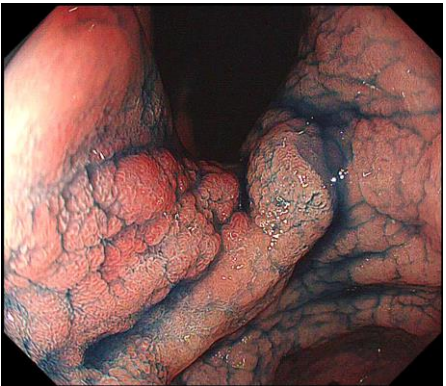


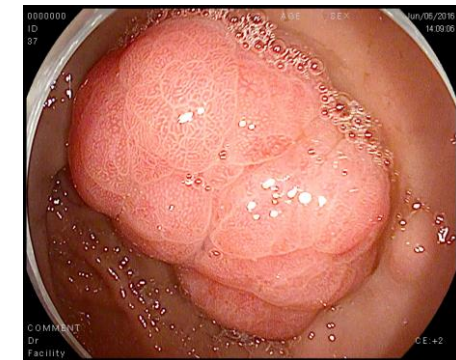
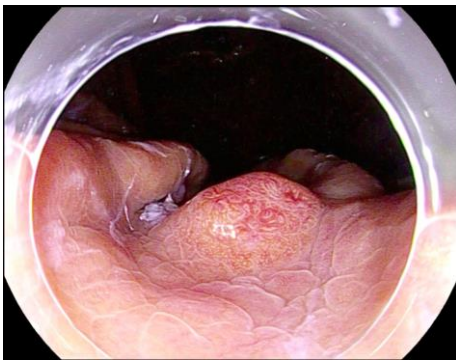
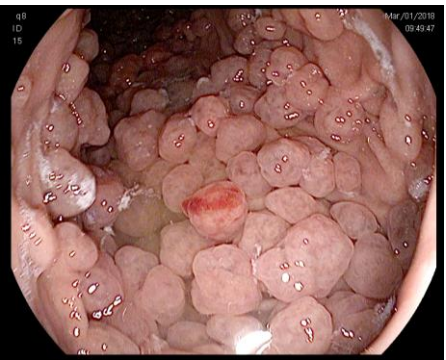
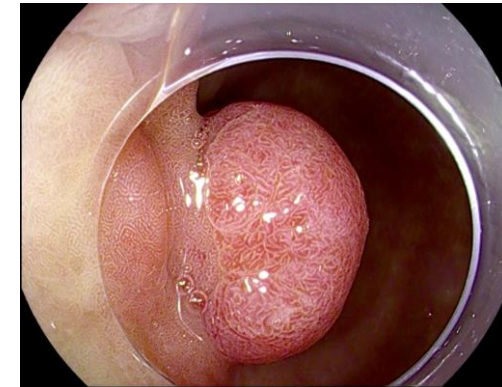
Gastric Lesions

Kingston Health
Sciences Centre

Banff Endoscopy Skills Conference



Robert Bechara MD FRCPC
Gastroenterology and Advanced Therapeutic Endoscopy
Kingston Health Sciences Centre



Faculty/Presenter Disclosure

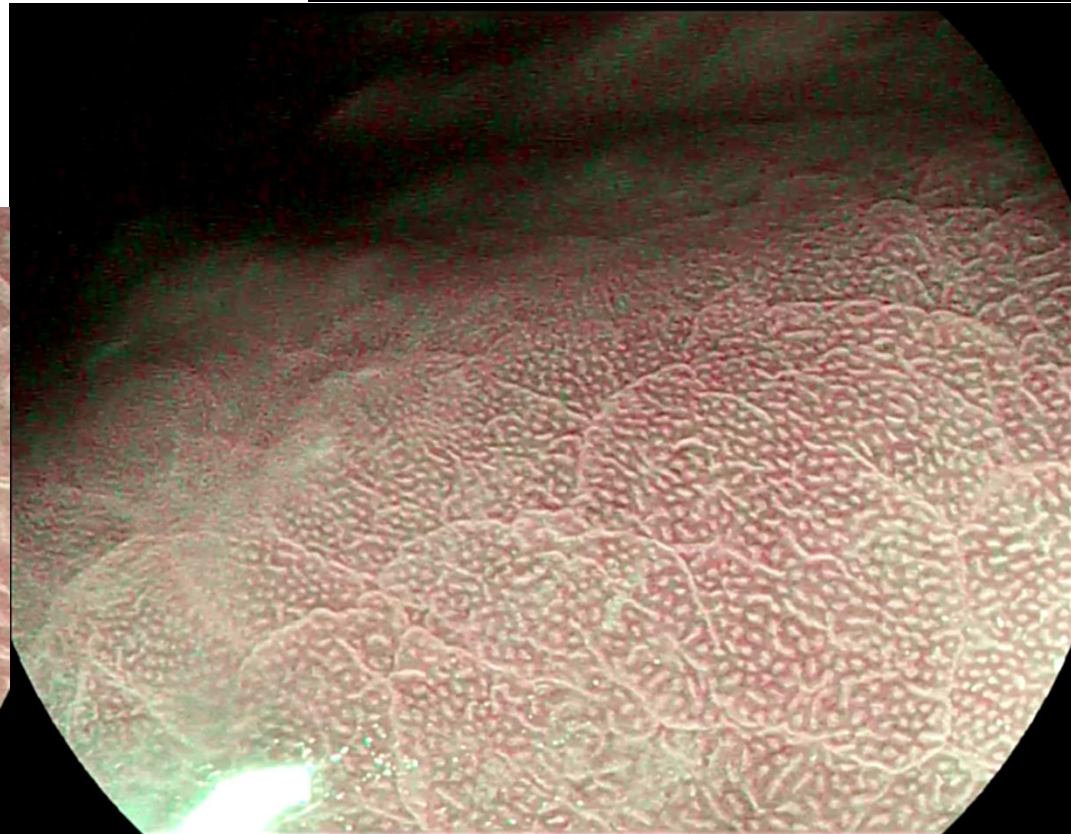
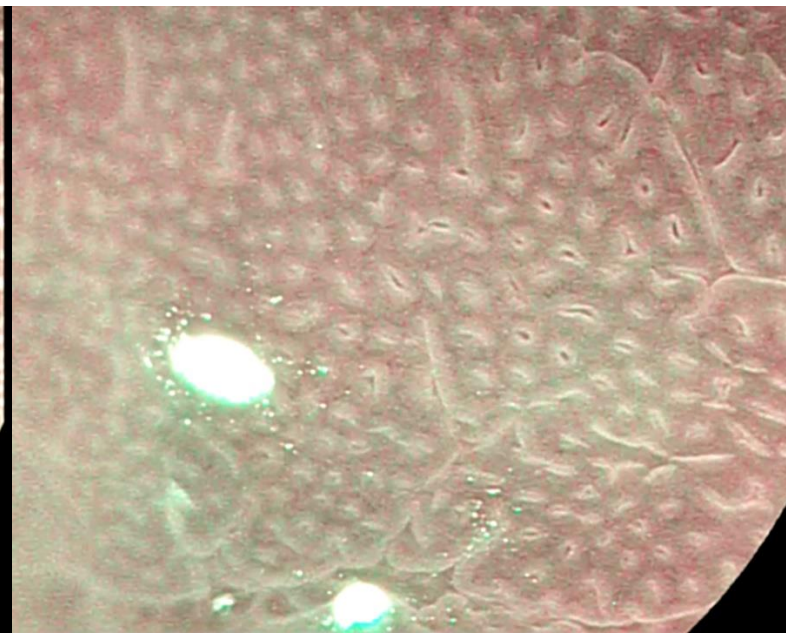
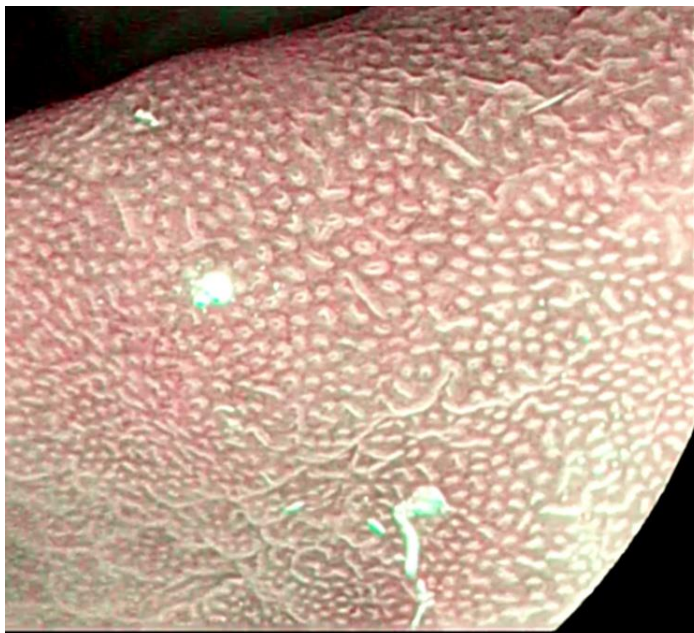
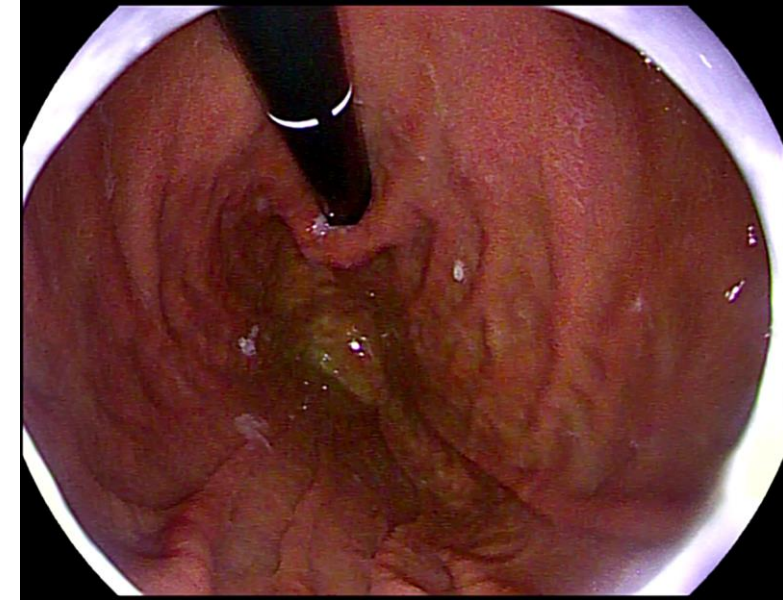
- **Presenter:** Robert Bechara
- **Relationships that may introduce potential bias and/or conflict of interest:**
 - **Grants/Research Support:** Pentax
 - **Speakers Bureau/Honoraria:** Olympus
 - **Consulting Fees:** Olympus
 - **Other:**

