

GI pathology – the basics

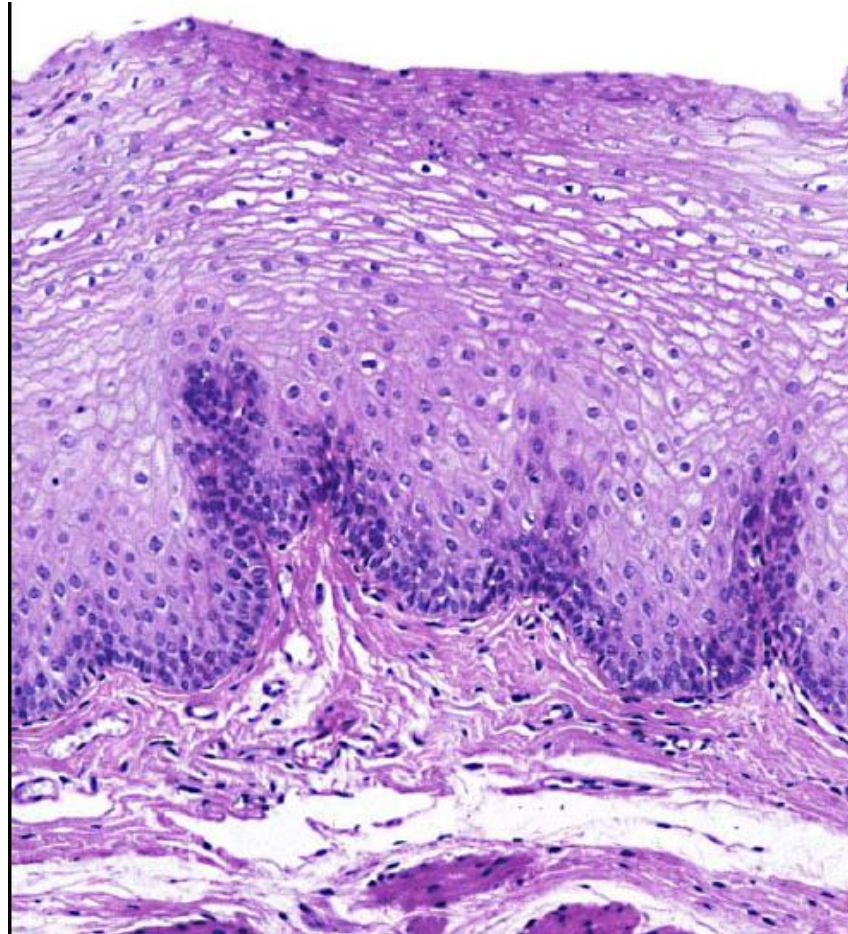
PD Dr. med. Heather Dawson

Resident Training 12.06.2024

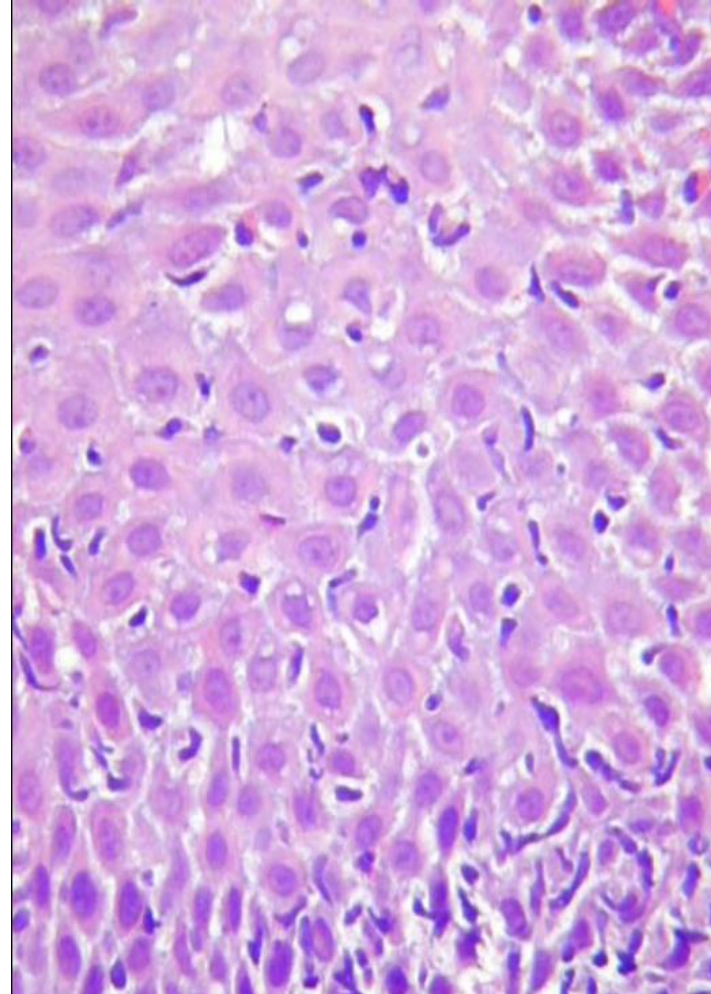
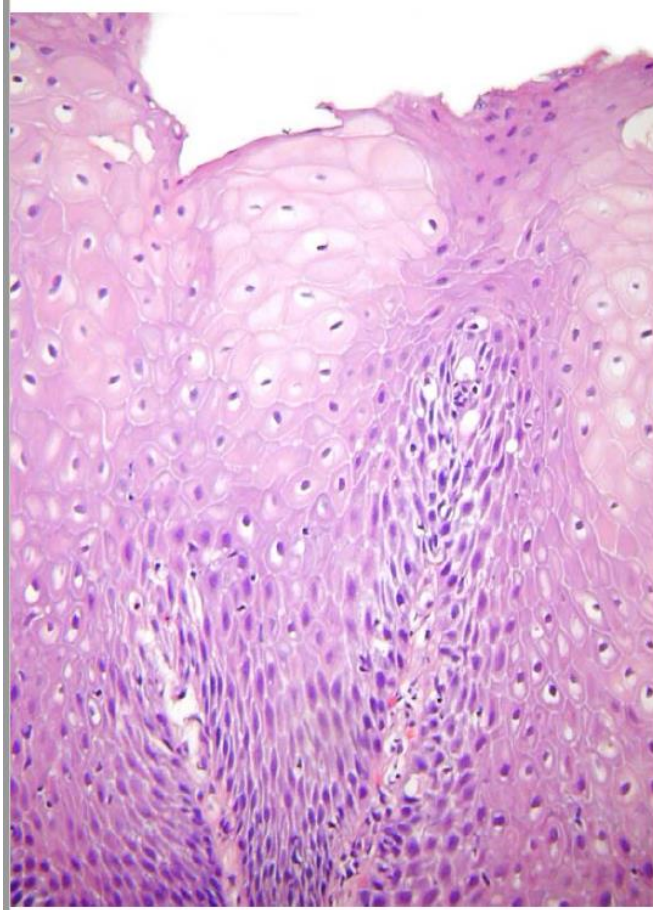
Agenda

1. Most common diseases of the upper/lower GI tract and histology
2. What is normal?
3. Abnormal histology
4. Diagnostic algorithms for most common abnormalities

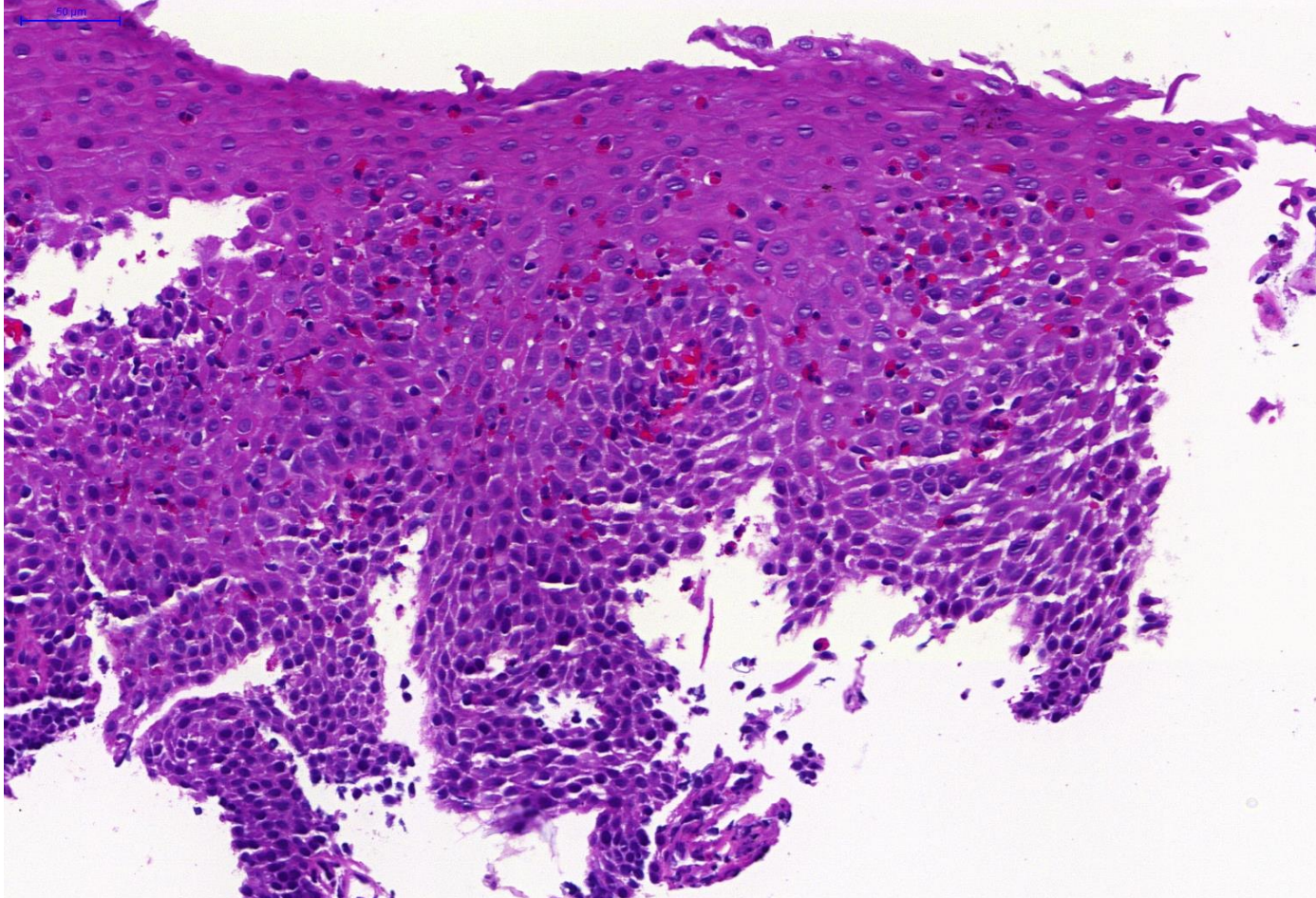
Esophagus – what is normal?

