Small and Large Intestinal pathology, part 3

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INFLAMMATORY INTESTINAL DISEASE

- **Sigmoid Diverticulitis**
- **Chronic Inflammatory bowel diseases (CIBD)**
  - Crohn disease
  - Ulcerative colitis

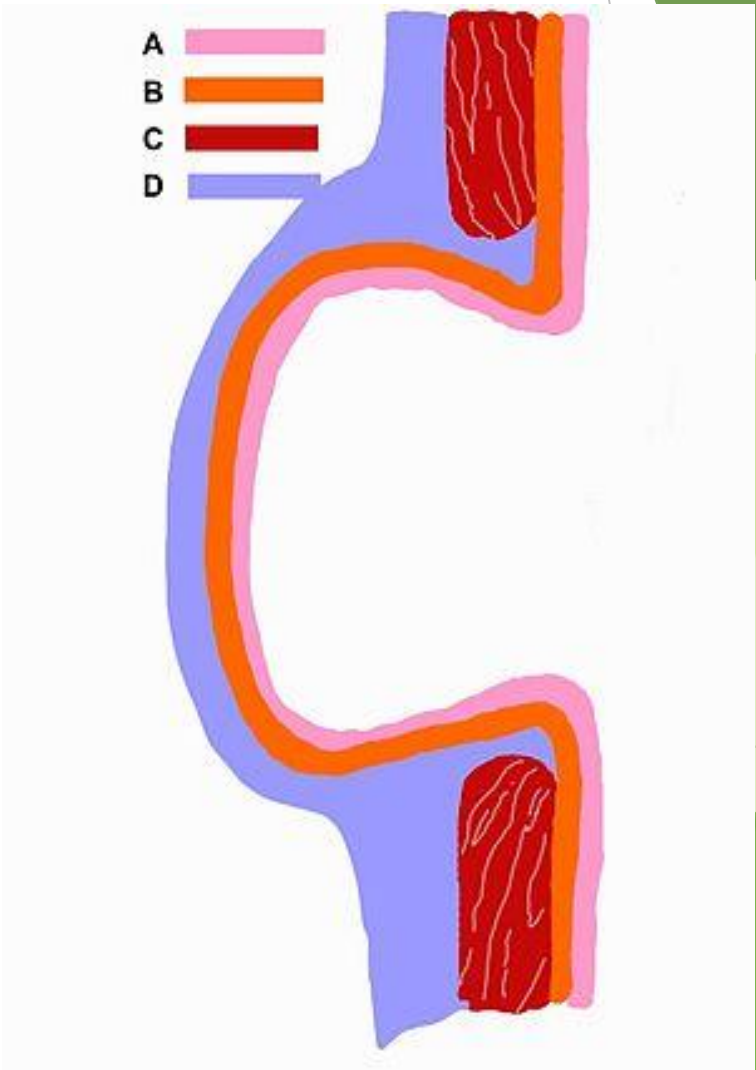
Sigmoid Diverticulitis

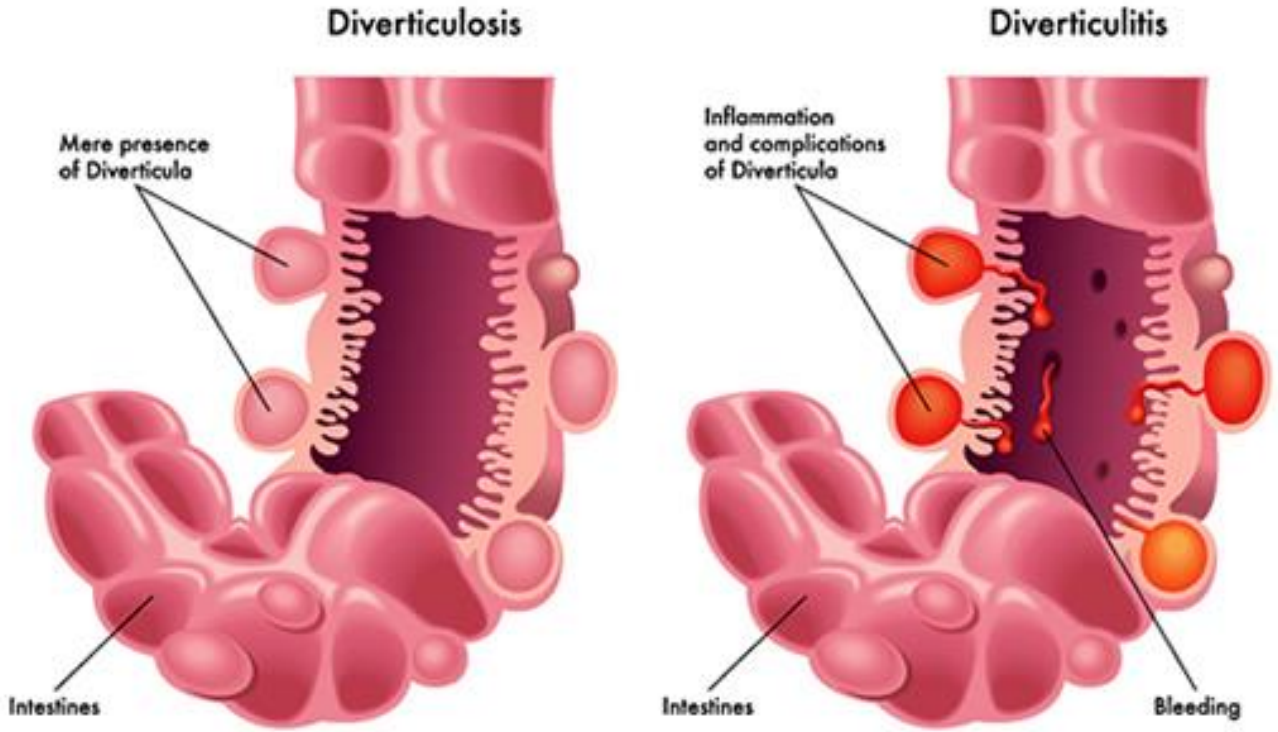
- Acquired.
- Elevated intraluminal pressure in the sigmoid colon
- Exaggerated peristaltic contractions,
- Low fiber diet and constipation.

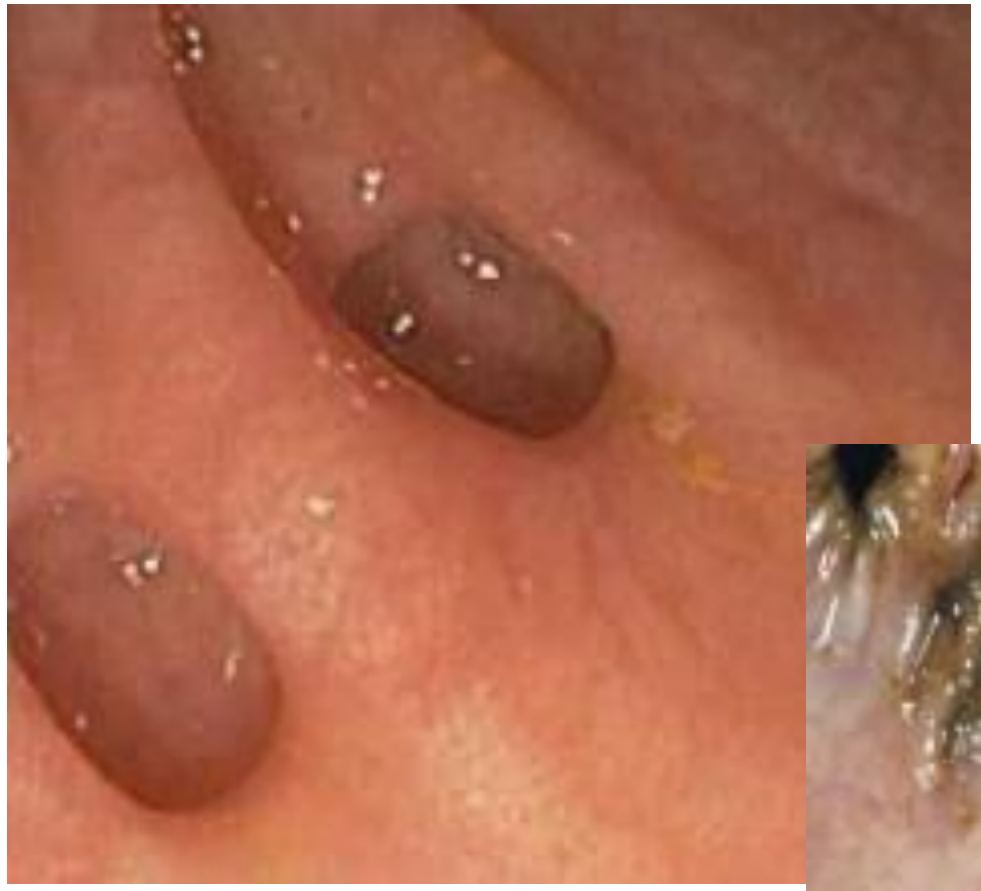
- Pseudodiverticulae
- Outpouchings of colonic mucosa and submucosa

