

Hyperplastic Polyps

Colorectal pathology: recognition, crypt architecture and differential diagnosis

Morphology • pathogenesis • diagnostic separation from sessile serrated polyps

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Learning outcomes

- Place colorectal hyperplastic polyps within the intestinal-polyp classification.
- Explain the proposed epithelial-turnover mechanism without implying certainty.
- Recognize the typical endoscopic, gross and microscopic appearance.
- Distinguish a hyperplastic polyp from a sessile serrated polyp by crypt-base architecture.
- Apply the distinction to practical diagnostic scenarios.

A polyp is an architectural description

- An intestinal polyp is a localized elevation or protrusion of mucosa.
- Polyp is a gross/endoscopic term; It does not establish histologic type.
- The colon and rectum are the most frequent locations for intestinal polyps.
- Histologic evaluation determines whether a polyp is nonneoplastic or neoplastic.

Sessile and pedunculated describe shape

Sessile

Mucosal elevation with a broad attachment and no stalk. Many small polyps initially have this form.

Pedunculated

A protruding polyp supported by a stalk. Shape alone cannot identify the lesion's histologic class.

Morphologic shape and microscopic diagnosis must be interpreted separately.

The two broad intestinal-polyp groups

Nonneoplastic

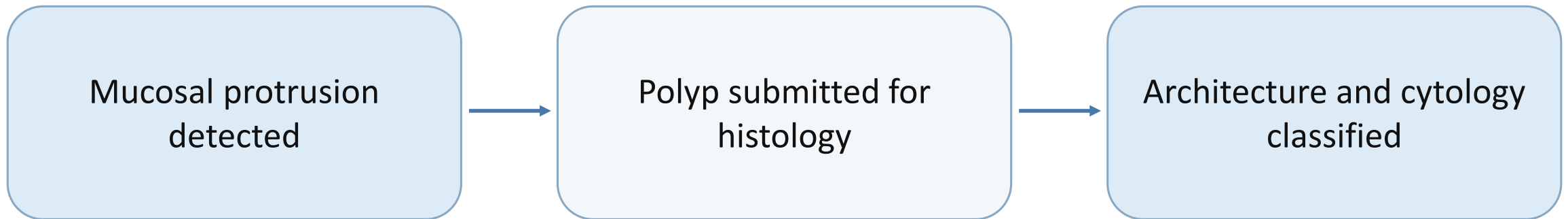
Inflammatory polyps • Hamartomatous polyps •
Hyperplastic polyps

Neoplastic

Conventional adenomas and other neoplastic masses; Adenomas can be precursors of carcinoma.

A colorectal hyperplastic polyp belongs to the nonneoplastic category.

From endoscopic finding to tissue diagnosis



The diagnosis is not inferred from endoscopic appearance alone.

The lesion being studied

- A colorectal hyperplastic polyp is a benign proliferation of mature epithelial cells.
- The defining abnormality is a serrated surface/upper-crypt architecture.
- Its importance is largely diagnostic: A look-alike sessile serrated polyp carries malignant potential.
- The term here refers to the colorectum, not a gastric hyperplastic polyp.

Usual age at detection

- Discovery most often in the sixth and seventh decades of life.
- This describes a typical clinical setting, not a diagnostic age requirement.
- Age cannot substitute for morphology when classifying an excised polyp.

Preferred distribution within the colon

- Hyperplastic polyps are most commonly found in the left colon.
- They occur particularly in the sigmoid colon and rectum.
- Proximal-colon location is atypical but not sufficient by itself to label a lesion sessile serrated.

Typical lesion dimensions

- Most are small: Typically less than 5 mm in diameter.
- A measured size is helpful descriptive context, not proof of histologic subtype.
- A larger or architecturally unusual lesion requires careful examination of the crypt bases.

Multiplicity and distribution

- An individual patient may have one hyperplastic polyp.
- Multiple lesions are common, especially in the rectum and sigmoid colon.
- Multiplicity does not automatically indicate a hereditary polyposis syndrome.

Macroscopic morphology in three observations

Surface	Contour	Setting
Smooth	Nodular mucosal protrusion	Often at crests of colonic folds

Small, smooth, fold-associated nodules are a typical pattern—not a definitive diagnosis.

What can colonoscopy establish?