Objectives

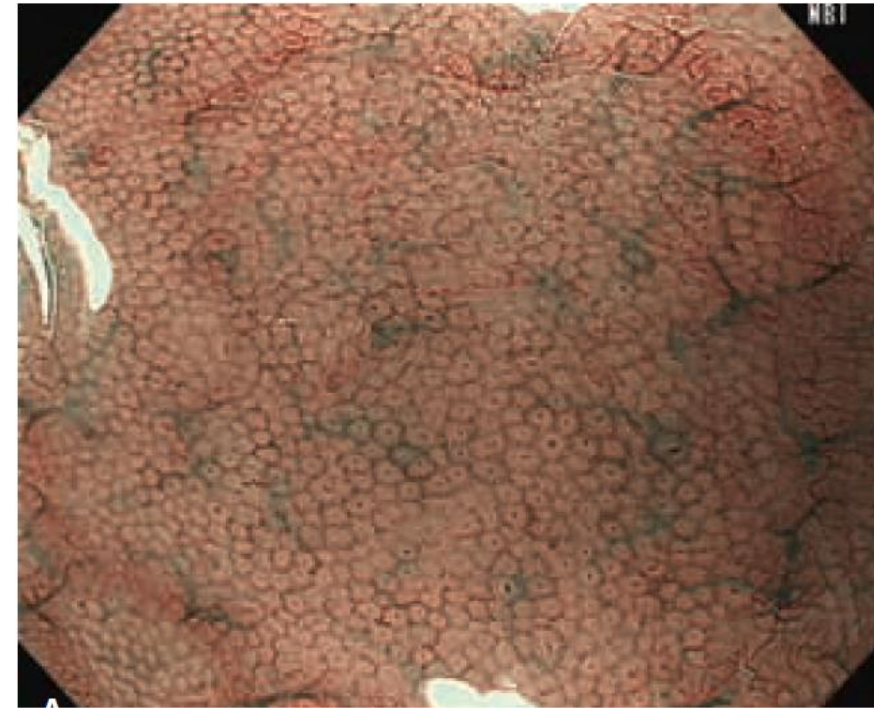


- Appreciate the appearance of the normal gastric mucosa
 - Microsurface (MS) and microvasculature(MV)
- Be able to distinguish between normal and neoplastic gastric mucosa
- Be aware of the endoscopic appearance, management & follow-up of:
 - Early gastric cancer (EGC)
 - Fundic gland polyps (FGP)
 - Hyperplastic polyps (HP)
 - Gastric adenomas (GA)
 - Neuroendocrine Tumors (NET)

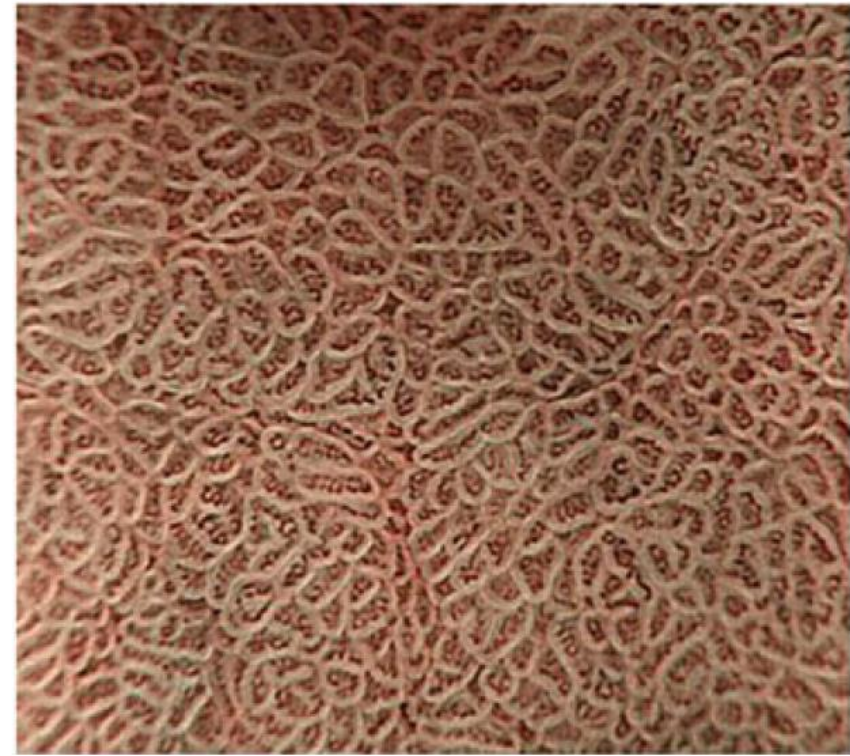
Normal Gastric Mucosa



Microstructure-Body/fundus

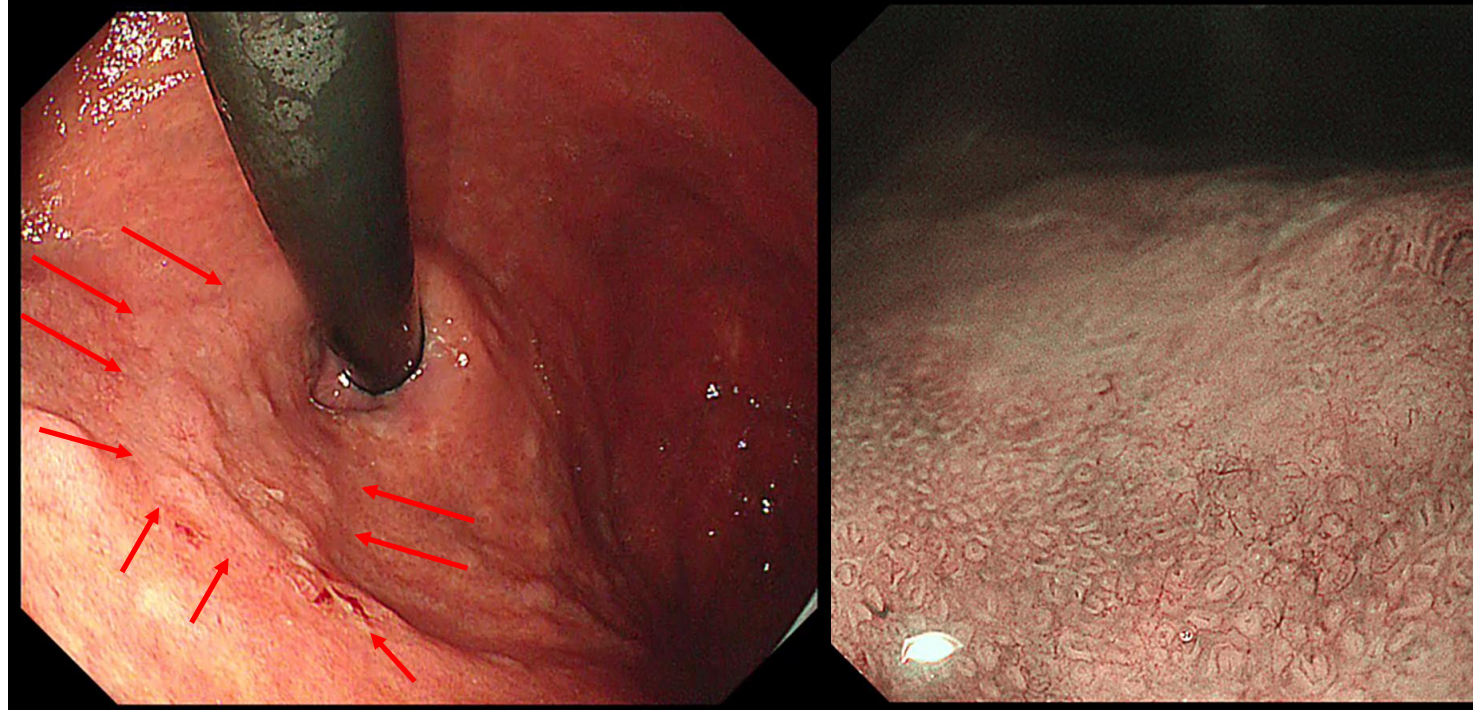


Microstructure- Antrum



Characterizing Gastric Lesions-VS Classification

- Demarcation line (DL)
 - Present/**Absent**
- Microvasculature (MV): SECN, CV
 - Regular/**Irregular**/**Absent**
- Microsurface (MS): CO, MCE
 - Regular/**Irregular**/**Absent**



What is an irregular microvascular pattern?