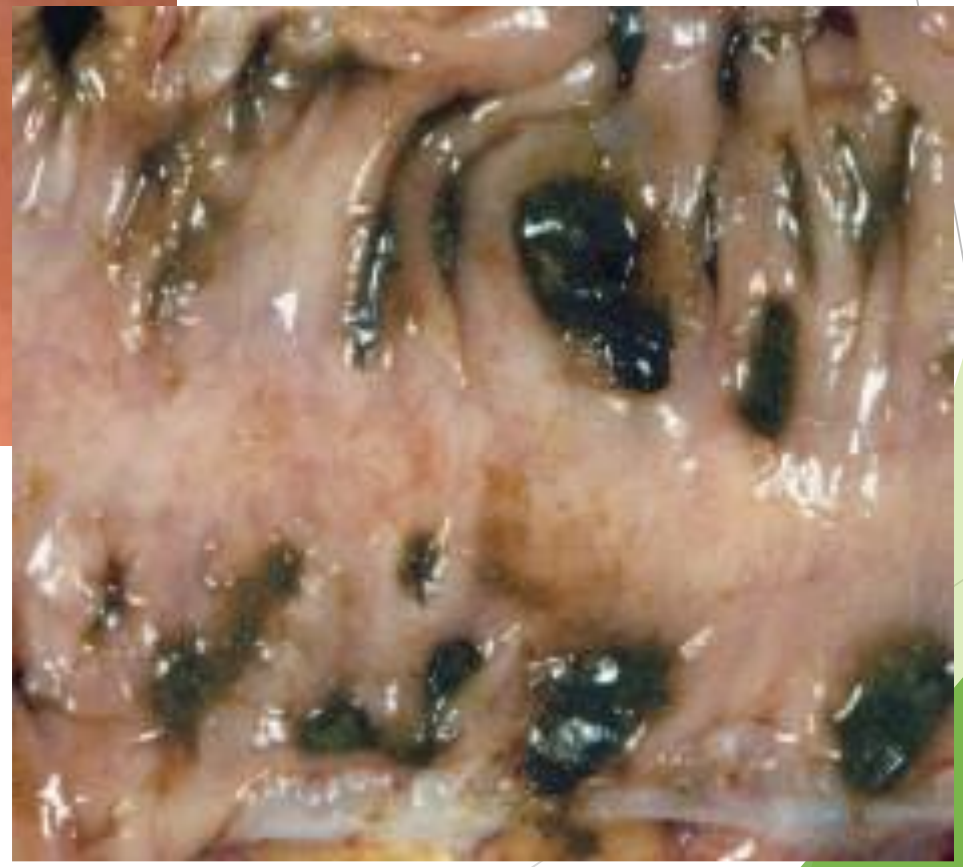
MORPHOLOGY

- Flasklike outpouchings
- Mostly in sigmoid colon.
- Thin wall (atrophic mucosa, compressed submucosa)
- Attenuated or absent muscularis.
- Obstruction leads to diverticulitis.
- Risk of perforation.
- Recurrent diverticulitis leads to strictures.




Diverticulosis
Mere presence
of Diverticula
Intestines
Diverticulitis
Inflammation
and complications
of Diverticula
Intestines
Bleeding





Clinical Features

- Mostly asymptomatic.
- Intermittent lower abdominal pain
- Constipation or diarrhea.

- Tx
- High fiber diet.
- Antibiotics in diverticulitis.
- Surgery.

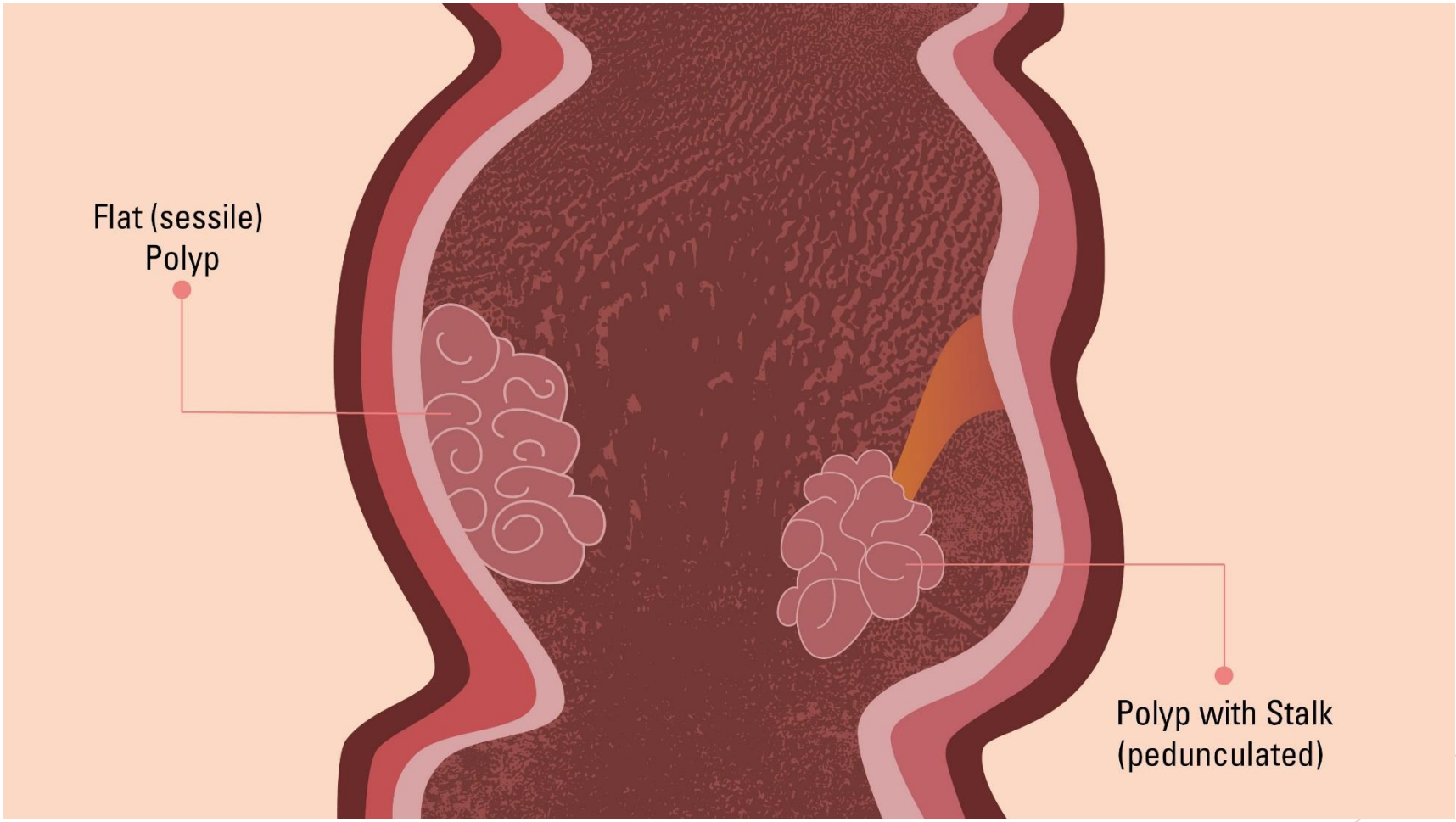
Diseases of the intestines

- Intestinal obstruction
- Vascular disorders
- Malabsorptive diseases and infections
- Inflammatory bowel disease.
- **Polyps and neoplastic diseases**

COLONIC POLYPS AND NEOPLASTIC DISEASE

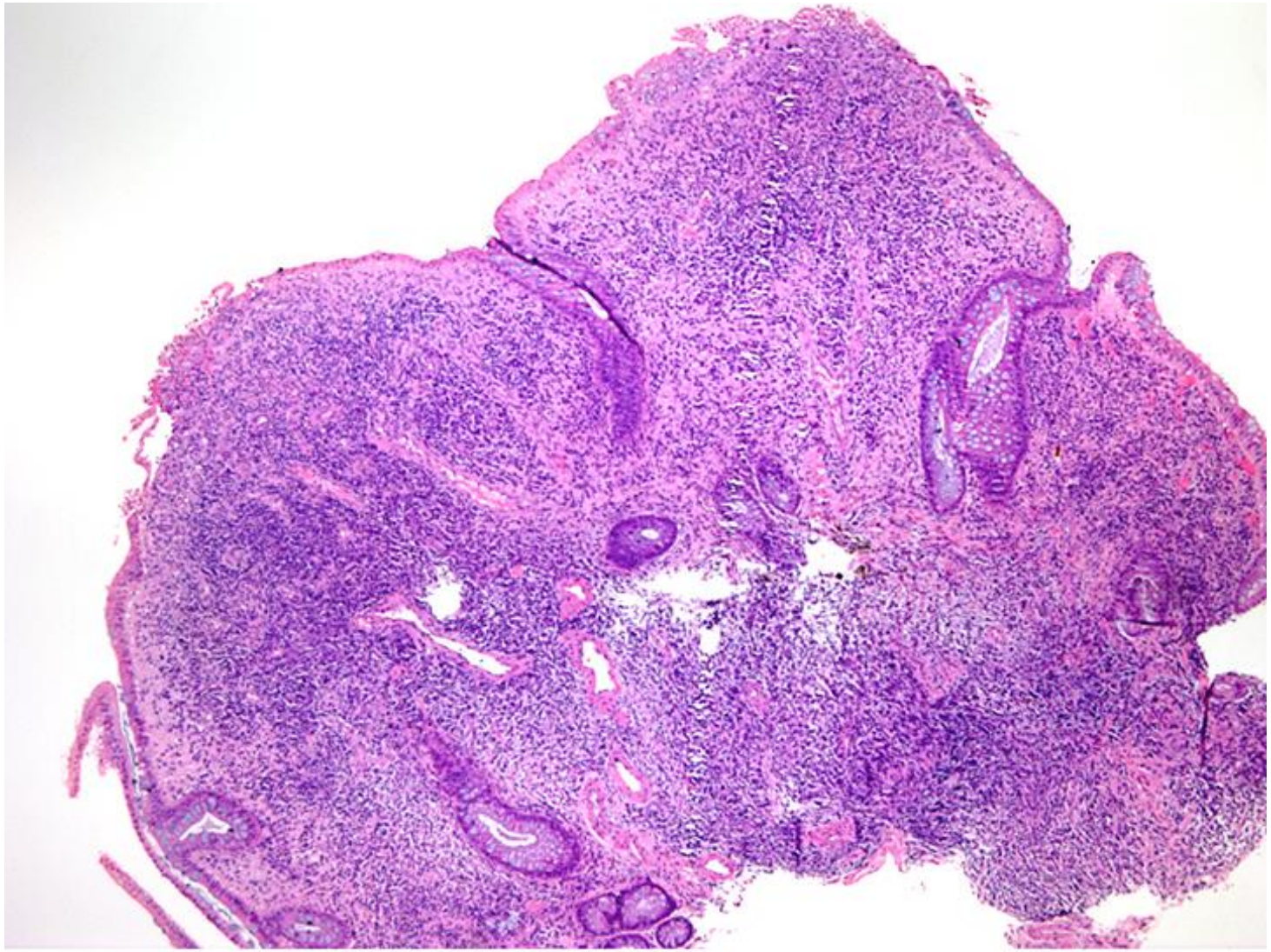
- Colon is most common site for polyps
- ***Sessile polyp:*** no stalk
- ***Pedunculated polyp:*** *stalk.*

