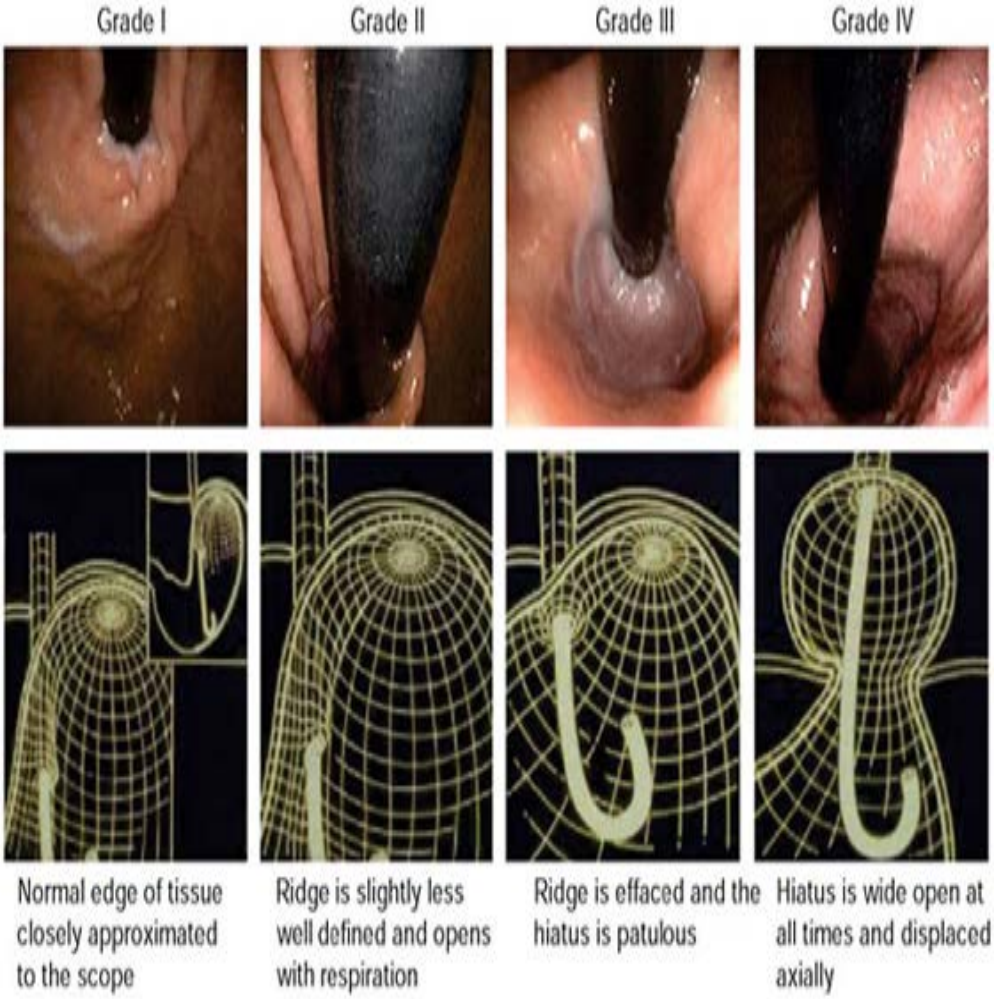
# Hill grading, presented by Karmali, Endo Skills Day 2019



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# Endoscopic Surveillance for gastric intestinal metaplasia

Presented by Rachid Mohamed – Endo Skills Day 2019

| | |
|---|---|
| Intestinal metaplasia (extensive) with no dysplasia | • Recommended endoscopy every 3 years |
| Intestinal metaplasia (limited to antrum) with no dysplasia | • No recommended surveillance |
| Intestinal Metaplasia with lesion | • Requires complete endoscopic excision for pathology<br>• EMR vs. ESD – a debate for another day |
| Intestinal Metaplasia with LGD | • Annual endoscopic follow up with biopsies |
| Intestinal Metaplasia with HGD | • Immediate repeat endoscopy with further sampling<br>• Ongoing surveillance every 6-12 months |

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Approah to UGI Bleed, Hundal - Endo Skills Day 2020

# Risk Stratification Scores: Rockall

**Age**

- <60 years old (0 points)
- 60-79 years old (1 point)
- >=80 years old (2 points)

**Hemodynamic Shock**

- None with systolic BP >=100 mmHg and pulse <100/min (0 points)
- Tachcardic with pulse >=100/min but systolic BP >=100 mmHg (1 point)
- Hypotension with systolic BP <100 mmHg (2 points)

**Major Comorbidities**

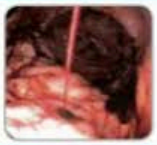
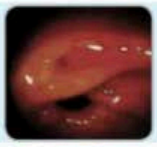
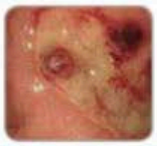
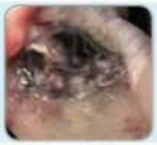
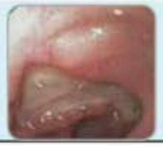
- None (0 points)
- Cardiac failure, ischemic heart disease or similar major comorbidity (2 points)
- Renal failure, hepatic failure or disseminated cancer (3 points)

**Diagnosis**

- Mallory-Weiss tear, but no major lesions and no stigmata of recent bleed (0 points)
- Other nonmalignant gastrointestinal diagnoses (1 point)
- Upper gastrointestinal tract malignancy (2 points)

**Recent hemorrhage**

- None (or dark area only) (0 points)
- Blood found in upper gastrointestinal tract (clot adherence, spurting or visible vessel) (2 points)

| FORREST CLASSIFICATION OF ULCERS | | | REBLEED RISK (WITHOUT THERAPY) |
|---|---|---|---|
| I: BLEEDING | Ia Spurting |  | 85-100% |
| | Ib Oozing |  | 10-30% |
| II: STIGMATA OF RECENT HAEMORRHAGE | IIa "Visible Vessel" |  | 50-60% |
| | IIb Adherent Clot |  | 25-35% |
| | IIc Pigmented Spot |  | <8% |
| III: CLEAN BASE | |  | <5% |