Record site and size



Describe surface and
number



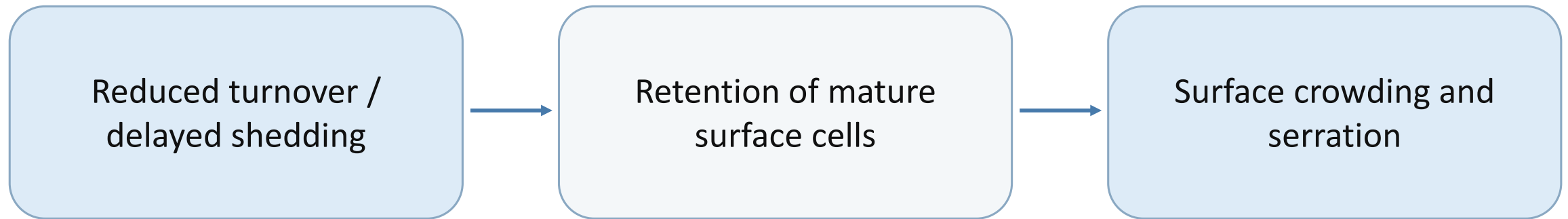
Remove / sample when
indicated

Histology supplies the distinction between hyperplastic and serrated neoplastic patterns.

Pathogenesis: A qualified explanation

- The precise pathogenesis is incompletely understood.
- Decreased epithelial turnover and delayed surface-cell shedding.
- This retention of mature cells can produce an apparent “piling up” at the luminal surface.
- It should be taught as a proposed morphogenetic mechanism, not a proven universal pathway.

Proposed epithelial-turnover mechanism



Proposed association; The complete molecular pathogenesis is unresolved.

Surface-cell retention: The structural consequence

- Cells are retained near the mucosal surface rather than removed on schedule.
- Luminal contours become folded or saw-toothed as epithelium accumulates.
- This explains why superficial crypt architecture is more abnormal than basal architecture.

Epithelial populations in the lesion

- The polyp is composed of mature goblet cells and absorptive cells.
- Both are normal differentiated colorectal epithelial lineages.
- Mature differentiation supports the benign appearance in an otherwise typical lesion.

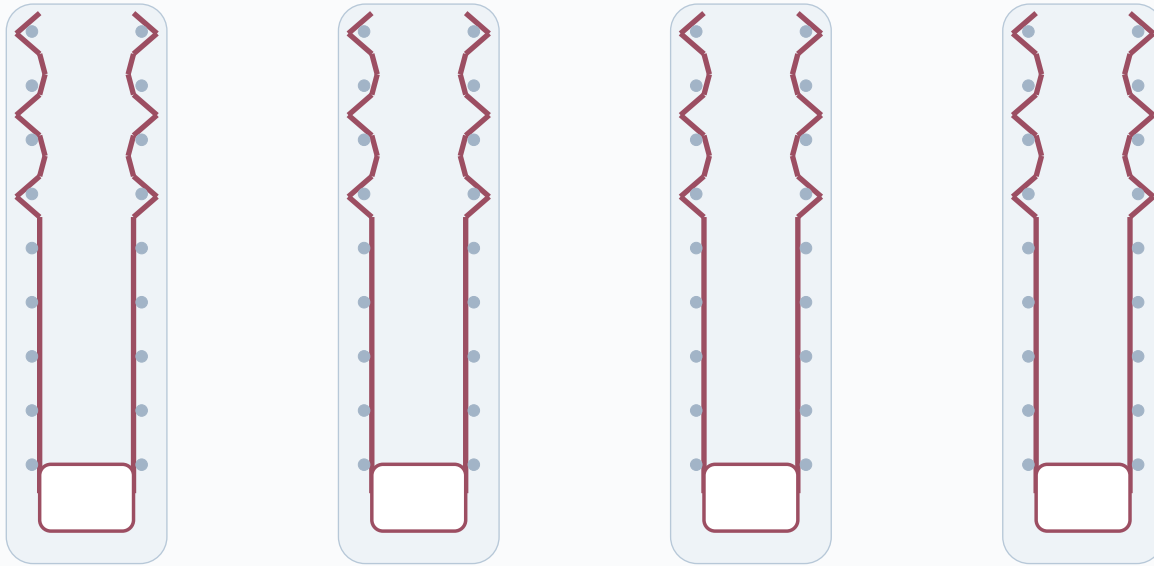
Goblet-cell component

- Goblet cells contribute the mucin-rich element of the lining.
- Their presence is compatible with a mature, differentiated colonic epithelial population.
- Goblet cells alone do not distinguish a hyperplastic polyp from every serrated mimic.

Absorptive-cell component

- Absorptive epithelial cells are also present in the serrated lining.
- The overall lesion retains recognizable differentiated colonic epithelium.
- Cell identity must be interpreted alongside the distribution of serration and crypt shape.

Surface serration is the hallmark



Saw-tooth luminal contour

Serration is concentrated near the mucosal surface rather than extending continuously to the crypt base.