- ***Neoplastic polyps:*** *adenoma.*
- ***Non neoplastic polyps:*** inflammatory, hamartomatous, or hyperplastic


Flat (sessile)
Polyp
Polyp with Stalk
(pedunculated)

Inflammatory Polyps

- *Solitary rectal ulcer syndrome*.
- Recurrent abrasion and ulceration of the overlying rectal mucosa.
- Chronic cycles of injury and healing give a polypoid mass of inflamed and reactive mucosal tissue.



4x: low power, dense inflammation in lamina propria

Hamartomatous Polyps

- Sporadic or syndromatic.
- Disorganized, tumor-like growth composed of mature cell types normally present at that site.

- Juvenile Polyps
- Peutz-Jeghers Syndrome

Juvenile Polyps

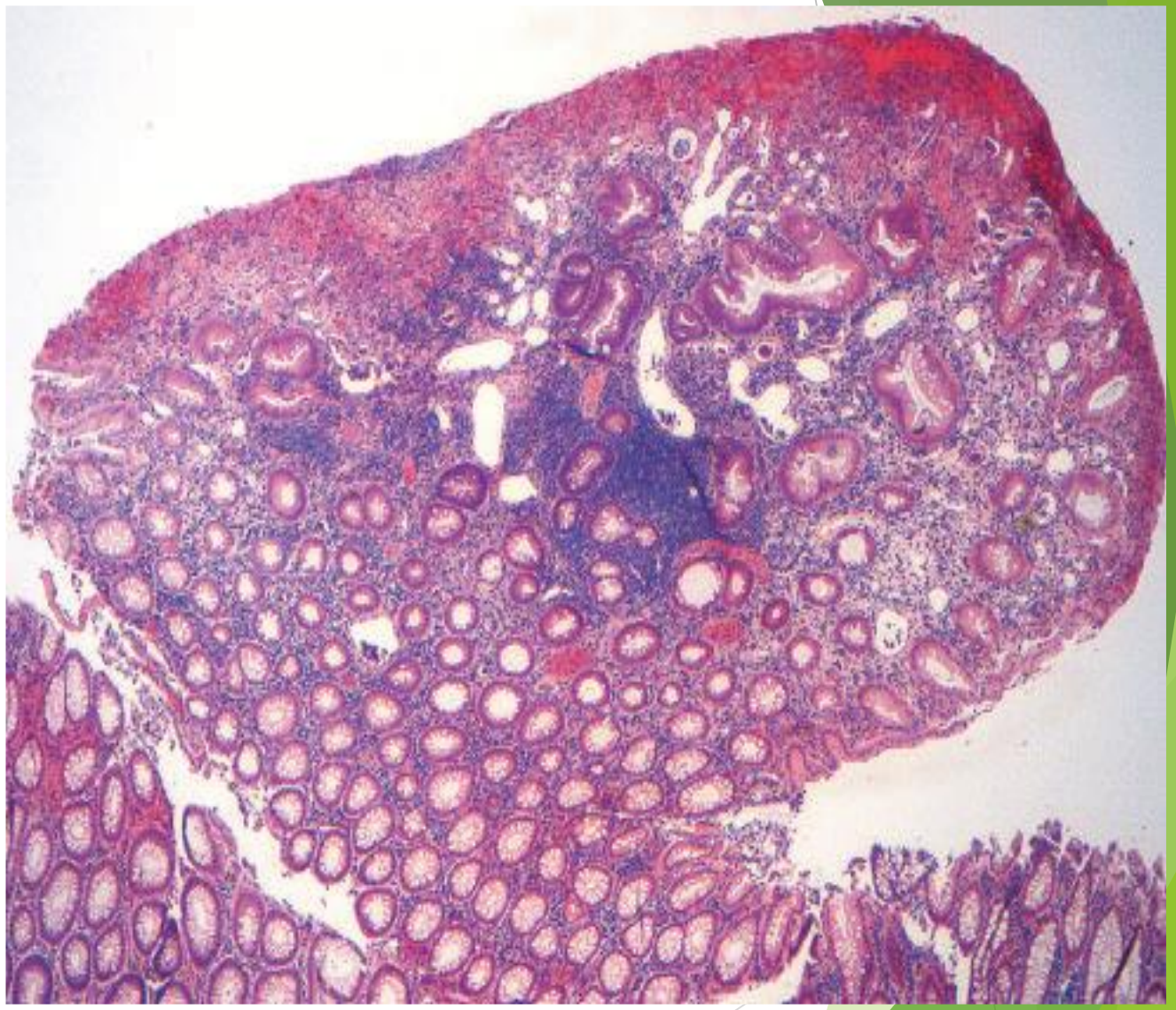
- Most common hamartomatous polyp

- **Sporadic are solitary.**
- Children younger than 5 years of age
- Rectum.

- **Syndromic are multiple.**
- 3 to as many as 100. Mean age 5 years
- Autosomal dominant syndrome of juvenile polyposis
- Transforming growth factor-ß (TGF-ß) mutation.
- Increased risk for colonic adenocarcinoma.

Juvenile Polyps

- Pedunculated
- Reddish lesions
- Cystic spaces on cut sections
- Dilated glands filled with mucin and inflammatory debris.
- Granulation tissue on surface.