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# COLONIC

# Burgess et al Gastro 2017 presented by Heitman

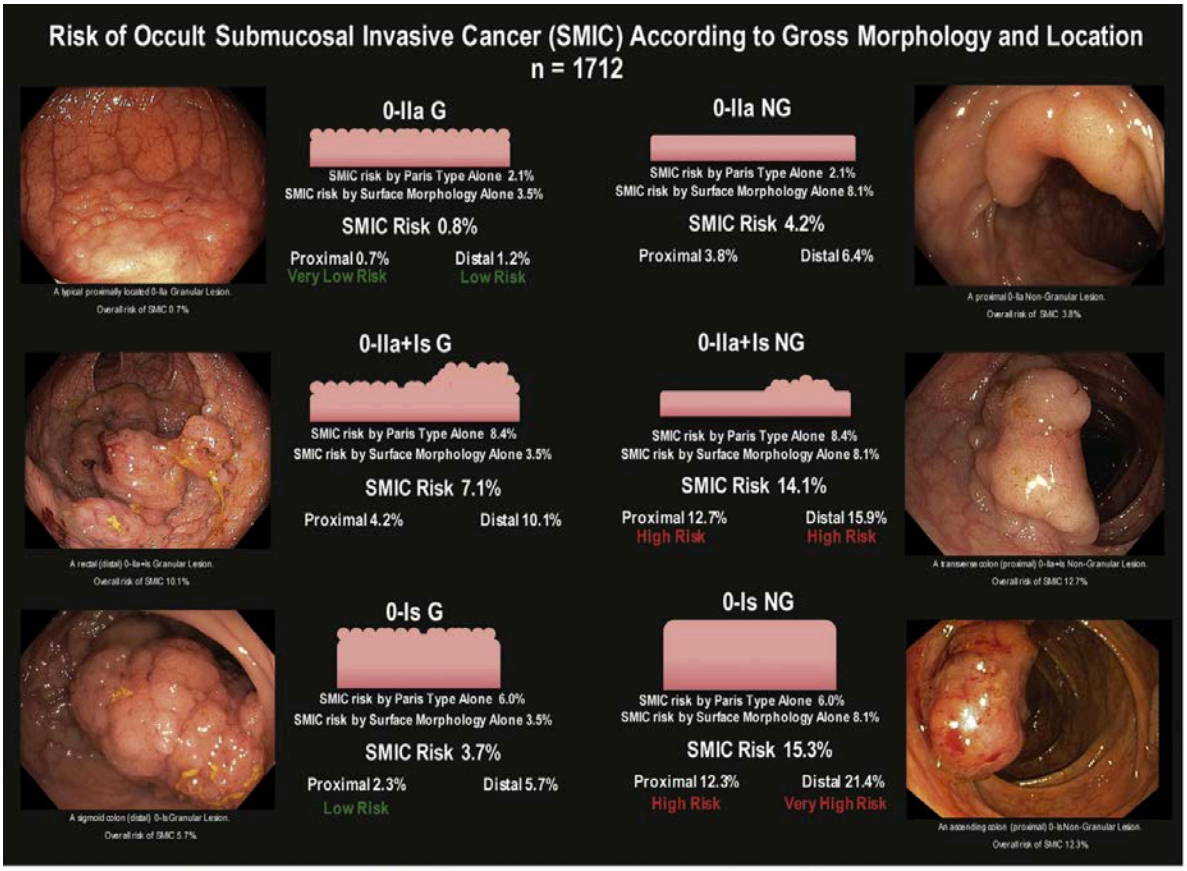


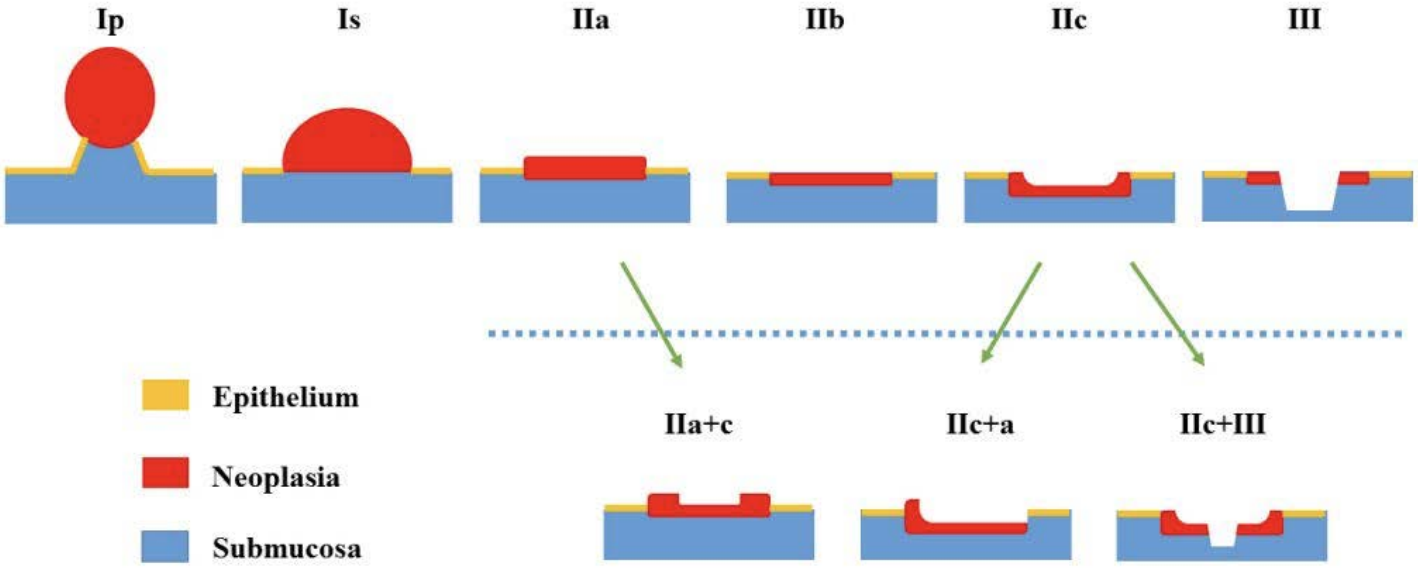

**Figure 1.** Risk of occult SMIC according to gross morphology and location (n = 1712).

Sessile Polyps, Telford, Armstrong - Endo Skills Day 2020

# Recognition of Potential Malignancy

- Abnormal irregular small blood vessels & pit patterns
- Kudo Pit pattern
- Paris Classification – especially IIa + IIc
- Non-granular surface (LST-NG)
- Ulceration
- Induration
- Stiffening of colonic wall (no change on insufflation / aspiration)
- Non-lifting sign

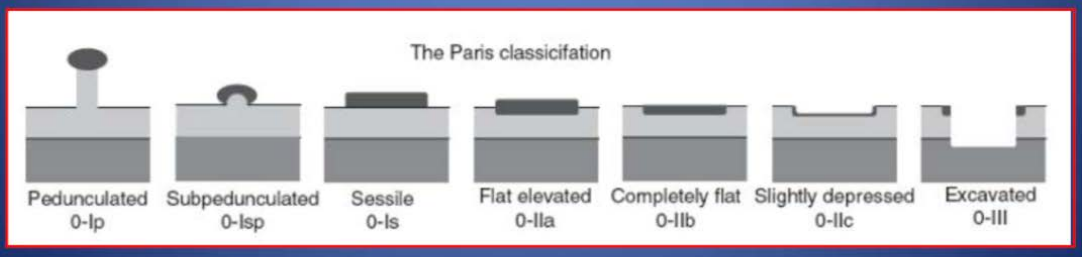
# Paris Classification, Wong, Endo Skills Day 2019