1. Group

- a) Irregular vessel arrangement, shading, morphology, distribution, directionality

2. Individual

- a) Unequal sizes/shape/caliber/shades/loops and irregular branches

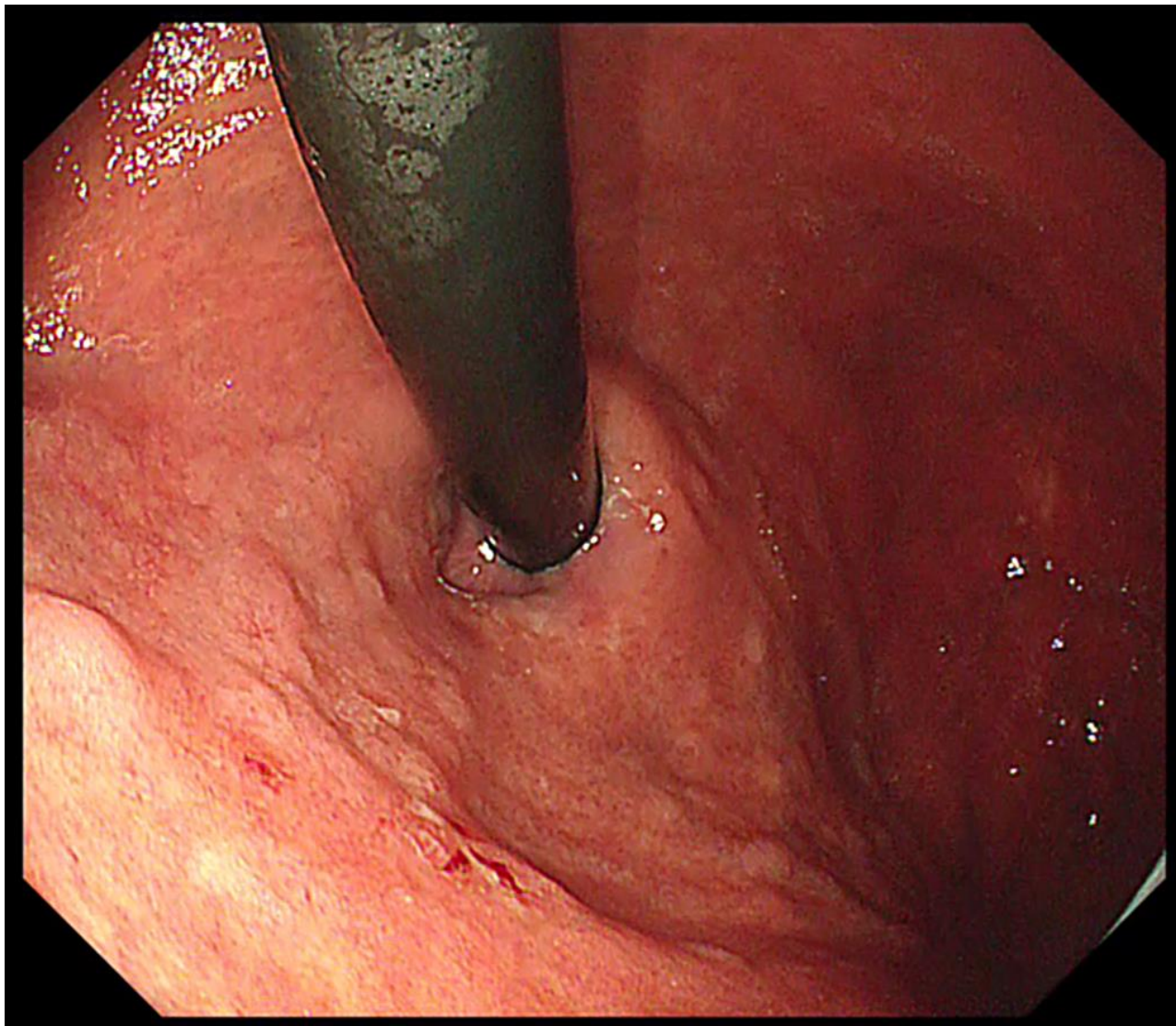


What is an irregular microsurface pattern?

- Within the lesion, the MCE and IP
 - Do not show a regular repeating pattern

- The MCE distribution and arrangement are also non-uniform
 - Lengths and widths not uniform
 - Breaks and interruptions
 - Asymmetrical distribution and irregular arrangement

Early Gastric Cancer

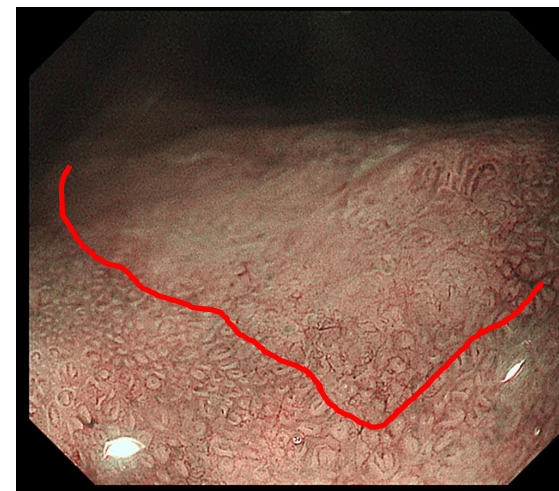
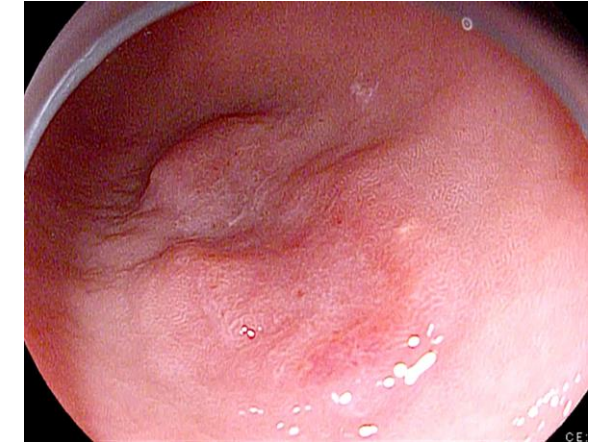
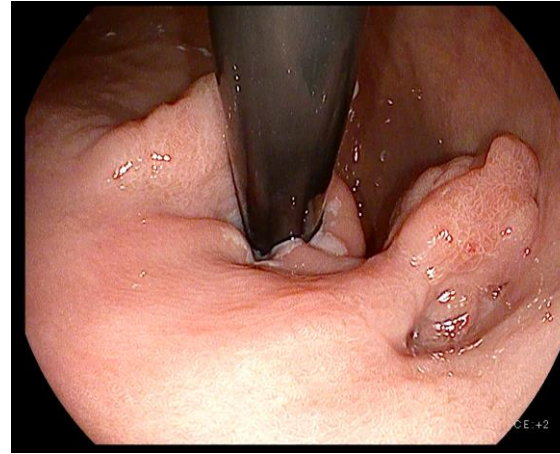


Gastric Cancer

- In US CRC incidence is 17-23 per 100 000/year
- Mongolia/South Korea/China/Japan gastric Cancer incidence up to 20-40 per 100 000 per year
- Risk Factors
 - Family Hx, atrophic gastritis, intestinal metaplasia, dysplasia, high risk ethnicity

Early Gastric Cancer

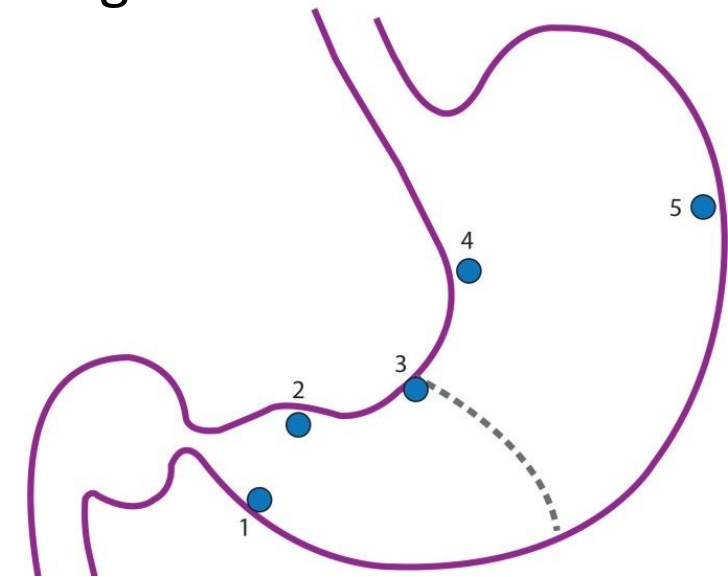
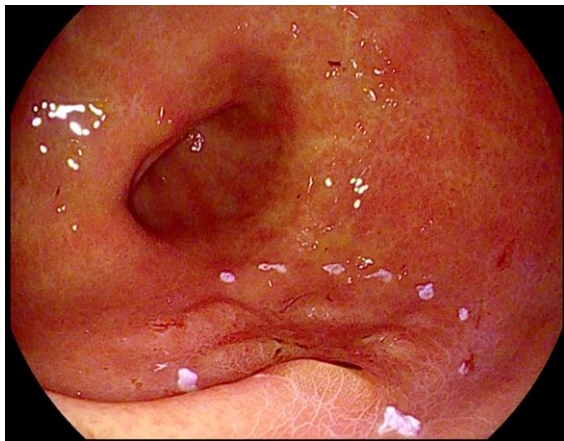
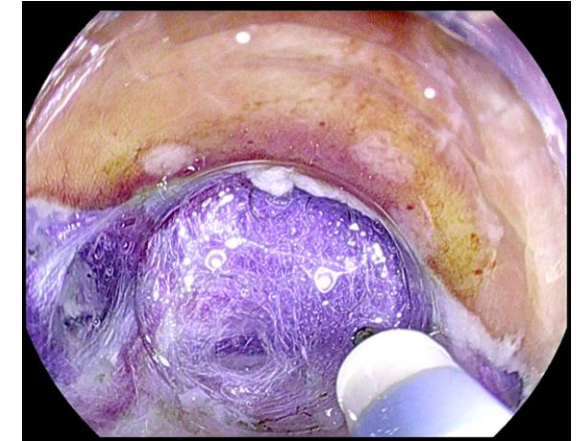
- Location
 - Anywhere
- Macroscopic
 - Any: Paris IIa/b/c (most common)
- Microscopic
 - Demarcation line with IMVP and/or IMSP
 - *same principle for Barretts*



