
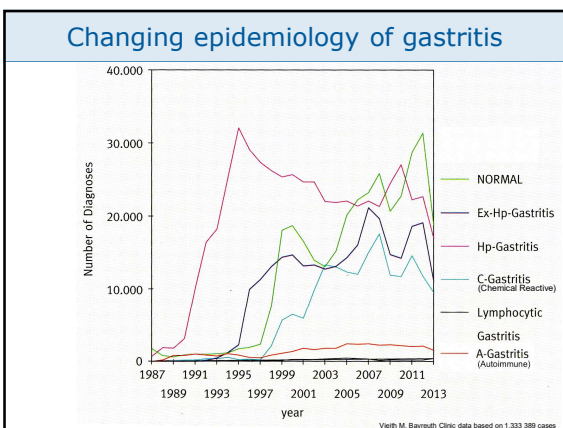
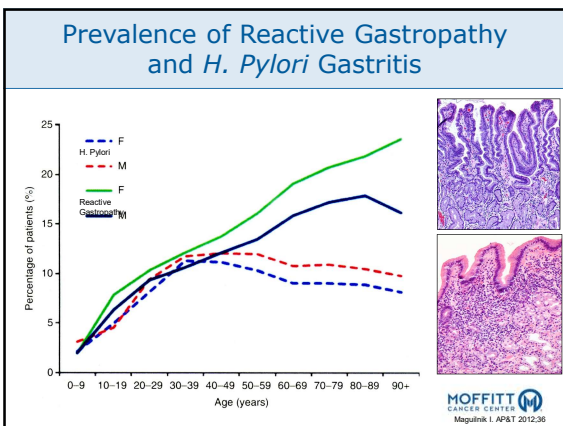


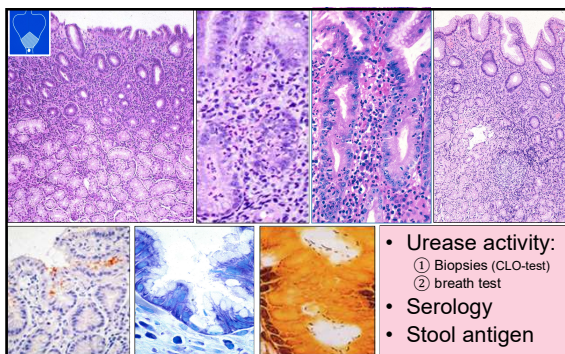
Gastritides: Diagnostic Evaluation of Multifaceted Conditions

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 H. Lee Moffitt Cancer Center & Research Institute
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• Urease activity:
① Biopsies (CLO-test)
② breath test

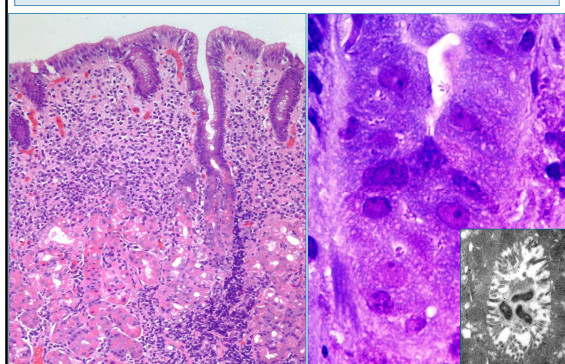
• Serology

• Stool antigen

IF NEGATIVE


- **Sampling error** -- **Antibiotic monotherapy** (e.g., other infections)
- **PPI** (decreased # of bacteria; shift from antrum to prox. stomach)
- **Focally Enhanced Gastritis** (IBD)