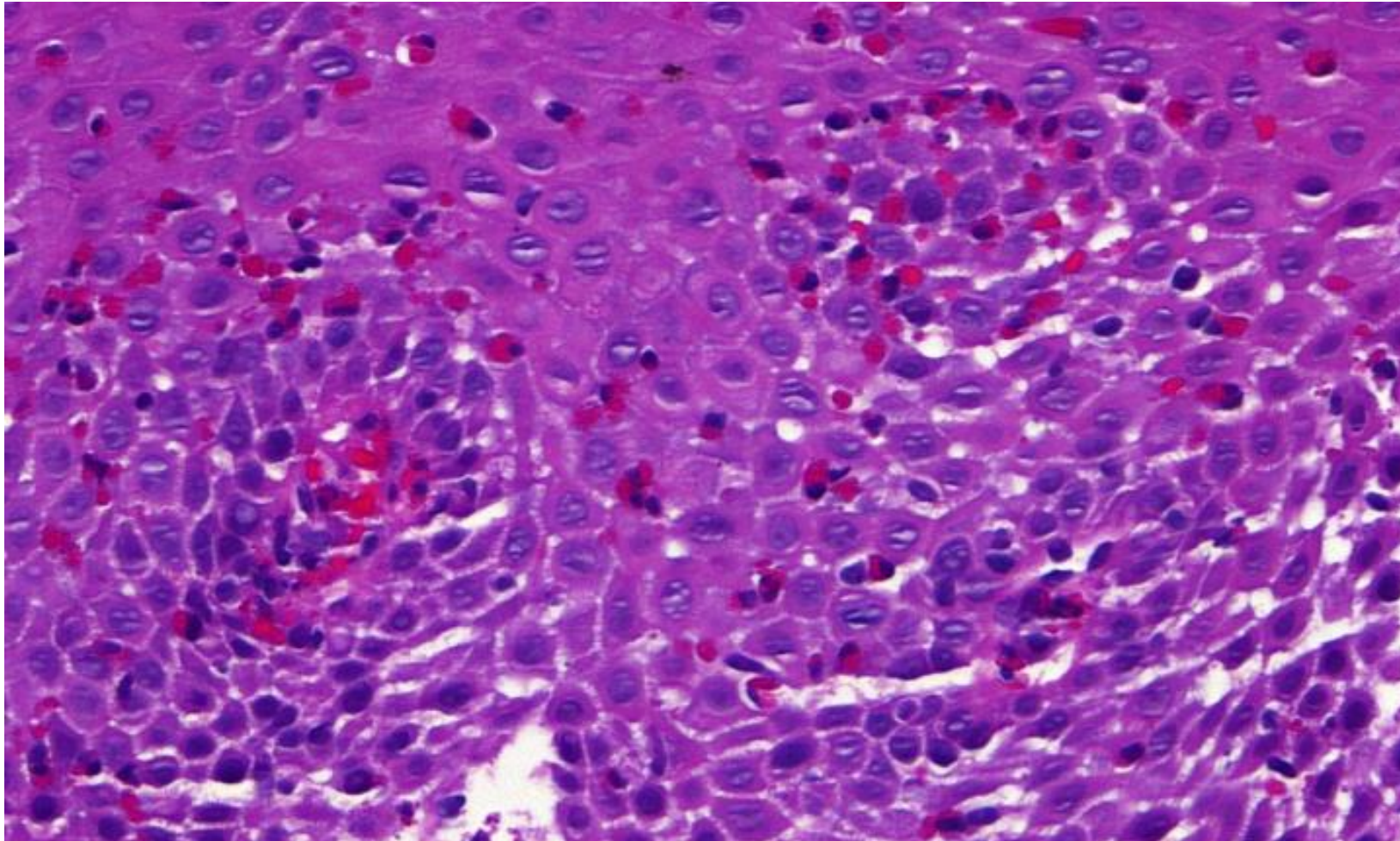


GERD – very common finding

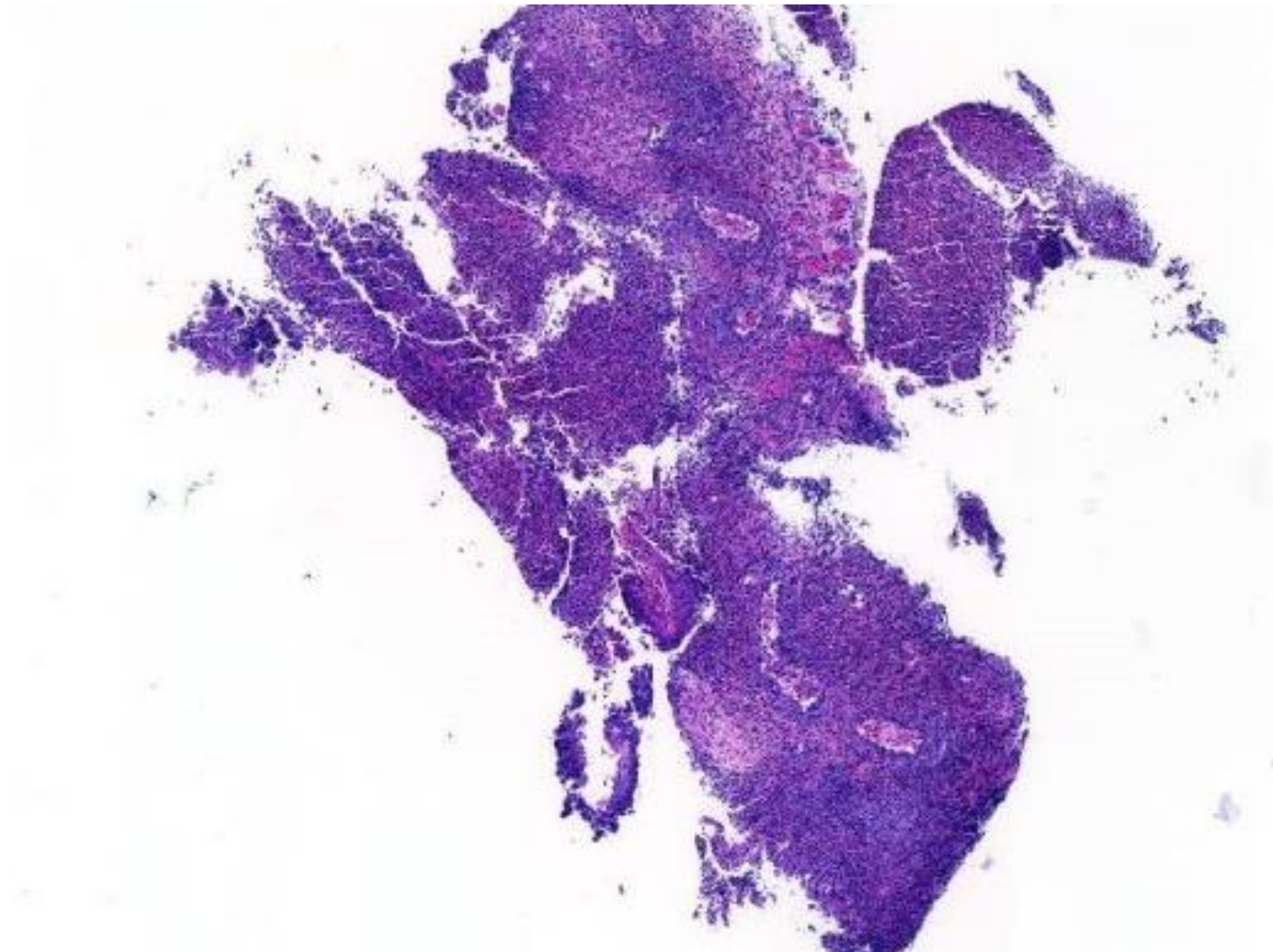


Esophagus – not so normal



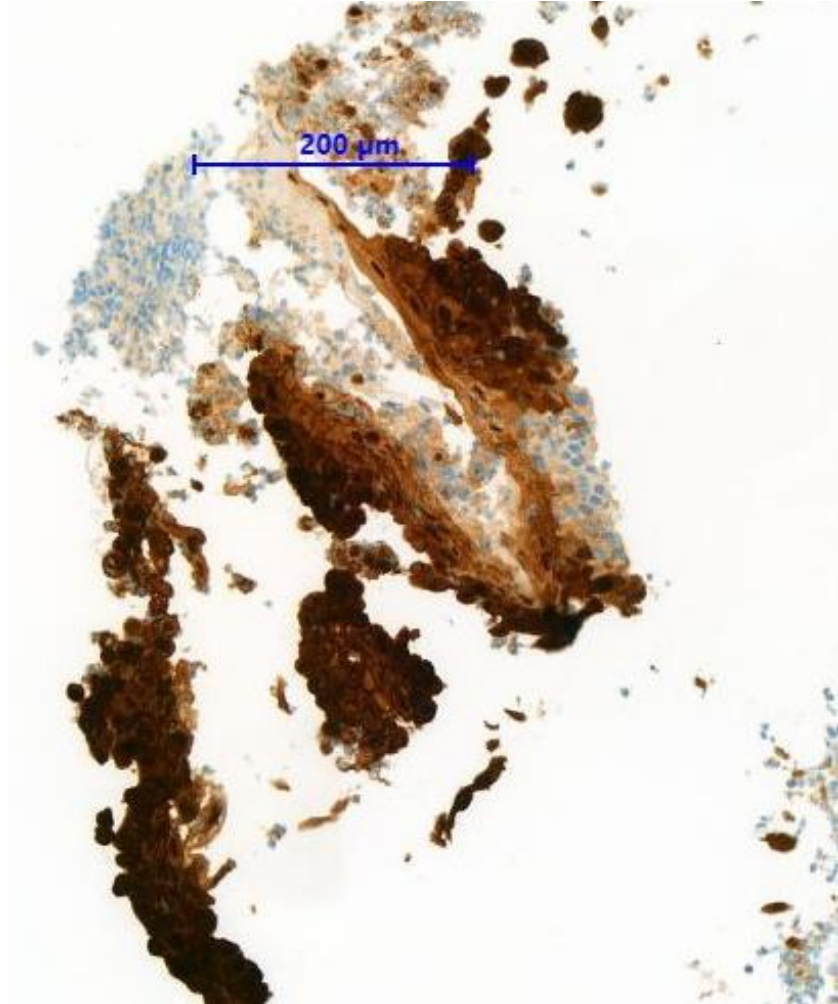
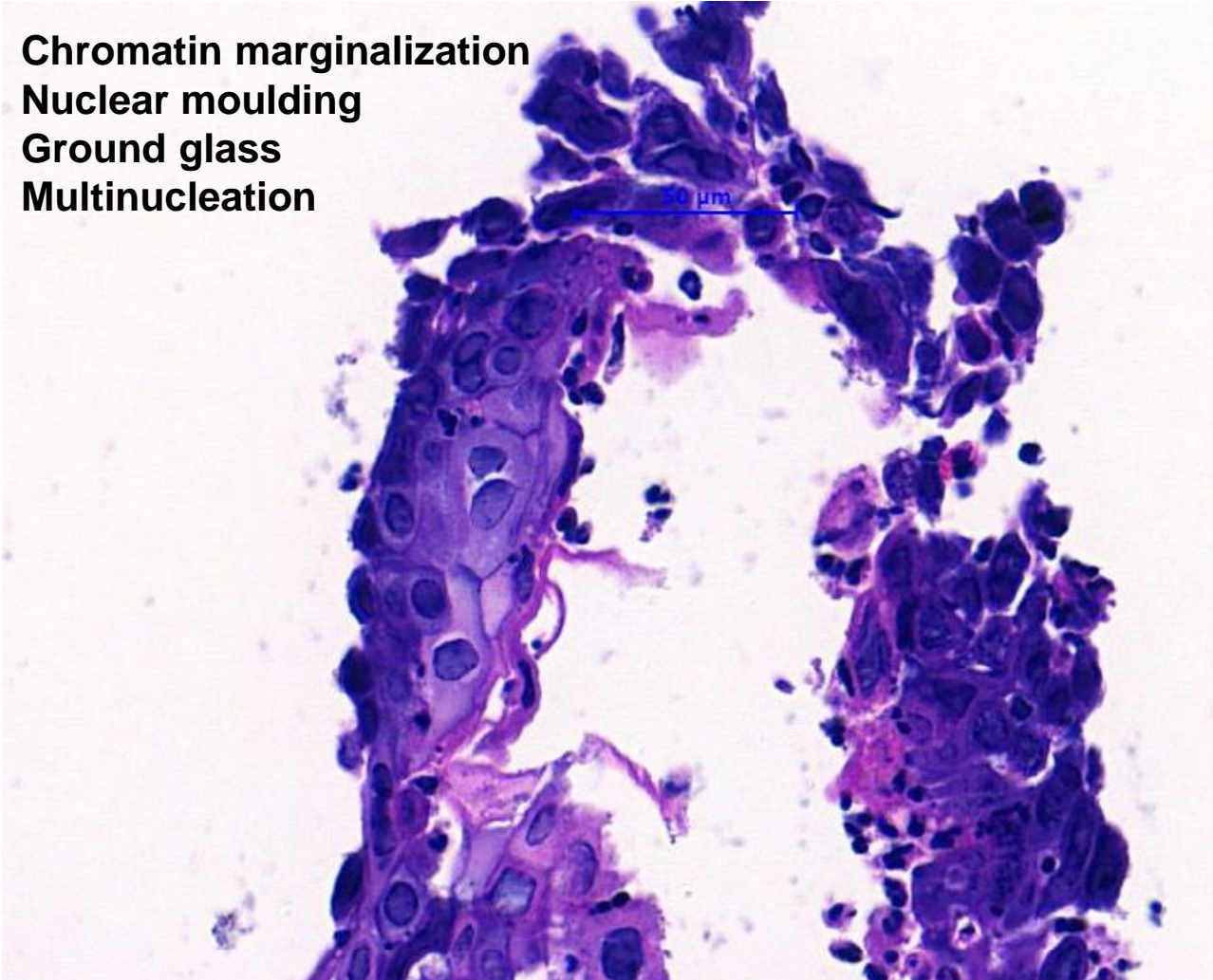


Esophageal ulcer



Typical changes

Chromatin marginalization
Nuclear moulding
Ground glass
Multinucleation



Diagnostic algorithm esophagitis

ESOPHAGITIS

GERD?

EoE/PPI-REE?