Early Gastric Cancer

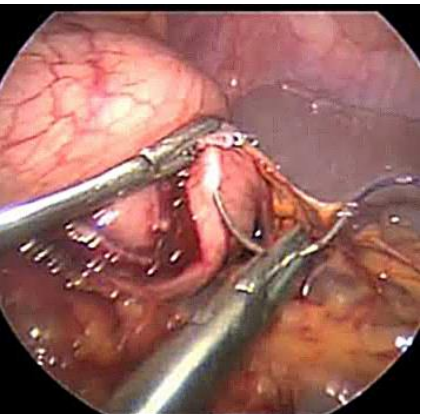
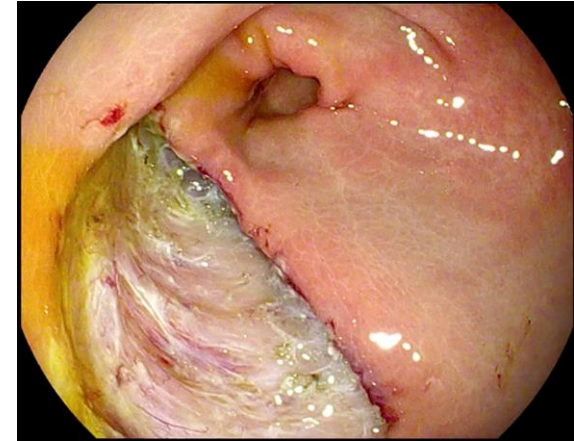
- Management

- EGC and all gastric dysplasia should be resected en bloc
 - $\leq 1\text{cm}$ EMR
 - $>1\text{cm}$ ESD
- Ensure thorough assessment of background mucosa with image enhanced endoscopy (IEE) +Sydney protocol for mapping Bx
 - Incidence of synchronous dysplasia 30%

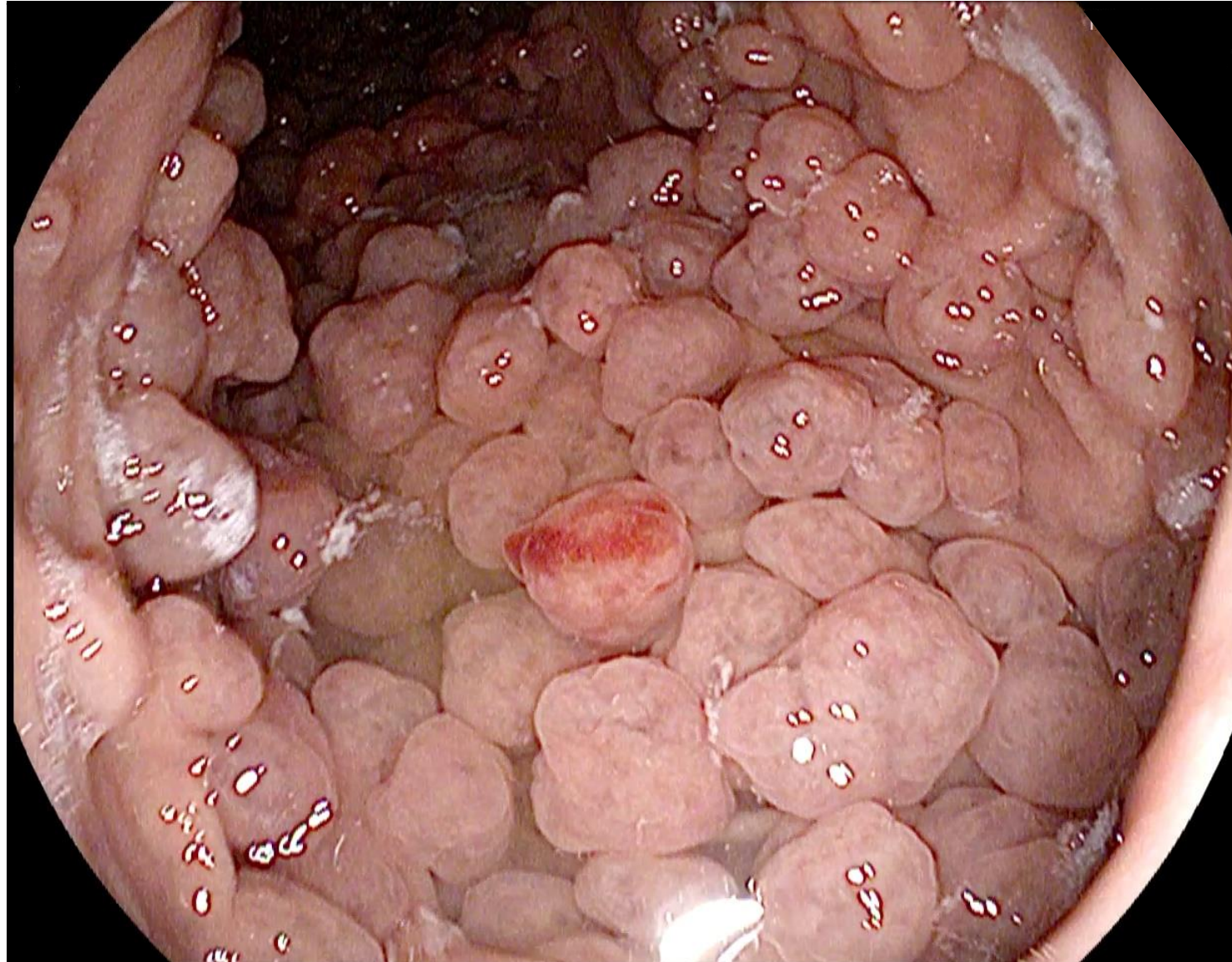


Early Gastric Cancer

- After curative resection (R0),
 - Patient should undergo follow-up EGD in 6-12 months
 - Surveillance q1year with image enhanced endoscopy
- If non-curative resection
 - Repeat EMR/ESD (if lateral margin +)
 - Surgical resection (if vertical margin +ve due to deep submucosal invasion, unfavorable histology)



Fundic Gland Polyps



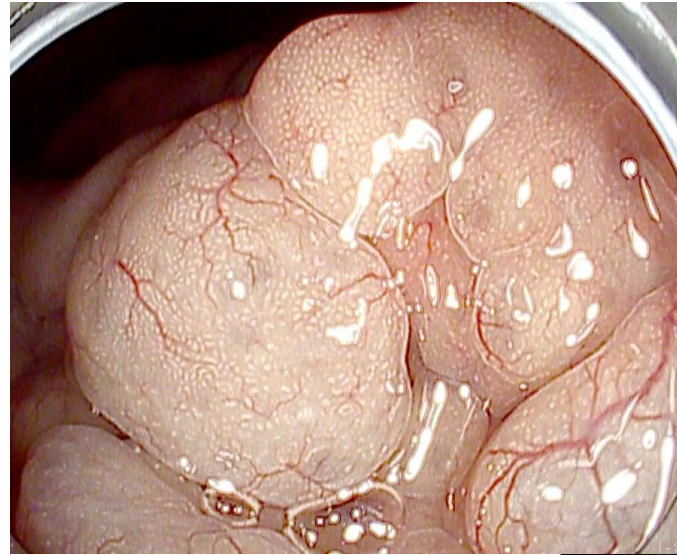
Fundic Gland Polyps

- Most common polyps encountered
 - ~5% of patients undergoing endoscopy
 - ~75% of all polyps encountered
- Clinical
 - Sporadic
 - PPI-induced
 - FAP
- Risk of dysplasia
 - Overall <1% in sporadic/PPI
 - if >1cm ~2%
 - FAP-up to 40% can have dysplasia