Treated *H. pylori* gastritis

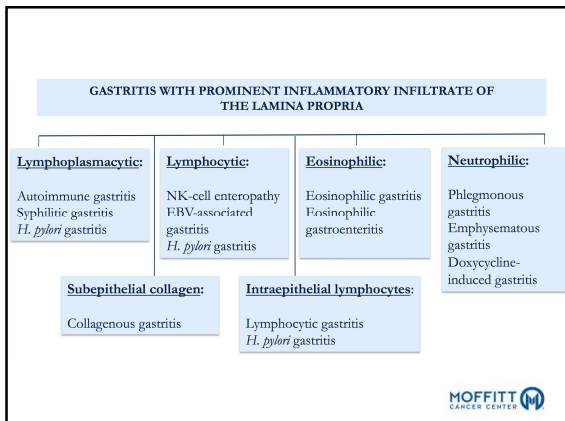


H. Heilmannii

- Low prevalence
 - (0.3-0.7% in dev^{ped} countries)
- Household pets
- Mild inflammation
- *H. felis*:
 - severe chronic active gastritis



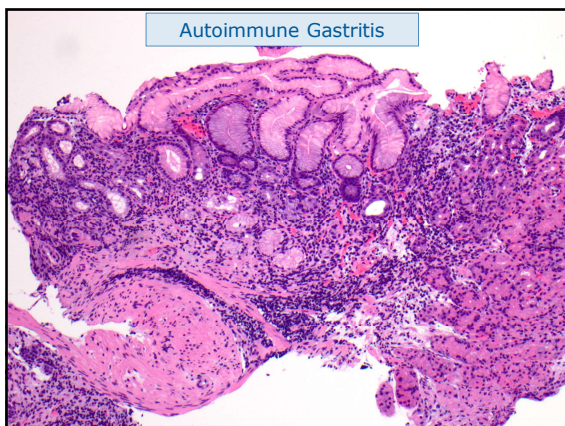
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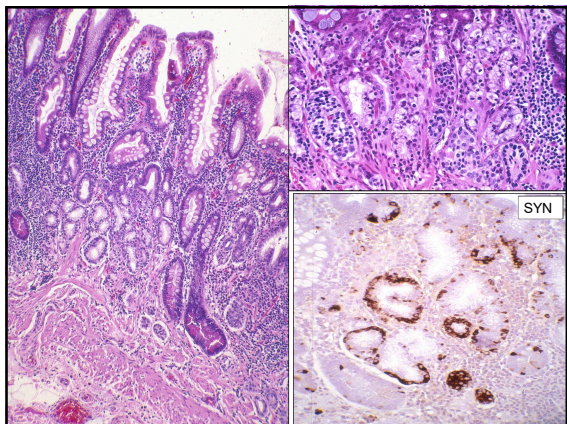


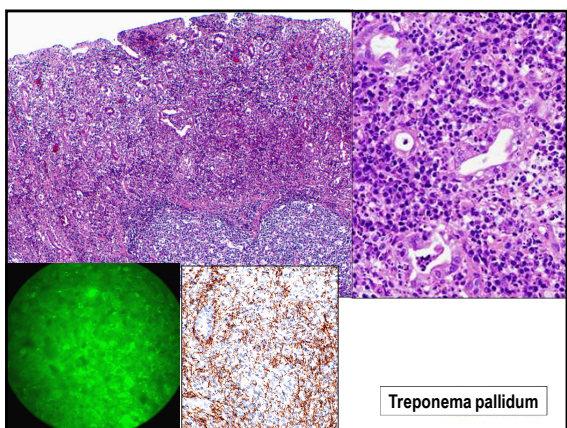
Autoimmune Atrophic Gastritis

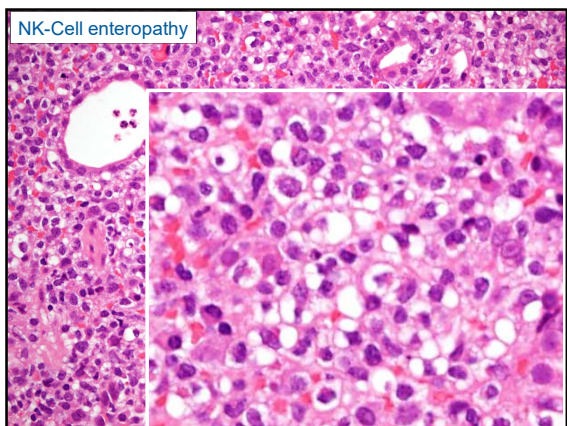
- Autosomal dominant inheritance
- Confined to corpus and fundus
- Immune – mediated injury (autoantibodies)
 - Loss of parietal cells
 - Gland atrophy
 - Metaplasia: **pseudopyloric** and intestinal types

