THE UNIVERSITY of TEXAS
HEALTH SCIENCE CENTER
AT HOUSTON

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GI Grand Rounds

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The Presenter, Matthew P. Spinn, M.D., has reported no financial relationships with commercial interests.

HPI

- 46 y/o woman who was referred to GI clinic 1 year after having an abnormal UGI series.
- 10/2008 underwent UGI series for the c/o globus sensation
  - Globus sensation eventually resolved
- UGI series at OSH
  - 2 cm polypoid lesion in the stomach
- EGD at OSH confirmed a 2 cm sub-epithelial lesion along the greater curvature of the stomach.
  - Biopsies were non-diagnostic.

PMH/PSH

- PMH:
  - Hypothyroidism
  - Multiple sclerosis
  - Migraines
- PSH
  - C-section
  - Rhinoplasty and liposuction
  - EGD Jan 2009

FH/SH

- FH
  - Mother living with Alzheimer’s disease
  - Father living with HTN, CLL
  - Paternal uncle with colon cancer at age 60+
- SH
  - Married
  - 2 children
  - lives with husband (Oral surgeon, Dentist).
  - Denies tobacco or Drugs
  - Occasional Etoh – one drink per week

Allergies/Medications

- Allergies:
  - NKDA
- Medications:
  - Levothyroxine qd
  - Rebif (IFN beta-1a) 3x per week
  - Nortriptyline tid

Review of Systems

- Gen: no f/c or weight loss
- HEENT: negative
- Pulm: negative
- CV: negative
- GI: no abdominal pain, early satiety, N/V, melena, hematochezia, hematemesis or reflux; occasional constipation
- Skin: negative
- MS: negative
- Neuro: headaches

Physical Exam

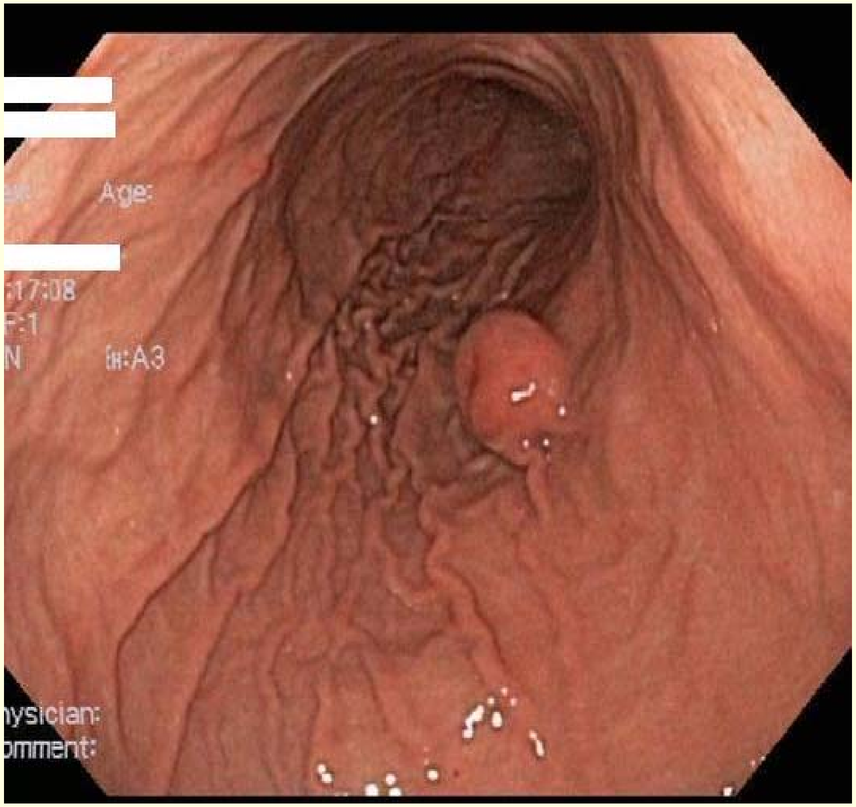
- Gen: Well nourished female, AOx3 in NAD
- HEENT: Normocephalic, anicteric, oral mucosa moist with no lesions, neck supple
- Chest: CTAB
- CV: RRR
- Abd: BS+, soft, NT, ND, no organomegaly or masses palpated
- Ext: no c/c/e
- Neuro: non-focal

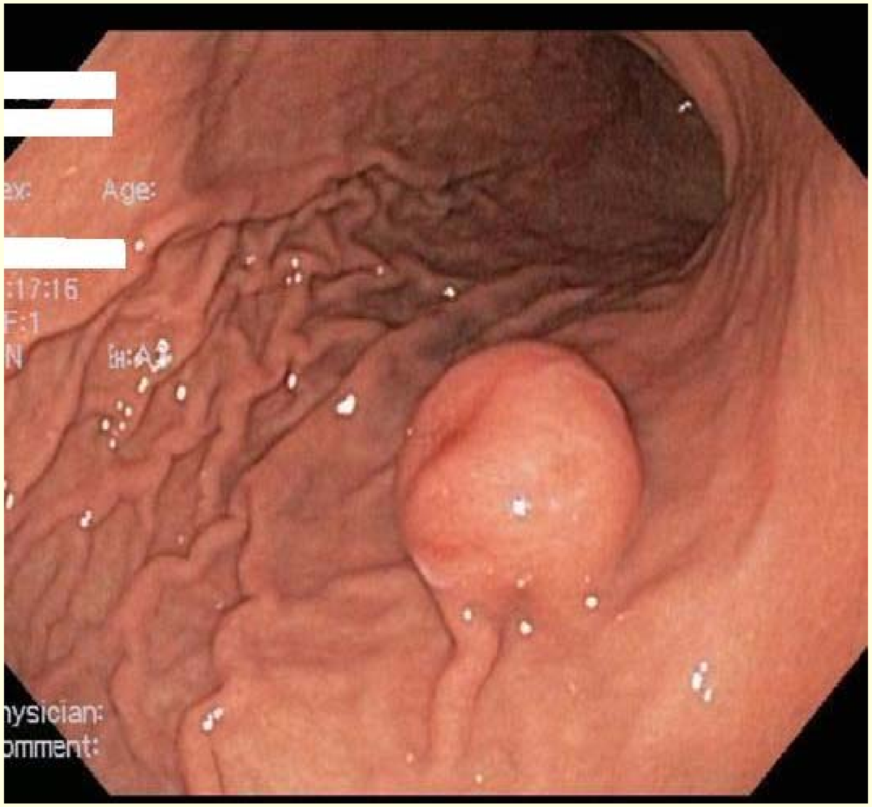
Labs

- Na: 138
- K: 4.2
- Cl: 102
- HCO3: 27
- BUN: 13
- Creat: 0.5
- Gluc: 77
- Ca: 9.4
- PT/INR: 13.4/1.0
- PTT: 27.5
- WBC: 3.60
- HGB: 12.4
- HCT: 35.1
- Plt: 181