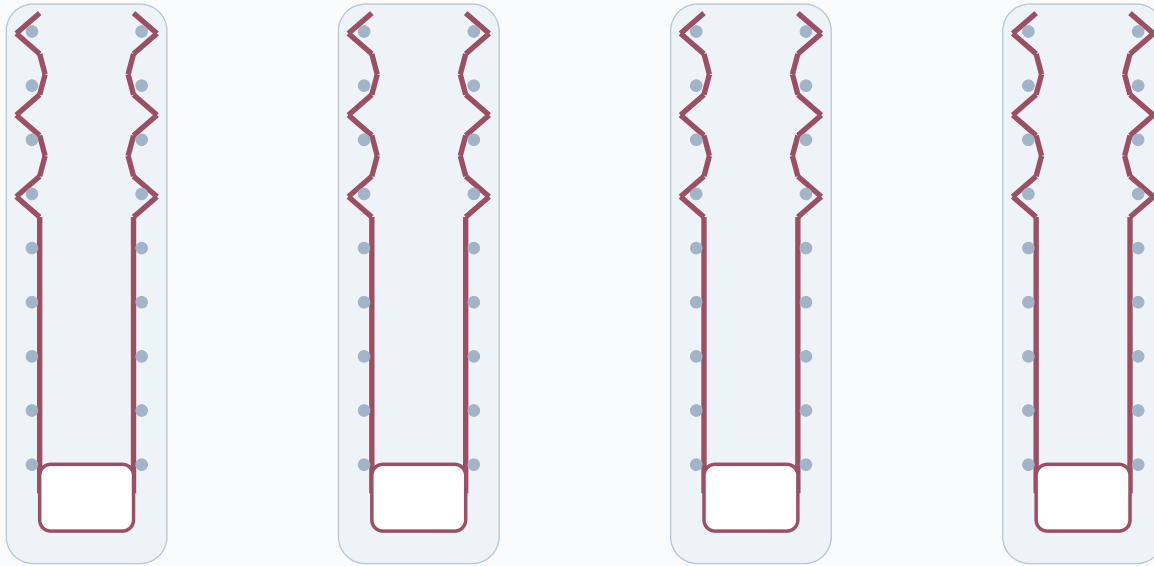
SCHEMATIC — longitudinal crypt profiles

Upper crypt $\neq$ entire crypt

What “serration” actually refers to

- Serration describes a saw-tooth or scalloped gland-lumen outline.
- It is a change in architecture—not, by itself, a marker of cytologic dysplasia.
- Other serrated colorectal lesions may share the superficial appearance.

Depth of serration: The crucial fraction



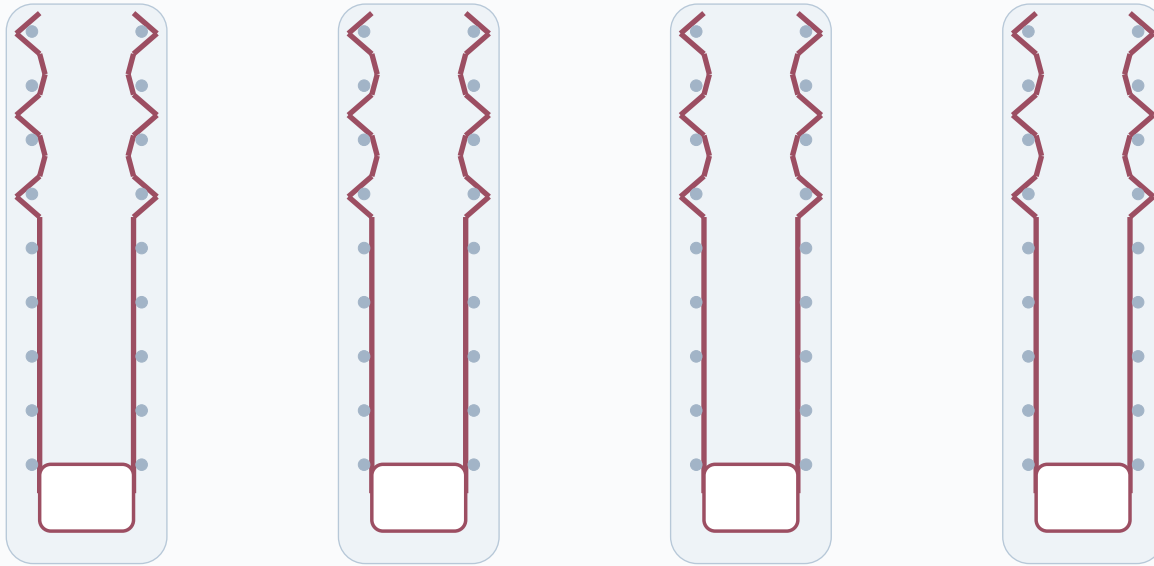
Upper third involved

Serration as typically restricted to the upper third of the crypt.