Lutzak - Endo Skills Day 2020

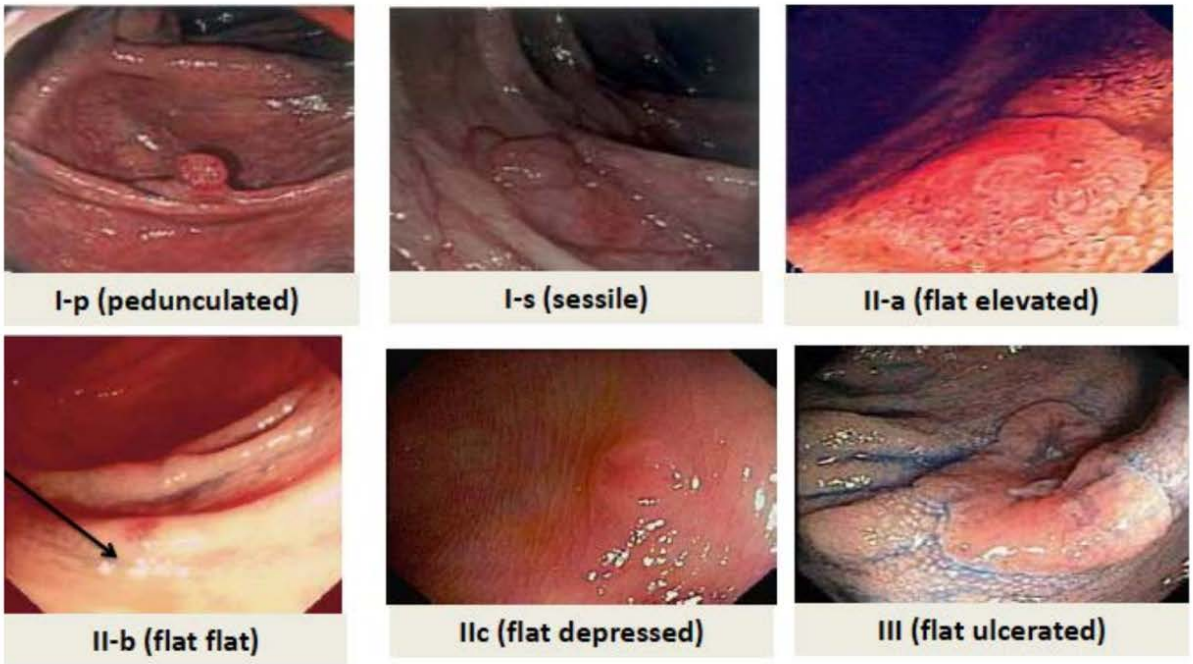
# Polyps: Paris Classification

| Table 1. The original Paris classification of early neoplasia morphology (8) | |
|---|---|
| Pedunculated | Ip |
| Subpedunculated | Isp |
| Sessile, higher than height of closed forceps (2.5 mm) | Is |
| Slightly elevated, below height of closed forceps (2.5 mm) | IIa |
| Completely flat lesion, does not protrude above mucosal surface | IIb |
| Slightly depressed, lower than mucosa but depth less than 1.2 mm | IIc |
| Excavated/ulcerated, deep ulcer below mucosa below 1.2 mm | III |



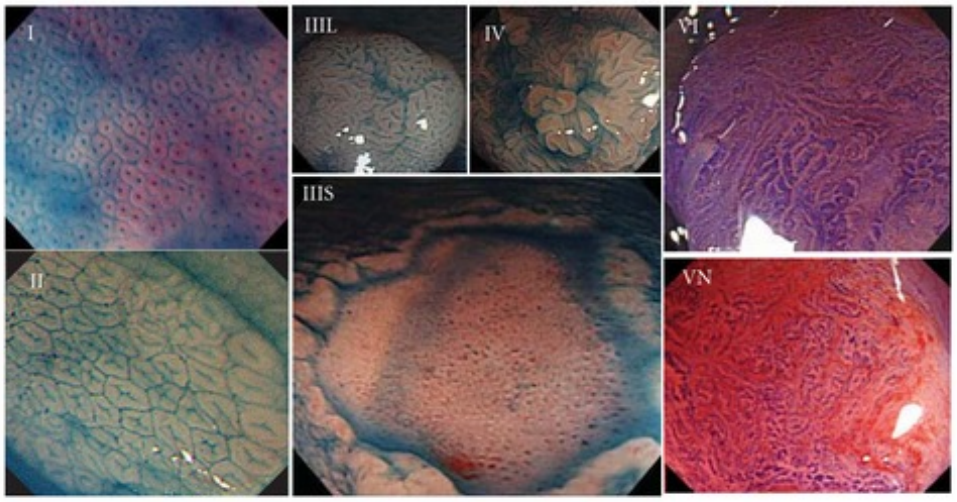

Van Doorn SC et al. *Am J Gastroenterol* 2015; 110:180–187

# Paris Classification of Polyps




*Coe SG et al. Am J Gastroenterol 2013; 108:219–226 - EQUIP Training Slide Set 2*

# Kudo Pit Pattern, Heitman – Endo skills day, 2018

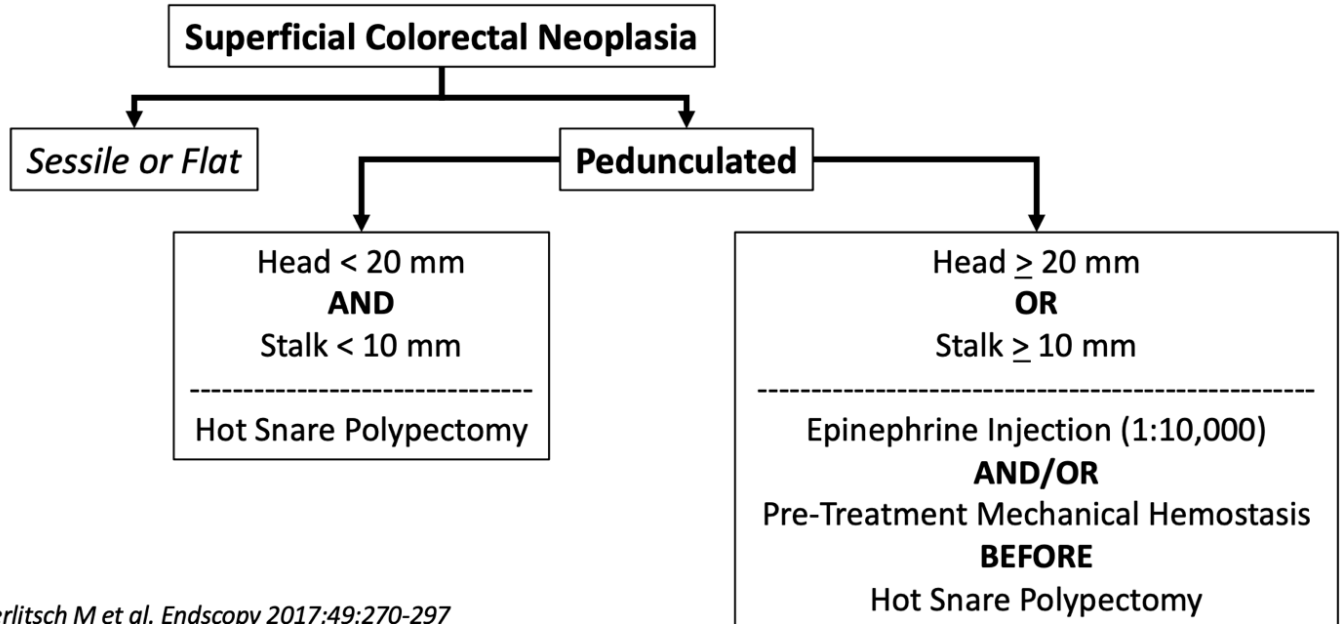
| | Clinical classification | | |
|---|---|---|---|
| | Nonneoplastic pattern | Noninvasive pattern | Invasive pattern |
| Kudo's classification | I · II | IIIL · IIIS · IV · (part of VI) | VI · VN |
| Endoscopic findings |   | | |
| Histology | Normal hyperplastic polyp | Adenoma *m **sm-slight | #sm-deep |
| Treatment | No treatment | Endoscopic treatment (polypectomy or EMR) | Surgical treatment |

*Intramucosal cancer, **sm superficial invasion (<1000 μm), #sm deep invasion (≥1000 μm).