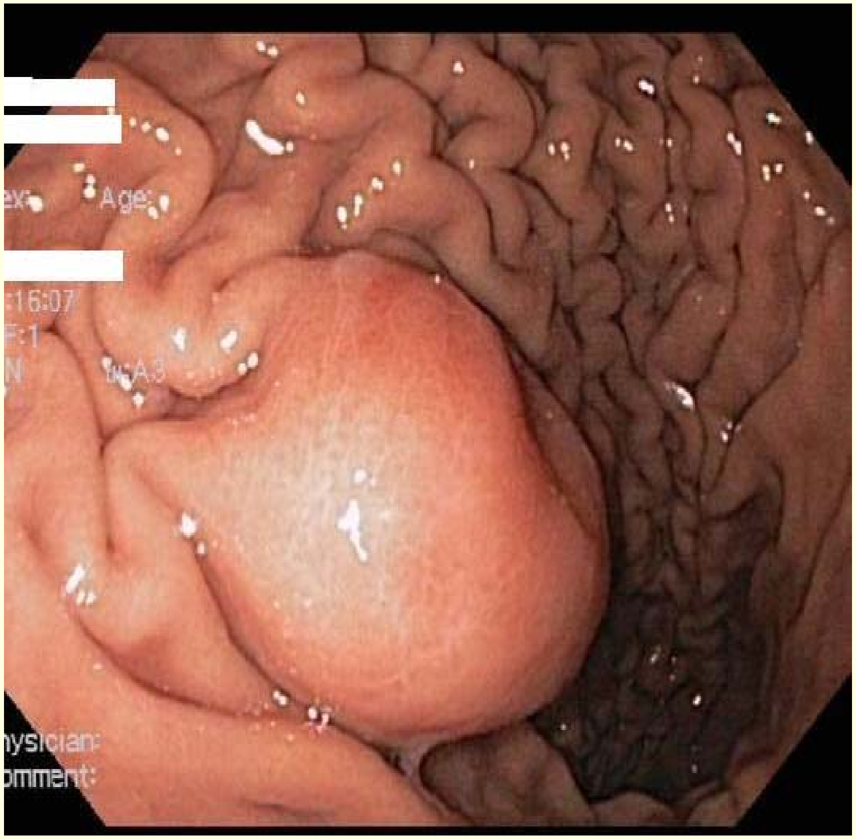
EGD was performed

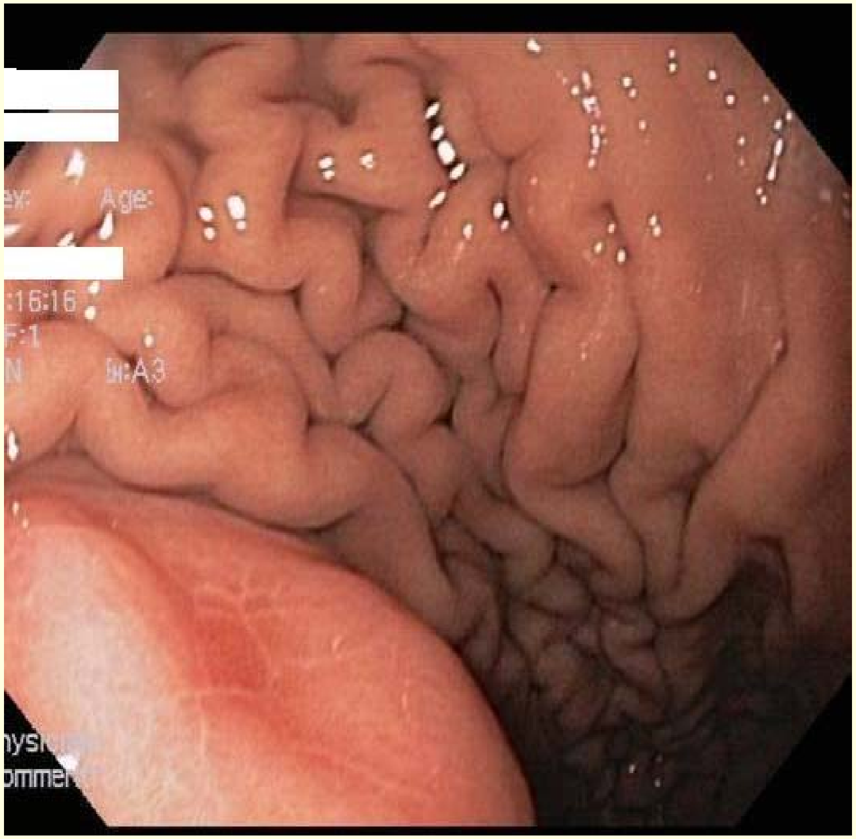
EGD





EGD





Questions

1. What is your differential diagnosis?
2. What would you do next?

EUS

METHODIST HOSP.
NO ID
12:00
Dist: 1.47cm
Next
SEL.ch
Locate
Menu
Clear
.5M 7.5 R06 G60 C5
point
DVA:1