SCHEMATIC — longitudinal crypt profiles

A full-length evaluation is important.

Crypt bases are relatively spared



Basal architecture

The base may have a regenerative appearance but lacks the characteristic full-length distortion of a sessile serrated lesion.

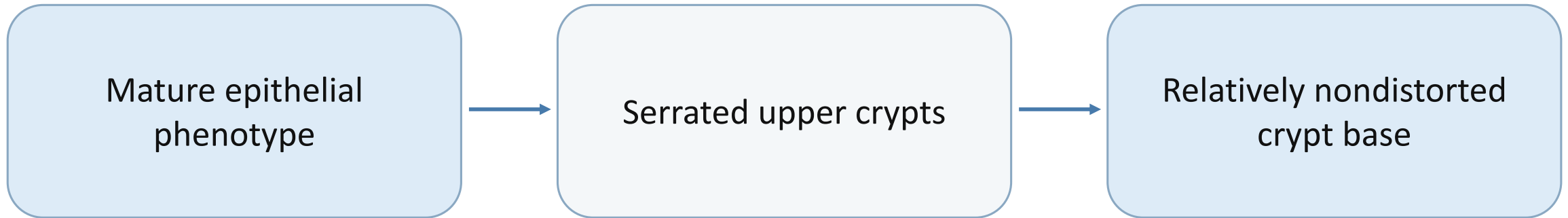
SCHEMATIC — longitudinal crypt profiles

Assess the base independently of the surface.

Regenerative changes at the crypt base

- Crypt-base epithelium may appear regenerative even in a hyperplastic polyp.
- Regenerative appearance is not equivalent to adenomatous dysplasia.
- Interpret the base in combination with luminal geometry and surface maturation.

Microscopic diagnosis uses three layers



Do not make the diagnosis from serration alone.

Scanning magnification: First questions

- Is the lesion a small, mucosal proliferation with recognizable crypt orientation?
- Where is serration most conspicuous: Surface, full length, or crypt base?
- Are the lower crypts straight and appropriately organized?
- Is there evidence of a separate underlying or adjacent lesion?

Higher magnification: Next questions

- Can differentiated goblet and absorptive cells be recognized?
- Are nuclear changes consistent with maturation or concerning dysplasia?
- Does serration fade on moving down the crypt?
- Are basal dilatation or lateral extensions present?

Why orientation matters in a biopsy

Longitudinal sections

Show surface-to-base architecture, helping localize serration and detect basal distortion.

Tangential sections

May show separated, oddly shaped gland profiles; Interpretation of the crypt base is less secure.

A poorly oriented fragment may not support definitive architecture-based classification.

A superficial biopsy can miss decisive features

- The luminal surface of hyperplastic and sessile serrated polyps may overlap.
- The discriminating changes of a sessile serrated polyp often involve the crypt bases.
- A sample lacking lower crypts may prevent confident exclusion of a sessile serrated polyp.

Hyperplastic does not mean dysplastic

- Hyperplastic epithelium is proliferated but well differentiated.
- Conventional adenomas are characterized by dysplastic epithelium.
- A typical hyperplastic polyp is not classified as a conventional adenoma.

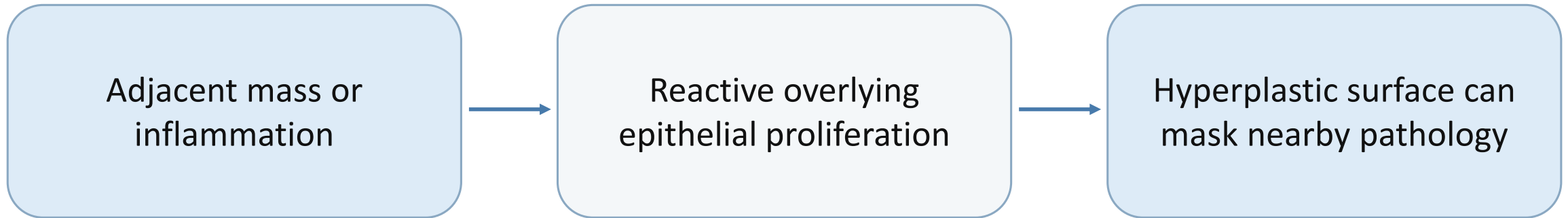
Clinical behavior of a conventional hyperplastic polyp

- Conventional colorectal hyperplastic polyps have no malignant potential.
- This statement applies to the correctly classified lesion—not to all serrated polyps.
- Misclassification matters because sessile serrated polyps can be cancer precursors.