Erosions/ulcers

- Viral esophagitis
- Pill esophagitis
- Autoimmune blistering dermatitis

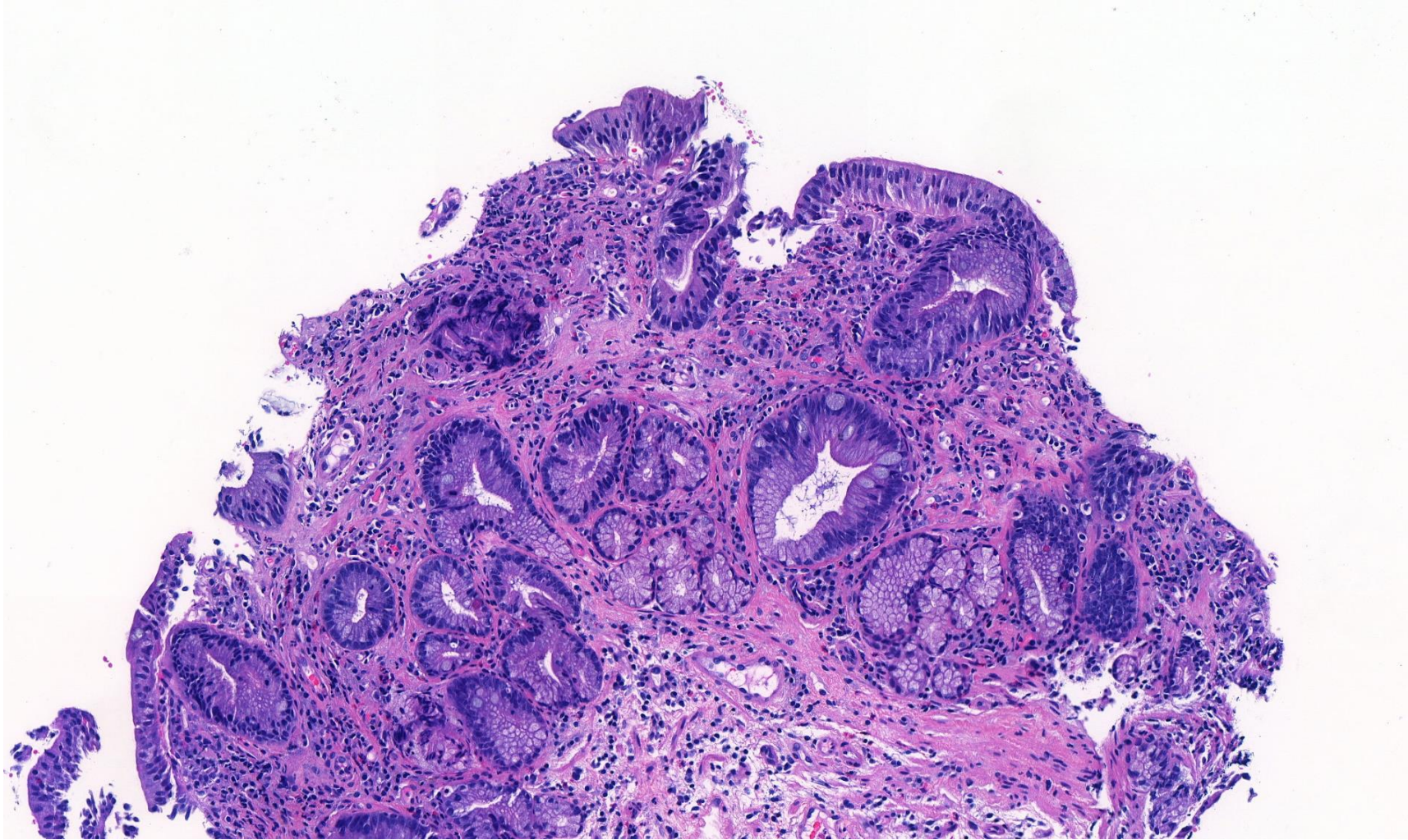
Lymphocytes ↑

- Lymphocytic esophagitis
- Lichen planus

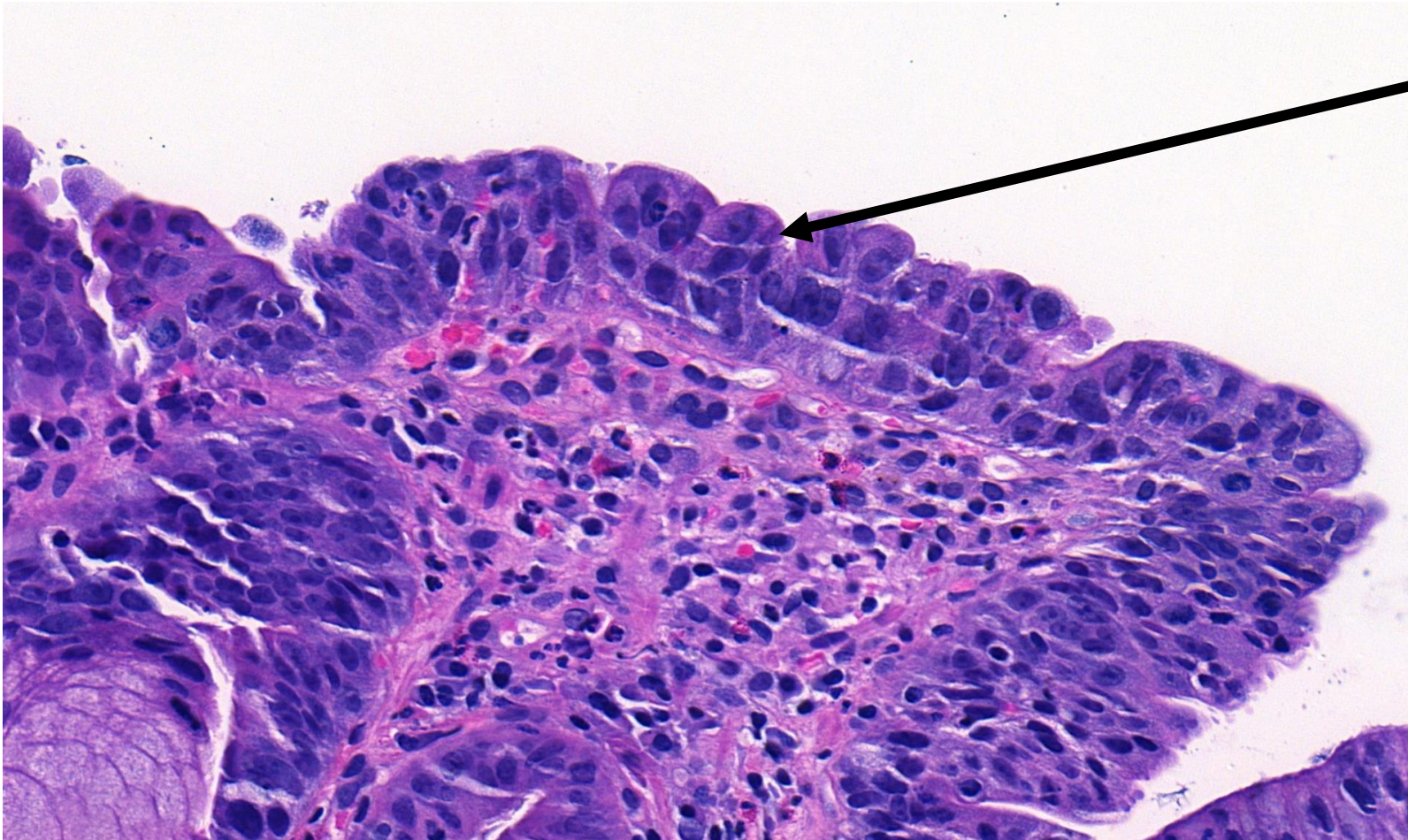
Neutrophils ↑

- Candida

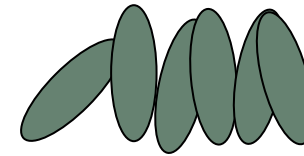
Barrett esophagus – definition?



Dysplasia in BE



Loss of polarity in HGD



Stomach – what is normal

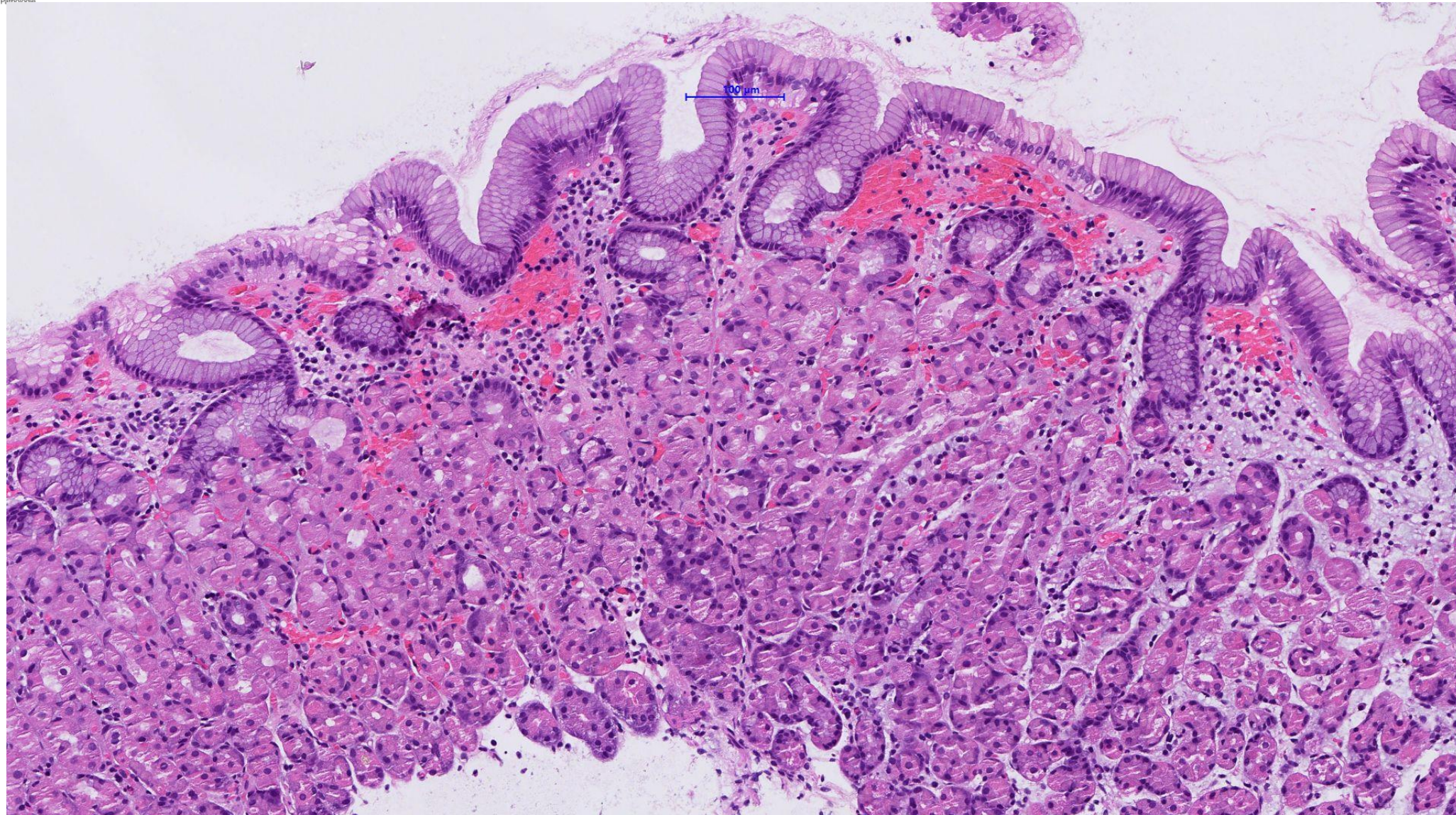
Types of gastric mucosa:

Onxyntic mucosa

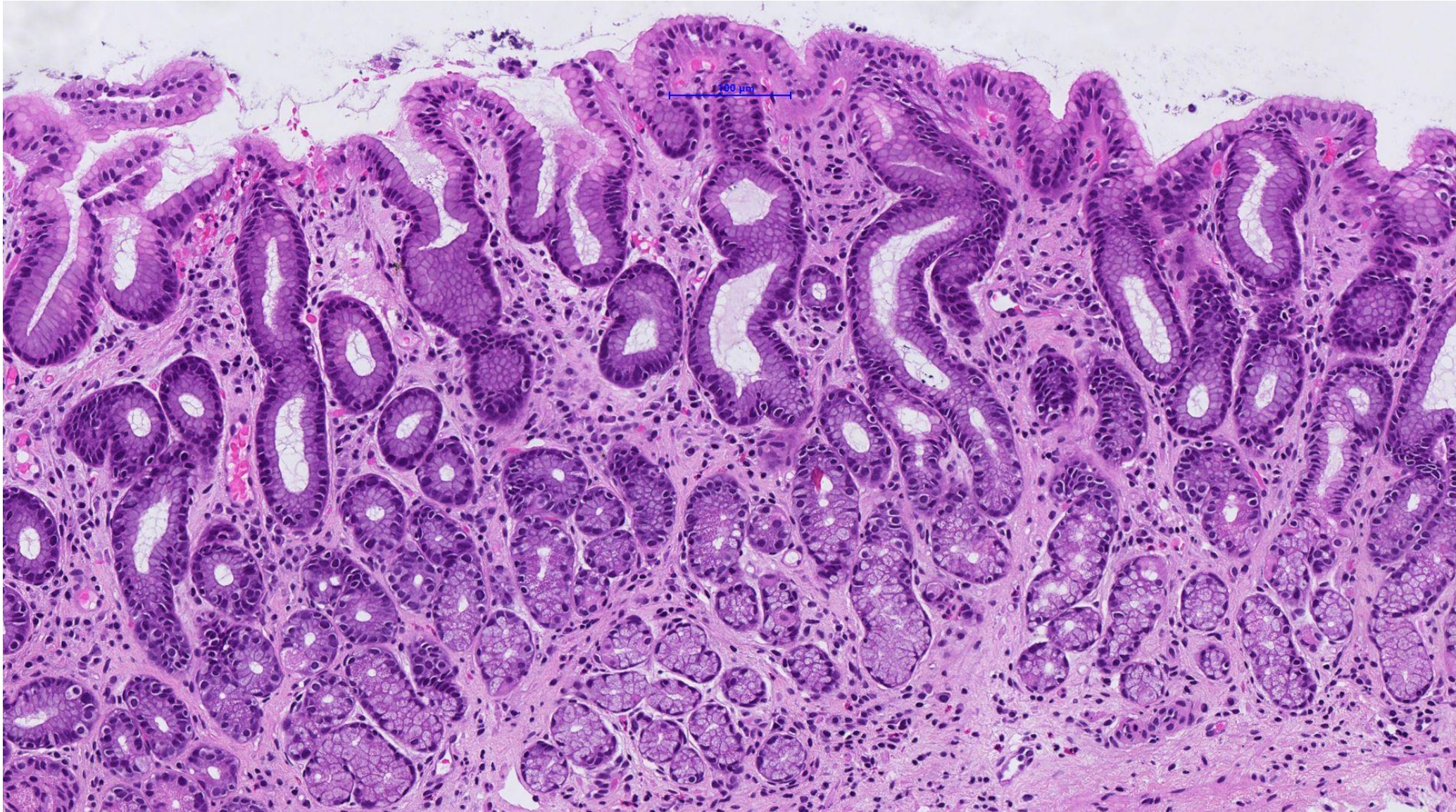
Antrum type mucosa

Cardia type mucosa

Normal oxyntic mucosa



Normal antral mucosa



Types of gastritis

Updated Sydney system for the classification and grading of gastritis

Type of gastritis	Etiologic factors	Gastritis synonyms
Nonatrophic	<i>Helicobacter pylori</i>	Superficial
	? Other factors	Diffuse antral gastritis (DAG)
		Chronic antral gastritis (CAG)
		Interstitial - follicular
		Hypersecretory
Type B*		
Atrophic		
Autoimmune	Autoimmunity	Type A*
		Diffuse corporal Pernicious anemia-associated
Multifocal atrophic	<i>Helicobacter pylori</i>	Type B*, type AB*
	Dietary	Environmental
	? Environmental factors	Metaplastic
Special forms		
Chemical [†]	Chemical irritation	Reactive
	Bile	Reflux
	NSAIDs	NSAID
	? Other agents	Type C*
Radiation	Radiation injury	
Lymphocytic	Idiopathic? Immune mechanisms	Varioliform (endoscopic)
	Gluten	Celiac disease-associated
	Drug (ticlopidine) ? <i>H. pylori</i>	
Noninfectious granulomatous	Crohn's disease	
	Sarcoidosis	
	Granulomatosis with polyangiitis and other vasculitides	
	Foreign substances	
Eosinophilic	Idiopathic	Isolated granulomatous
	Food sensitivity ? Other allergies	Allergic
Other infectious gastritides	Bacteria (other than <i>H. pylori</i>)	Phlegmonous
	Viruses	
	Fungi	
	Parasites	

