**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

High-grade dysplasia (“carcinoma in situ”)

Significant cytologic pleomorphism

- Rounded, heaped-up cells, ↑ nuclear:cytoplasmic ratio
- Nuclei: “Open” chromatin, prominent nucleoli
- Lose basal orientation, extend to luminal half of cell

Architectural complexity

- Cribriiforming, 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 cribriiform 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
**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
Clinical Follow-up Guidelines

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, > 1 cm → 3 yrs
- SSP with dysplasia → 3 yrs
- HP ≥ 1 cm → 3-5 yrs
- TSA → 3 yrs
- Piecemeal resection of SSP ≥2 cm → 6 mo


High quality colonoscopy
- Complete to cecum
- Adequate bowel prep to detect polyps > 5mm
- Adequate colonoscopist adenoma detection rate
- Complete polyp resection

Risk-stratified repeat colonoscopy interval

10 years
- Normal colonoscopy
- ≤ 20 HP < 10mm

7–10 years
- 1–2 adenomas < 10mm

5–10 years
- 1–2 SSPs < 10mm
- 3–4 adenomas < 10mm
- 3–4 SSPs < 10mm
- HP ≥ 10mm

3–5 years
- 5–10 adenomas
- 5–10 SSPs
- Adenoma or SSP ≥ 10mm
- Adenoma with villous or tubulovillous histology and/or high grade dysplasia
- SSP with dysplasia
- Traditional serrated adenoma

3 years
- > 10 adenomas

1 year
- > 10 adenomas