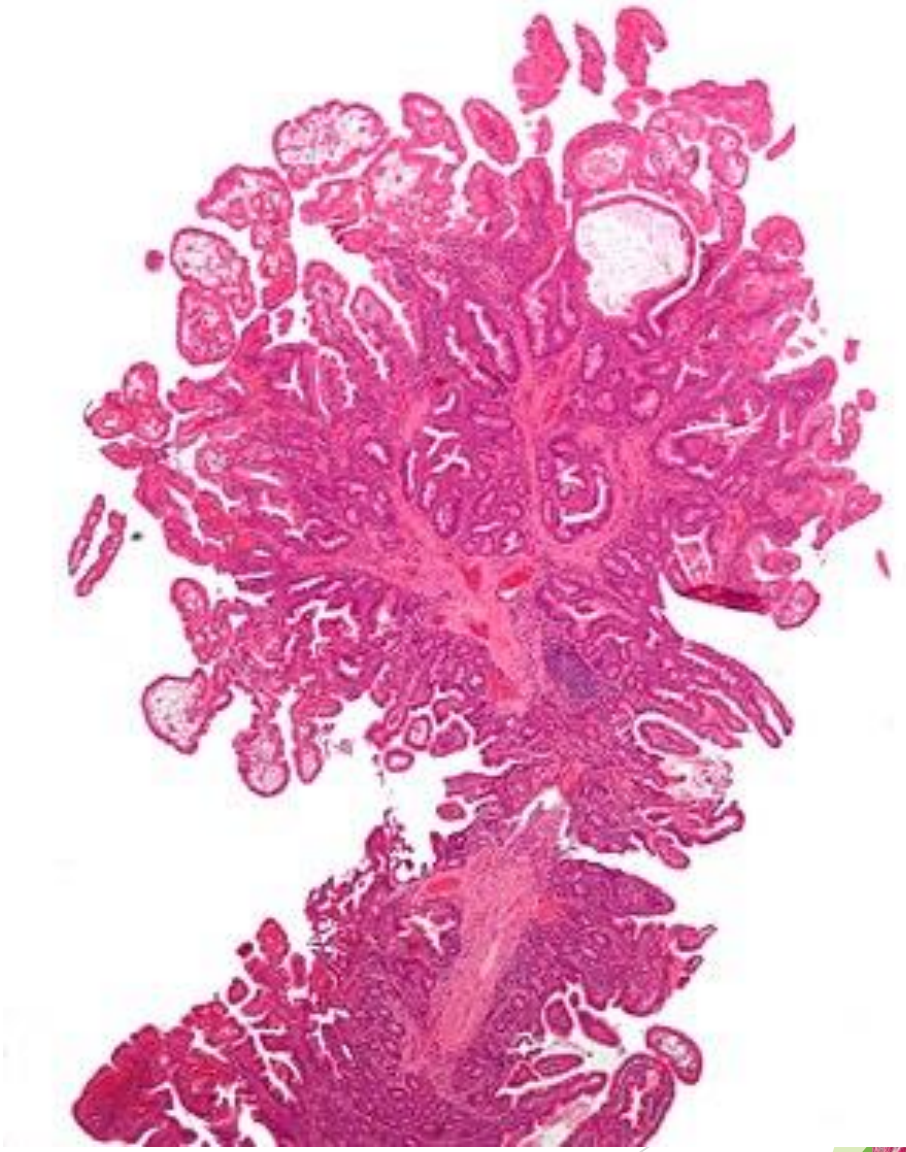
Peutz-Jeghers Syndrome

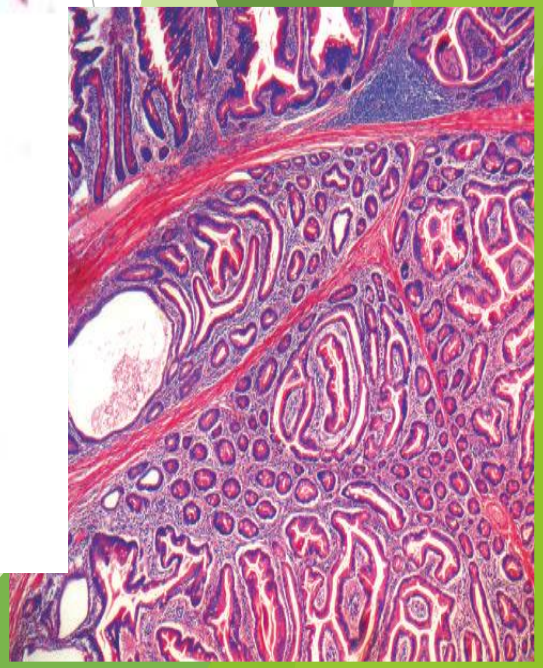
- Autosomal dominant, rare
- Mean age: 10-15 years.
- Multiple gastrointestinal hamartomatous polyps
- Most common in the small intestine.
- Mucocutaneous hyperpigmentation
- Increased risk for several malignancies: colon, pancreas, breast, lung, ovaries, uterus, and testes,

- *LKB1/STK11* gene mutation.

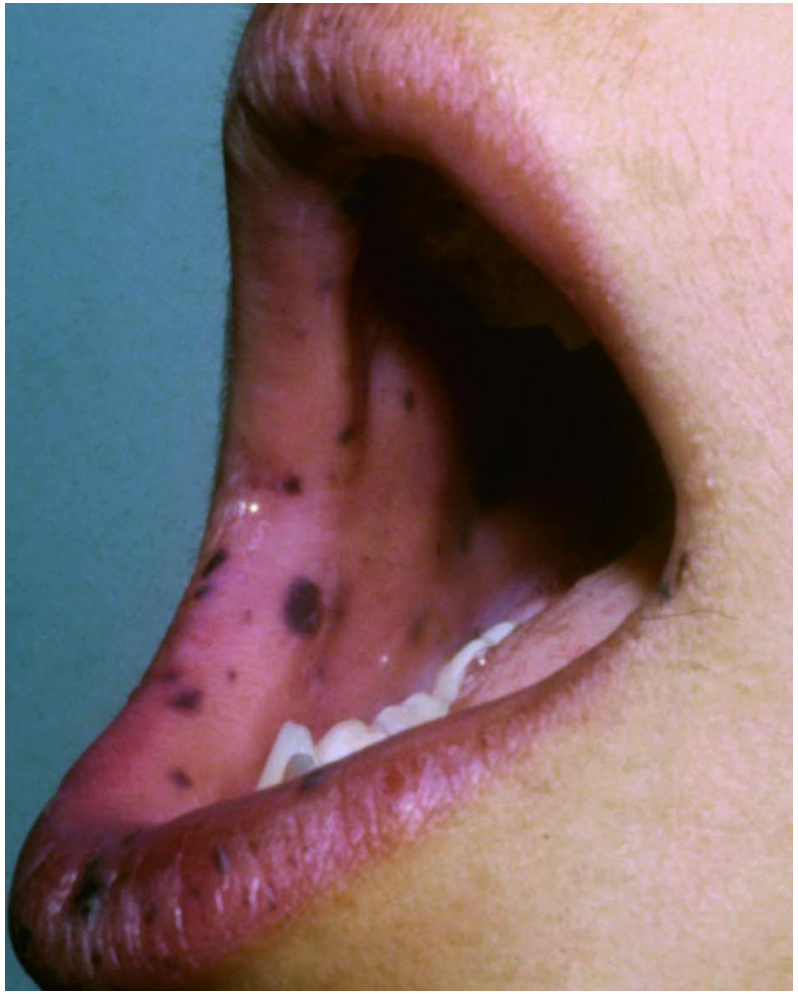
Peutz-Jeghers polyp

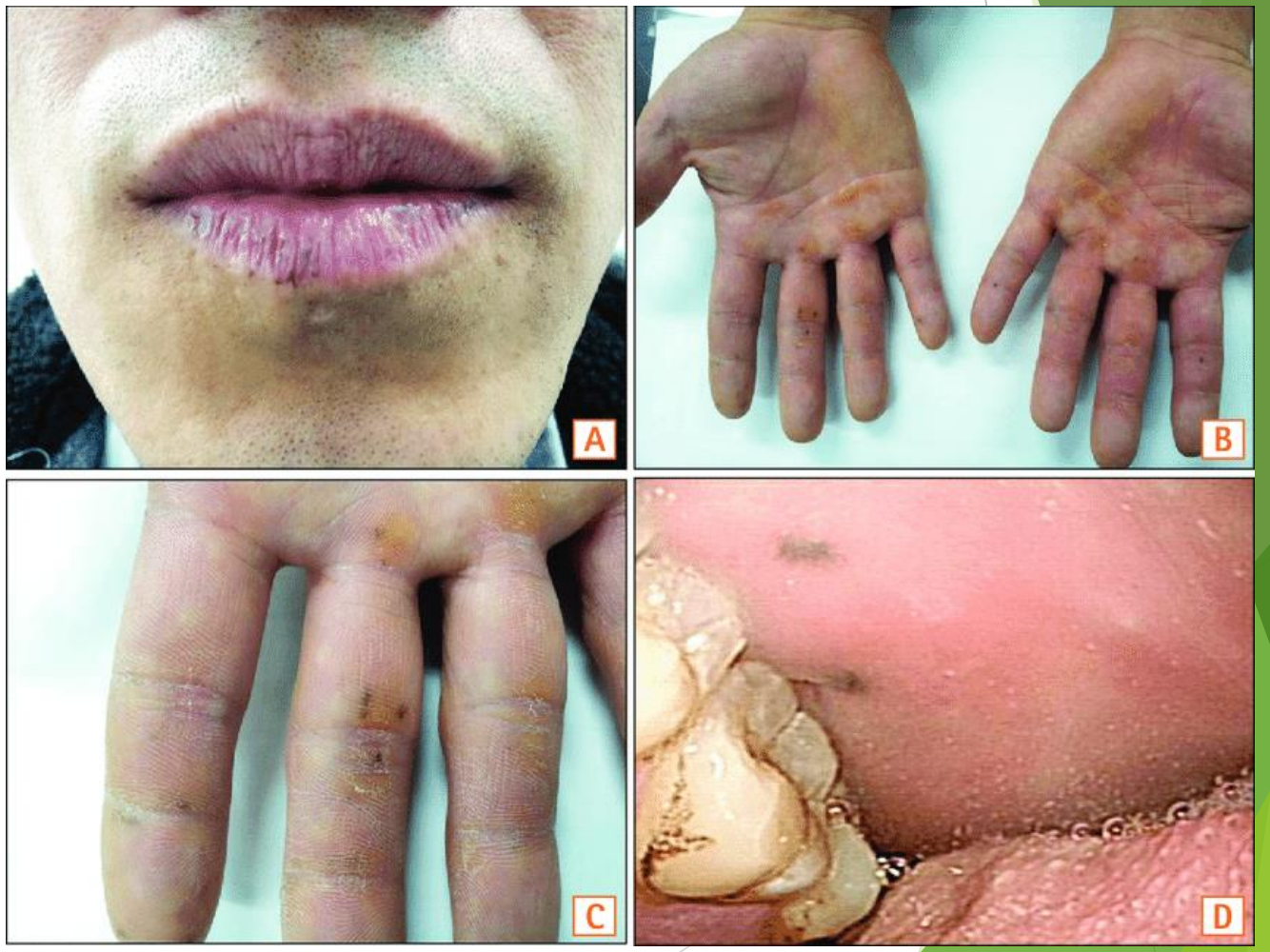
- Large.
- Arborizing network of connective tissue, smooth muscle, lamina propria
- Glands lined by normal-appearing intestinal epithelium
- Christmas tree pattern.