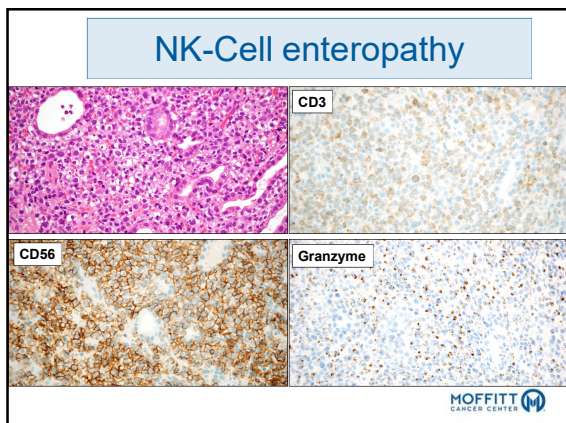
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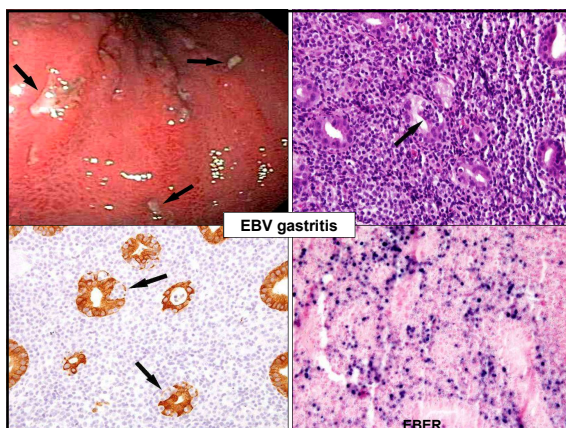


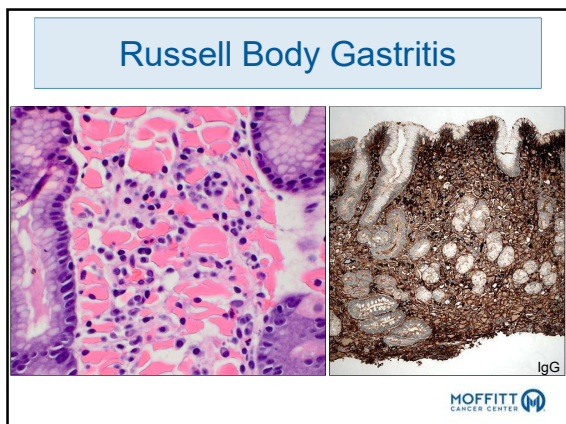












Lymphocytic gastritis

- 0.83% of unselected biopsies
- 1.7% to 4.5% of inflamed biopsies

>25 IELs/ 100 epith cells (N:1-9)

AJSP 1999.23. •Pan gastric:76% - Fundus:18% - Antrum:6%

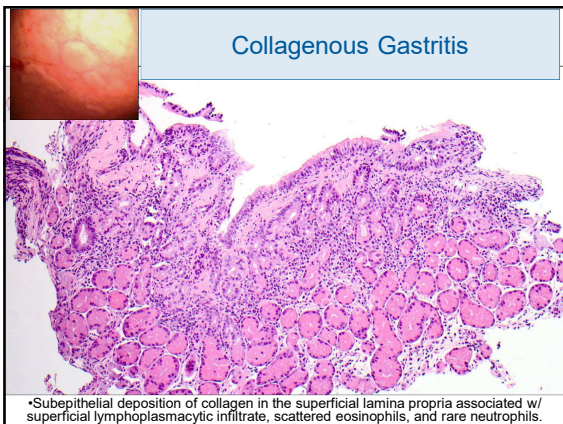
- *H. pylori*: 30-40% [pan gastric or corpus predominant]
- Celiac sprue: 26.4-38% [typically antral]
- Crohn disease:1.5%
- non GSE autoimmune disease: 4%
- Neoplasia (gastric cancer; lymphoma):4%
- Drugs (Ticlopidine, Ticlid®):1%
- HIV
- **No clinical association in 20-28% of the cases...** a seasonal tendency (fall) was noted