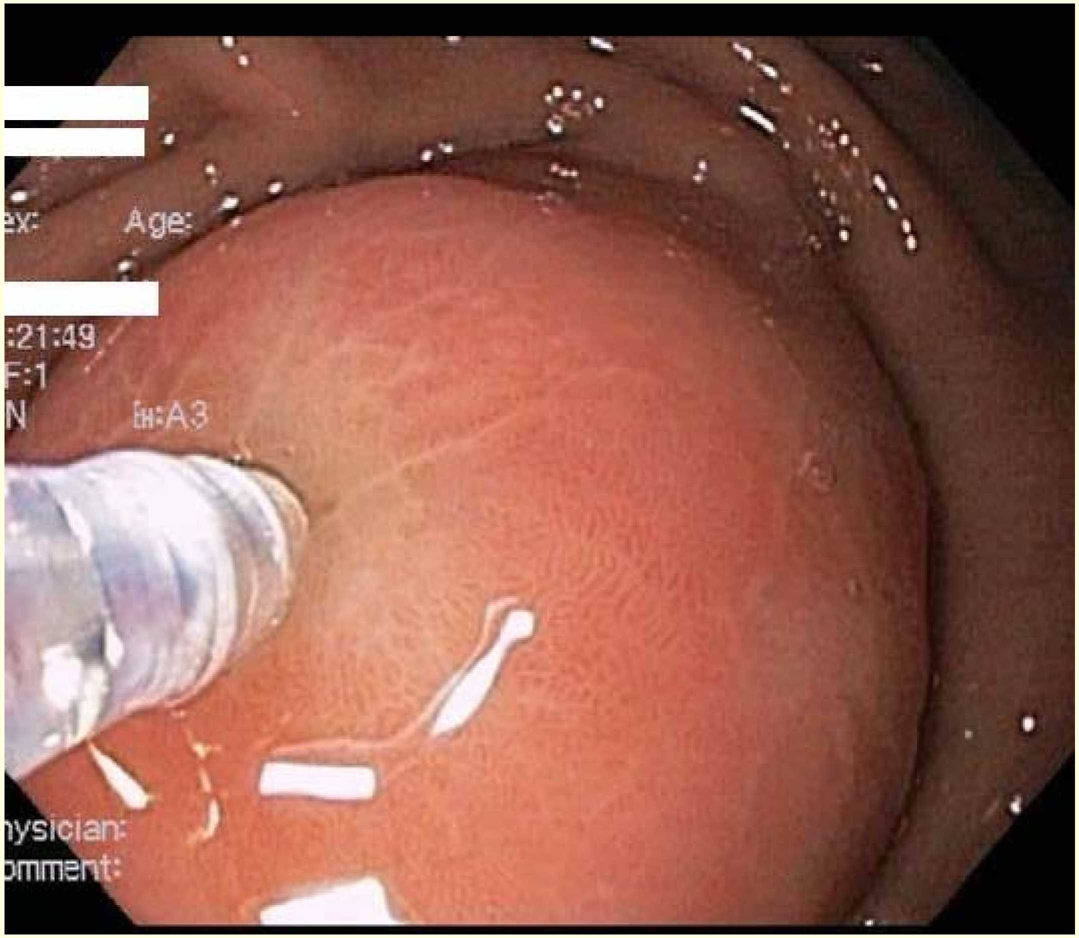
EUS

EUS

EUS

- Round, intramural (subepithelial), hypoechoic, homogeneous mass on the greater curvature of the stomach.
- Sonographically, the lesion seemed to arise from the submucosa. However, there were areas that were suspicious for involvement of the muscularis propria.

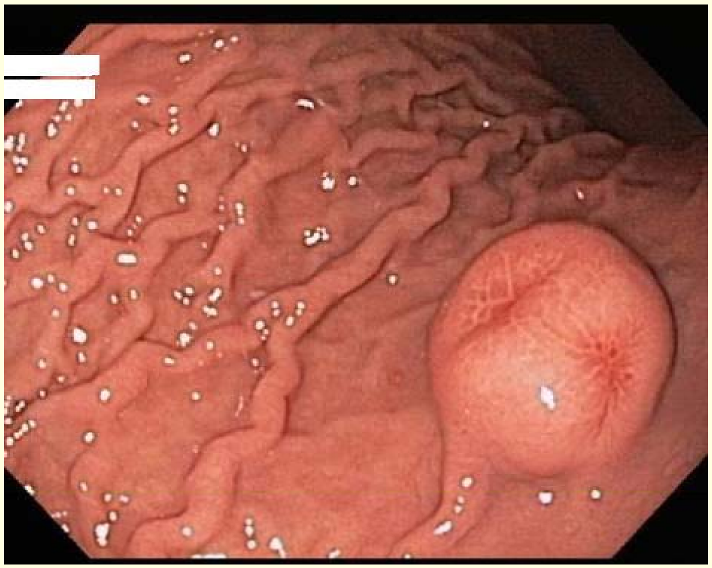
EUS assisted biopsy

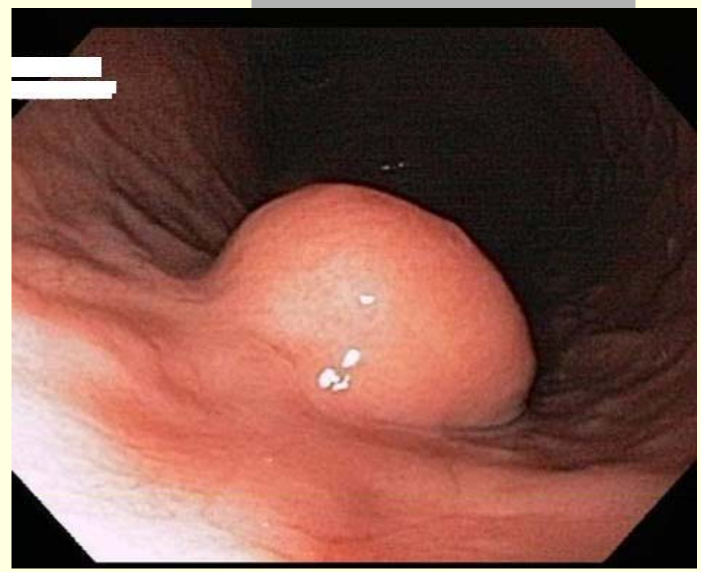


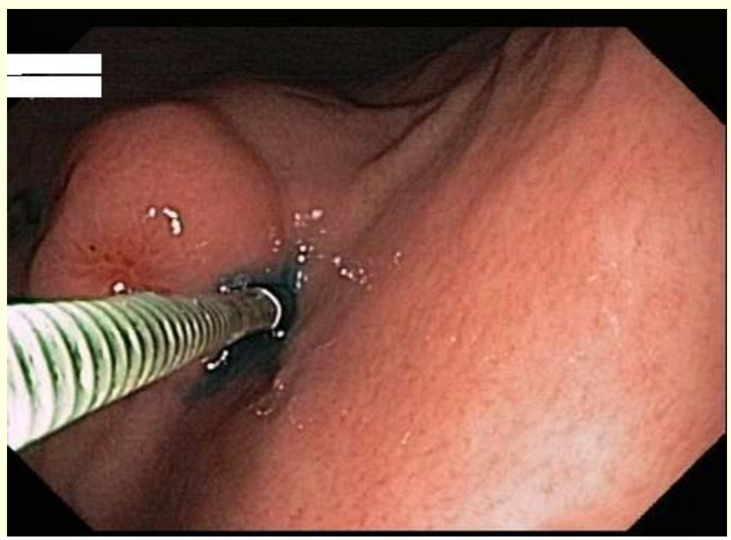
EUS assisted biopsies were non-diagnostic