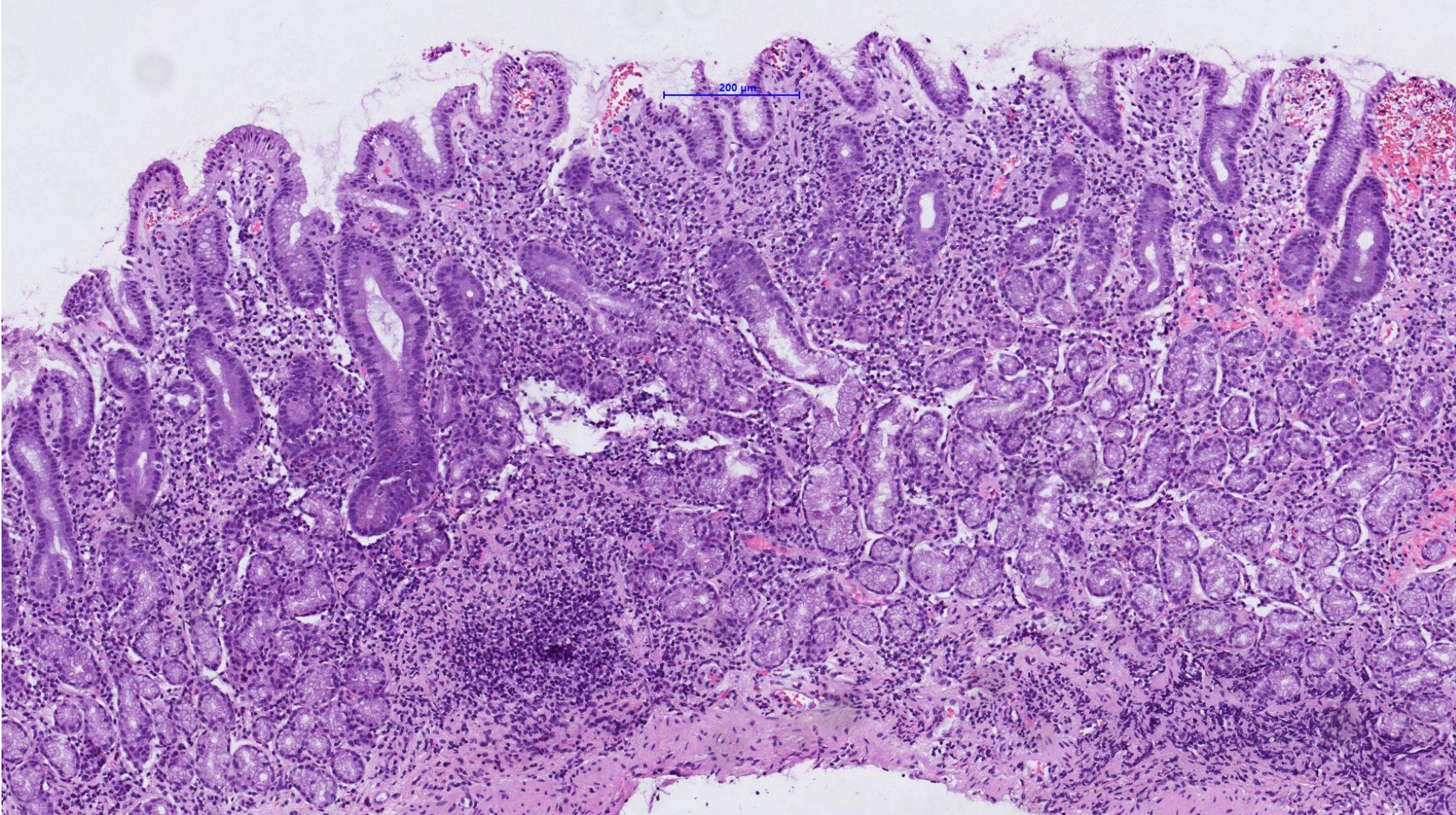
The updated Sydney system. Am J Surg Pathol 1996; 20:1161.