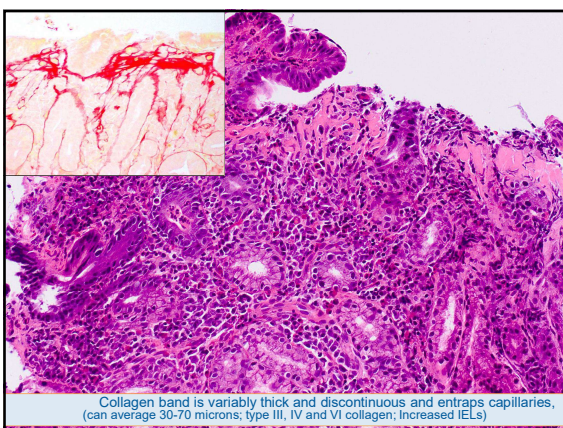
MOFFITT CANCER CENTER AJSP 1999.23
Personal data: 346 cases (age range 1-87 years, mean age 51 years)

Associations & Evolution of Lymphocytic Gastritis

- 13.7% of associated duodenal bx exhibited non celiac related intraepithelial lymphocytosis:
 - 33% with *H.pylori*,
 - 67% without any clinical association.
- 9% of colon bx displayed lymphocytic colitis (all celiac related) and 5.7% had collagenous colitis (none celiac related).
- 63 (18.2%) patients had follow up biopsies (mean 33 months) w/ **resolution of LG in 89%, including all *H.pylori* related cases and all but 1 GSE related case.**

MOFFITT CANCER CENTER AJSP 1999.23
Personal data: 346 cases (age range 1-87 years, mean age 51 years).



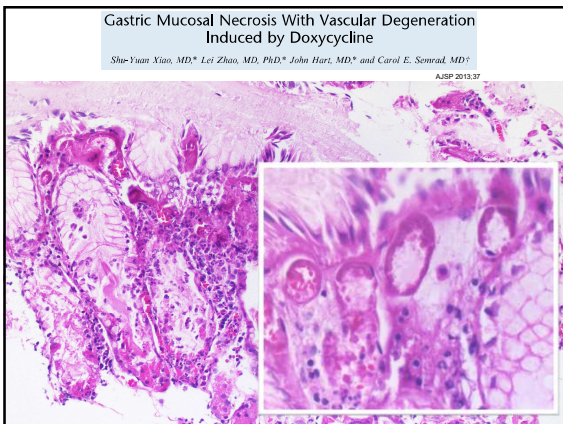


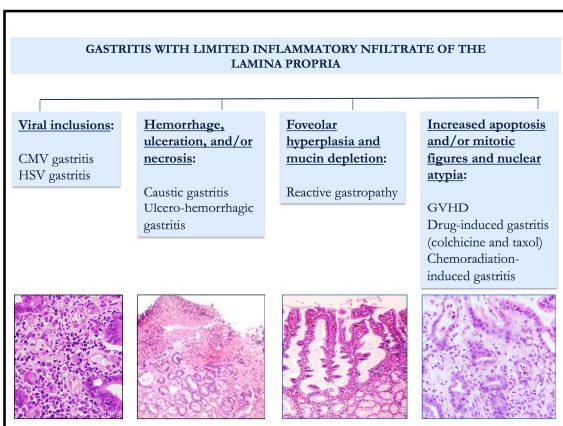
The 2 clinical subsets of Collagenous Gastritis
(based on ~90 cases in the literature)