We elected to proceed with EMR

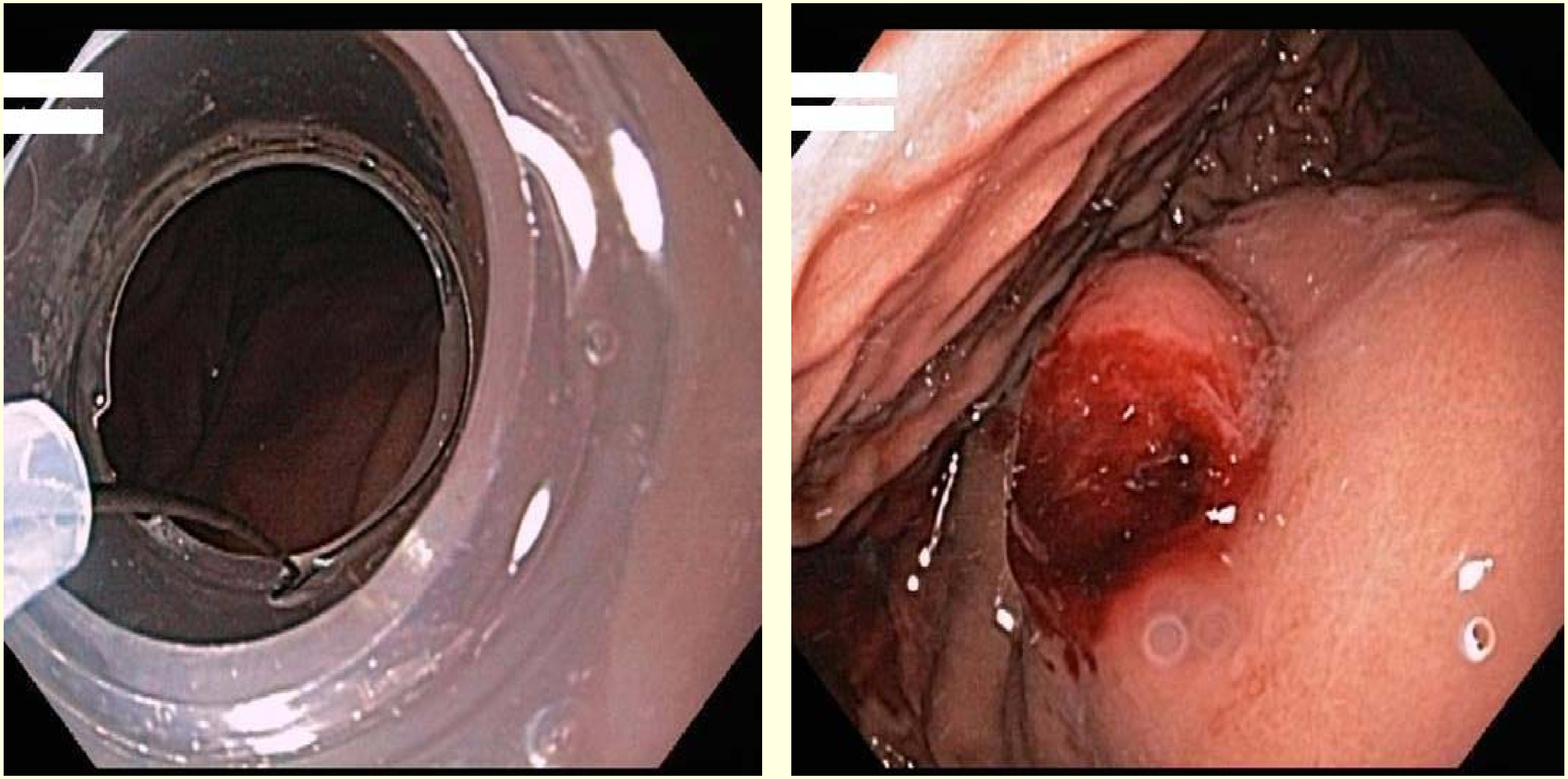
EMR







EMR



Unable to ensnare the lesion and perform EMR.