Chronic inflammation → plasma cells

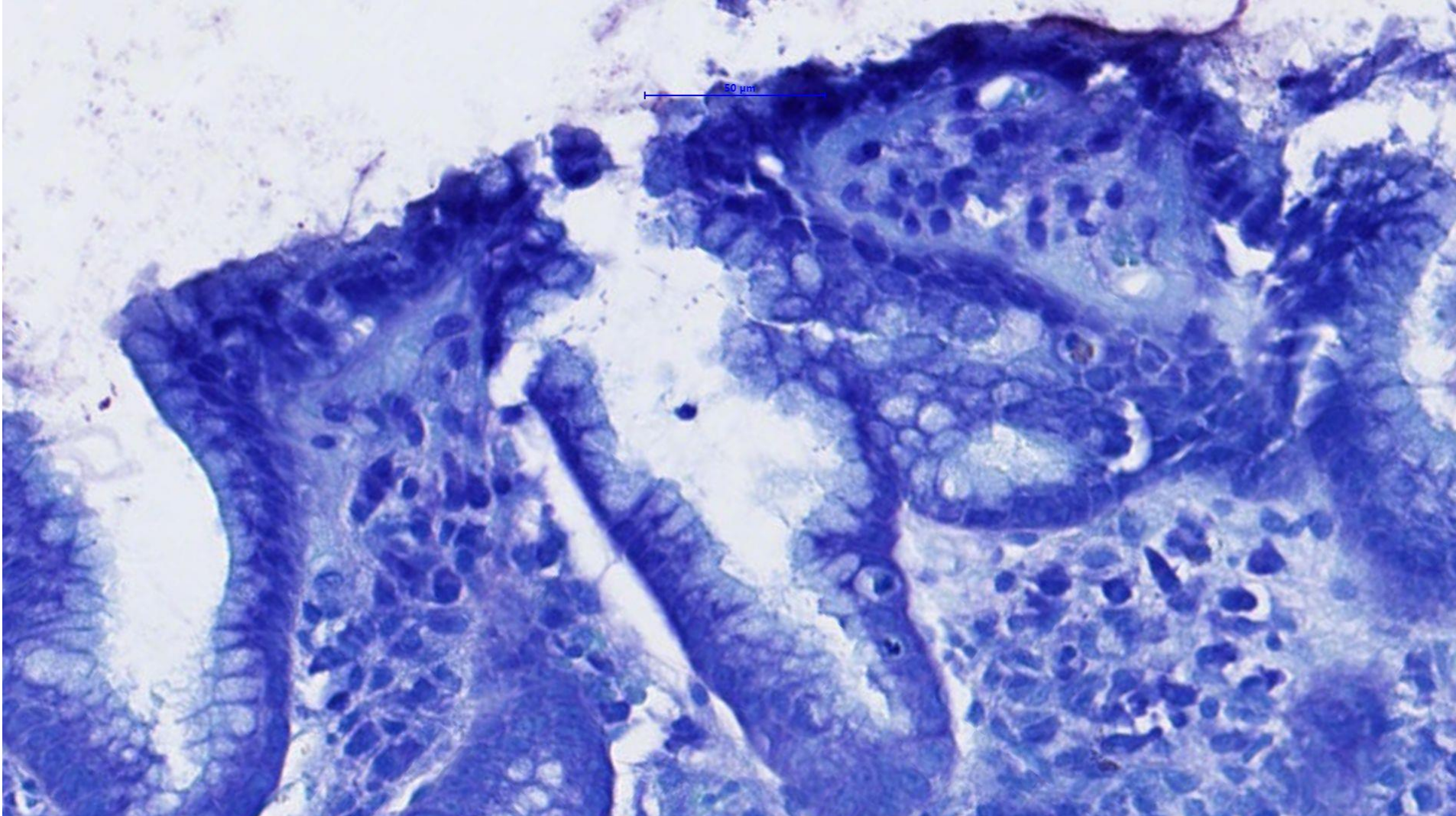
Active inflammation → neutrophils

Atrophy → loss or replacement of resident glands by metaplastic epithelium

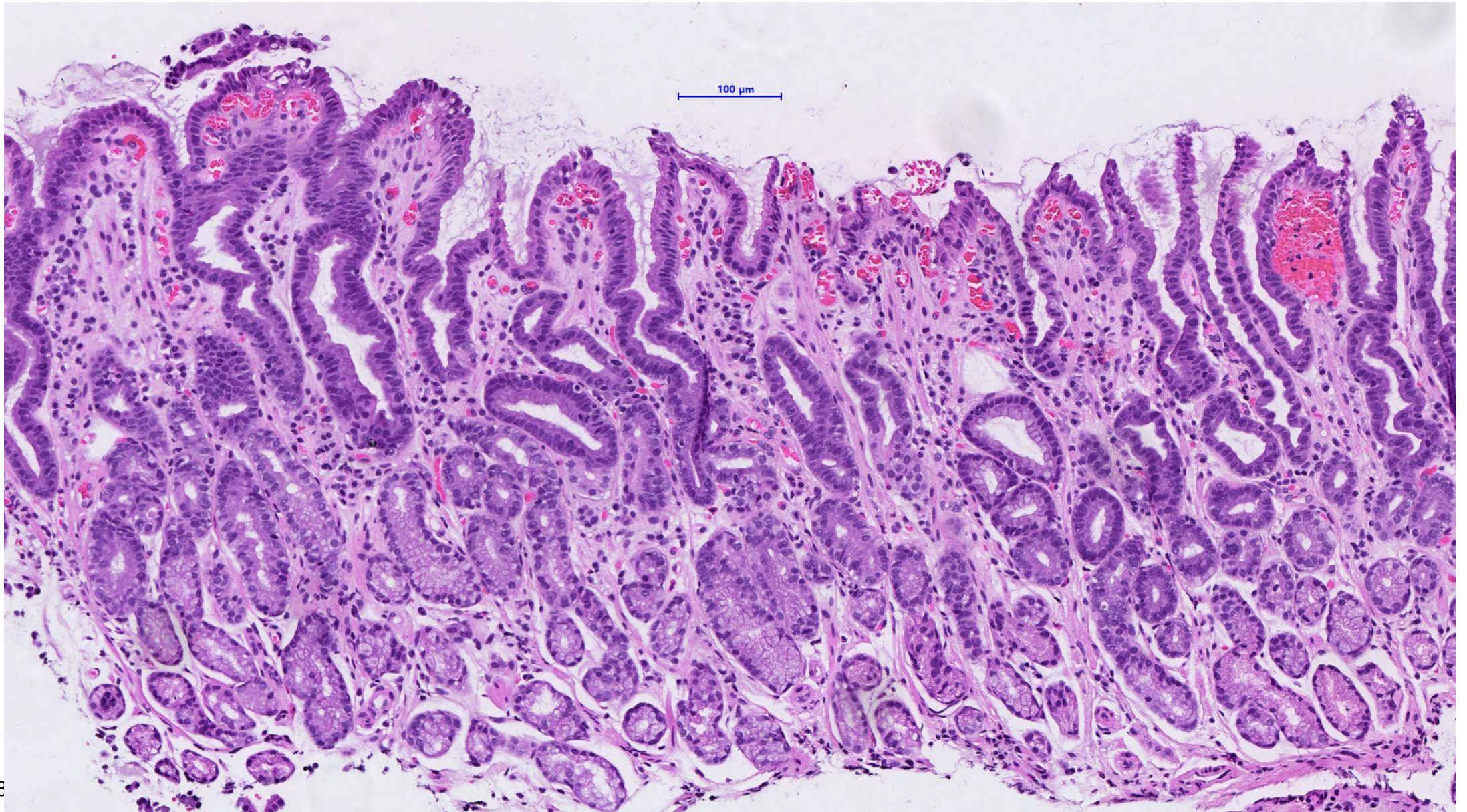
H. pylori gastritis



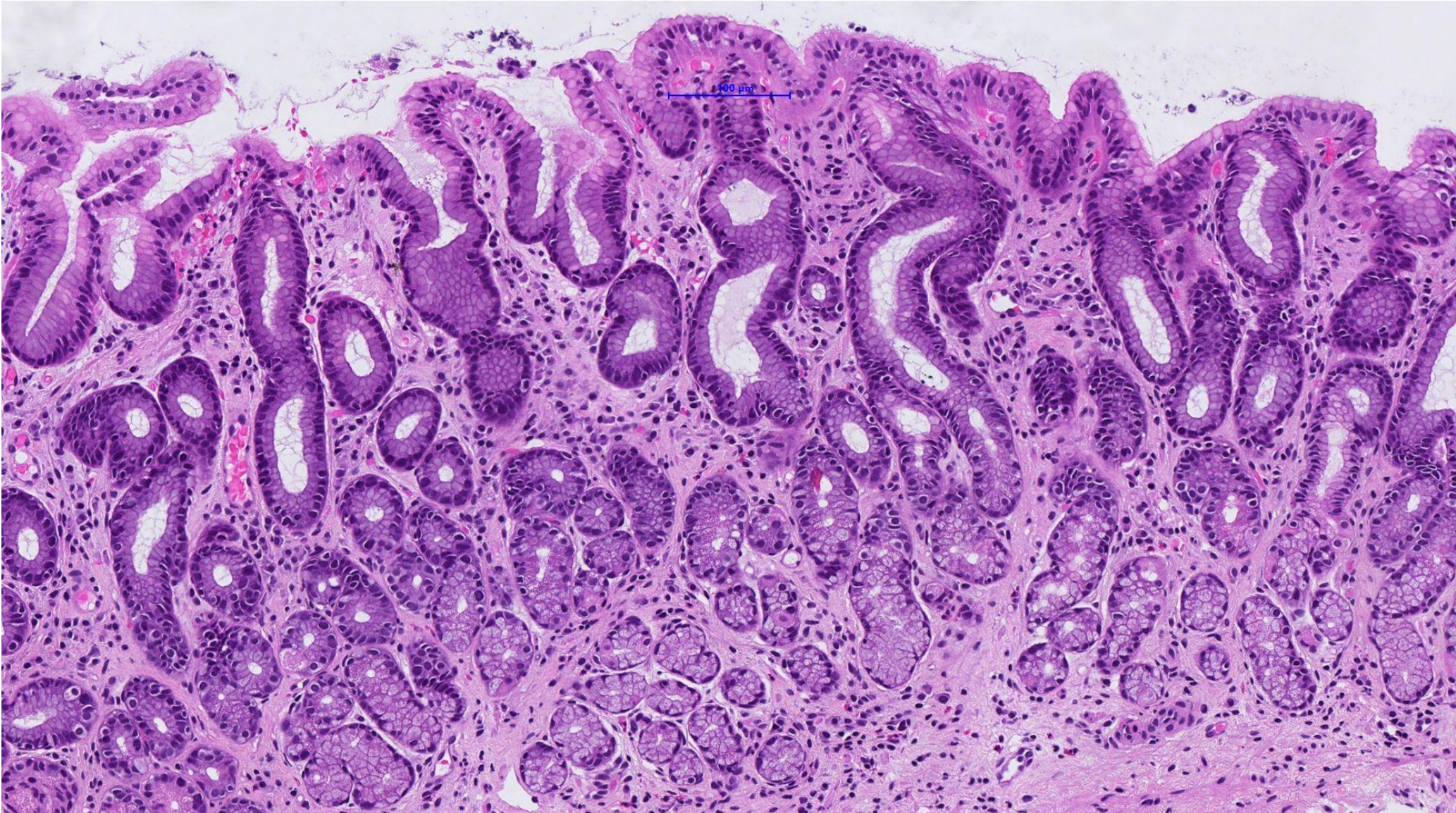
H. pylori bacteria



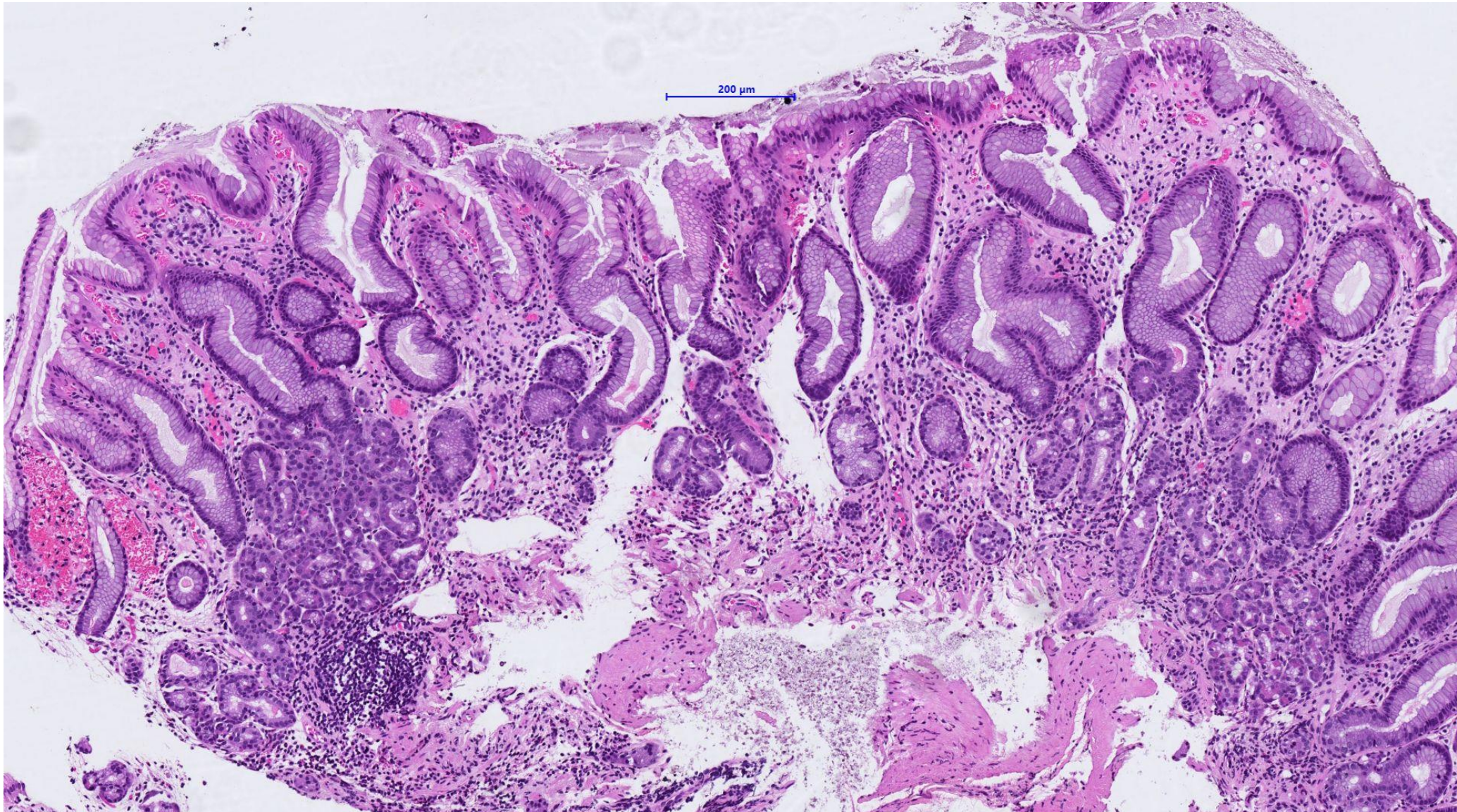
Reactive gastropathy



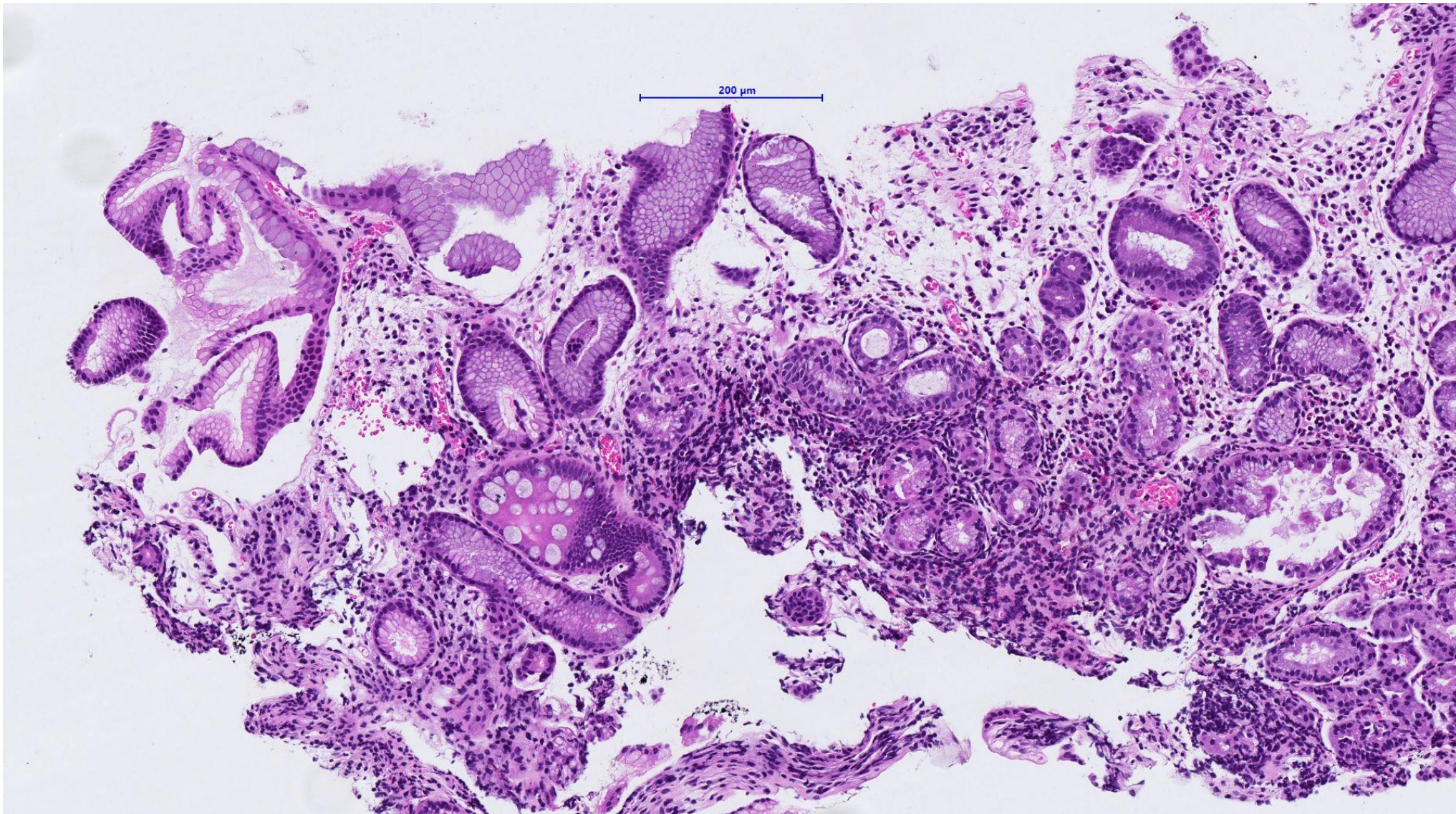
Reminder: normal antral mucosa



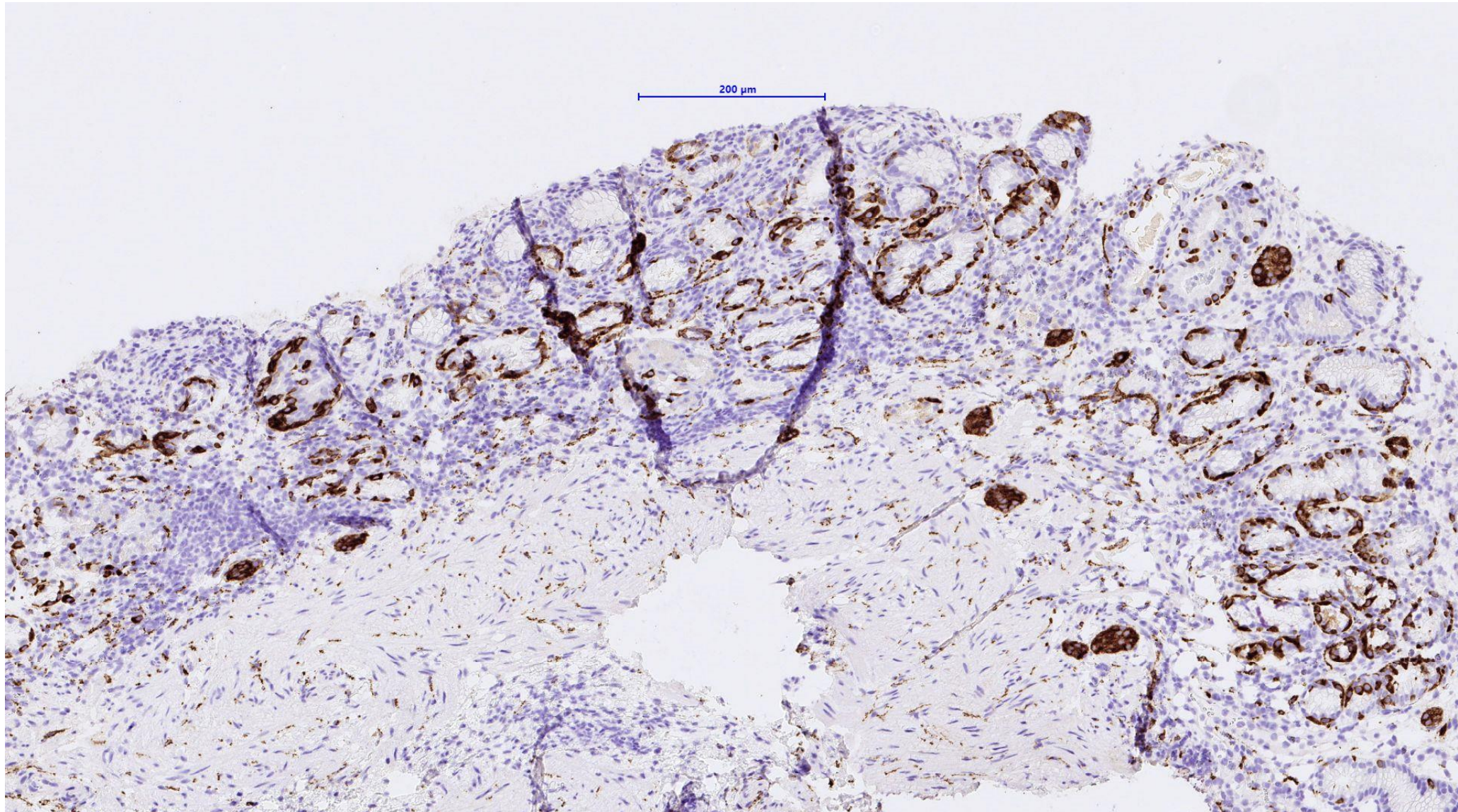
Autoimmune-type gastritis



Focal intestinal metaplasia



Synaptophysin: ECL cell hyperplasia



Duodenum – what is normal

‘Checklist’:

Are the villi normal? Crypts hyperplastic?

Are there any microorganisms between the villi?

IELs?

What inflammatory cells are in the lamina propria? Plasma cells present?

Anything special (reactive changes, apoptosis)?

PAS stain → gastric metaplasia, M. whipple, MAI?

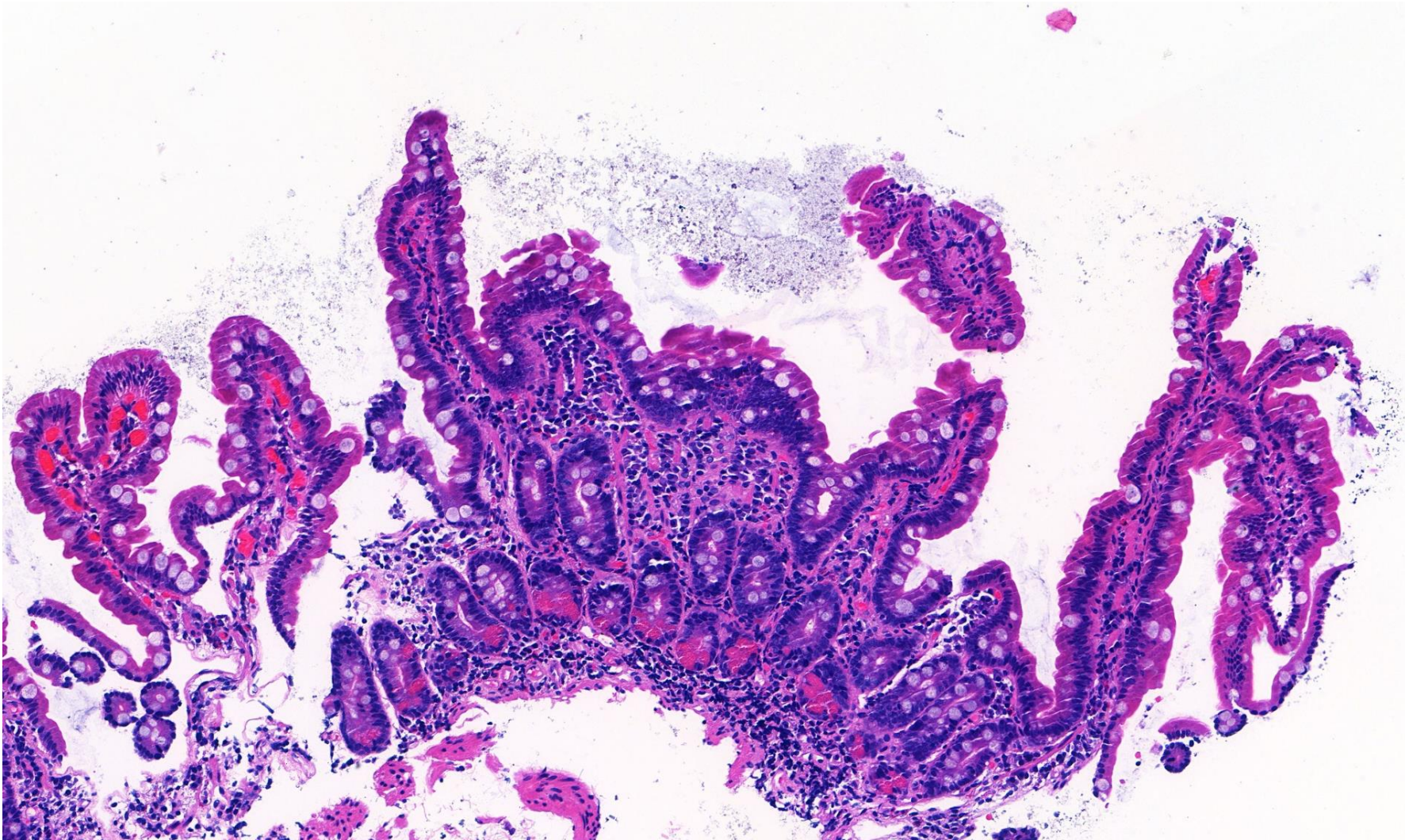
Grading of duodenal lesions with villous atrophy