Potholes are Bad! (Kudo 5-6) more likely cancer

# Pedunculated Polyps, Telford, Armstrong – Endo Skills Day 2020

## ESGE Guidelines




*Ferlitsch M et al. Endscopy 2017:49:270-297*

# Unsuccessful Lift

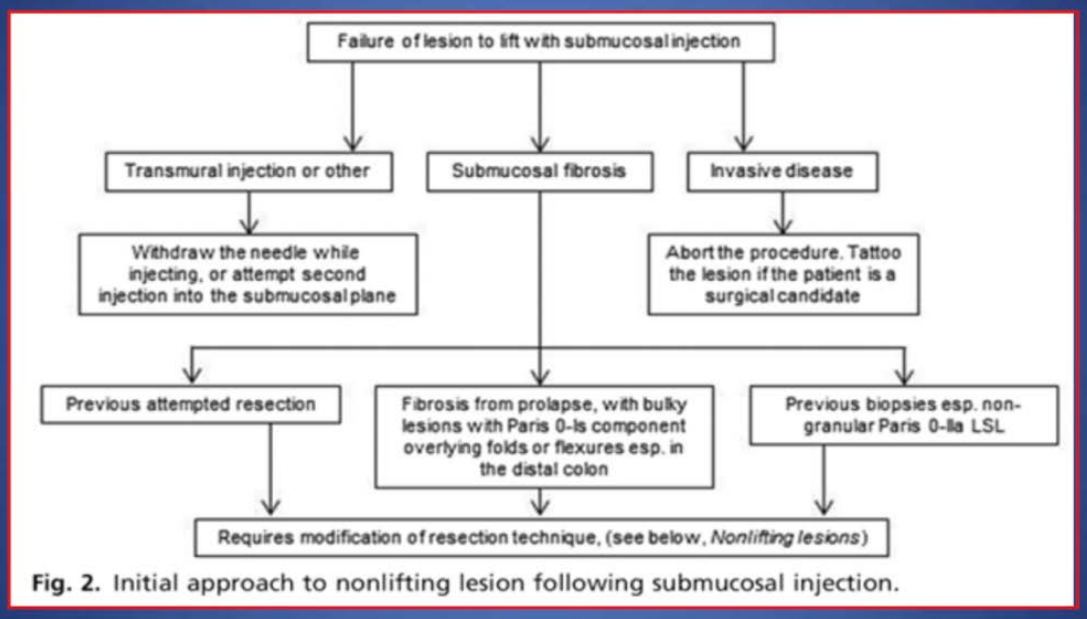
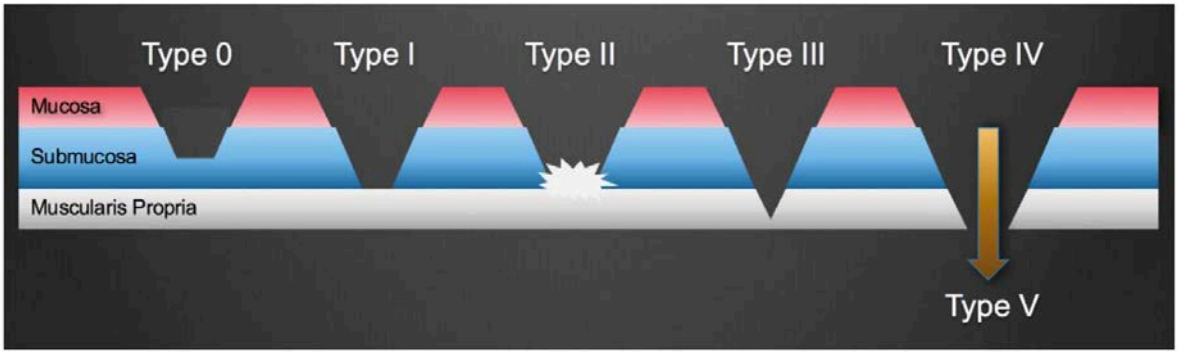



**Fig. 2.** Initial approach to nonlifting lesion following submucosal injection.

Jideh B and Bourke M. . *Gastrointest Endoscopy Clin N Am* 29 (2019) 629–646




**Sydney Classification of Deep Mural Injury (DMI) following EMR**

| | |
|---|---|
| **Type 0** | Normal defect. Blue mat appearance of obliquely oriented intersecting submucosal connective tissue fibres. |
| **Type I** | MP visible, but no mechanical injury. |
| **Type II** | Focal loss of the submucosal plane raising concern for MP injury or rendering the MP defect uninterpretable. |
| **Type III** | MP injured, specimen target or defect target identified |
| **Type IV** | Actual hole within a white cautery ring, no observed contamination |
| **Type V** | Actual hole within a white cautery ring, observed contamination |

ORIGINAL ARTICLE

Deep mural injury and perforation after colonic endoscopic mucosal resection: a new classification and analysis of risk factors

Nicholas G Burgess,[1,2] Milan S Bassan,[1] Duncan McLeod,[3] Stephen J Williams,[1] Karen Byth,[4] Michael J Bourke[1,2]

presented by Heitman, Mohamed, Endo Skills Days 2018

# Type 0-1 Injury

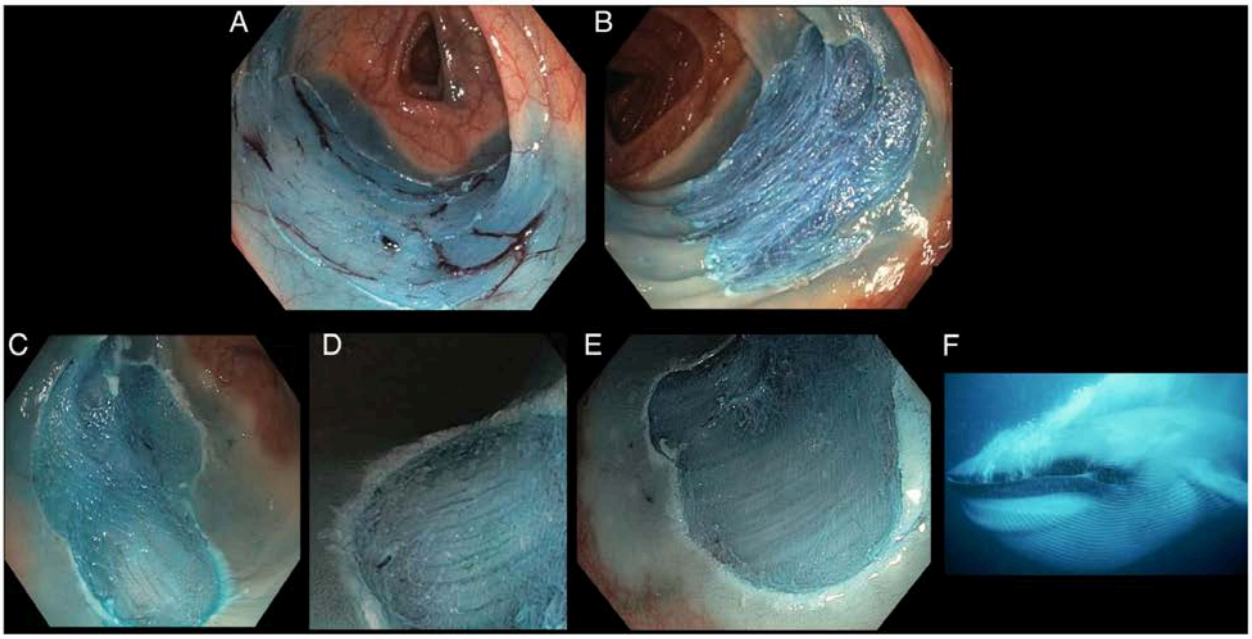



**Figure 3** (A, B) A 'type 0' defect is a normal postresection finding. The mucosa has been completely resected revealing the underlying partially resected submucosa. The submucosa is homogeneously stained by the chromogelofusine dye. Submucosal vessels may be exposed but are uninjured. (C, D, E, F) A 'type I' defect occurs when the submucosa has been completely resected and the underlying muscularis propria (MP) is revealed. The MP does not avidly stain with the chromic dye so has a white appearance, and the circumferential striations of the muscle layer are seen. This appearance resembles the ventral pleats of a blue whale seen from underwater so is referred to as the 'whale' sign (F). © Doc White / naturepl.com.