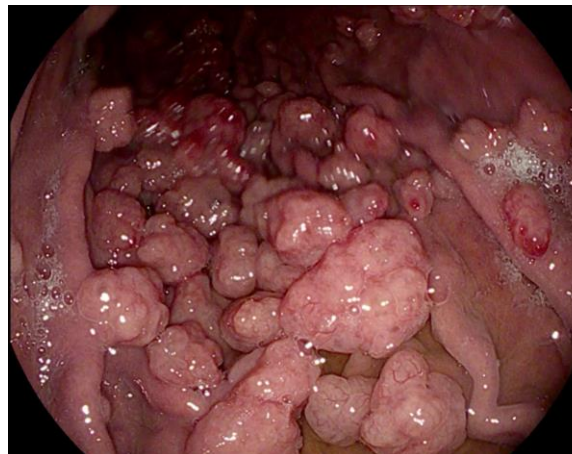


Fundic Gland Polyps

- Location
 - Body
- Macroscopic
 - Paris Isp/p/s
 - Smooth, shiny, no exudates, prominent CVs
- Microscopic
 - Have similar MV and MS as normal gastric body



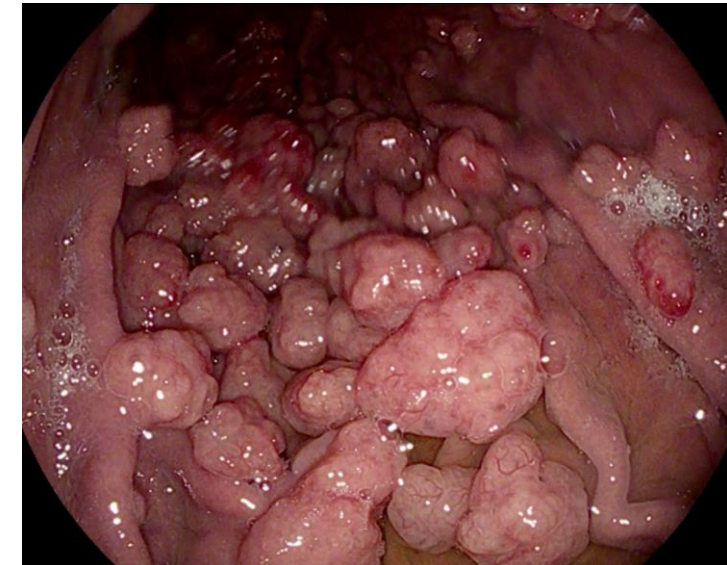
Fundic Gland Polyps



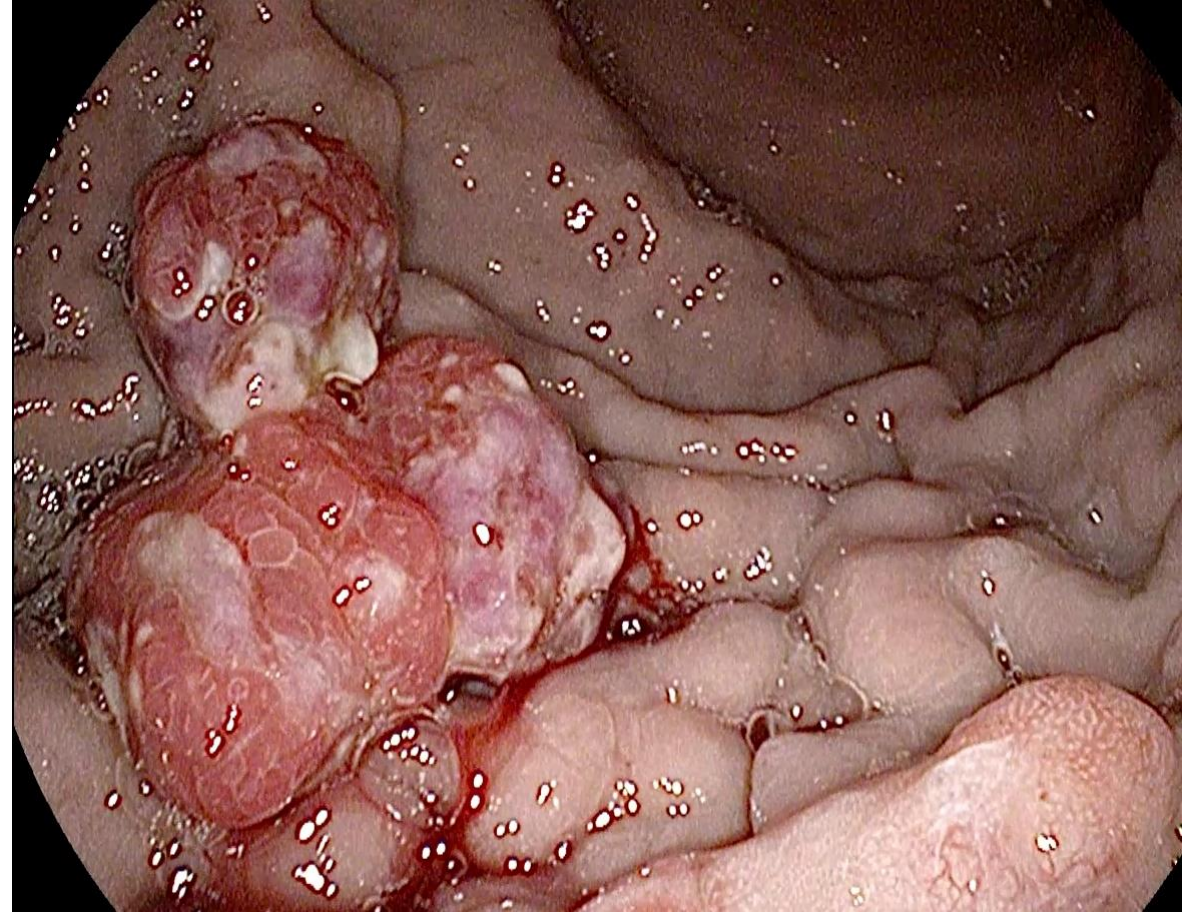
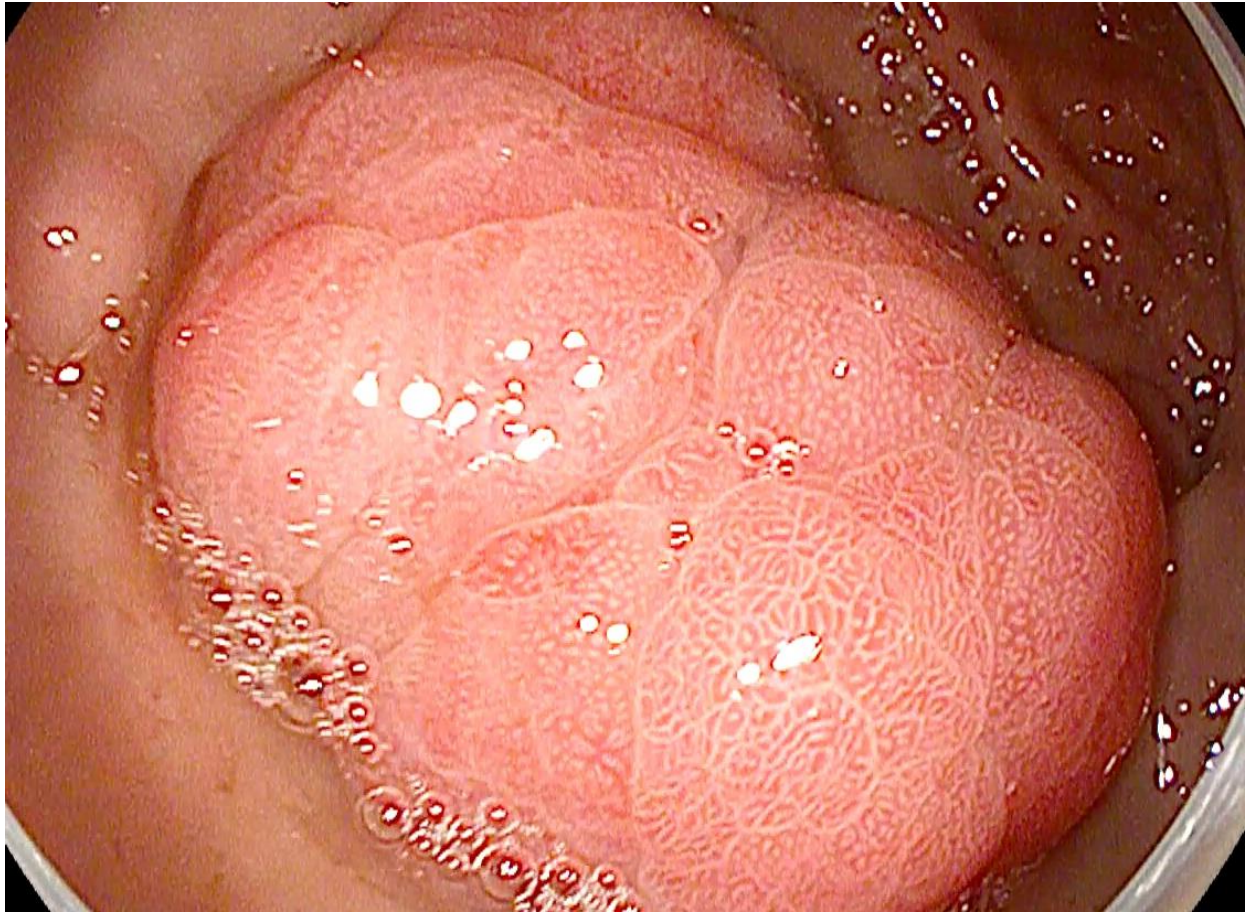
- Document: size, number, location
- If:
 - <1cm → representative bx
 - >1cm → generally recommend resection
 - >20, LGD or duodenal adenomas
 - Sample based on above and also C-scope
- Resection tips*
 - Use a thicker, braided snare (offers more coagulation)
 - Ensure you get snare to base of FGP (can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