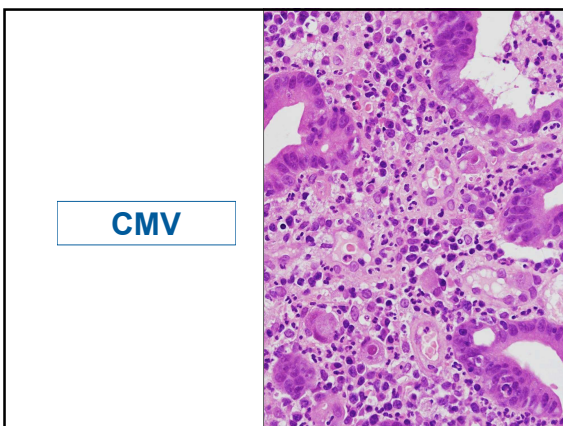
- **Pediatric patients**
 - Pain (57%), anemia (39%), bleeding (22%)
 - Celiac sprue (8%); collagenous sprue, collagenous colitis (4%) each...*disease more commonly confined to stomach.*
- **Adults (women+)**
 - Anemia (67%),Diarrhea(27%)
 - Collagenous colitis (38%), collagenous sprue (25%), celiac sprue (6%)
 - The more likely pan-enteric involvement...*suggest a pan-enteric pathogenetic process.*

- (also think drugs: Olmesartan®)

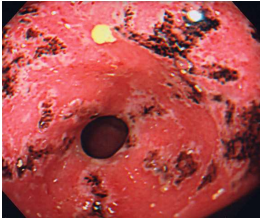
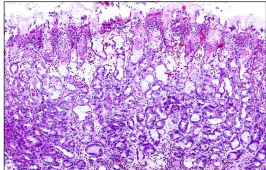
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 Lagorce-Pages C, Fabiani B, Bouvier R, et al. Collagenous gastritis: a report of six cases. Am J Surg Pathol 2003;27:1472-1479.







Acute Hemorrhagic Gastritis

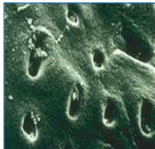



Shock
NSAIDs
EtOH
Steroids

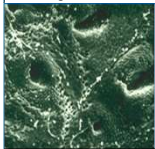
- Ischemia
- Increased vascular permeability
- Direct mucosal injury
- Interference w/ PG synthesis

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30-40% of patients taking NSAIDs may show gastric mucosal damages