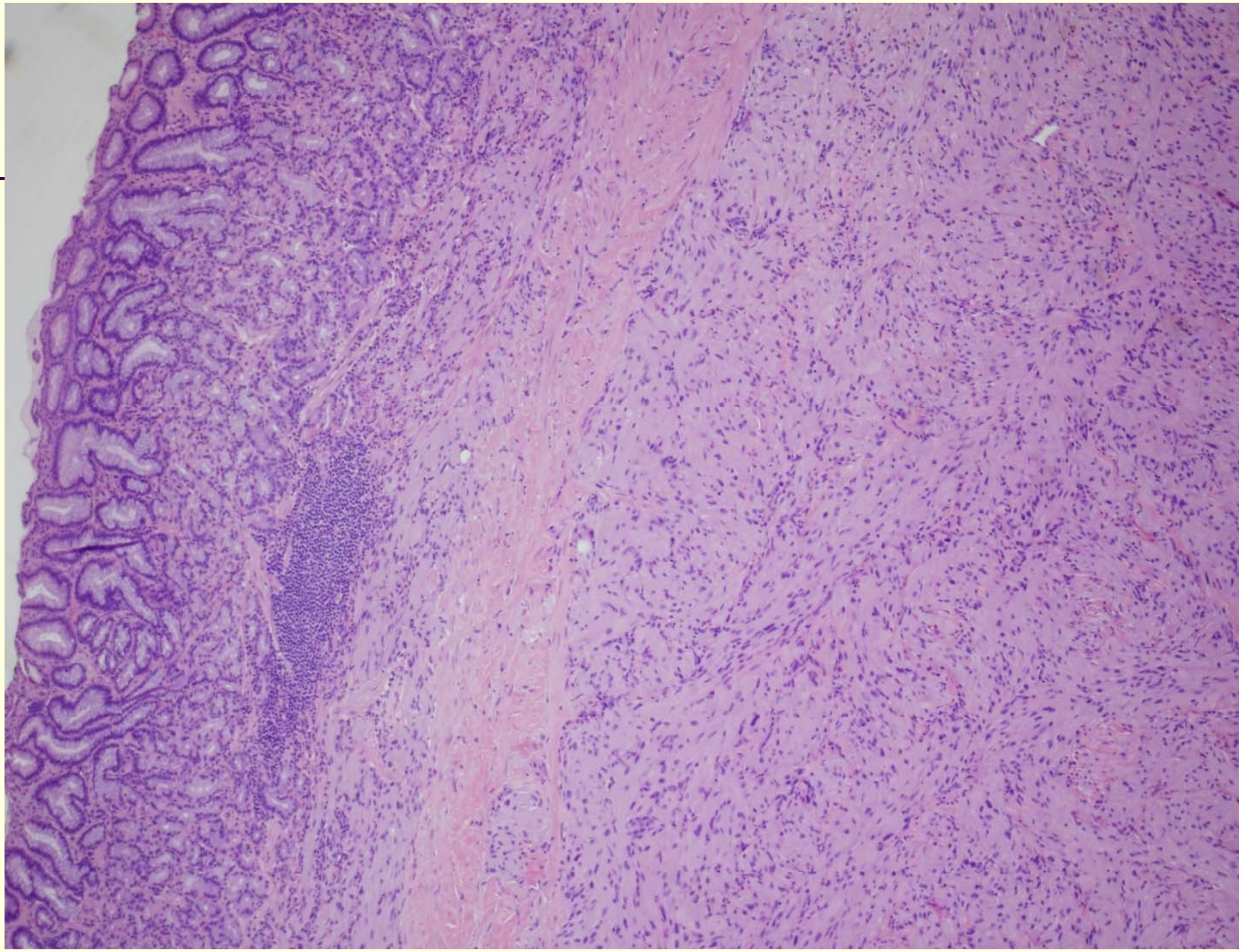
Question

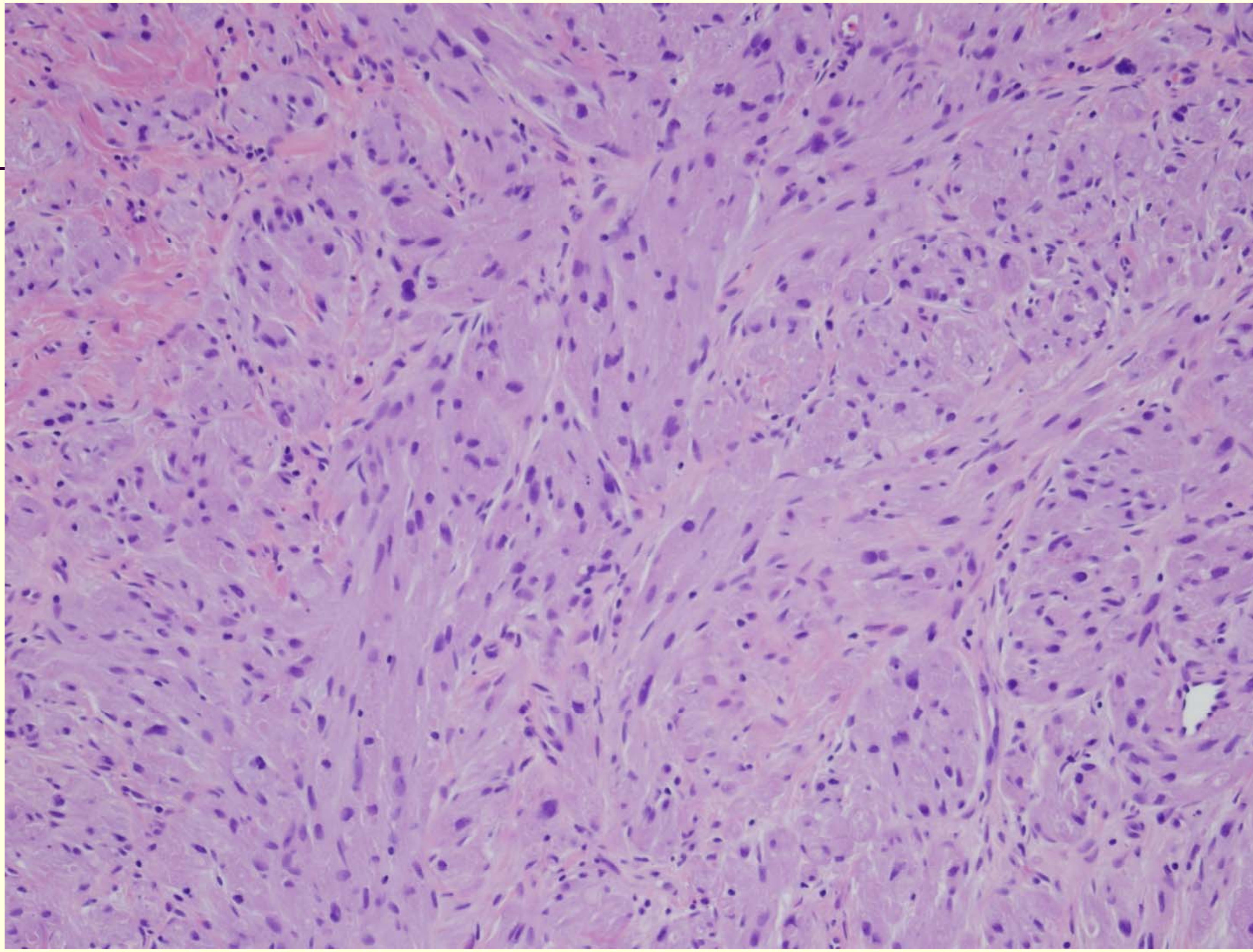
1. What would you do next for this patient?