Mucocutaneous pigmentation





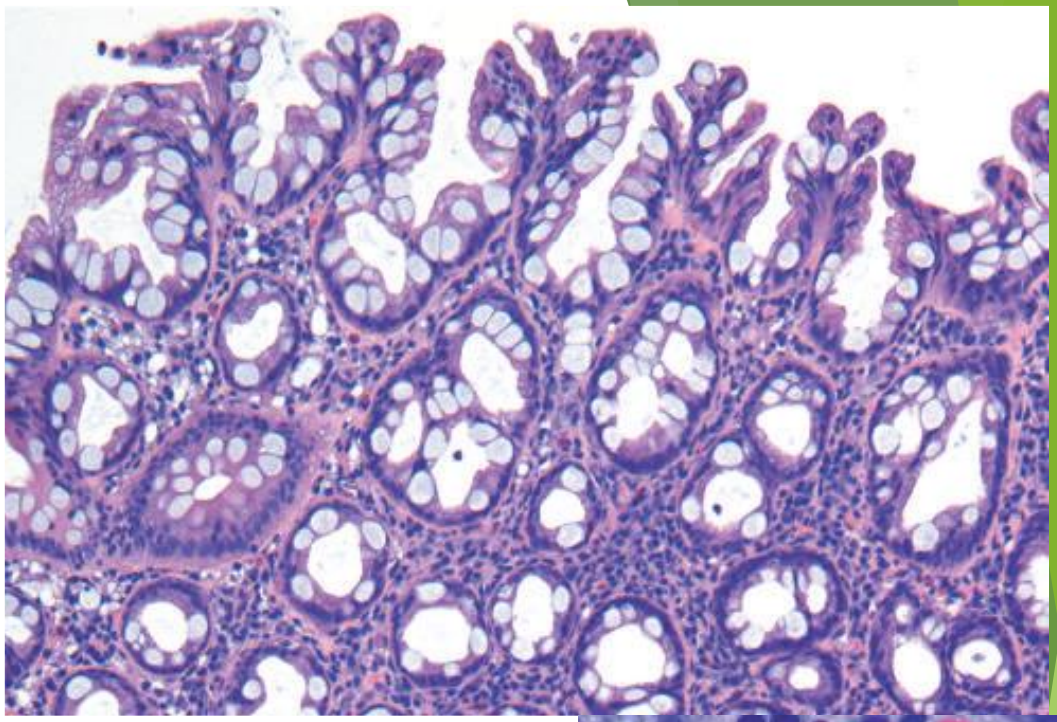
Hyperplastic Polyps

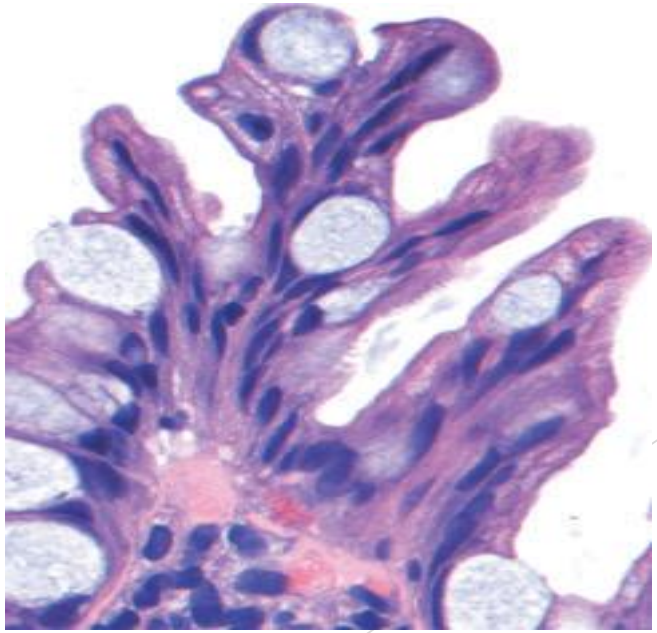
- Common
- 5^{th}-6^{th} decade.
- Decreased epithelial turnover and delayed shedding of surface epithelium >>> pileup of goblet cells & epithelial overcrowding
- **No malignant potential**

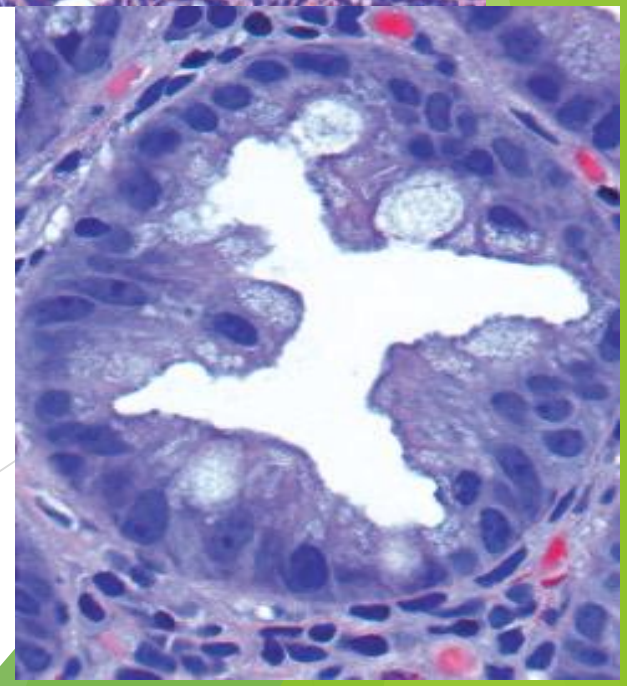
Hyperplastic polyp

- Left colon
- Rectosigmoid.
- Small < 5 mm
- Multiple

- Crowding of goblet & absorptive cells.



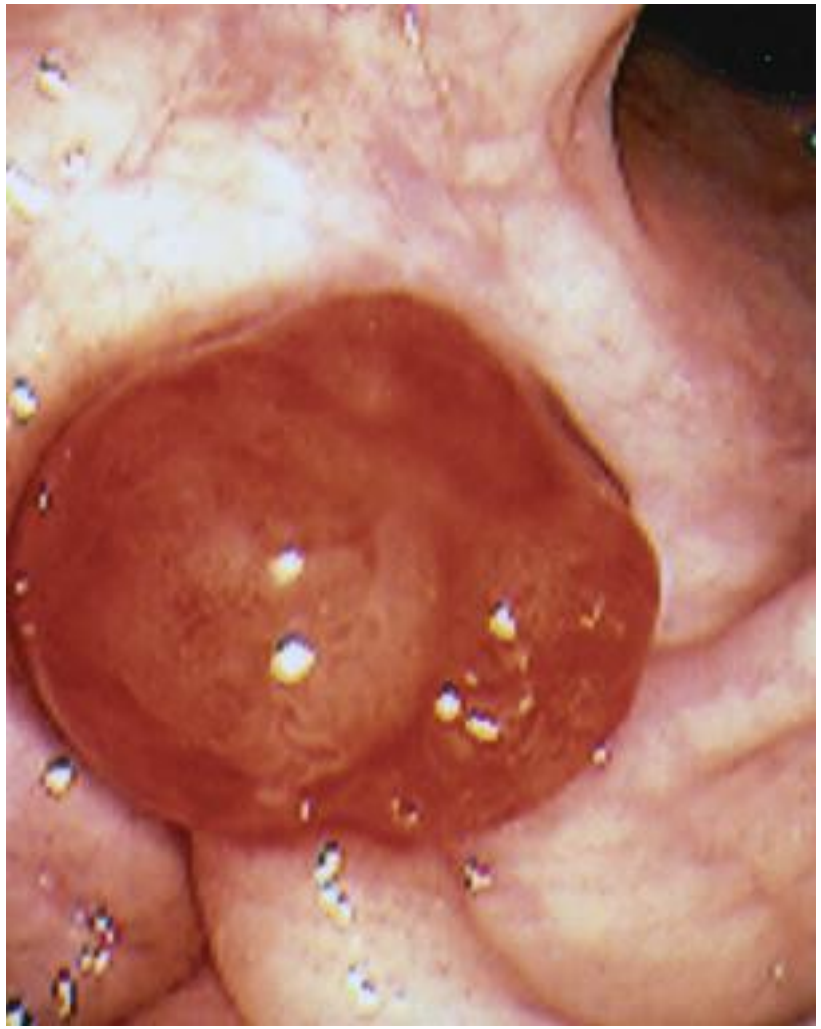


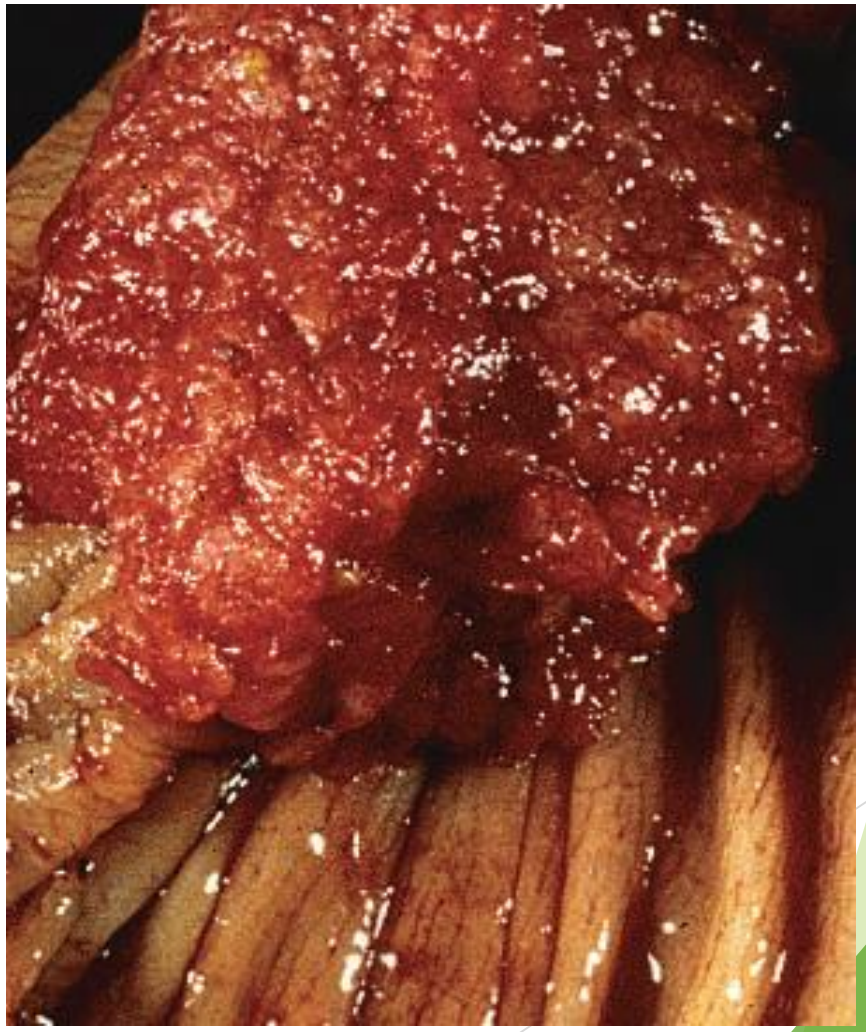


Adenomas

- Most common and clinically important
- *Increase with age.*
- *Definition: presence of epithelial dysplasia (low or high).*
- **Precursor for majority of colorectal adenocarcinomas**
- ***Most adenomas DO NOT progress to carcinoma.***
- *USA: screening colonoscopy starts at 50 yrs.*
- *Earlier screening with family history.*
- **Western diets and lifestyles increase risk.**