Clinical significance is predominantly a distinction

- Recognize the benign hyperplastic phenotype.
- Identify architectural findings that argue against that phenotype.
- Separate a lesion with no intrinsic malignant potential from a serrated neoplastic precursor.

Epithelial hyperplasia may be secondary



Examine the relationship between the surface proliferation and the surrounding lesion.

Do not stop at the overlying epithelium

- Reactive epithelial hyperplasia can occur above an underlying mass or inflammatory process.
- Surface findings may therefore be a clue—not the complete diagnosis.
- If a separate lesion is seen, assess it on its own histopathologic merits.

Two meanings of “hyperplastic” in practice

Defined colorectal polyp

A distinct benign lesion with mature cells and surface-limited serration.

Reactive epithelial hyperplasia

A nonspecific response adjacent to or above another mass or inflammatory lesion.

Similar wording does not mean identical clinicopathologic interpretation.

Why the serrated category matters

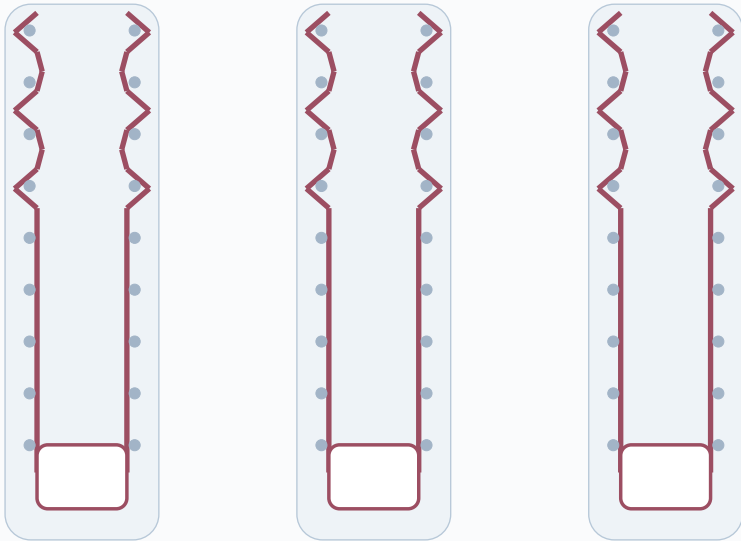
- Both hyperplastic and sessile serrated polyps can have a serrated luminal contour.
- Their malignant potential is different.
- The important separation is architectural, especially at the crypt base.

Hyperplastic vs sessile serrated polyp

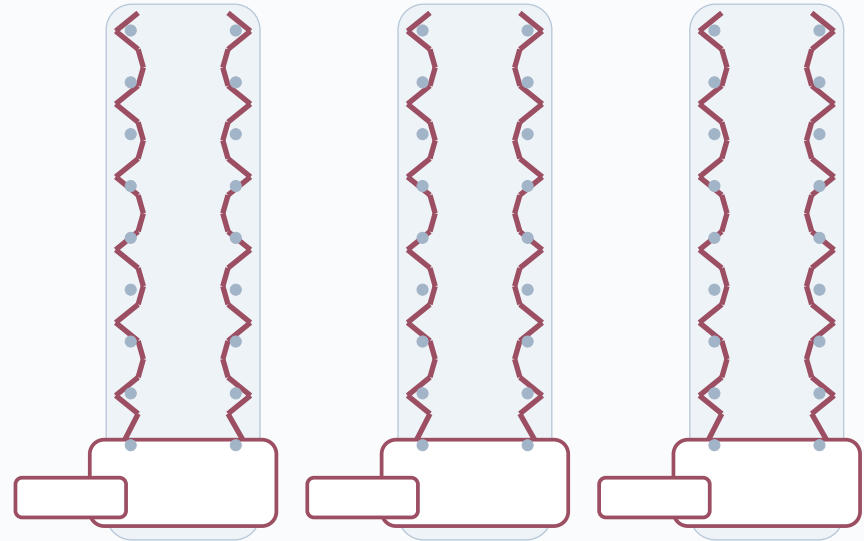
Feature	Hyperplastic polyp	Sessile serrated polyp
Usual location	Left colon	More commonly right colon
Serration	Usually upper third	Extends toward or into crypt bases
Basal crypts	Relatively preserved	Often dilated / laterally extended
Malignant potential	None for conventional HP	Present