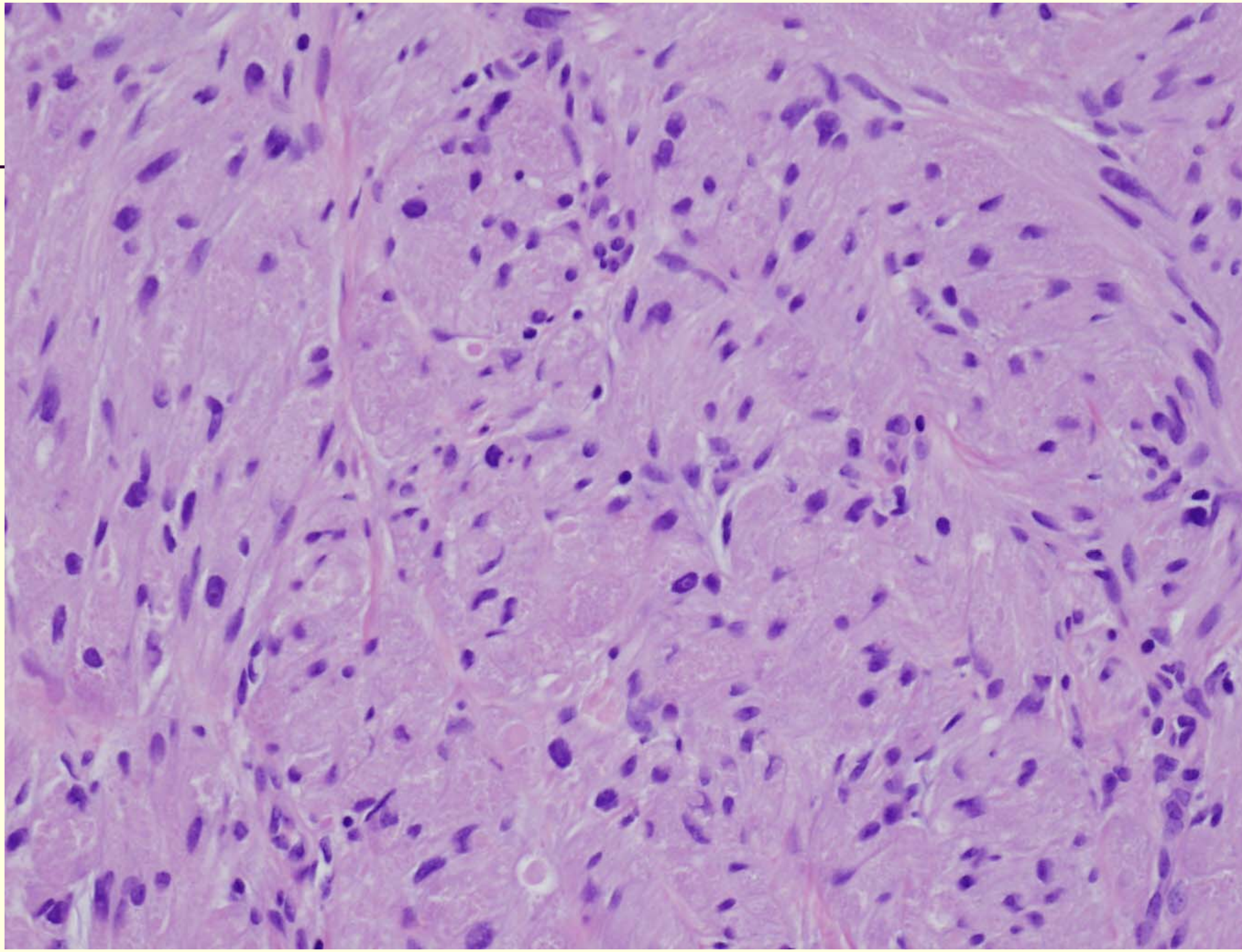
Surgery

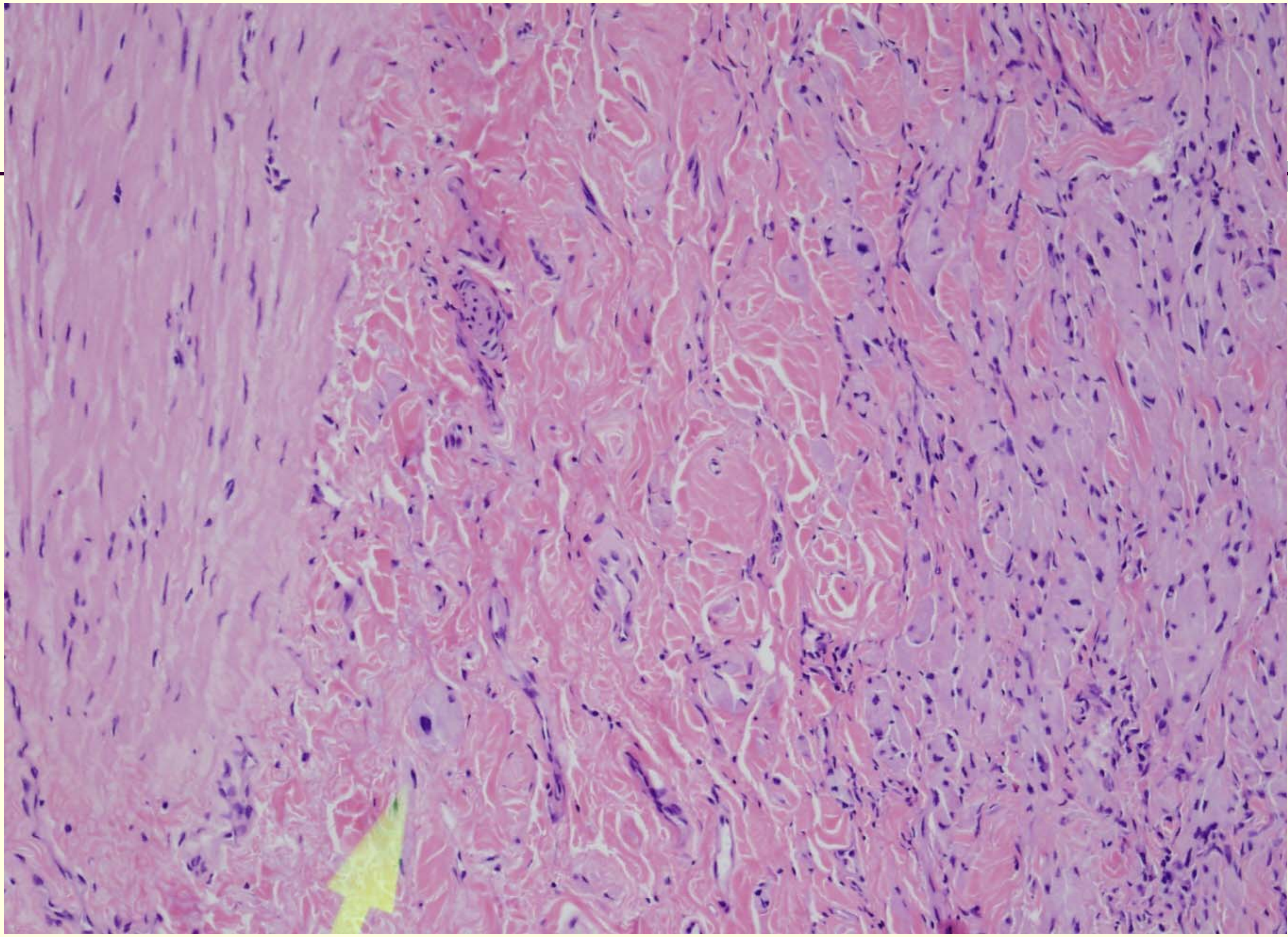
- Laparoscopic resection was attempted but was eventually converted to an open wedge resection of stomach
  - 3.0 x 2.5 x 1.7 cm resection
  - Submucosal nodule, 1.7 x 1.6 x 1 cm