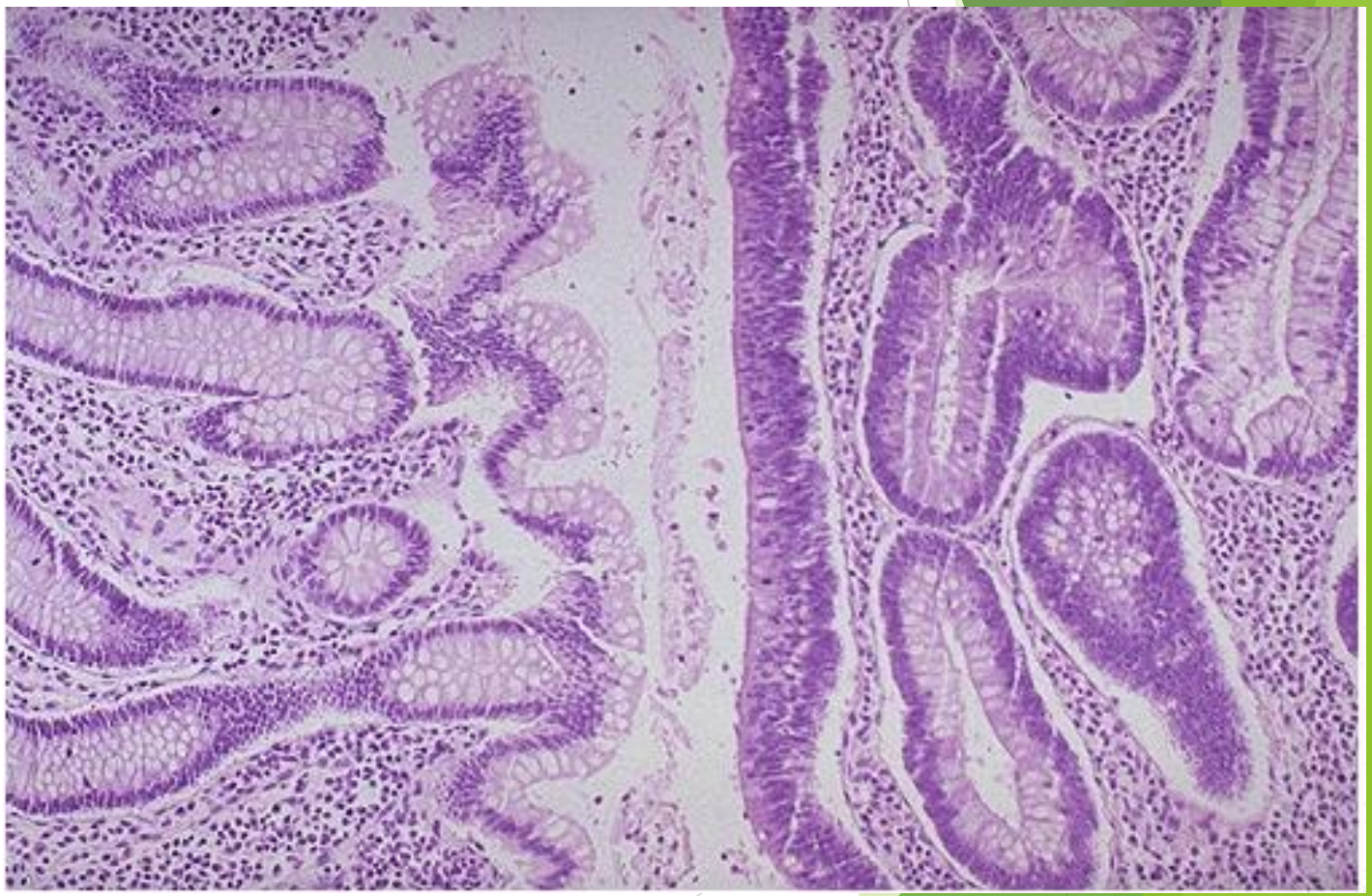
Pedunculated or sessile



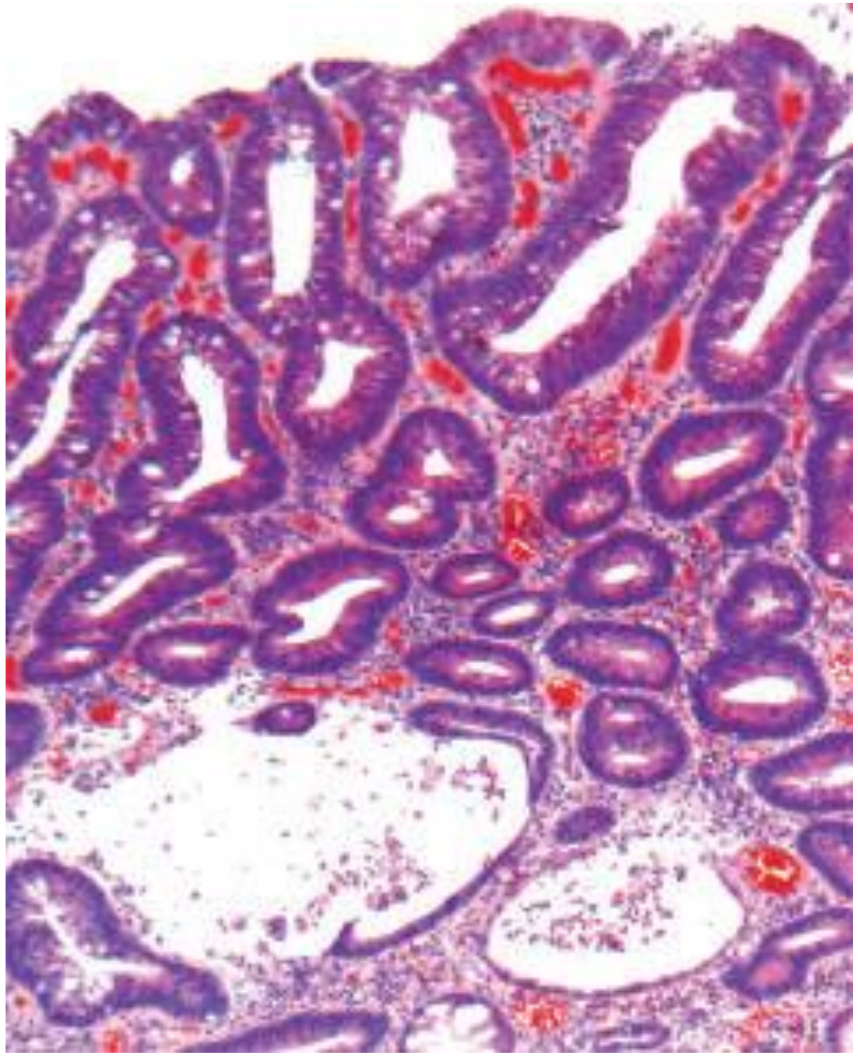


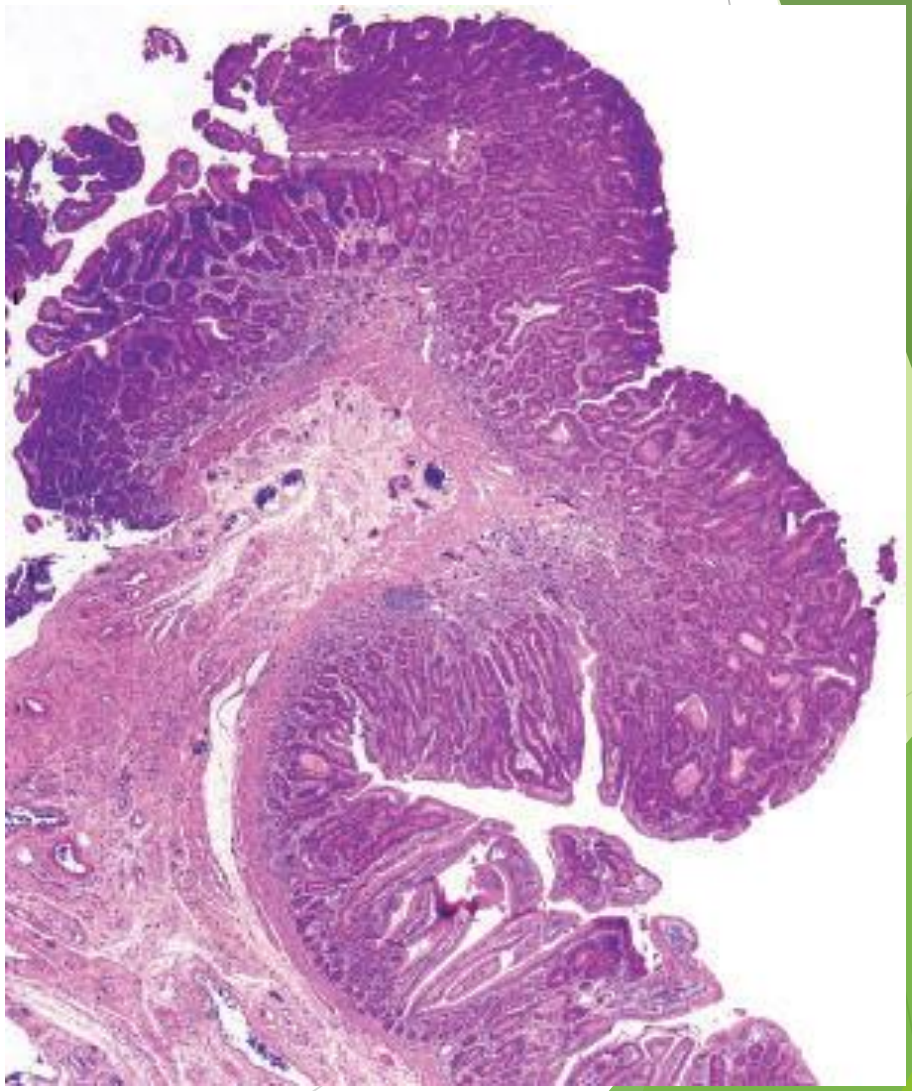
Colon adenoma

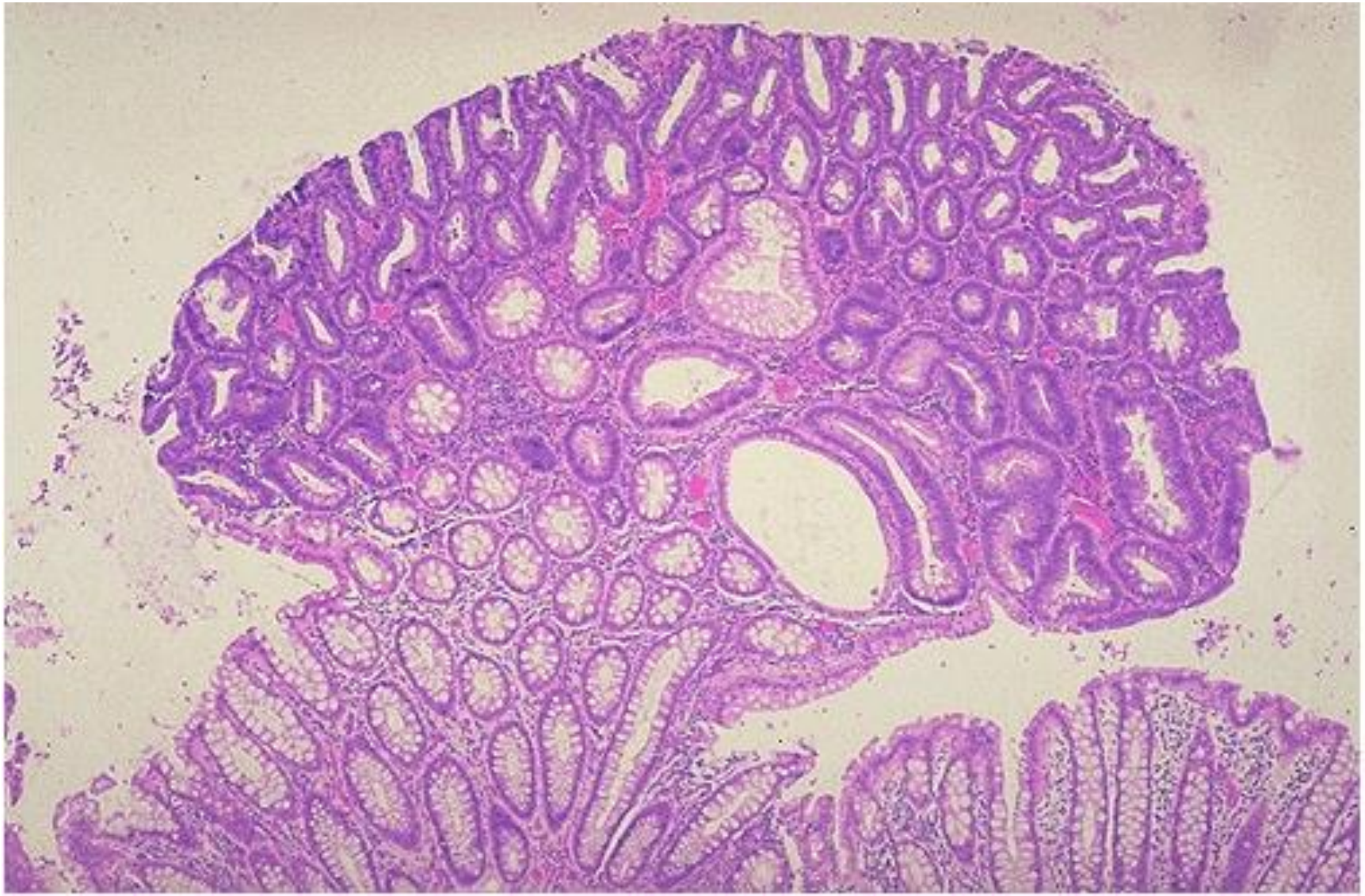
- **Hallmark: epithelial dysplasia**