Architecture is more specific than location

Hyperplastic polyp



Sessile serrated polyp

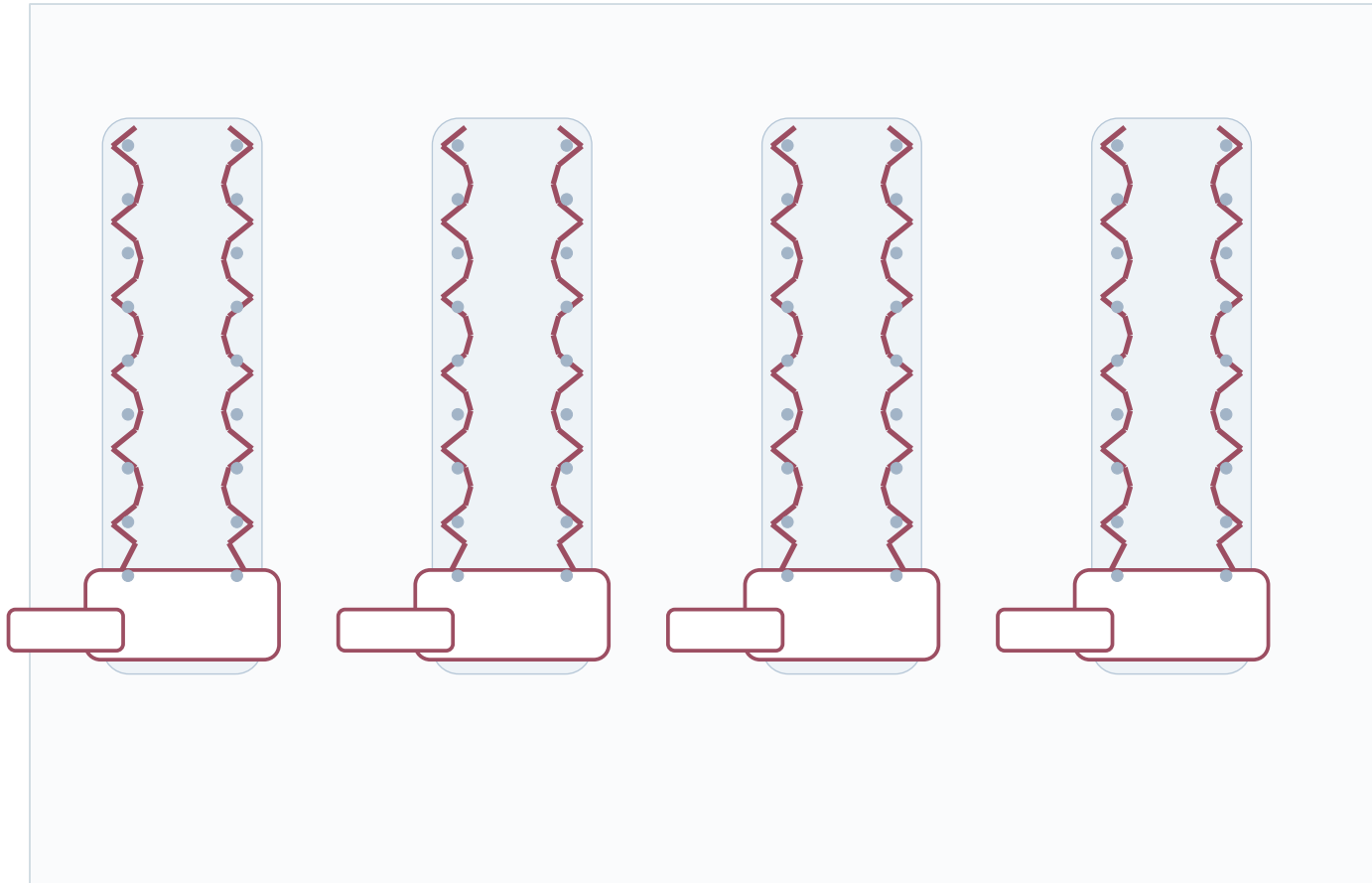


The differential relies chiefly on crypt-base architecture.

Location shifts suspicion—not certainty

- A small distal lesion with typical upper-crypt serration supports hyperplastic polyp.
- A proximal serrated lesion should prompt a deliberate search for basal distortion.
- Neither left-sided nor right-sided location is diagnostic in isolation.