Gross Path



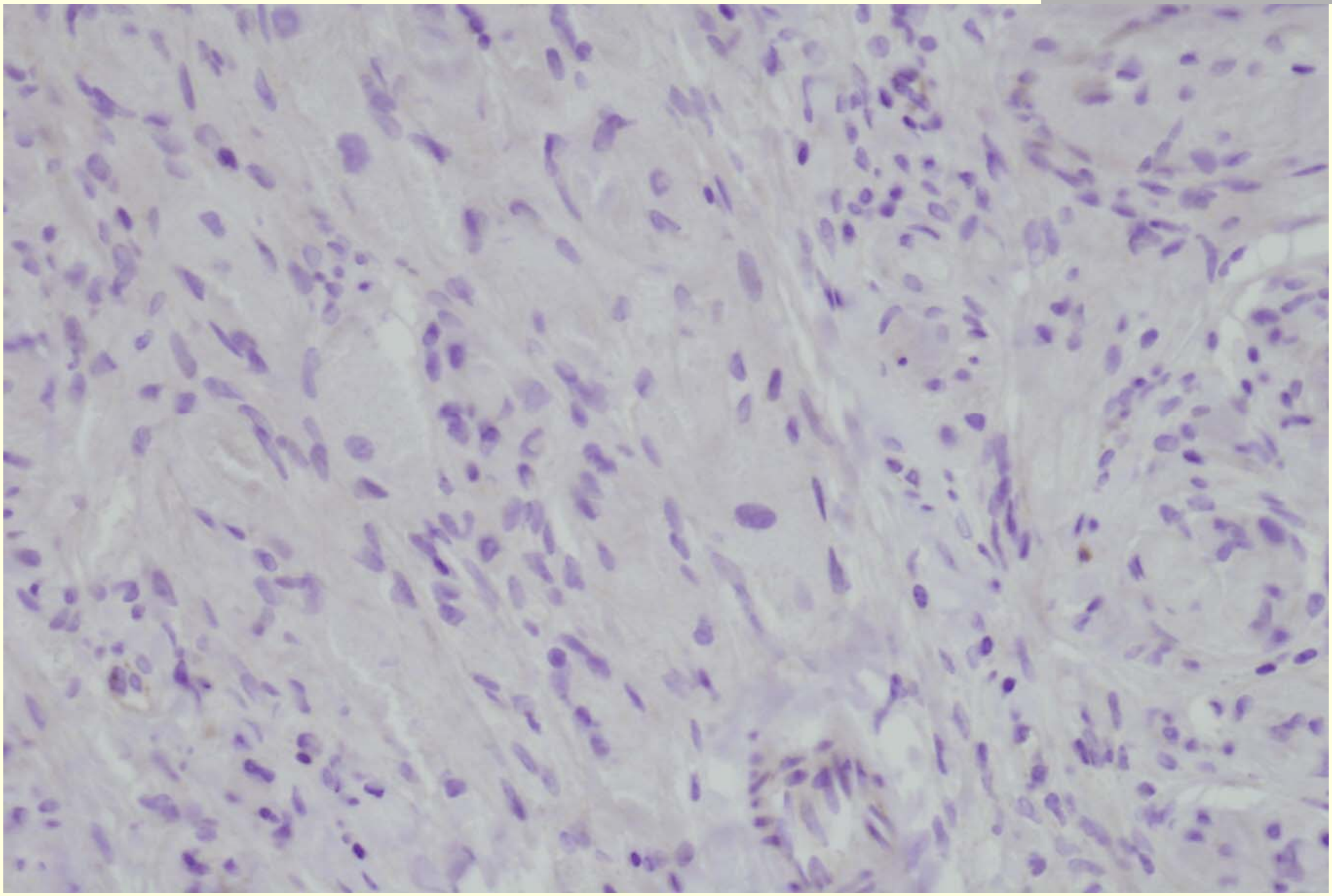




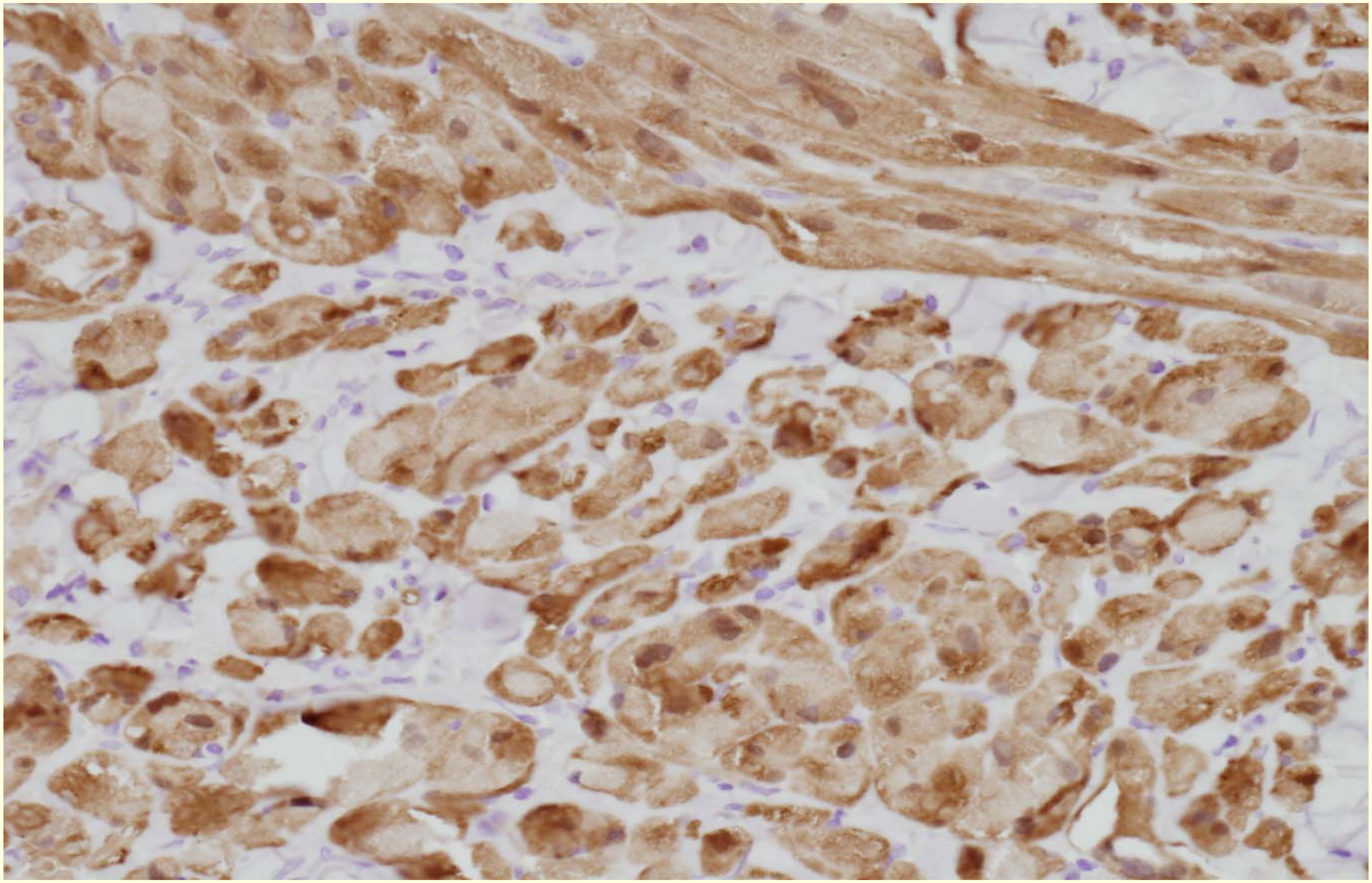


Granular cell tumor (focally), almost at muscularis propria

c-kit (CD 117)



S-100



Path report

- Large epithelioid to spindle shaped cells with prominent granular cytoplasm.
- Predominantly located in the submucosa.
- Focally extends through the muscularis mucosa into the lamina propria, does not invade the MP
- No mitotic figures or necrosis
- Margins negative for tumor

Summary

- C-kit – Negative
- CD 34 – essentially negative
- Smooth muscle actin – Negative
- S-100 – Positive
- Tumor involves submucosa & microfocally mucosa
- Surgical resection margins free

What is your diagnosis? What can you eliminate from the differential?

Diagnosis

Gastric Granular Cell Tumor (GCT)

Discussion

- Differential Dx of Gastric Lesion:
  - Lymphoma
  - GIST
  - Schwannoma
  - Lipoma
  - Carcinoid
  - Benign Gastric Polyp
  - Pancreatic rest
  - Glomus tumors

Discussion

- Abrikosoff first described GCT in 1926
- Uncommon soft tissue tumor
- Usually benign, malignant cases reported
  - Malignant potential < 2%
  - < 40 cases of malignant GCT in the literature
  - Only one documented malignant gastric GCT in literature – Matsumoto *et al.* 1996.

Fletcher CDM. Edinburg, Scotland: Churchill Livingstone, 1995

Matsumoto. Surg Today. 1996; 26:119-122.

Discussion

- Occur at many sites
  - Most frequently in skin or subcutaneous tissues of the chest, upper extremities, tongue, breast and female genitalia
- 8% of all GCTs occur in the GI tract
- Most common GI sites:
  - Esophagus & colon
  - Gastric localization is rare, < 40 cases reported.

Morrison JG. Am Surg. 1987;53:156-160.

Discussion

- Incidence:
  - M=F
  - 4^{th} – 6^{th} decades of life more affected
  - Higher in Japanese population

- 50% of cases of gastric GCT a/w esophageal synchronous localization
  - Patti et al., 3/5 pts w/ GCT had involvement of the esophagus and 1/5 w/ the colon
  - Rarely a/w other benign or malignant gastric diseases

Patti et al., WJG 2006; 12(21):3442-3445

White JG. Am J Gastroenterol.1994;22:779-794.

Discussion

- Size: few millimeters to centimeters
- Most gastric GCT are confined macroscopically to submucosa