Fundic Gland Polyps

- Generally do not require follow-up
- Patients with FAP should have surveillance EGD due to the increased risk of gastric neoplasia
 - Interval q1-5 years depending on Spigelman classification

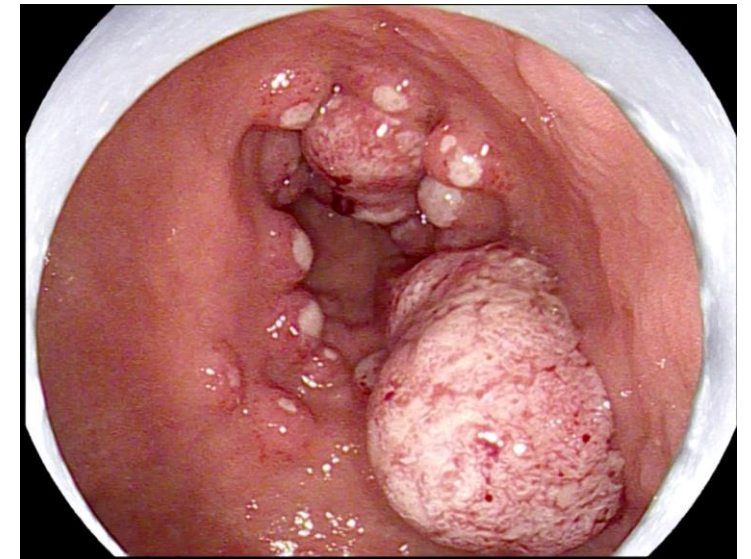


Hyperplastic polyps



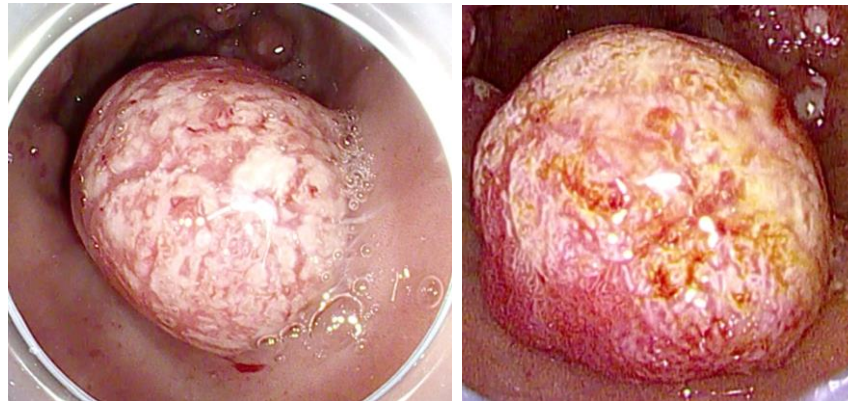
Hyperplastic polyps

- 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%

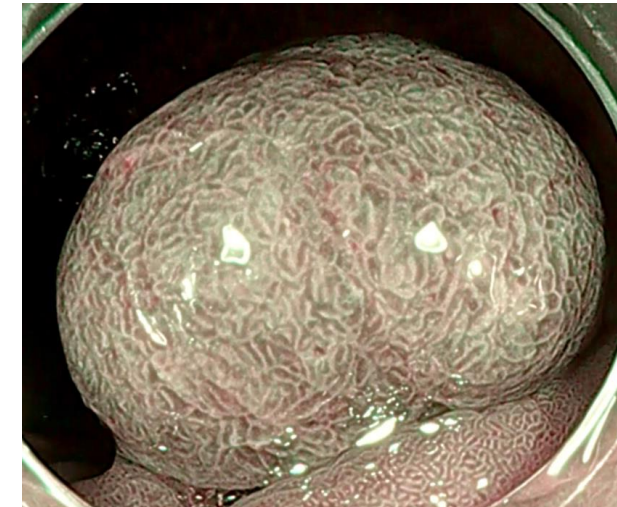


Hyperplastic polyps

- Location
 - Anywhere in the stomach, but are more common in the antrum



- Macroscopic
 - Paris Is/sp/p
 - Can be friable with overlying mucin, surface erosions

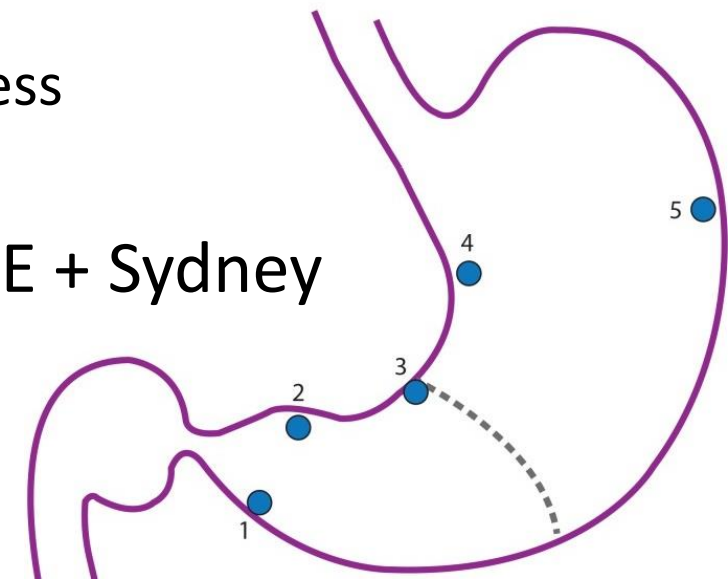


- Microscopic
 - Very dense vascular structure, with elongated/villous microsurface



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

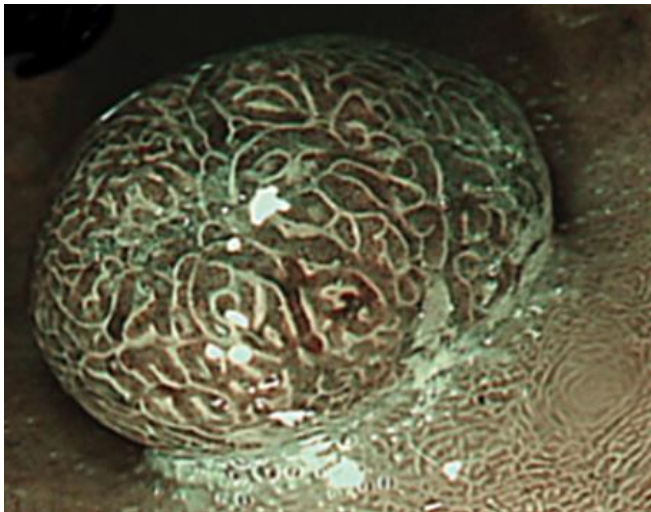


Hyperplastic polyps

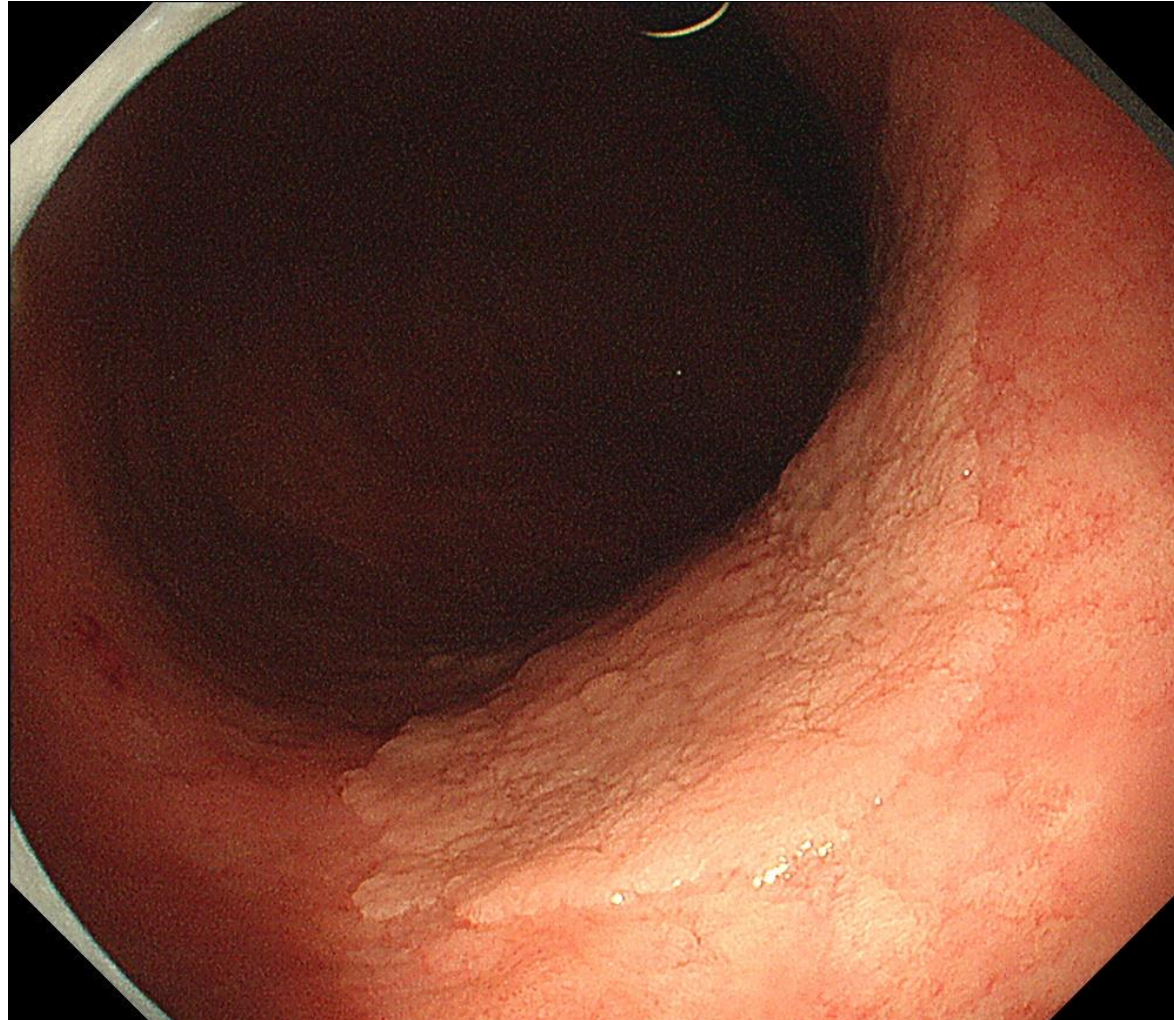
- Resection tips*
 - Submucosal Injection +/- epi
 - For Paris Ip/Isp lesions, use a thicker, braided snare
 - For Paris Is lesions ≥ 3 cm, use a thinner snare to increase current density as tend to have +++ fibrosis and current may not conduct current well
 - piecemeal removal, ESD or limited ESD with snare (“hybrid ESD”)
 - Be prepared for hemostasis