Sessile serrated crypts involve the base



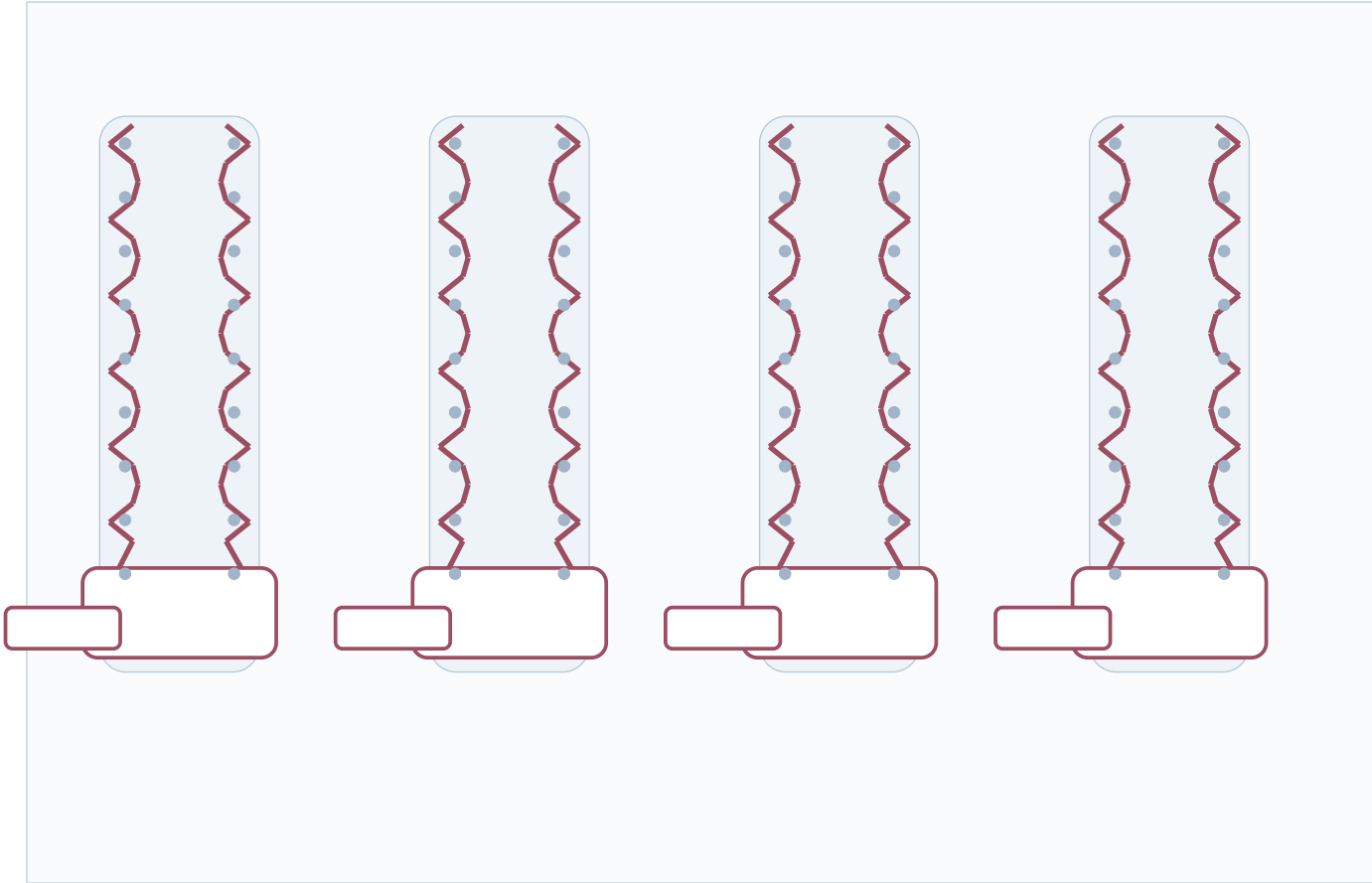
Base is distorted

Serration involving the entire gland, including basal architecture.

SCHEMATIC — longitudinal crypt profiles

A full-length crypt pattern is not conventional HP.