If unsure: spray MB post Clip post polypectomy 2-4 (not 0-1)

# Type 2 Injury

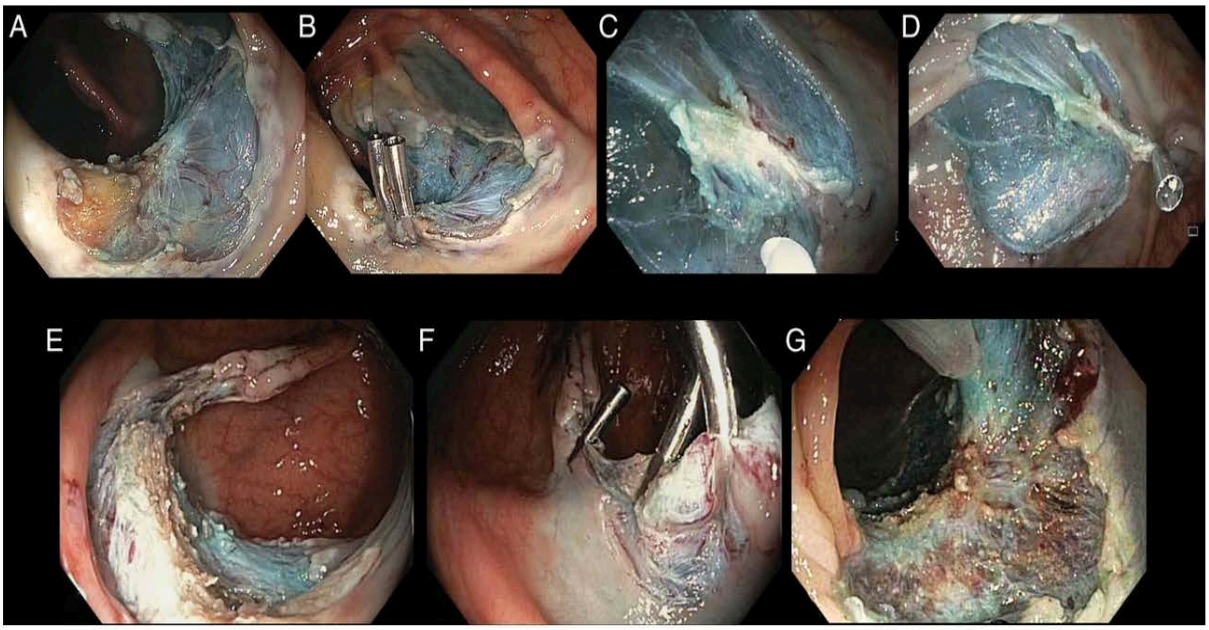



**Figure 4** In a 'type II' defect, the distinction between submucosa and muscularis propria is unclear often due to poorly staining submucosal fibrosis. (A) In this image, an area of poorly staining defect and submucosal fat is noted following snare resection. (B) Two clips are placed over the area of concern. (C) A focal area of fibrosis is noted following resection of a 30 mm caecal lesion. The area is interrogated by topical application of dye staining via an injection catheter with the needle retracted, however, it remains unstained. Clips are then placed across the area of concern. The first clip is shown in-situ, further clips were subsequently placed to close the entire fibrotic area. (E, F) An area of poor staining overlying a fold is treated with three clips. (G) This defect has a central area of fibrosis and cautery effect impairing the assessment of deep injury.

# Type 3-5 Injury

# (Including Target Sign)

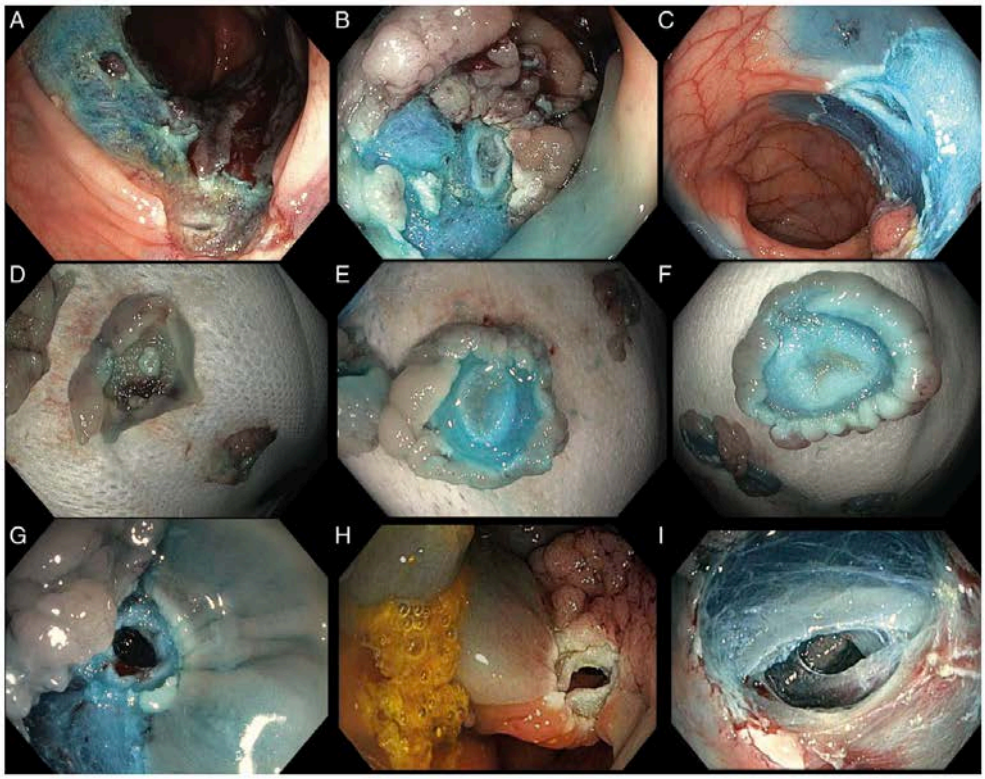
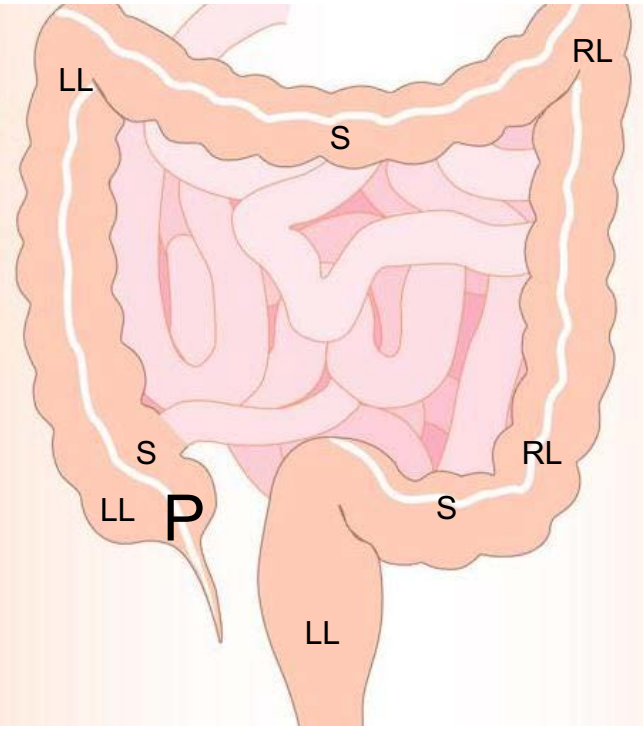



**Figure 5** A 'type III' defect refers to partial resection of the muscularis propria resulting in a defect target sign (DTS) (A, B, C) or a specimen target sign (D, E, F). These defects require clip closure of the DTS to prevent delayed perforation. A type IV defect is a complete hole, or full-thickness resection of the muscularis propria which is clean and not contaminated by faecal effluent. (G, H, I) A concentric ring of cautery artefact to the muscularis is observed. These defects should be closed immediately, although resection of the surrounding adenoma prior to clip placement should be performed where possible. If the closure site is not clear of adenoma, follow-up attempts at resection may be hampered by submucosal fibrosis, clip artefact and buried adenoma. A type V defect occurs where the full thickness perforation is contaminated by faecal effluent. These defects should also be closed and a surgical consultation obtained. Acute surgical intervention is required if there is clinical deterioration, features of peritonitis, evidence of significant free intraperitoneal fluid or failed endoscopic resection.