Table 21.1 Grading of gluten-induced enteropathy: modified Oberhuber–Marsh scheme

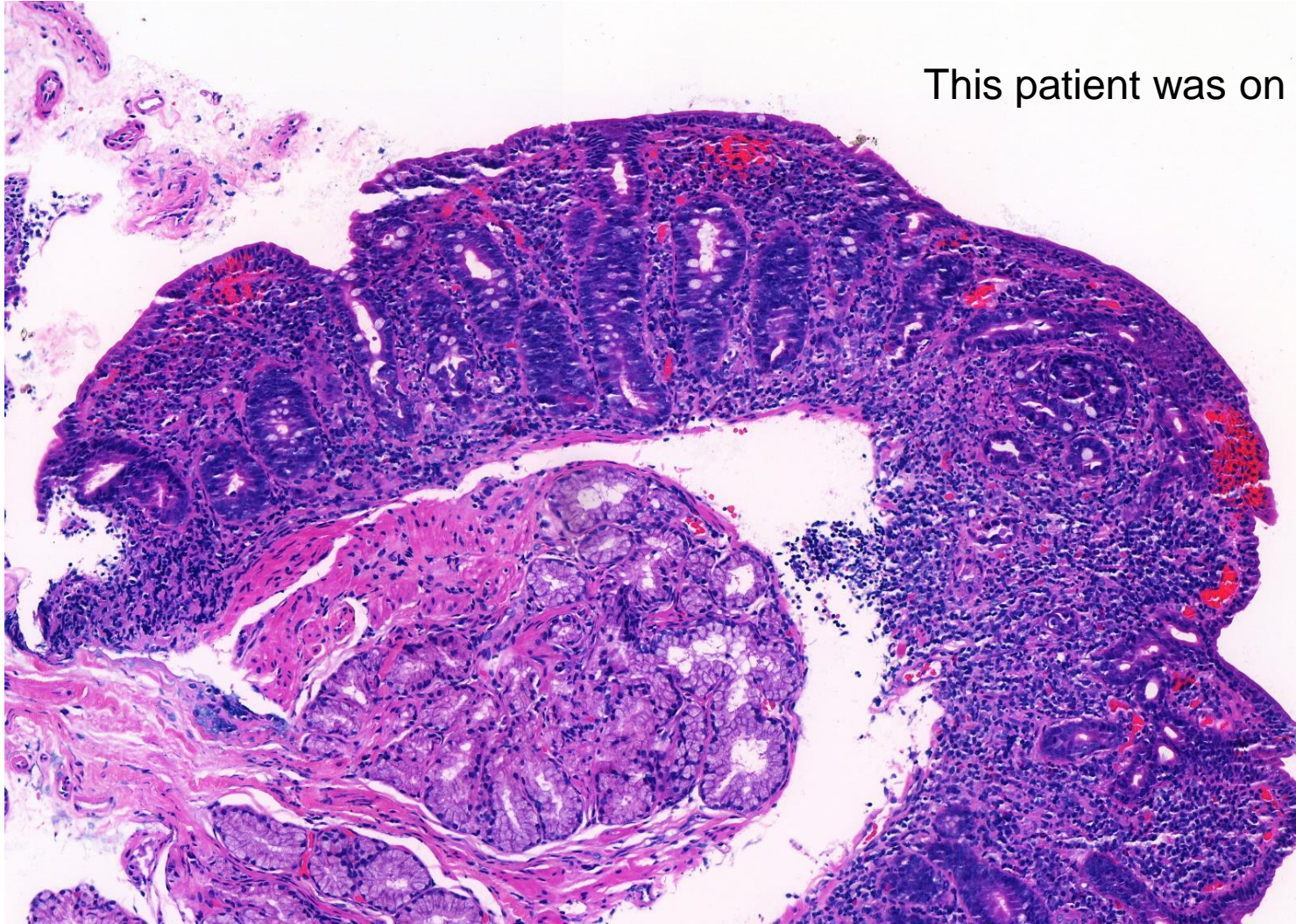
	0	1	2	3a	3b	3c
IELs	<30	>30	>30	>30	>30	>30
Crypts	Normal	Normal	Hypertrophic	Hypertrophic	Hypertrophic	Hypertrophic
Villi	Normal	Normal	Normal	Atrophy +	Atrophy ++	Absent

IELs, intra-epithelial lymphocytes.

Normal small bowel mucosa

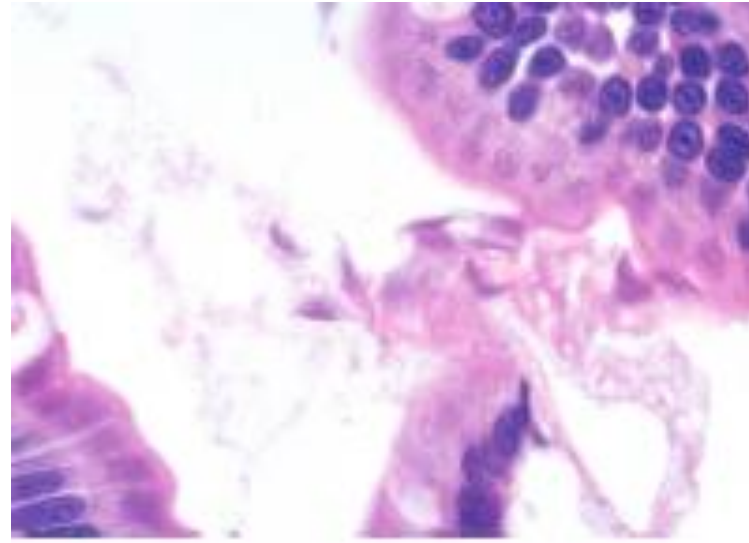
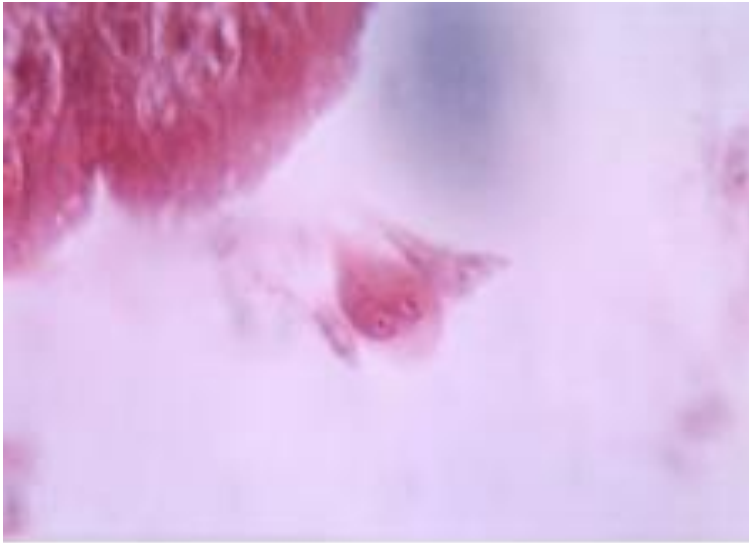


Marsh 3c lesion

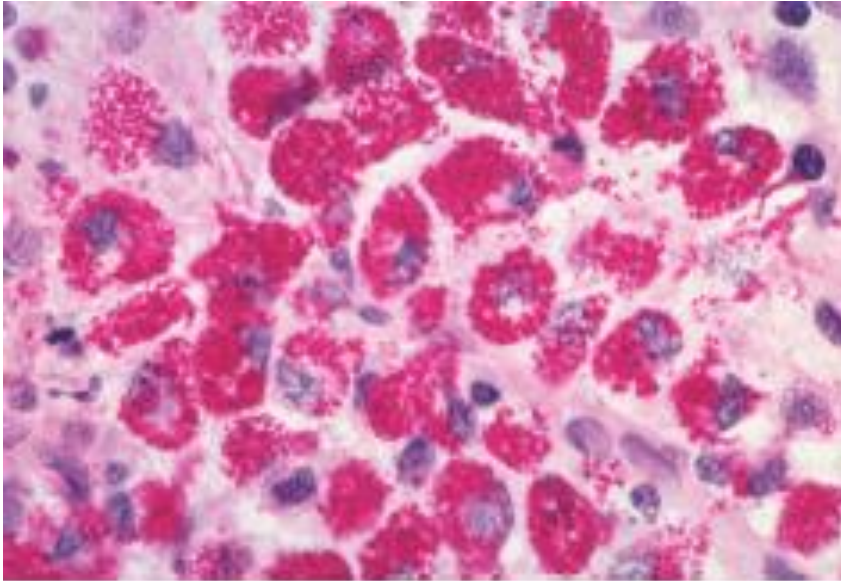


This patient was on olmesartan – histology could be CD!

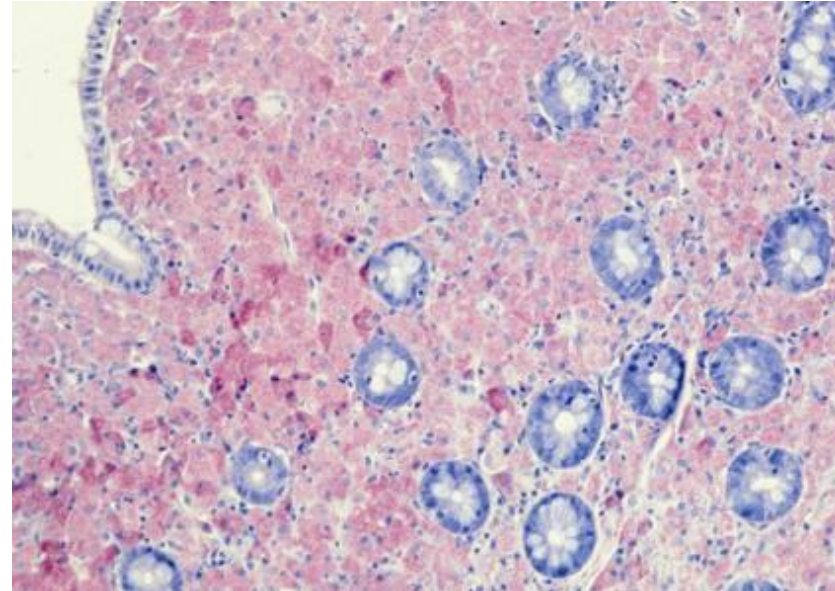
Giardia



DDs in PAS



Whipple's disease: PAS+ Granula



MAI: PAS+ rods

Normal colorectal mucosa

Similar 'Checklist' as in small bowel:

Architecture of the crypts?

Surface epithelium – bugs or damage? IELs?

Subepithelial collagen deposition?

What inflammatory cells are in the lamina propria? Plasma cells present?

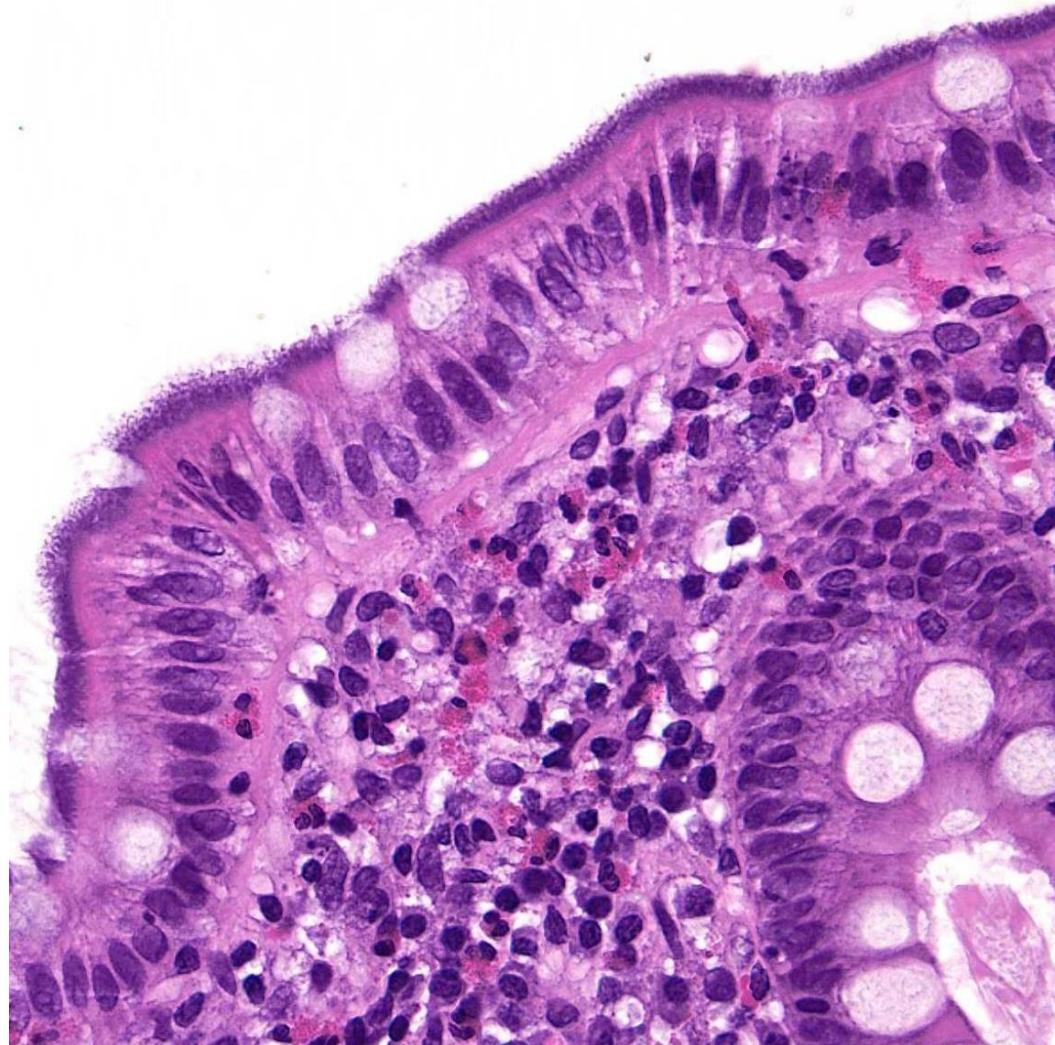
What is the distribution of inflammatory cells?

