

Polyps in the Stomach

All the Lumps and Bumps

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Non-neoplastic Polyps

- Hyperplastic polyps
- Inflammatory polyps
- Hamartomatous polyps
- Heterotopic polyps



Neoplastic Polyps

- Adenoma
- Carcinoma
- Carcinoid (endocrine neoplasm)
- Metastatic carcinoma
- Lymphoma



Non-epithelial Polyps

- Inflammatory fibroid polyp
- Inflammatory myofibroblastic tumor
- Gastrointestinal stromal tumor
- Smooth muscle tumor
- Lymphoid hyperplasia
- Vascular tumor



Miscellaneous Polyps

- Xanthelasma
- Calcinosis



Hyperplastic Polyps

- Second most common gastric polyp
- Regenerative response to injury
- Associated with gastritis, bile reflux, gastrectomy, organ transplantation
- Present throughout the stomach
- Hyperplastic polyps of the GE junction is commonly associated with GERD



Hyperplastic Polyps

Histopathology

- Foveolar hyperplasia (corkscrew)
- Inflamed, eroded, or ulcerated mucosal surface
- Edematous lamina propria with mixed inflammation and cystically dilated glands



Hyperplastic Polyps

Histopathology

- Intestinal metaplasia not uncommon
- Incidence of dysplasia varies but the risk appears to be associated with polyp size and age
- Rarely carcinoma may arise



Differential Diagnosis

- Ménétrier disease
- Juvenile polyp
- Peutz-Jeghers polyp
- Cronkhite-Canada syndrome-associated polyp



Ménétrier Disease

- First described by Ménétrier as “polyadenomes en nappe”.
- Rare incidence
- 30-60 years of age; 3:1 (M:F)
- Protein loss and hypoalbuminemia
- Epigastric pain, weight loss, vomiting, diarrhea
- Cause: ?



Ménétrier Disease

- Enormous thickening of gastric folds, some with nodular or polypoid appearance
- Body is affected
- Large amount of mucus coating the enlarged folds



Ménétrier Disease

Histopathology

- Foveolar hyperplasia with extreme elongation and tortuosity of pits (corkscrew appearance)
- Inflammation not prominent
- Ulcer or intestinal metaplasia not characteristic

Treatment

- Supportive
- Gastrectomy in severe cases



Hamartomatous Polyps

- Fundic gland polyp
- Peutz-Jeghers polyp
- Juvenile polyp
- Cronkhite-Canada syndrome-associated polyp



Fundic Gland Polyps

- Sporadic or familial
- Single or multiple
- Role of PPI?
- Glassy, transparent and sessile polyp with cystically dilated glands lined by flattened fundic epithelium
- Dysplasia may be present



Peutz-Jeghers Polyps

- Peutz-Jeghers syndrome
 - Autosomal dominant (LKB1/STK11 gene)
 - Mucocutaneous pigmentation
 - GI hamartomatous polyps
- Most common location: small bowel
- Gastric polyps: 25-50%
- Abdominal pain, GI bleeding, obstruction



Peutz-Jeghers Polyps

- Sessile or pedunculated
- Most are antral in location
- Excessive hyperplasia, elongation, branching, and cystic change of foveolar epithelium
- Delicate fibrovascular stroma
- Arborizing architecture with bundles of smooth muscle extending into lamina propria
- Atrophy of the deep glands
- Risk of dysplasia or carcinoma?



Peutz-Jeghers Polyps

Differential Diagnosis

- Juvenile polyp
- Hyperplastic polyp



Gastric Juvenile Polyps

- Sporadic gastric JP are rare.
- May occur as part of juvenile polyposis syndrome.
- Present in 15-25% generalized JP
- 20-50% gastric JP have family history of juvenile polyposis coli.



Gastric Juvenile Polyps

- Familial JP: autosomal dominant, SMAD4/DPC4 gene mutation most common
- Multiple gastric JP may result in severe chronic anemia and hypoproteinemia.
- Predominantly in antrum



Gastric Juvenile Polyps

Pathology

- Round and smooth contour
- Surface may be eroded
- Edematous lamina propria infiltrated by inflammatory cells
- Cystically dilated glands lined by foveolar epithelium



Gastric Juvenile Polyps

Differential Diagnosis

- Hyperplastic polyp
- Peutz-Jeghers Polyp
- Ménétrier disease



Gastric Juvenile Polyps

Risk of Dysplasia and Carcinoma

- Risk for patients with JPS developing GI malignancies ranges between 9 and 17%.
- 3 of 12 patients with gastric juvenile polyposis developed gastric cancer with or without adenomatous epithelium arising from JP.
 - Hizawa K et al., J Clin Pathol 1997; 50:771-4.
- JPS has malignant potential and should be closely followed up.



