

# Colon Polyps

## Adenoma

**"Picket fence" nuclei:** Elongated, Pencillate, pseudostratified, hyperchromatic Nuclei **retain basal orientation** (bottom 1/2 of cell)

Low grade dysplastic changes should involve at least the upper half of the crypts and the luminal surface

	Tubular	Tubulovillous	Villous
Tubules	>75%	25-75%	<25%
Villi	<25%	25-75%	>75%

**High-grade dysplasia** ("carcinoma in situ")

Significant cytologic **pleomorphism**

Rounded, heaped-up cells, ↑ nuclear:cytoplasmic ratio

Nuclei: "Open" chromatin, prominent nucleoli

Loss basal orientation, extend to luminal half of cell

**Architectural complexity**

Cribriforming, solid nests, intraluminal necrosis

Absence of definite breach of basement membrane

**Intramucosal Carcinoma**

Neoplastic cells through basement membrane

Into lamina propria but not through muscularis mucosae

Single cell infiltration, small and irregular/angulated tubules

Marked expansion of back-to-back cribriform glands

No metastatic risk (paucity of lymphatics in colonic mucosa)

**Invasion into submucosa** → implied by **Desmoplastic** response

**Chromosomal Instability Pathway (most common):** APC → KRAS → p53 (also often β-Catenin and SMAD4)

**Lynch Microsatellite Instability Pathway:** Germline MMR mutation → Loss of heterozygosity  
→ Microsatellite instability

## Serrated Polyps



**Hyperplastic polyp (HP):** Superficial mucosal outgrowth characterized by elongated crypts lined by nondysplastic epithelium with surface papillary infoldings → **serrated luminal contour** (like a knife)

**Sessile serrated lesion (SSL):**

(formerly sessile serrated polyp/adenoma (SSP/A))

**Usually large (≥1 cm) sessile, right-sided lesions**

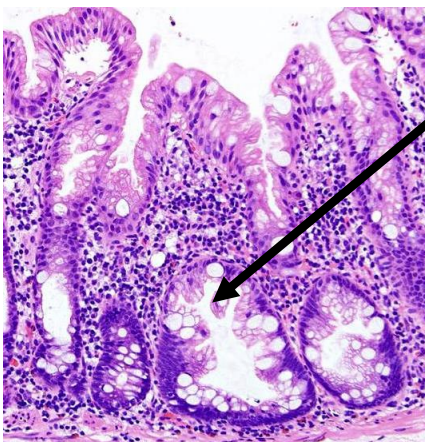
**Architectural disturbances at the bases of crypts is required**

Serrations extending to bases, asymmetrical growth

→ Boot-shaped, "Duck" foot

**Only ≥1 unequivocal distorted crypt is required**

Size of polyp	Left Colon	Right Colon
1-5 mm	Vast majority HP	Mix of SSA and HP
6-9 mm	Mix of SSA and HP	Vast majority SSA
10+ mm	Vast majority SSA	Essentially all SSA



**Sporadic Microsatellite Instability Pathway:** Normal colon → BRAF V600E → HP → DNA methylation → SSL  
→ MLH1 promoter methylation/deficiency → Microsatellite instability → Dysplasia → Carcinoma

## Traditional Serrated Adenoma

aka TSA

Serrated Adenomatous Polyps. Uncommon.

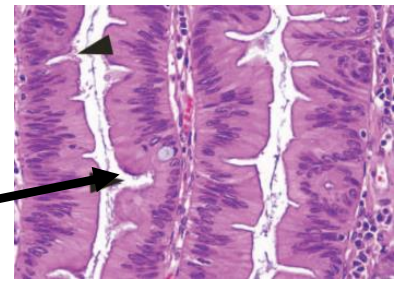
Prominent frilly **serrations** of glands