Hyperplastic polyps

- If removed piecemeal and/or if inciting factor not removed tend recur
 - Repeat EGD in 1 year
- Surveillance is recommended if there is evidence of dysplasia, atrophy or intestinal metaplasia



Adenomatous polyps

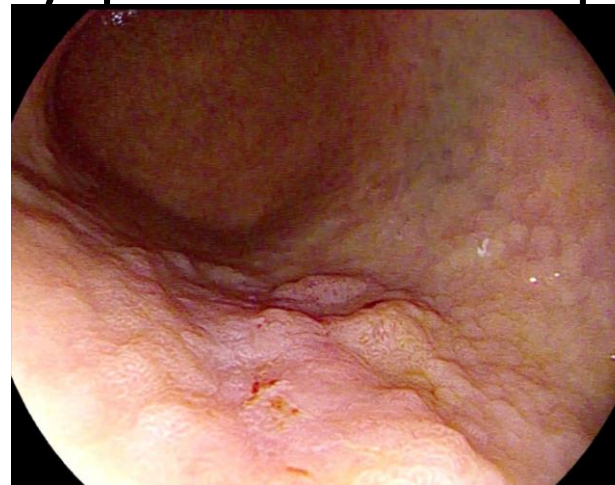


Clinical

Endoscopic Appearance
Management
Follow-up

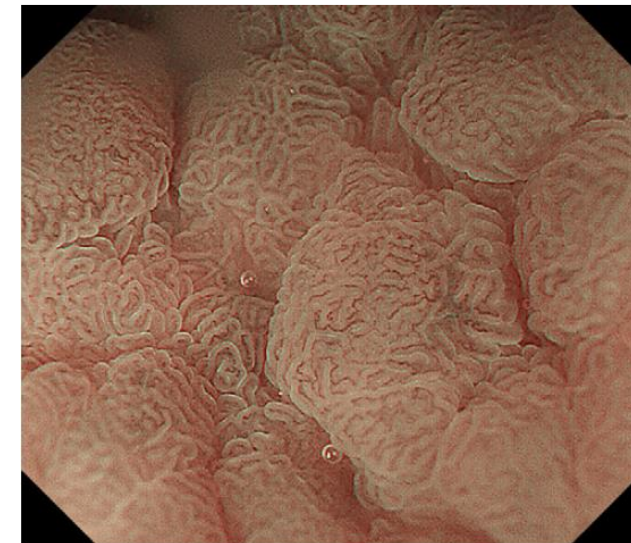
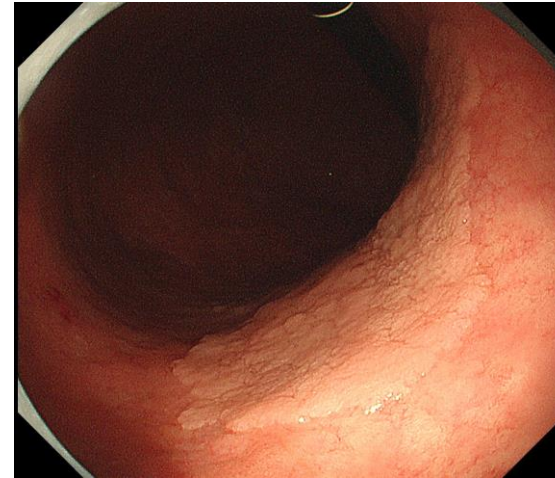
Adenomatous polyps

- 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%



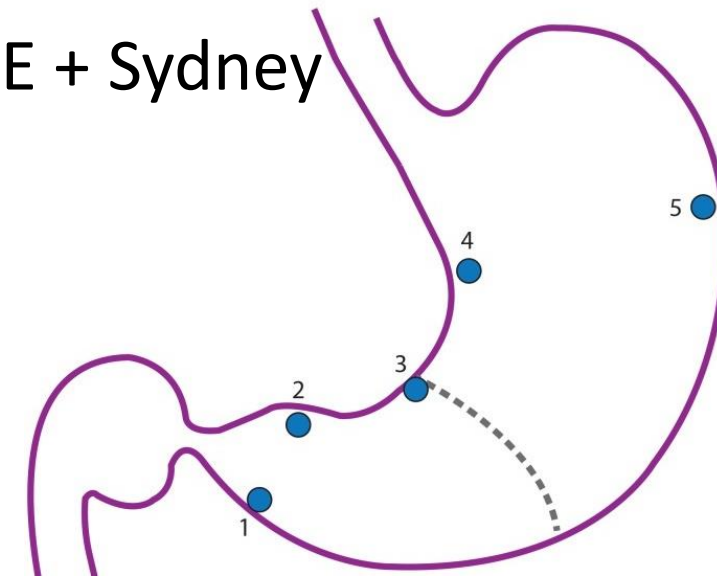
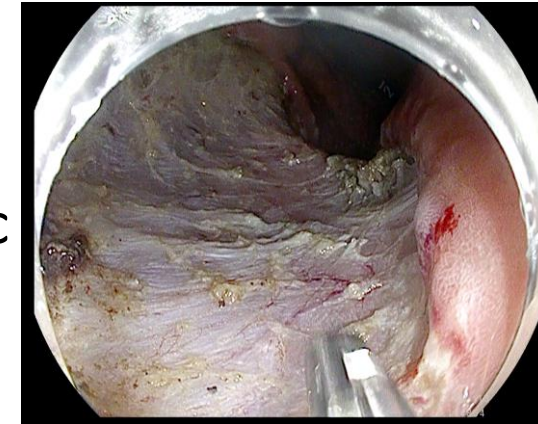
Adenomatous polyps

- Location:
 - Anywhere, more common in antrum
- Macroscopic
 - Elevated “velvety”, lesion similar appearance to duodenal adenomas
 - Usually Paris Is, IIa, +/-IIc component
 - If >2cm, have IIc component → Think EGC
- Microscopic
 - No unified accepted classification
 - +demarcation line, MS and MV are different from surrounding mucosa, but generally regular



Adenomatous polyps

- Management
 - EMR or ESD, ideally gastric adenomas should be resected en bloc
 - $\leq 1\text{cm}$ EMR
 - $>1\text{cm}$ ESD
- Thorough assessment of background mucosa with IEE + Sydney protocol for mapping Bx
 - Incidence of synchronous dysplasia 30%