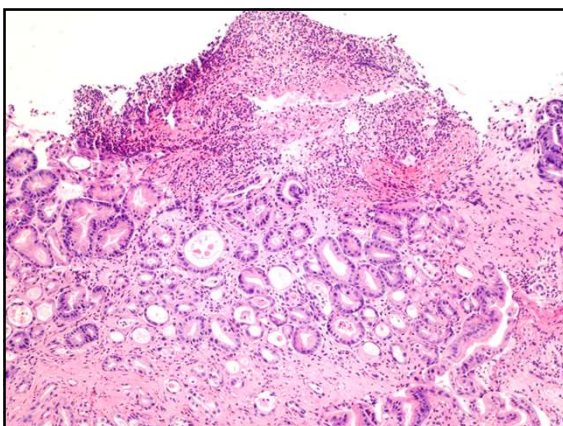


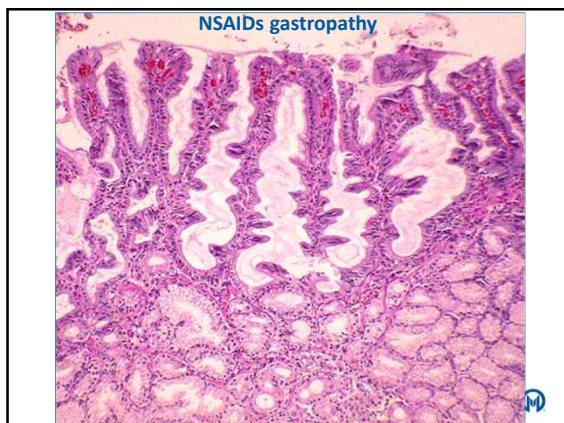
normal gastric mucosa

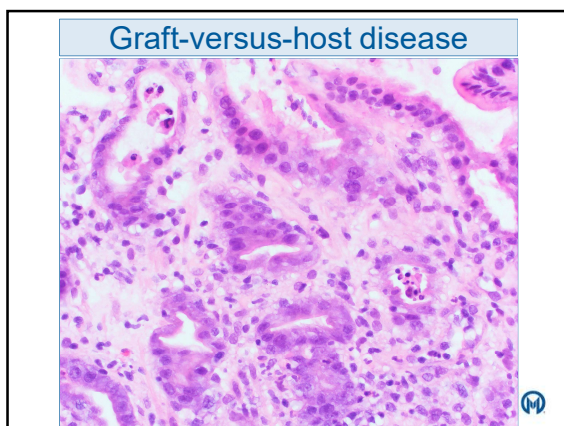


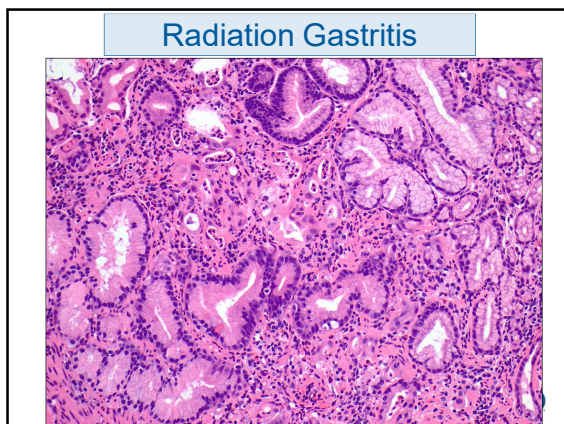
16 min post administration

- Patients-related factors
 - Age >60 years
 - Female?
 - Smoking? Alcohol?
- Drug-related factors
 - Relative toxicity & dosage
 - Duration of usage
 - Concurrent corticosteroid use

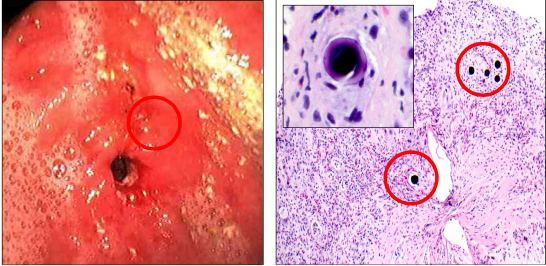




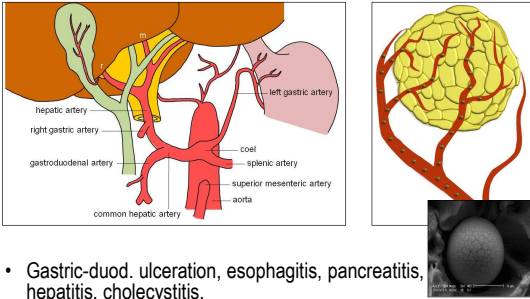




Selective Internal Radiation Therapy (SIRT)



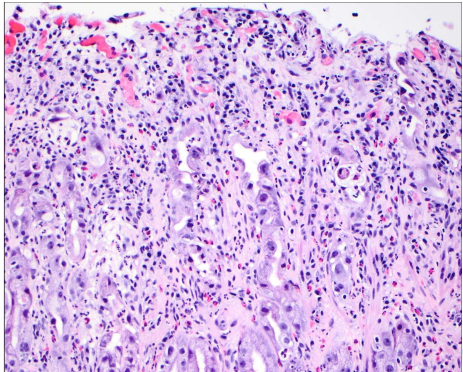
Micro-brachytherapy delivering high doses of ionizing radiation using Yttrium-90 impregnated onto 40 μm resin microspheres



- Gastric-duod. ulceration, esophagitis, pancreatitis, hepatitis, cholecystitis.
- Incidence : 0-13% (most within the first 2 months).
 - One series of 21 pts reports up to 29% rate of gastric ulceration.