Anything special – reactive changes, apoptosis, granulomas?

Normal colorectal mucosa



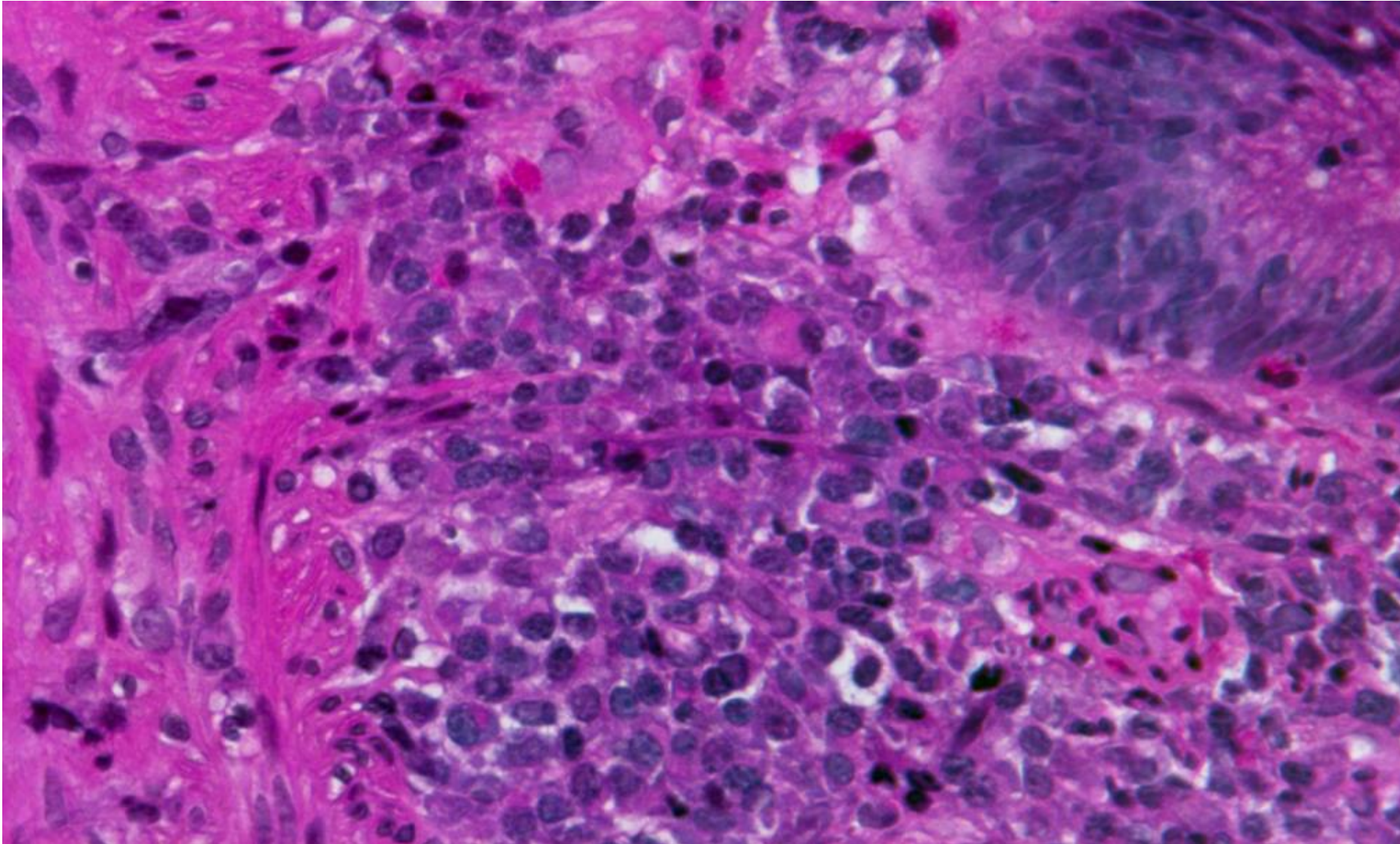
Spirochetosis – a potential miss



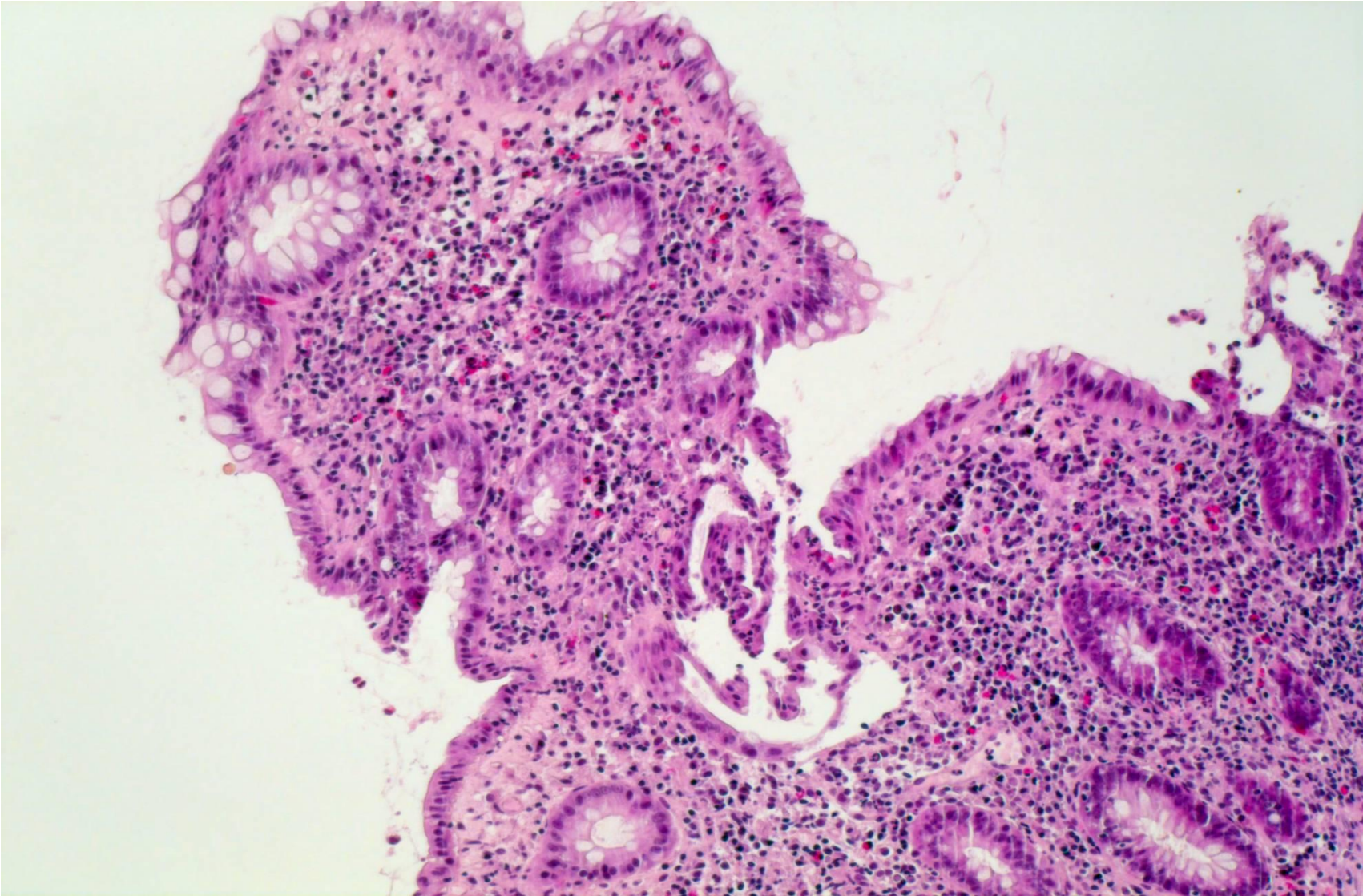
Diagnosis of IBD

Feature	UC	CD	Infectious/acute self-limited colitis
Diffuse	Yes	Sometimes	Sometimes
Focal	No	Usually	Usually
Luminal surface	Irregular	Sometimes	Regular
Crypt abscesses cryptitis	Yes, lots	Yes, focal	Yes, luminal
Mucin depletion	Diffuse	Focal	Absent or focal
Basal plasmocytosis	Yes	Yes	Absent
Neutros in lamina propria	No	No	Yes