# Position Change

S Thomas Gibson, 2012 – Presented by Wong, Endo Skills Day 2019




Easy in light sedation

Optimal position

S supine

LL left lateral

P Prone

ASEP

Bailey's Top Colon Tips, Bailey - Endo Skills Day 2020

## Bailey's Tip Again- Do The 4 Suggestions

- Take your time withdrawing (6 Min)
- Retroflex in rectum
- Use Buscopan for any unwanted contractions
- Position the patient for better viewing-
  (even when they are deeply sedated

Gastrointestinal Endoscopy 2019)

ASEP
SOCIETY OF ENDOSCOPIC PRACTICE
ALBERTA

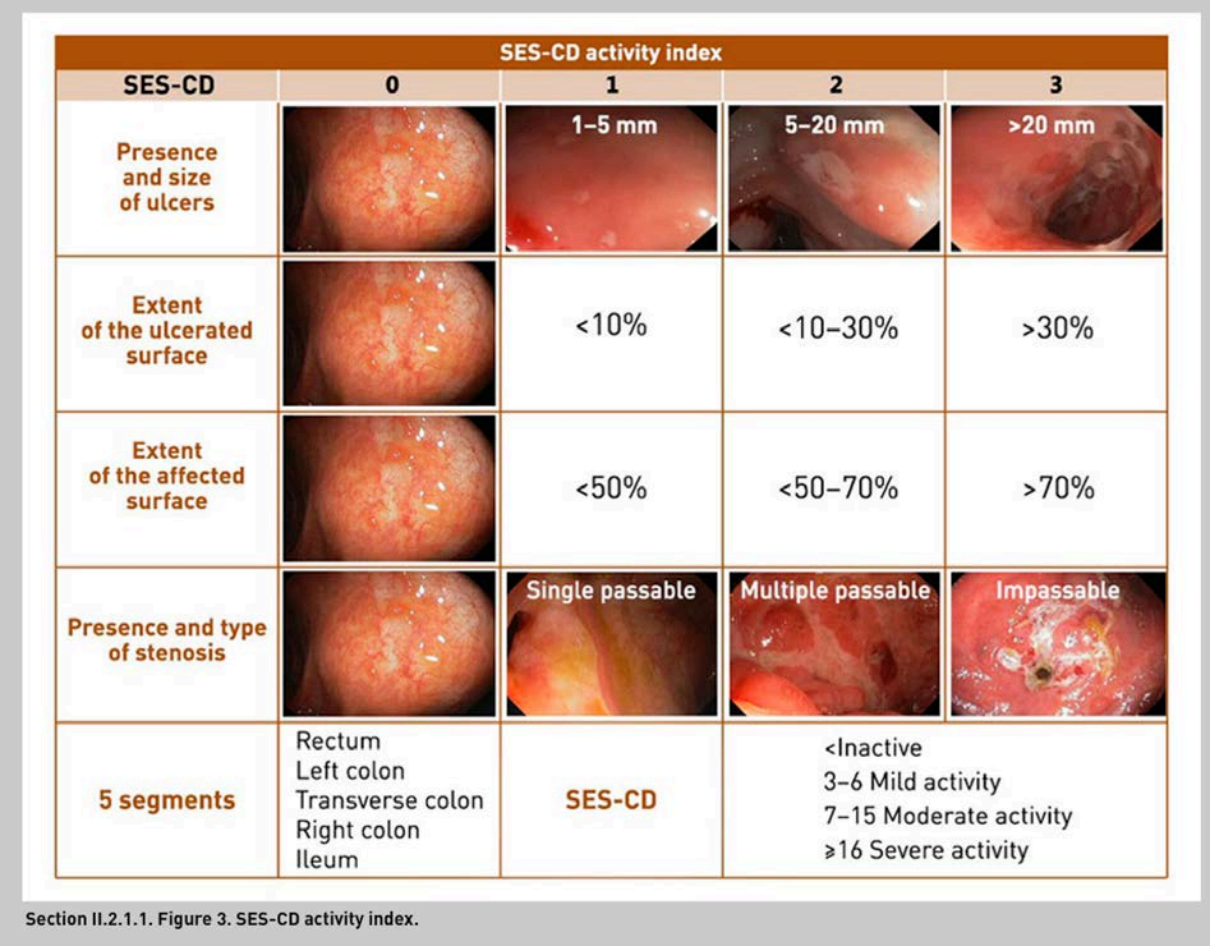
## Water exchange colonoscopy tips and tricks

- Water infusion is the least painful insertion technique reducing pain and requirement for sedation
- Colon cleanliness is increased leading to adenoma detection rate increase overall as well as in screening colonoscopies
- Cecal intubation time is marginally longer but only a total of one or two minutes.

GIE 2019

G I E August 2019

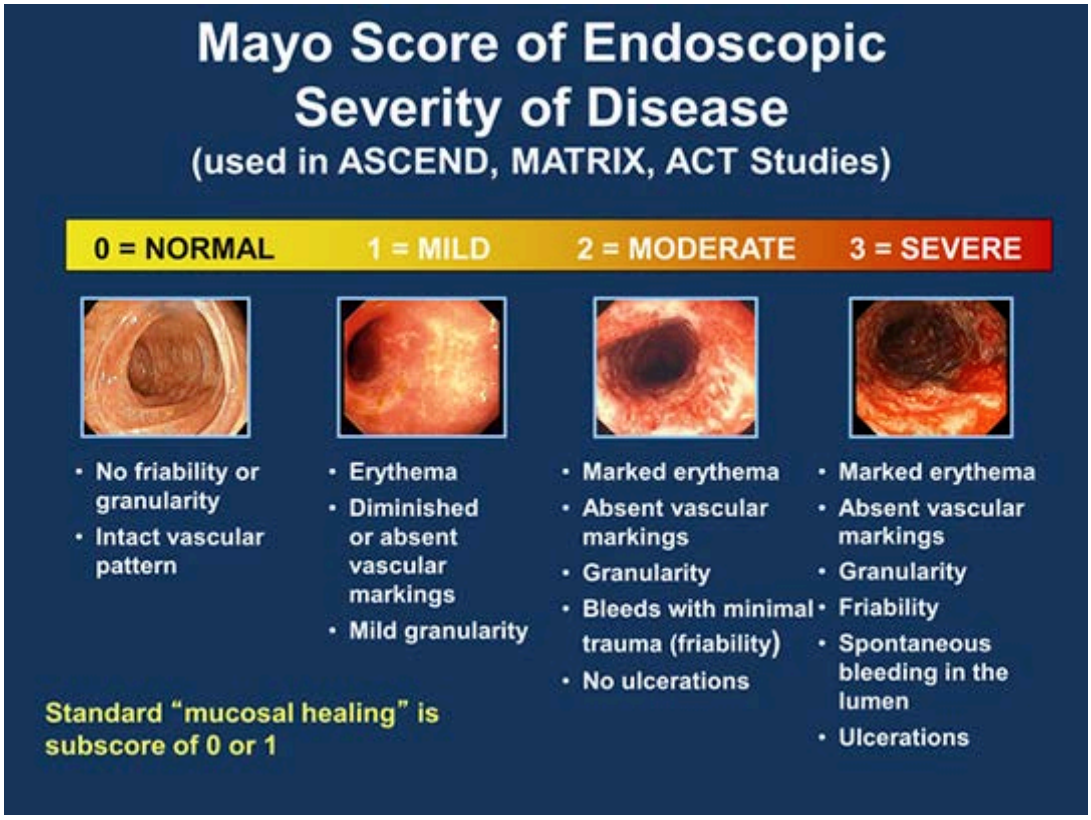
# Inflammatory Bowel Disease, Marr, Endo Skills Day 2019