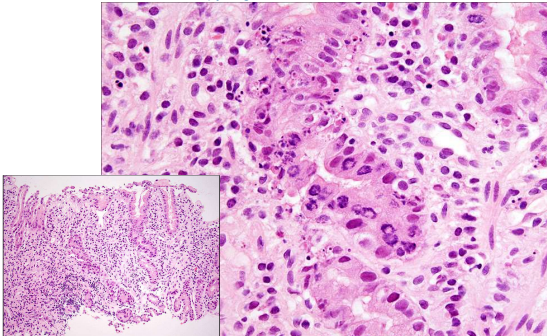
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Selective Internal Radiation Therapy (SIRT)



Chemotherapy induced gastritis

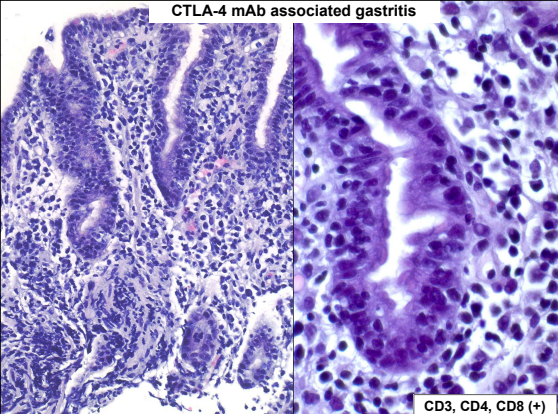
- Chemotherapy regimens: Taxol, 5-FU, others



CTLA-4 monoclonal antibody (ipilimumab®)

- Adjuvant to tumor vaccination therapy (melanoma, RCC, ovarian Ca).
- CTLA-4 is expressed on Tregs.
 - following antigenic stimulation, CTLA-4 inhibits T cell signaling and proliferation.
- mAb against CTLA-4 result in expansion of tumor-specific T cells & enhancing tumor destruction.
- Enterocolitis: lymphoplasmacytic expansion of LP, intraepithelial lymphocytosis and apoptosis.
 - Villous blunting of small bowel /cryptitis in colon

CTLA-4 mAb associated gastritis



CD3, CD4, CD8 (+)

Pointers for Chemo-RT induced damage

- Cytoplasmic eosinophilic transformation w/w-o withering glandular structures
- Vacuolated cytoplasm
- Monster nuclei w/w-o nucleoli intermixed w/ normal nuclei
- Apoptosis
- Mitotic arrest and atypical mitotic figures
- Eosinophilic inflammation; Lymphocytic exocytosis
- Stromal edema or fibrosis; Ectatic capillary vessels

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GASTRITIS WITH GRANULOMATOUS INFILTRATION OF THE LAMINA PROPRIA

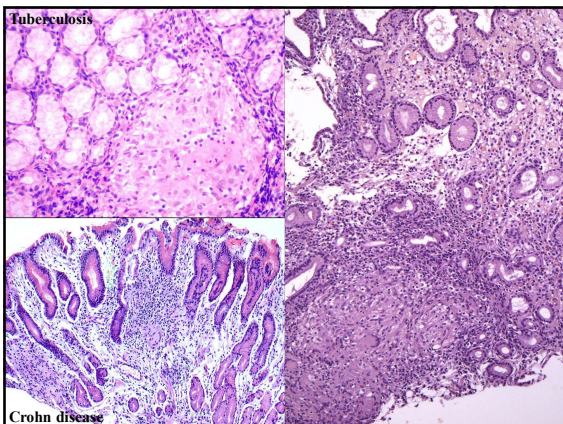
Crohn's disease **Sarcoidosis** **Infectious etiologies:**

Other uncommon etiologies:

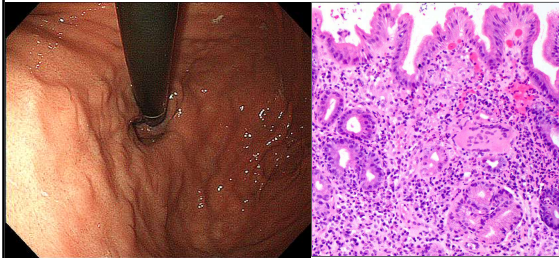
- Gastric adenocarcinoma
- Chronic granulomatous disease
- Common variable immunodeficiency
- Langerhans cell histiocytosis
- Whipple's disease
- Vasculitis
- Xanthogranulomatous gastritis
- Foreign body reaction