Columnar cells with mucin-depleted, **eosinophilic cytoplasm**

**Cytologic low grade dysplasia** throughout

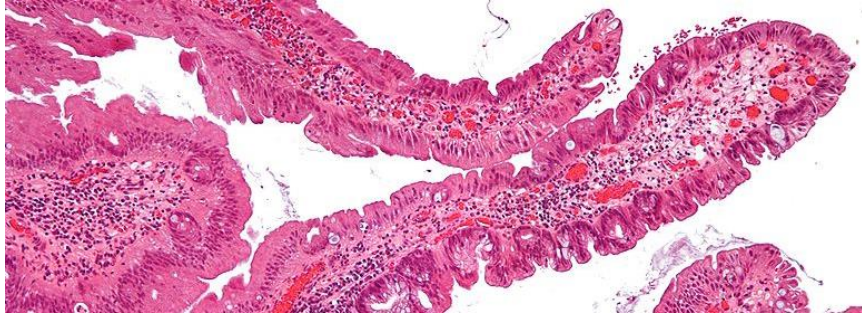
Complex architecture with **ectopic crypt formation**

Often pedunculated, villous, and left sided



Can contain either KRAS mutations (derived from goblet-cell rich HPs)

or BRAF mutations (derived from microvesicular HPs/SSL)



## Peutz-Jeghers Polyp

**Hamartomas** (non-neoplastic)

Germline mutation in the STK11/LKB1 gene.

Most frequent in small intestine

**Multilobated**, may have papillary or frond-like surface

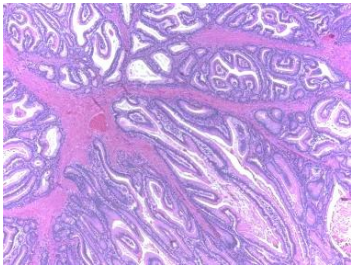
**Arborizing smooth muscle**

Generally cytologically bland epithelium

**Mucocutaneous melanotic macules** (lips and oral mucosa)

Increased **risk of many cancers**

(e.g., Stomach, Colon, Pancreas, Breast, etc...)



## Juvenile Polyp

Common in **children**, but may occur at any age

Usually **smoothly spherical** pedunculated polyp

Prominent **cystically dilated glands**

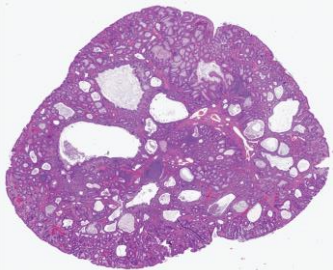
Abundant **inflamed stroma**

Surface may be eroded

Dysplasia and carcinoma are very rare in sporadic polyps

≥5 polyps or extra-colorectal location may indicate Juvenile

Polyposis syndrome



## Prolapse Polyp

Changes may be seen secondary to rectal mucosal prolapse

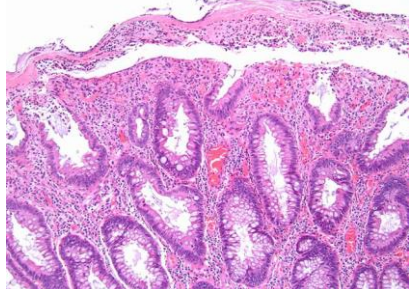
Often anterior rectal wall within 12 cm of anal verge

Superficial ulceration or **erosion** of mucosa

Thickened, disorganized muscularis mucosae with extension into lamina propria → **Smooth muscle surrounds individual crypts**

**Regenerating** mucosal epithelium (may *appear* adenomatous)

**Distorted crypts**, sometimes diamond-shaped



**Starting at age 50.**

**Next follow-up in:**

No polyps/Normal → 10 yrs

**Adenomas:**

- 1-2 TAs (<1cm) → 7-10 yrs
- 3-4 TAs (<1cm) → 3-5 yrs
- 5-10 TAs (<1cm) → 3 yrs
- >10 TAs → 1 yr
- ≥1 TA >1 cm → 3 yrs
- ≥1 Villous Adenoma/TVA → 3 yrs
- Adenoma with High-grade dysplasia → 3 yrs
- Piecemeal resection of adenoma ≥ 2 cm → 6 mo

**Serrated Polyps:**

- ≤ 20 HPs (<1cm) → 10 yrs
- 1-2 SSP, < 1 cm → 5-10 yrs
- 3-4 SSP, < 1 cm → 3-5 yrs
- 5-10 SSP, < 1 cm → 3 yrs
- SSP, > 1cm → 3 yrs
- SSP with dysplasia → 3 yrs
- HP ≥ 1cm → 3-5 yrs
- TSA → 3 yrs
- Piecemeal resection of SSP ≥2 cm → 6 mo