- **Dysplasia**: nuclear hyperchromasia, elongation, stratification, high N/C ratio.
- **Size : most important correlate with risk for malignancy**
- **High-grade dysplasia is the second factor**



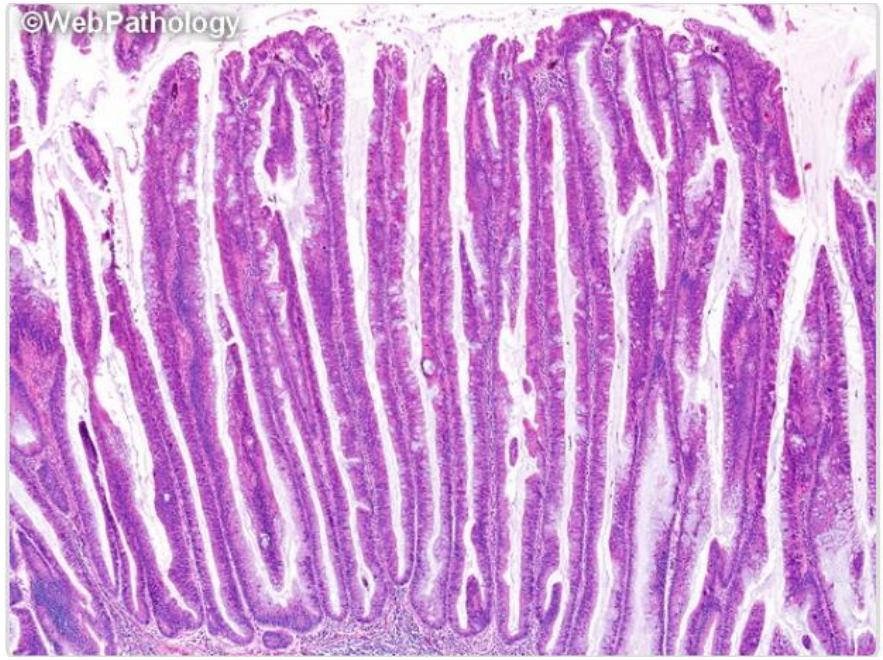
Tubular adenoma







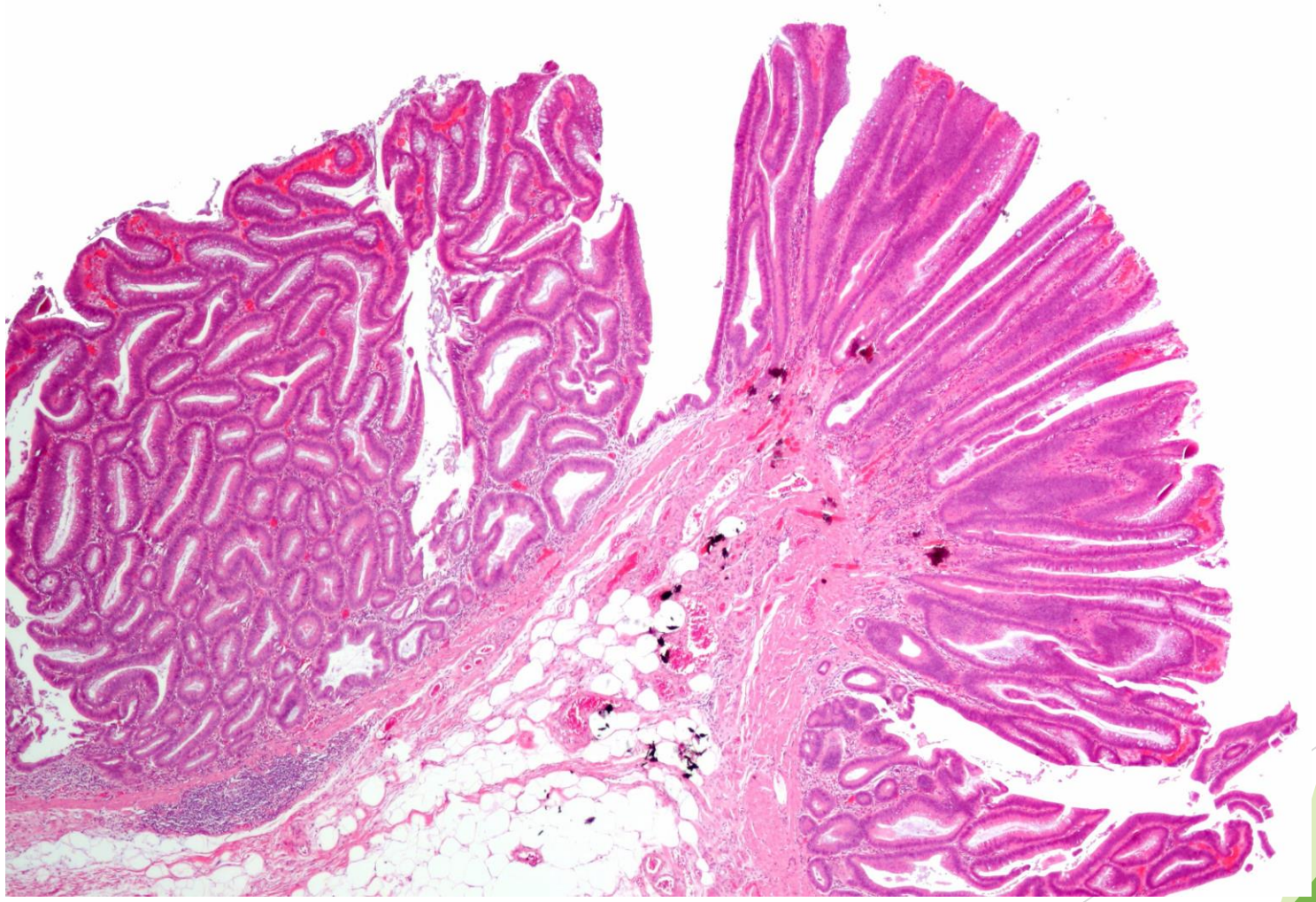
Villous adenoma.