Tuberculosis
Cryptococcus
Anisakiasis
Taeniasis

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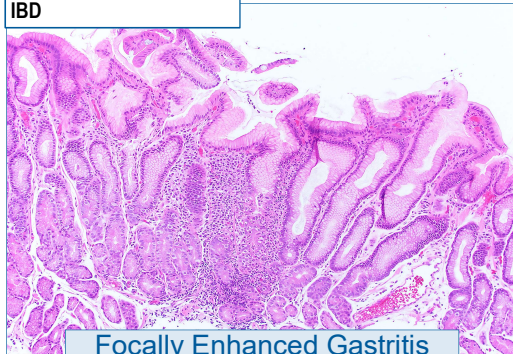
Gastric manifestations of Crohn



- Clinical:
 - Up to 34%-83% (referral centers / endoscopy/histology)
- Endoscopy:
 - Normal.
 - Nodular, thickened folds.

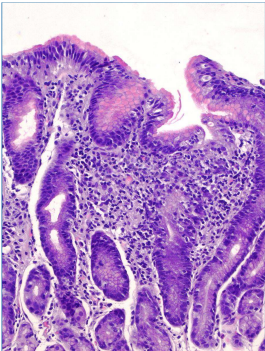
FEG and/or granulomas:
8-75% of pts.

Exclude HP (incompletely treated)
BMT; Autistic children
IBD



Focally Enhanced Gastritis

Focally Enhanced Gastritis



- Predominantly composed of CD3+ T cells & CD68+ histiocytes w/ occasional neutrophils (62% of cases).
- Single lesion (73.5%) involving 2-8 glands.
- Antrum >>> body-fundus

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Focally Enhanced Gastritis

- Number of glands involved in FEG foci: 119 pts: 62 CD / 57 UC
 - UC (6.4±5.1 glands) v. CD (4.0±3.0 glands) [$p=0.0465$]
- Granulocytic infiltrates
 - more common in UC (47%) than in CD (24%) [$p>0.05$]

Focally Enhanced Gastritis

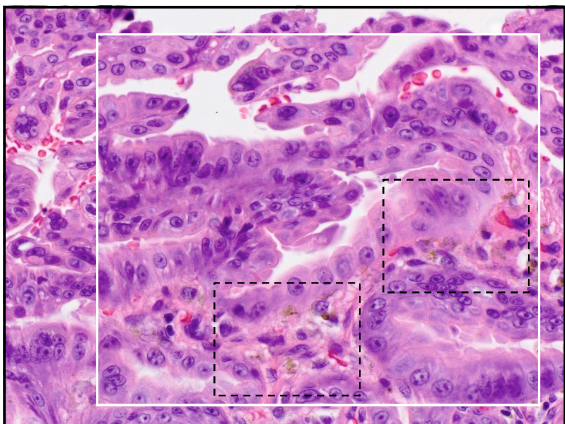
	All patients			Pediatric Pts		
	UC	CD	Control	UC	CD	Control
Prevalence	12-24%	43-76%	2-19%	21-30%	55-69%	3-5%
PPV of IBD		5.9%			61-76%	

- More common in yg pts: 73% at age 10 VS 43% >10, ($p=0.0358$) w/ peak in the 5-10 years age-group (80%)
- Associated w/ the presence of granulomas in the entire gut [$p=0.0006$]
- Prevalence of active SB inflammation is higher in FEG group (62%) v. non-FEG (36%) [$p=0.0412$]

Uchikita T. 2013. Am J Surg Pathol
McHigh et al. Am J Surg Pathol. 2013.
Xin et al. Am J Surg Pathol 2004. 28(10): 1347-51

	CAG, focal PMN	CAG diffuse PMN infiltration	Chronic inactive gastritis	FEG-N	FEG-G	Granulomas	Lymphoid follicles
CDG (n=82)	40%	13%	34%	13%	44%	20%	13%

CAG: chronic active gastritis; FEG: focally enhanced gastritis; PMN: polymorphonuclear; N: Normal; G: gastritis.



Gastric Mucosal Calcinosis

- Organ transplant patients (renal+)
- Aluminum hydroxide-containing antacid or sucralfate.
- Elemental analysis: aluminium, chlorine, calcium, phosphorus

Lanthanum carbonate

phosphate binder for the treatment of hyperphosphatemia in dialysis patients