| SES-CD activity index | | | | |
|---|---|---|---|---|
| **SES-CD** | **0** | **1** | **2** | **3** |
| **Presence and size of ulcers** | | 1–5 mm | 5–20 mm | >20 mm |
| **Extent of the ulcerated surface** | | <10% | <10–30% | >30% |
| **Extent of the affected surface** | | <50% | <50–70% | >70% |
| **Presence and type of stenosis** | | Single passable | Multiple passable | Impassable |
| **5 segments** | Rectum<br>Left colon<br>Transverse colon<br>Right colon<br>Ileum | **SES-CD** | <Inactive<br>3–6 Mild activity<br>7–15 Moderate activity<br>≥16 Severe activity | |

**Section II.2.1.1. Figure 3. SES-CD activity index.**

# Mayo Score, Marr, Endo Skills Day 2019



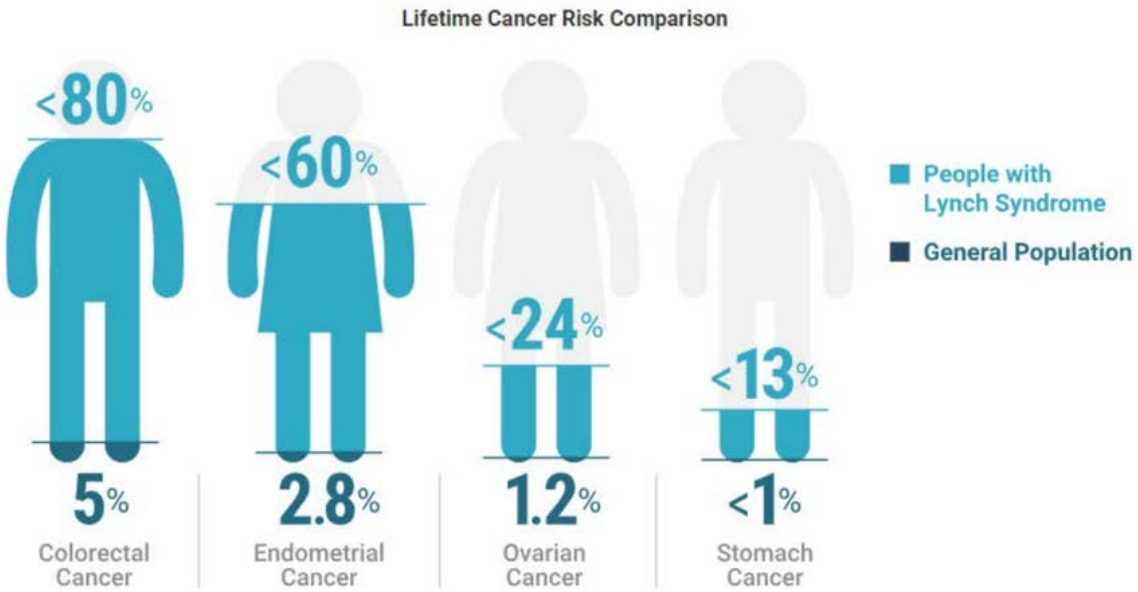
# Dysplasia Surveillance, Marr, Endo Skills Day 2019

Timeline of endoscopic surveillance according to risk factors after screening colonoscopy.
CRC, colorectal cancer; PSC, primary sclerosing cholangitis; OLT, orthoptic liver transplantation.

| Risk level | Risk factors | Surveillance |
|---|---|---|
| Lower risk | Extensive colitis with mild endoscopic or histological inflammation<br>Colitis affecting <50% of the colon | Every 5 years |
| Intermediate risk | Extensive colitis with mild endoscopic or histological inflammation [or both]<br>CRC in a first-degree relative older than 50 years | Every 2–3 years |
| Higher risk | Extensive colitis with moderate-to-severe endoscopic or histological inflammation [or both]<br>CRC in a first-degree relative younger than 50 years<br>History of PSC [included post-OLT]<br>Stricture in past 5 years<br>Dysplasia in the past 5 years in a patient who declines surgery | Yearly |

# Lynch Syndrome, Wong - Endo Skills Day 2020

## Lynch Risk of Cancer



# ACG Guidelines


PRACTICE GUIDELINES 223

ACG Clinical Guideline: Genetic Testing and Management of Hereditary Gastrointestinal Cancer Syndromes

Sapna Syngal, MD, MPH, FACG[1,2], Randall E. Brand, MD, FACG[3], James M. Church, MD, FACG[4,5], Francis M. Giardiello, MD[6], Heather L. Hampel, MS, CGC[7] and Randall W. Burt, MD, FACG[8]

Am J Gastroenterol 2015; 110:223–262; doi:10.1038/ajg.2014.435; published online 3 February 2015