- Long slender villi.
- More frequent invasive foci

- **Architecture:**
- **Tubular.**
- **Tubulovillous.**
- **Villous.**

Tubulovillous adenoma



Familial Syndromes

- Syndromes associated with colonic polyps and increased rates of colon cancer
- Genetic basis.

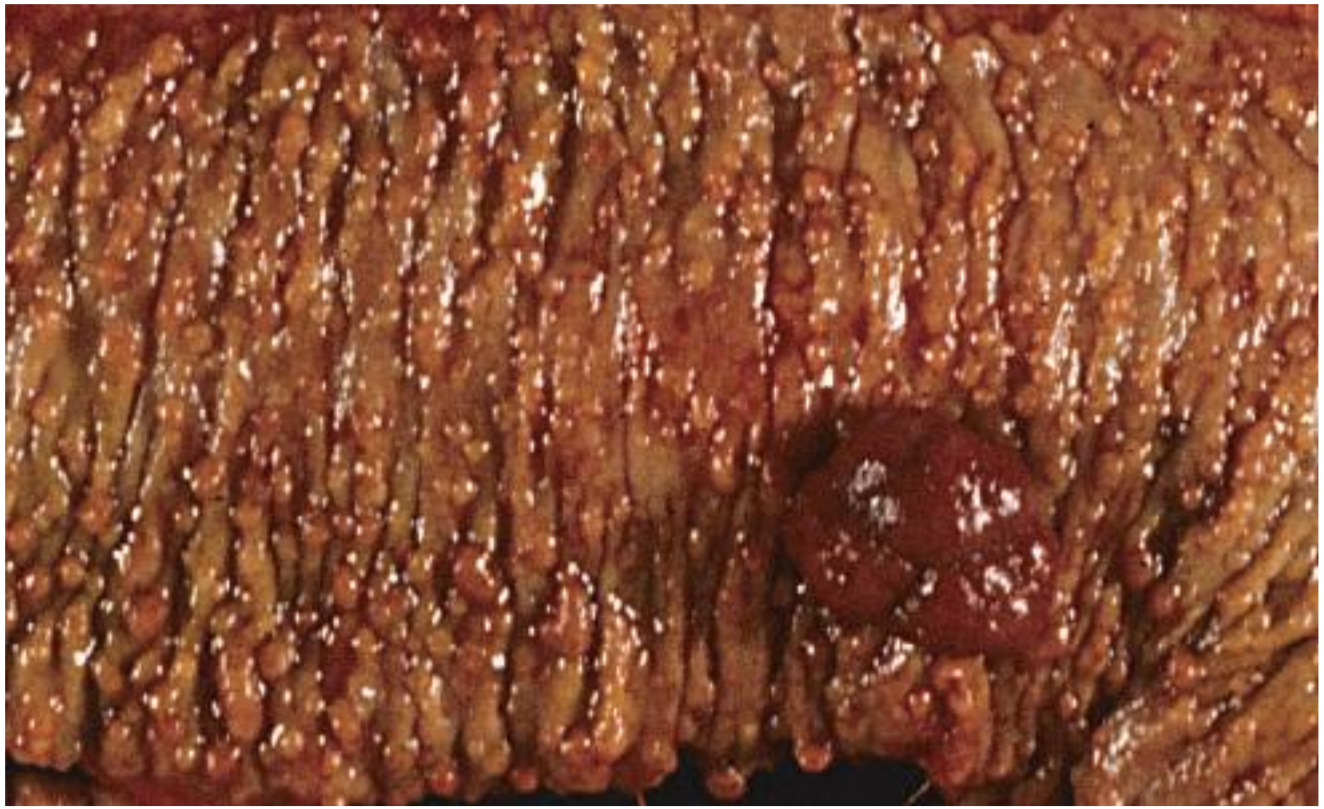
- **Familial Adenomatous Polyposis (FAP)**
- **Hereditary Nonpolyposis Colorectal Cancer (HNPCC)**

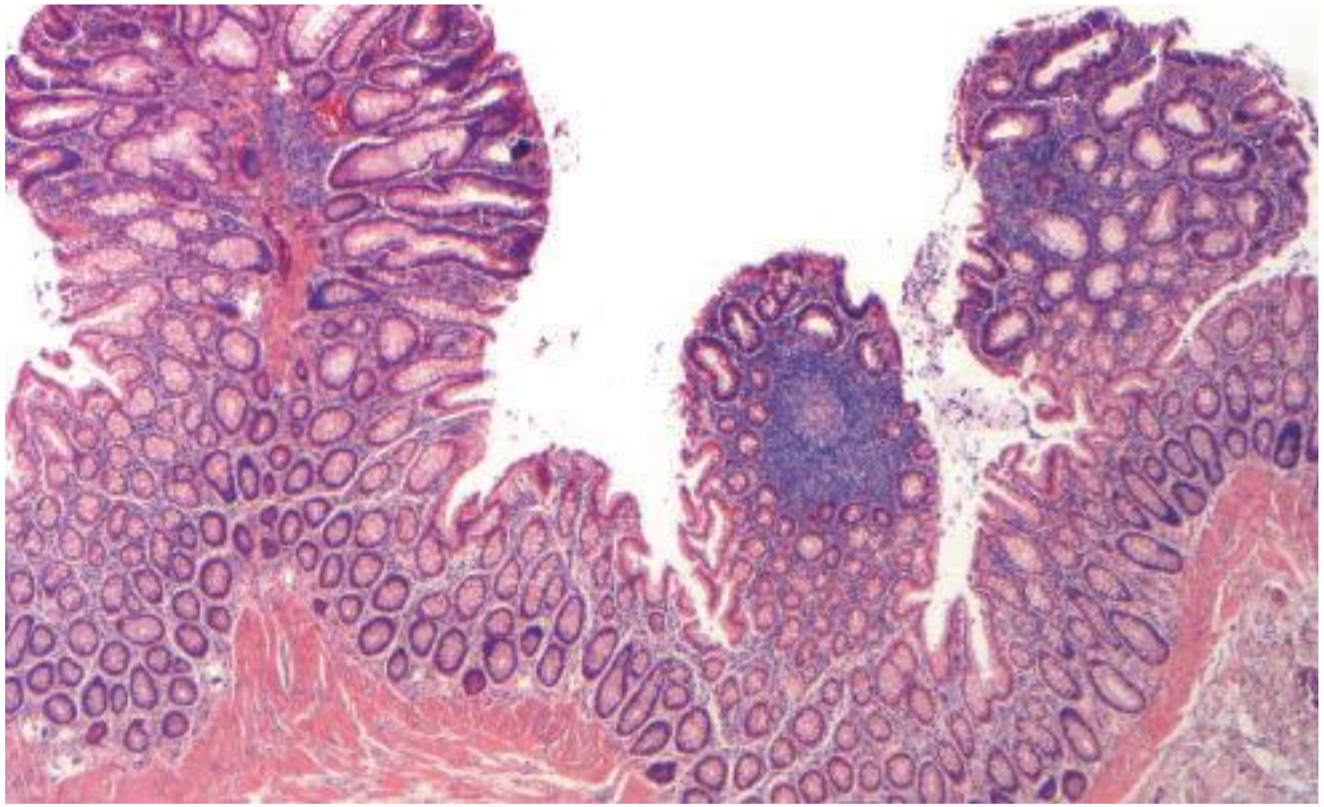
Familial adenomatous polyposis FAP

- Autosomal dominant.
- Numerous colorectal adenomas: teenage years.
- Mutation in APC gene.
- At least 100 polyps are necessary for a diagnosis of classic FAP.
- Morphologically similar to sporadic adenomas
- 100% of patients develop colorectal carcinoma, IF UNTREATED, often before age of 30.
- Standard therapy: prophylactic colectomy before 20 Year of age.
- Risk for *extraintestinal manifestations,*

- Variants of FAP: Gardner syndrome and Turcot syndrome.

- **Gardner syndrome**: intestinal polyps + osteomas (mandible, skull, and long bones); epidermal cysts; desmoid and thyroid tumors; and dental abnormalities.
- **Turcot syndrome**: intestinal adenomas and CNS tumors (medulloblastomas >> glioblastomas)





Hereditary Nonpolyposis Colorectal Cancer: HN*PCC*, L*ynch syndrome*

- Clustering of tumors: **Colorectum, endometrium, stomach, ovary, ureters, brain, small bowel, hepatobiliary tract, and skin**
- Colon cancer at younger age than sporadic cancers
- Right colon with excessive mucin production .
- Adenomas are present, BUT POLYPOSIS IS NOT.

- **Inherited germ line mutations in DNA mismatch repair genes.**
- Accumulation of mutations in *microsatellite DNA (short repeating sequences)*
- Resulting in *microsatellite instability*
- Majority of cases involve either *MSH2* or *MLH1*.

Cecal polyps in HNPCC.