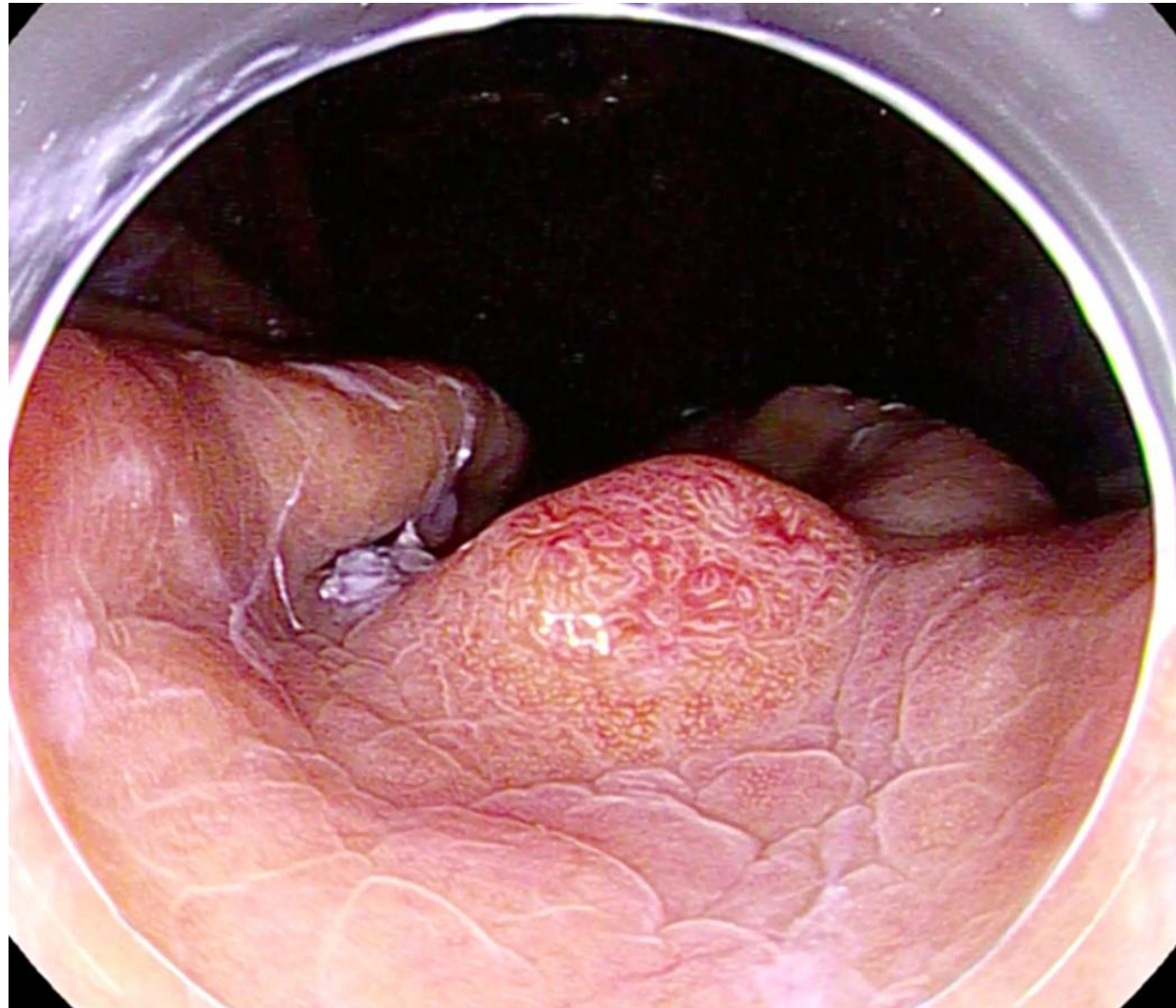


Adenomatous polyps

- If enbloc R0 resection with clear margins and only LGD
 - EGD in 1 year with image enhanced endoscopy, then q1-3years
- R0 resection with HGD
 - EGD in 6months
- If piecemeal/incomplete resection
 - Repeat EGD 3 months

Clinical
Endoscopic Appearance
Management
Follow-up

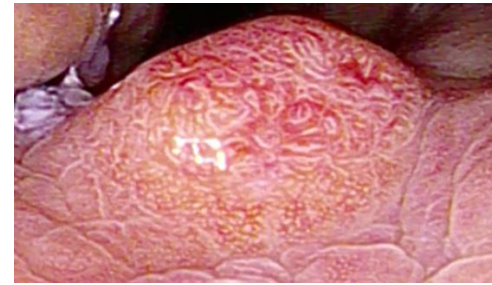
Neuroendocrine tumors



Clinical

Endoscopic Appearance
Management
Follow-up

Neuroendocrine tumors



- Make up less than 1% of detected gastric polyps
- 3 Types
 - **Type I** ~80%
 - Usually multiple and small <1cm, associated with hypergastrinemia 2° to atrophic gastritis
 - Usually, incidental finding on EGD done for anemia
 - **Type II** ~5%
 - Usually multiple and small <1cm, result from gastrin secreting tumor
 - Often detected as part of workup for MEN-1 or ZES
 - **Type III** ~15%
 - Often present as sporadic, usually solitary lesions
 - Usually detected after become larger >1.5cm), tend to have higher grade and poorer prognosis

Neuroendocrine tumors

- Location
 - Type I, II: clusters in body/fundus
 - Type III: Solitary anywhere
- Macroscopic
 - Paris Is, IIa, +/-IIc component
- Microscopic
 - Usually have normal/stretched mucosal/vasculature at periphery with central areas having IMVP/IMSP



Neuroendocrine tumors

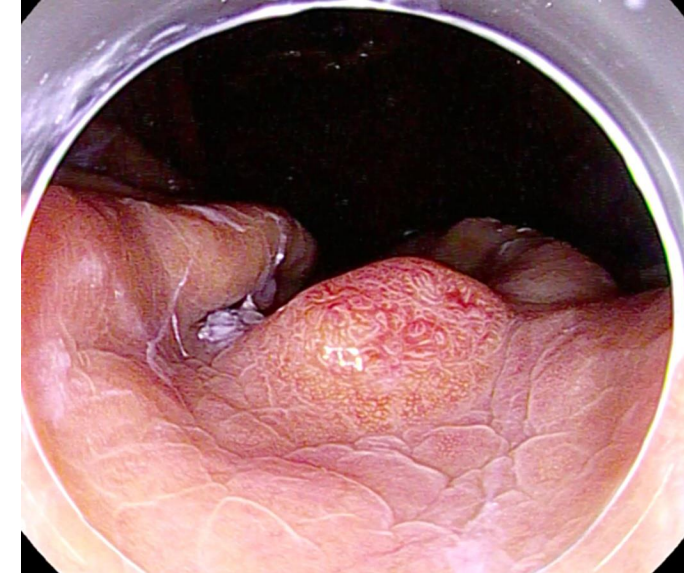
- **Type I,II**

- Can Bx if small(<1cm) and few, EMR also reasonable.
 - Sample “normal” gastric mucosa to assess for atrophic gastritis
- Usually can be resected with traditional EMR/ESD
- Can consider antrectomy in type I

- **Type III**

- More often require surgery due to presenting at later stage with metastasis
- Can consider EMR/ESD if no evidence metastasis or muscularis propria involvement
- *Should be discussed at multidisciplinary tumor boards

- For larger lesions (>1cm), PET-CT, EUS and discussion at multidisciplinary tumor boards

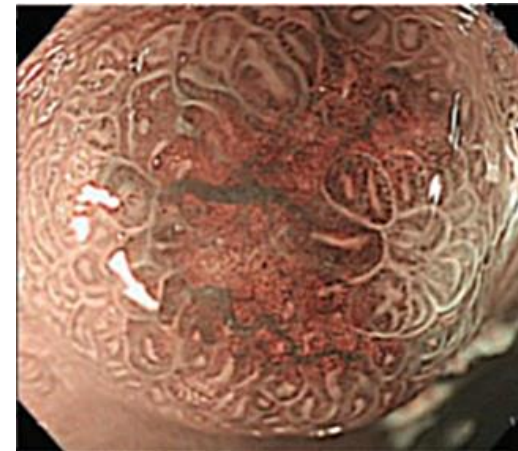


Neuroendocrine tumors

- Resection tips*
 - Submucosal Injection +/- epi
 - For the larger lesions (>1cm) tend to have submucosal invasion, fibrosis and fat
 - Will take longer to cut through (if EMR)
 - Vascular so be prepared to deal with bleeding.

Neuroendocrine tumors

- Type I, II,
 - If favorable pathology surveillance with annual EGD
 - Borderline/unfavorable pathology should discuss at multidisciplinary tumor boards



- Type III
 - Usually managed surgically
 - Should discuss at multidisciplinary tumor boards if endoscopically resected

General Tips for Gastric Tissue Resection

- **Diagnostic**

- Clean the stomach well and identify landmarks.
- Macroscopic and microscopic exam of lesion → Pay close attention to margins
- Examine the background mucosa

- **Planning therapy**

- Forward and retroflexed: assess stability and maneuverability
- Am I the right person for this or should I refer to another endoscopist?
- Is now the right time?
 - If bleeds acutely what is plan A, B, C?
 - Review the plan, tools and specific language with your assistant
 - Make sure you have all your tools

Practical Tips for Gastric Tissue Resection

- **Therapeutic**

- Injection:

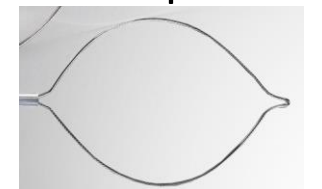
- Most gastric lesions with saline +/- dilute epi. Viscous agent if larger/fibrosis/scarred

- Electrosurgery:

- Most common setting ERBE EndoCut Q (Effect 3, Duration 1, Interval 6)

- Snares:

- Thicker braided snare for more coagulation easier control (Olympus snaremaster 15mm)
 - Stiffer, thinner twisted snares for lesions with fibrosis/difficult to capture (Boston captivator II, Cook Acusnare hexagonal, US Endoscopy Lariat)



Practical Tips for Gastric Tissue Resection

- Hemostasis:
 - You must be comfortable with bleeding
 - Coagulation forceps (Soft Coag Effect 5, 80W)
 - consider cautious application of Endoloop for >2cm 1SP, 1P polyps.
 - Close defects if possible.

Summary

- Normal gastric microsurface (MS) and microvasculature(MV) and key features to distinguish between normal and neoplastic lesions
- Endoscopic appearance, management and follow-up of:
 - Early gastric cancer (EGC)
 - Fundic gland polyps (FGP)
 - Hyperplastic polyps (HP)
 - Gastric adenomas (GA)
 - Neuroendocrine Tumors (NET)
- Tips for gastric tissue resection

Thank you!



Questions?