Gastric Polyps in Cowden Disease

- Autosomal dominant
- PTEN mutation
- Multiple hamartoma syndrome
 - Trichilemmoma
 - Oral mucosal papilloma
 - GI polyps (75%)
- Increased risk of cancer
 - Breast
 - Thyroid



Gastric Polyps in Cowden Disease

Pathology

- Can be more than 100
- 2-15 mm in size
- Enlarged and elongated foveolar epithelium and deep cystically dilated glands, mimicking gastric hyperplastic polyp
- Smooth muscle within mucosa

Hizawa K. et al. *J Clin Gastroenterol* 1994;18:13-8



Cronkhite-Canada Syndrome- Associated Polyps

- Rare disorder of unknown etiology and not familial
- Middle-aged or elderly
- No gender predilection
- Endodermal abnormalities
 - Numerous GI polyps (stomach is almost always involved)
- Ectodermal abnormalities
 - Alopecia, macular hyperpigmentation of face, nail dystrophy



Cronkhite-Canada Syndrome- Associated Polyps

- Abdominal pain, diarrhea
- Malabsorption, Weight loss
- Hypoproteinemia
- May be fatal
- May develop GI adenocarcinoma



Cronkhite-Canada Syndrome- Associated Polyps Pathology

- Diffuse numerous small to medium polyps (0.5-1.5 cm) superimposed on enlarged rugae throughout antrum and fundus.
- Sessile, marked surface and foveolar hyperplasia, with focally dilated irregular foveolar glands within the lamina propria expanded by edema and inflammatory infiltrate.



Cronkhite-Canada Syndrome- Associated Polyps Differential Diagnosis

- Ménétrier disease
- Juvenile polyp
- Hyperplastic polyp



Heterotopic Polyps

- Pancreatic heterotopia
- Brunner's gland nodules



Adenoma

- WHO: circumscribed, polypoid lesions composed of either tubular and/or villous structures lined by dysplastic epithelium
- Prevalence varies: East vs West
- Predominantly solitary, exophytic, sessile, or pedunculated
- Average size: 1 cm
- Usually asymptomatic
- Can be found in FAP and Gardner's syndrome



Adenoma

Pathology

- Often arising in background of atrophic gastritis with intestinal metaplasia
- Predominantly in antrum, followed by angularis and fundus
- Dysplastic epithelium
 - Intestinal type
 - Gastric type
 - Mixed type
- Intestinal type more likely to show high-grade dysplasia and carcinoma

Abraham SC et al. *Am J Surg Pathol* 2002;26:1276-85.

Abraham SC et al. *Mod Pathol* 2003;16:786-95.



Adenoma

Dysplasia

- Low-grade dysplasia
- High-grade dysplasia



Polypoid Endocrine Neoplasm

- 1.7% of gastric polyps
- 90% found in gastric body
- May arise
 - In atrophic autoimmune gastritis
 - In Zollinger-Ellison syndrome
 - As sporadic tumors



Gastric Endocrine Neoplasm

- Well-differentiated endocrine neoplasm (carcinoid)
 - non-functioning
 - confined to mucosa-submucosa
 - non-angioinvasive
 - ≤ 1 cm,
 - association with hypergastrenemia
- Benign behavior
 - non-functioning
 - confined to mucosa-submucosa
 - non-angioinvasive
 - ≤ 1 cm,
 - association with hypergastrenemia
- Uncertain behavior
 - >1 cm
 - angioinvasive ECL-cell hyperplasia
 - sporadic
- Well-differentiated endocrine carcinoma
 - extending beyond submucosa
 - angioinvasion
 - metastasis
- Poorly differentiated endocrine carcinoma (small cell carcinoma, high-grade malignant)



Gastric Endocrine Neoplasm

Differential Diagnosis

- Poorly differentiated carcinoma
- Lymphoma
- GIST



Inflammatory Fibroid Polyp and Inflammatory Myofibroblastic Tumor

IFP

- Most common in antrum
- Small (median 1.5 cm), well circumscribed, submucosal
- Spindly cells surrounding small to medium vessels
- CD34 (+)
- Mixed inflammatory cells

IMT

- Aka inflammatory pseudotumor
- Median size 8 cm
- Spindly cells with features of myofibroblasts
- SMA (+), ALK (+)
- Plasma cells and lymphocytes



Suggested References

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- Lewin KJ, Appelman HD. Tumors of the Esophagus and Stomach, in *Atlas of Tumor Pathology, 3rd Series, AFIP fascicle*