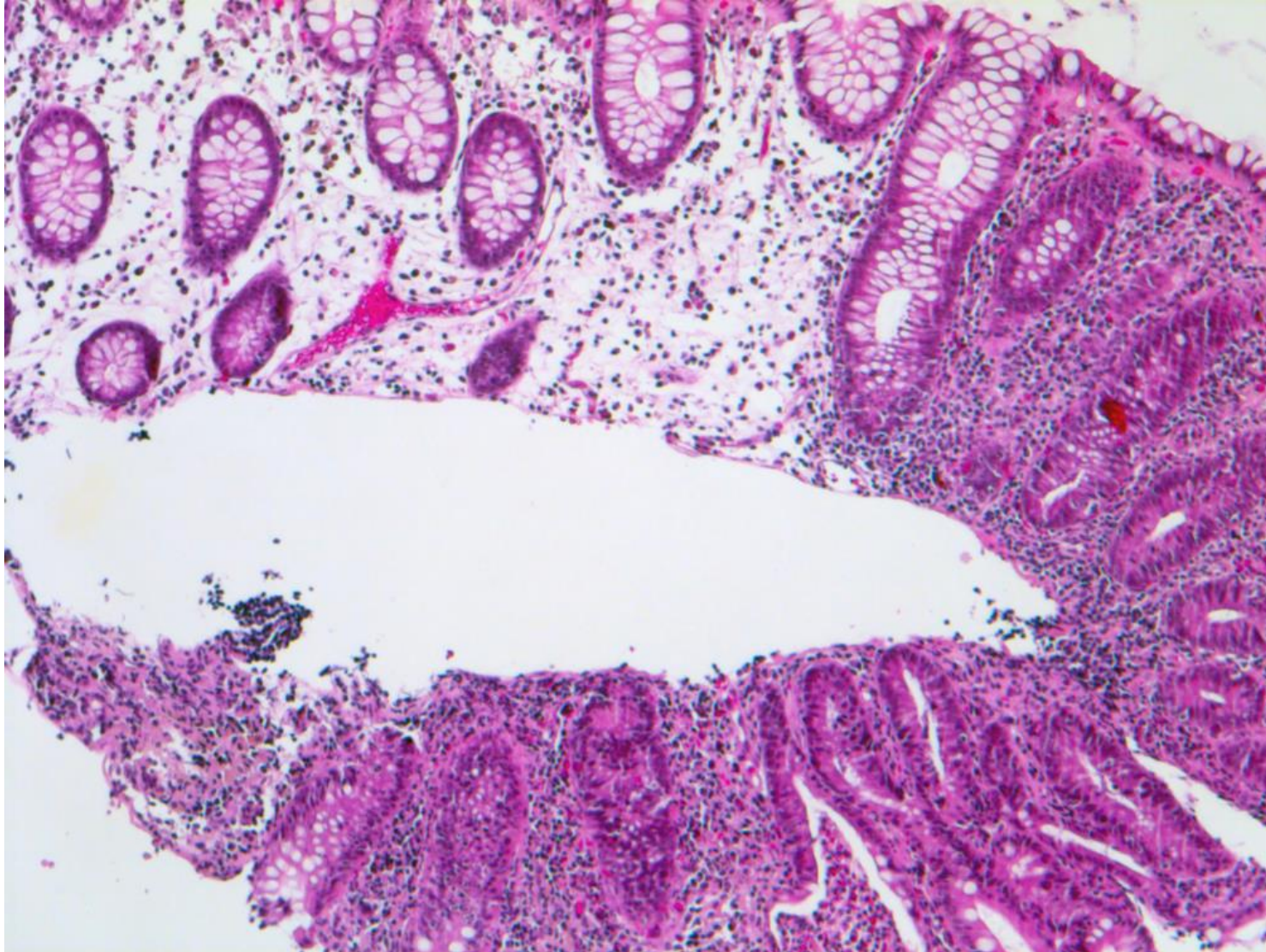
Basal plasma cells



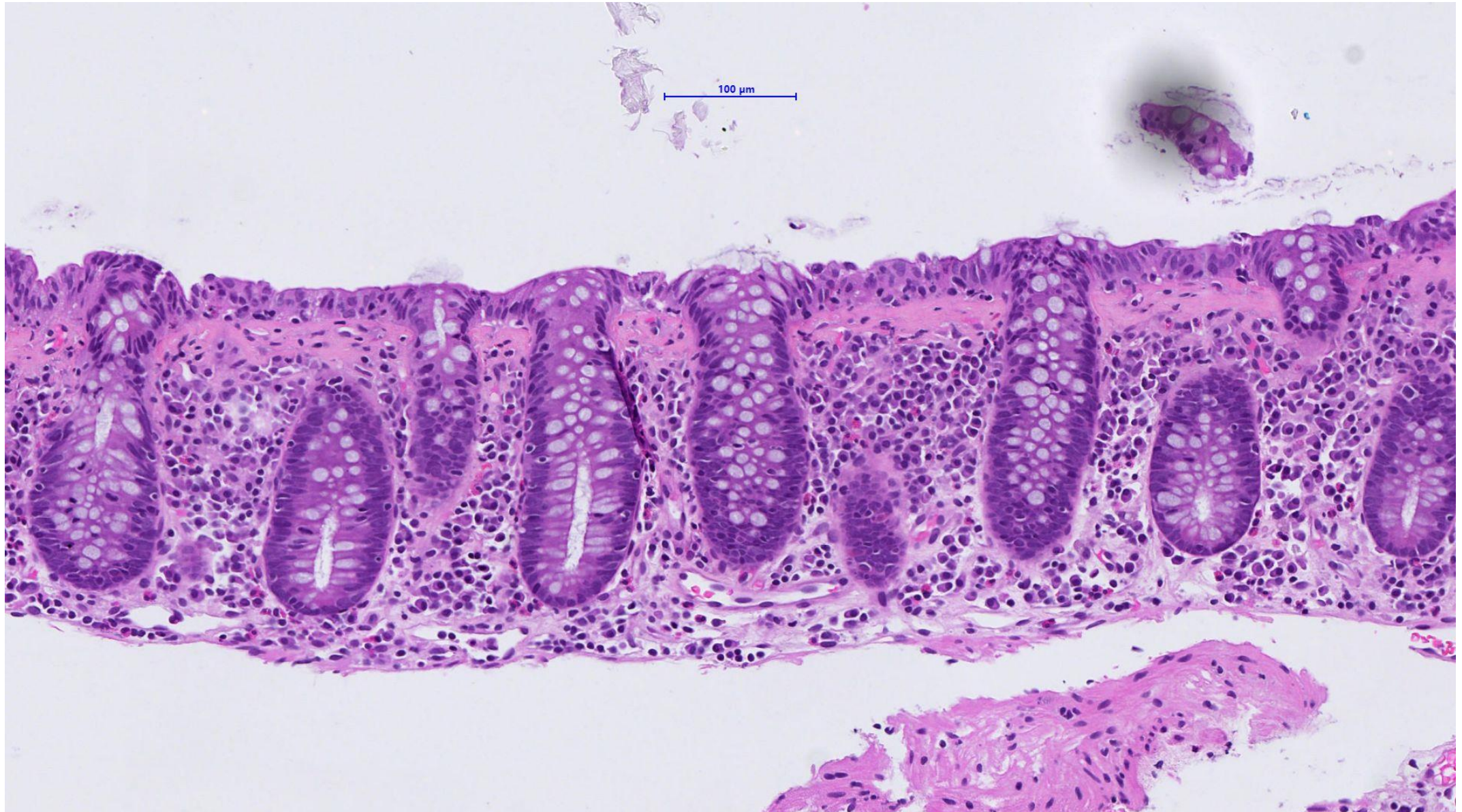
UC: diffuse chronic active pattern



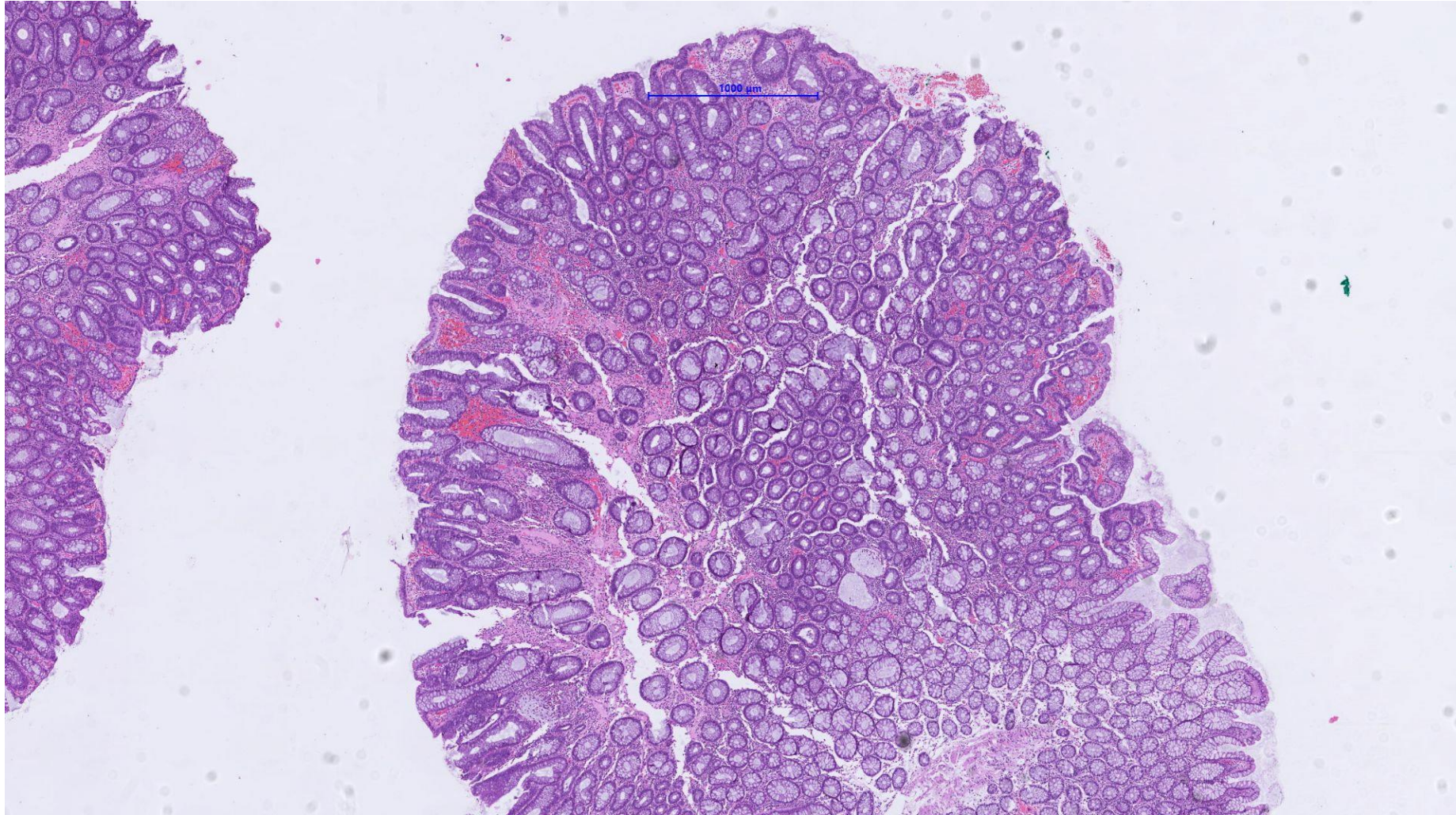
CD: patchy chronic active pattern



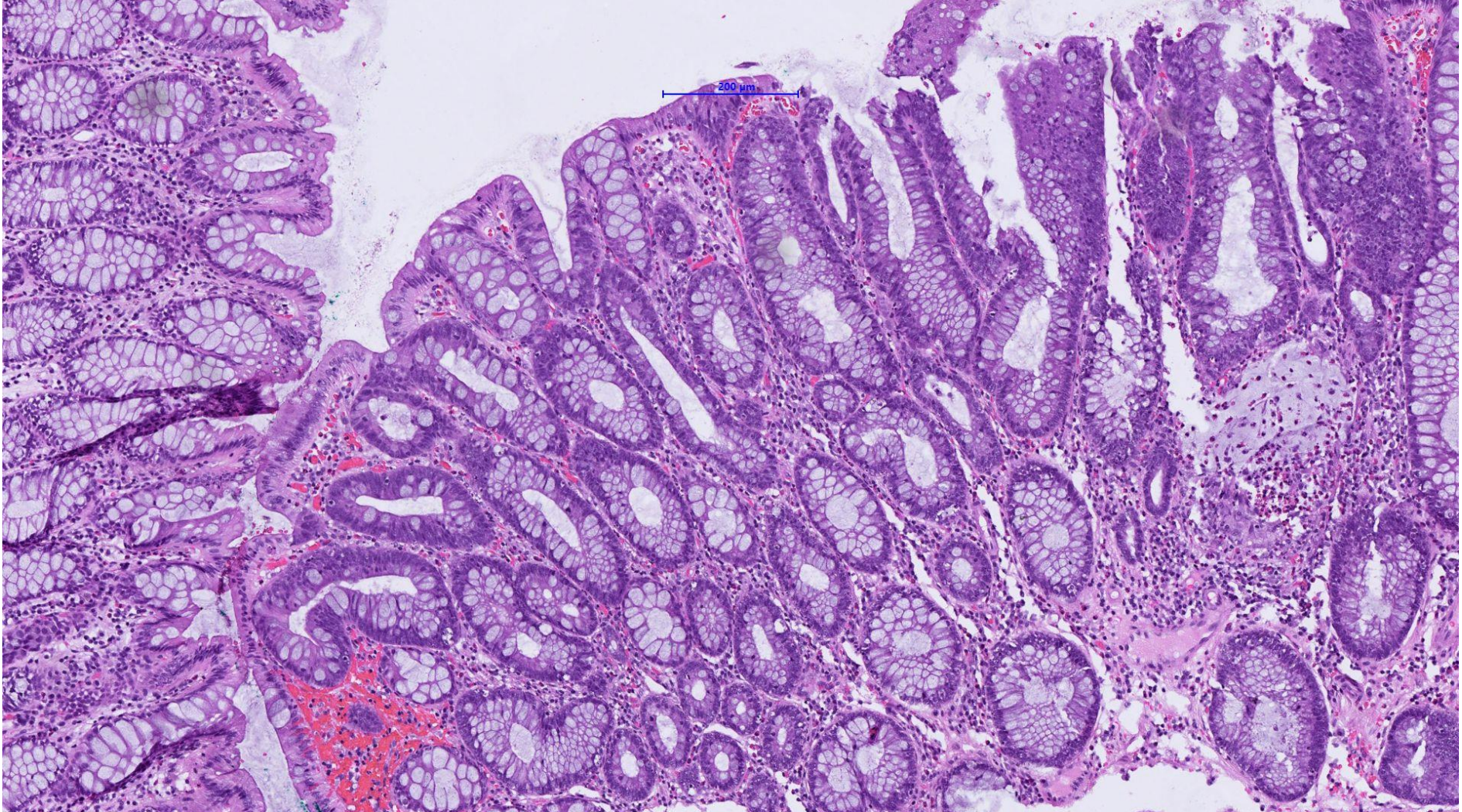
Collagenous colitis



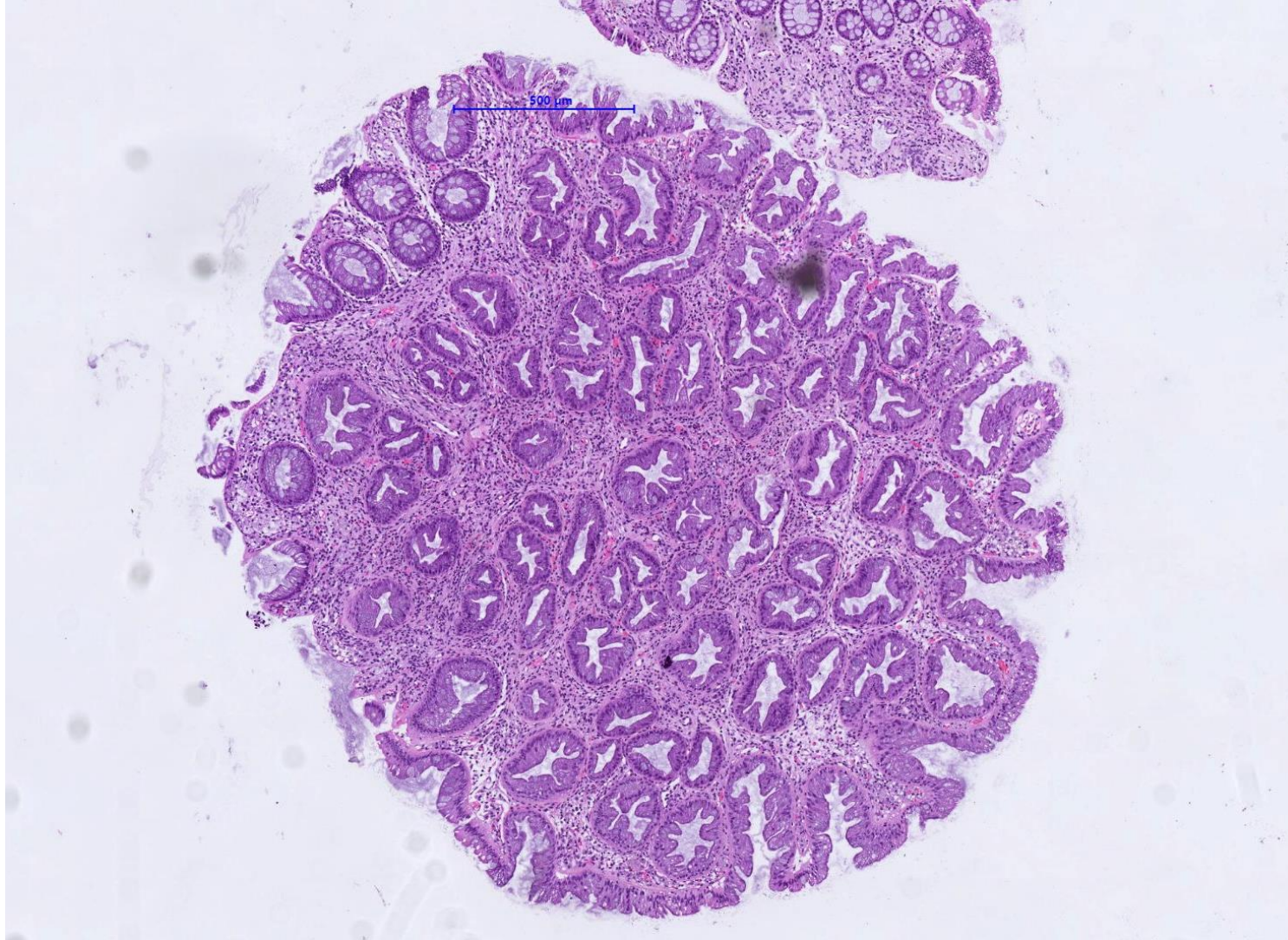
Conventional type adenoma, low grade



Conventional type adenoma



Hyperplastic polyp



Thank you for your attention!