- Histologically
  - Consists of polygonal & fusiform cells disposed in compact “nests”
  - Positive for S-100 protein
    - Derivation from Schwann cells

Discussion

- Symptoms:
  - Usually asymptomatic
  - If large
    - Gastric outlet obstruction
    - Hemorrhage

Discussion

- Preoperative diagnosis:
  - Made in only 50% of cases
  - Based on endoscopic biopsies
    - Jumbo biopsy forceps
  - EUS w/ FNA – depth of invasion/tissue diagnosis
  - EMR w/ saline lift: tumors < 2cm not involving MP

Palazzo L. Gut. 2000;46:88-92

Discussion

- Features a/w Malignancy
  - Local recurrence
  - Rapid growth
  - Size > 4cm
  - Cell necrosis
  - Spindling of tumors cells
  - Cytological atypia, high mitotic activity, vesicular nuclei w/ large nucleoli, high nuclear-to-cytoplasm ratio
- Features a/w Malignancy
  - Immunohistochemical staining
    - > 50% for p53
    - > 10% for Ki-67 index
- Not a/w malignancy
  - Extent of infiltration
  - Highly developed tumor microvessels
  - Focal pleomorphism

Fanburg-Smith JC. Am J Surg Pathol. 1998;22:779-794

Discussion

- Treatment:
  - EUS evaluation & EMR should be considered for small (<2cm) lesions that do not involve the muscularis propria
  - Laparoscopic or Conventional wedge resection
    - Treatment of choice
    - At least one centimeter normal tissue
    - Laparoscopic approach may be difficult based on localization and size:
      - Posterior wall of the greater curvature
      - Lesser curvature
      - Very small or very large

Yasuda I. Gastrointest Endosc. 1995;41:163-167.

Discussion

- Recurrence
  - Few reports comment on recurrence
  - Mitomi *et al*., reported on 11 GCTs at multiple GI sites
    - All surgically removed
    - No recurrence at 3 years

Mitomi H. Pathol Int. 2004;54(1):47-51

Conclusion

- GCTs are uncommon, benign soft tissue tumors w/ <2% malignant potential
- GI involvement, rare - 8% of all GCTs
  - < 40 gastric GCTs reported
- Diagnosis: endoscopy with biopsy
  - 50% preoperatively diagnosed
- Treatment: EMR (<2cm/MP not involved) & laparoscopic vs wedge resection
- Recurrence rate unknown

Patient F/U

- Post-operatively the patient did well
  - D/C post-op day 3

- Upon hospital f/u patient had no complaints