Colonoscopy
Q2yrs
Age 20-25

EGD
Q3-5yrs
Age 30-35

Uterine
Biopsy or US
Age 30-35
Hysterectomy
Age 40-45

Genetic Testing

ASEP
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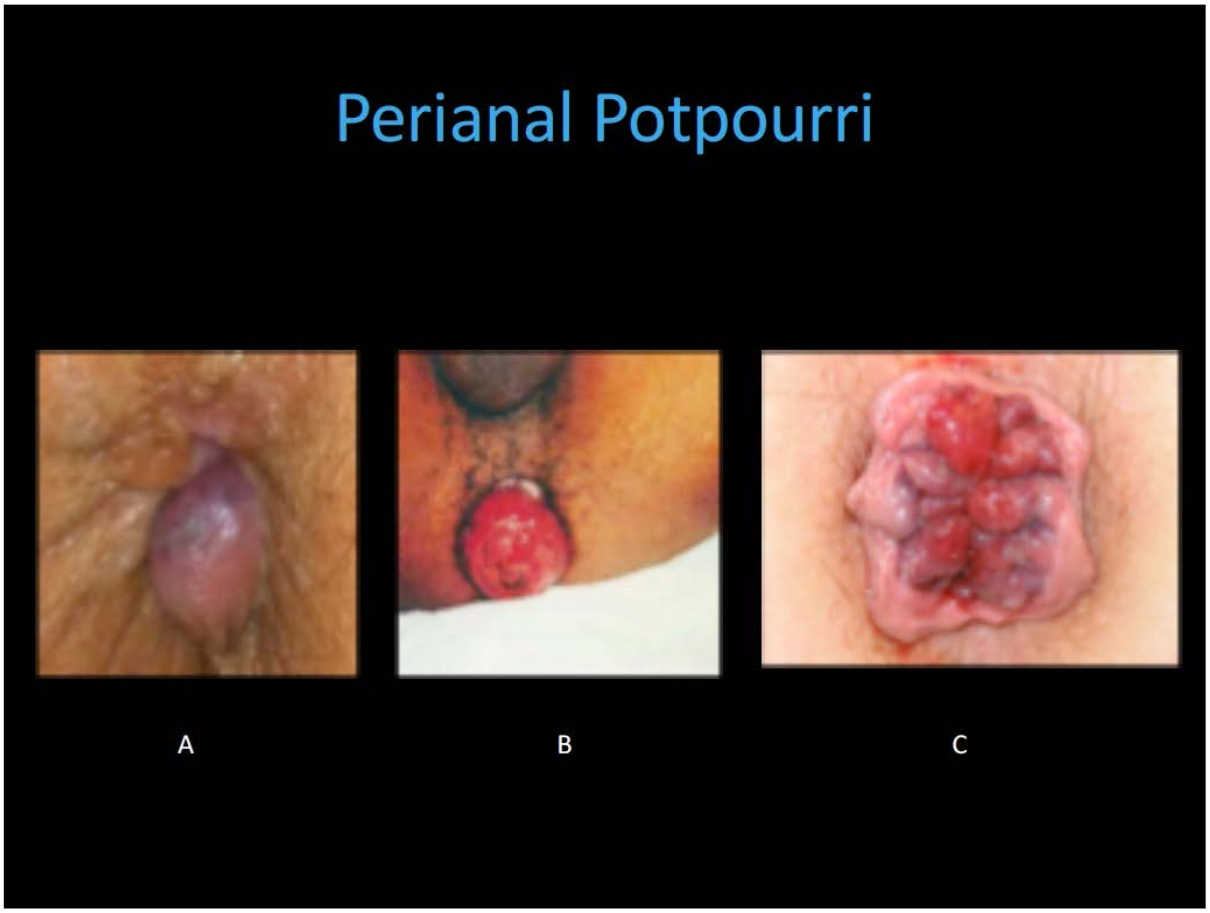
# Mok, Endoscopy Skills Day 2018




External Hemorrhoids, Rectal Prolapse, Internal Hemorrhoids

# DOPS: Formative Assessment Form

http://asep.ca/wp-content/uploads/2020/01/CSP-DOPS-Formative-Assessment-Form_ACTIVE_20180116.pdf

## Formative DOPS Assessment Form

### Colonoscopy and Flexible Sigmoidoscopy

*Adapted from Joint Advisory Group on GI Endoscopy*

BC CANCER
Provincial Health Services Authority

Colonoscopist

Trainer / Peer

Date (DD/MM/YYYY)

Scale and Criteria Key

4 Highly skilled performance
3 Competent and safe throughout procedure, no uncorrected errors
2 Some standards not yet met, aspects to be improved, some errors uncorrected
1 Accepted standards not yet met, frequent errors uncorrected
n/a Not applicable

■ Major Criteria ▫ Minor Criteria

| Criteria | Scale | Comments |
|---|---|---|
| **Assessment, consent, communication** | | |
| ■ Obtains informed consent using a structured approach<br>o Satisfactory procedural information<br>o Risk and complications explained<br>o Co-morbidity<br>o Sedation<br>o Opportunity for questions | | |
| ■ Demonstrates respect for patient's views and dignity during the procedure | | |
| ■ Communicates clearly with patient, including outcome of procedure with appropriate management and follow up plan. Full endoscopy report. | | |
| **Safety and sedation** | | |
| ■ Safe and secure IV access | | |
| ■ Gives appropriate dose of analgesia and sedation and ensures adequate oxygenation and monitoring of patient | | |
| ■ Demonstrates good communication with the nursing staff, including dosages and vital signs | | |
| **Endoscopic skills during insertion and procedure** | | |
| ▫ Checks endoscope function before intubation | | |
| ▫ Performs PR | | |
| ■ Maintains luminal view / inserts in luminal direction | | |
| ■ Demonstrates awareness of patient's consciousness and pain during the procedure and takes appropriate action | | |
| ▫ Uses torque steering and control knobs appropriately | | |
| ▫ Uses distension, suction and lens washing appropriately | | |
| ■ Recognises and logically resolves loop formation | | |
| ▫ Uses position change and abdominal pressure to aid luminal views | | |
| ▫ Completes procedure in reasonable time | | |
| **Diagnostic and therapeutic ability** | | |
| ■ Adequate mucosal visualisation | | |
| ■ Recognises caecal/desc. colon landmarks or incomplete examination | | |
| ■ Accurate identification and management of pathology | | |
| ■ Uses diathermy and therapeutic techniques appropriately and safely | | |
| ■ Recognises and manages complications appropriately | | |
| **ENTS (endoscopic non-technical skills)** | | |
| ■ Communication and teamwork | | |
| ■ Situation awareness | | |
| ■ Leadership | | |
| ■ Judgement and decision making | | |

Case Difficulty

| Extremely easy | Fairly easy | Average | Fairly difficult | Very challenging |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

Learning Objectives for Next Cases


# MISCELLANEOUS

Alberta Health Services | Alberta Colorectal Cancer Screening Program

## Suggested Management of Antithrombotic Agents for a Screening-Related Colonoscopy

| Antithrombotic Agent | Recommended interval between last dose and procedure | Recommended interval between procedure and next dose | If therapeutic intervention performed* |
|---|---|---|---|
| **Anticoagulant agent** | | | |
| Coumadin® (warfarin) | 5 d | <24 hrs | <24 hrs |
| Low molecular weight heparin (LMWH)** | 24 hrs | <24 hrs | 48 hrs |
| Pradaxa® (dabigatran)<br>*(Predominantly renal excretion. Assessment of renal function is essential)* | 48 hrs GFR ≥60 mL/min<br>5 d GFR 30-59 mL/min<br>GFR <30 mL/min=NOT ELIGIBLE FOR SCREENING COLONOSCOPY | 1 d | 48 hrs |
| Xarelto® (rivaroxaban) | 48 hrs | 1 d | 48 hrs |
| Eliquis® (apixaban) | 48 hrs | 1 d | 48 hrs |
| **Antiplatelet agent** | | | |
| Aspirin® (81 mg or 325 mg) | continue | | N/A |
| Plavix® (clopidogrel) | 5 d | 1 d | 1 d |
| Effient® (prasugrel) | 5 d | 1-2 d | 1-2 d*** |
| Brilinta® (ticagrelor) | 5 d | 1-2 d | 1-2 d*** |
| Aggrenox® (dypiridamole/ASA) | 7-10 d<br>(consider starting Aspirin bridge) | 1 d | 1 d |

GFR-glomerular filtration rate mL/min. In the absence of kidney damage, a GFR ≥60 mL/min/1.73sq.m is considered normal. Please see http://www.akdn.info/index.php for more information regarding GFR.
*Restarting antithrombotics is dependent on endoscopic intervention performed during the procedure. When large polyps (≥1cm) have been removed with electrocautery, use caution if restarting NOACs – therapeutic anticoagulation occurs within a few hours of restarting the drug.
**warfarin and LMWH bridging instructions for a screening-related colonoscopy can be found in the ACRCSP Antithrombotic Management document available on http://www.albertahealthservices.ca/9232.asp
***Restarting prasugrel and ticagrelor should be approached cautiously after polypectomy; both drugs achieve full antiplatelet effect in 4 hours.