Basal dilatation is an important clue



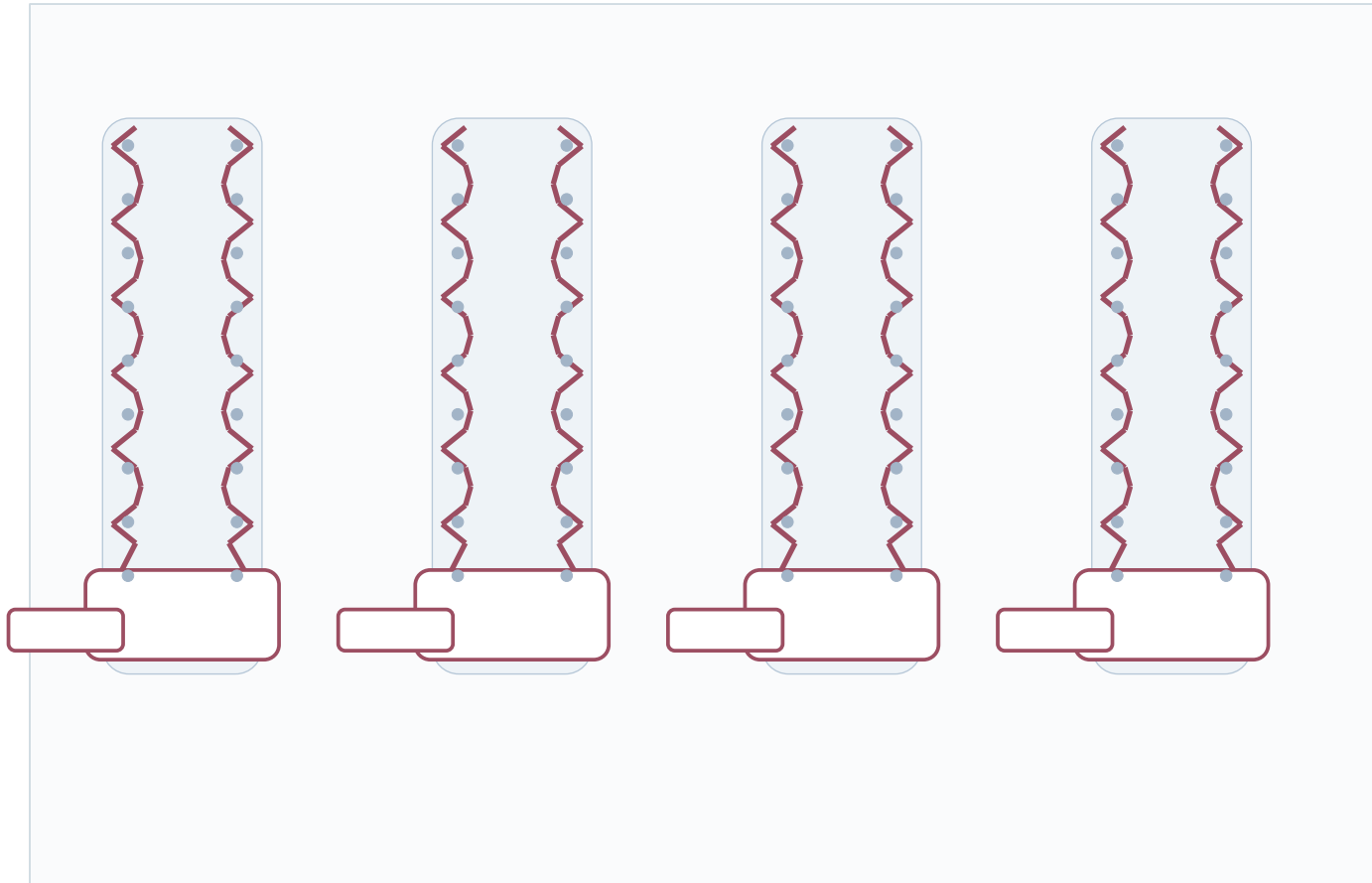
Widened basal gland

In sessile serrated polyps, dilation of lower crypts is one of the features separating them from hyperplastic polyps.

SCHEMATIC — longitudinal crypt profiles

Inspect the deepest available crypt profile.

Lateral crypt extension changes the pattern



Horizontal growth at base

Sessile serrated crypts may extend laterally rather than remaining simple upright tubular profiles.

SCHEMATIC — longitudinal crypt profiles

Lateral basal growth favors sessile serrated architecture.

No cytologic dysplasia does not exclude SSL

- Sessile serrated polyps often lack the conventional cytologic dysplasia of adenomas.
- Their malignant potential therefore cannot be inferred from nuclear atypia alone.
- Disordered crypt-base architecture is the decisive clue.

A useful error-prevention sequence

Notice surface serration



Trace crypts to their bases



Search for basal dilation
and lateral growth

Do not sign out a “hyperplastic polyp” solely from a serrated surface.

Hyperplastic polyp vs conventional adenoma

Diagnostic axis	Hyperplastic polyp	Conventional adenoma
Epithelium	Mature goblet and absorptive cells	Dysplastic epithelium
Characteristic pattern	Superficial serration	Dysplasia; tubular / villous patterns
Nuclei	No conventional adenomatous dysplasia	Hyperchromatic, elongated, stratified
Neoplastic potential	None for classic hyperplastic polyp	Adenoma is a neoplastic precursor

Conventional adenomas: Cytologic contrast

- Nuclear hyperchromasia, elongation and stratification.
- The abnormalities can be especially evident at the surface.
- A benign-appearing serrated surface cannot be judged by luminal contour alone.

Nonneoplastic mimics in context

Inflammatory polyp

Linked to repeated injury and repair; May show erosion, inflammation and tissue prolapse.

Hamartomatous polyp

A disorganized proliferation of indigenous tissue elements; Some syndromic forms carry broader cancer risk.

Clinical setting and the complete microscopic architecture prevent category errors.

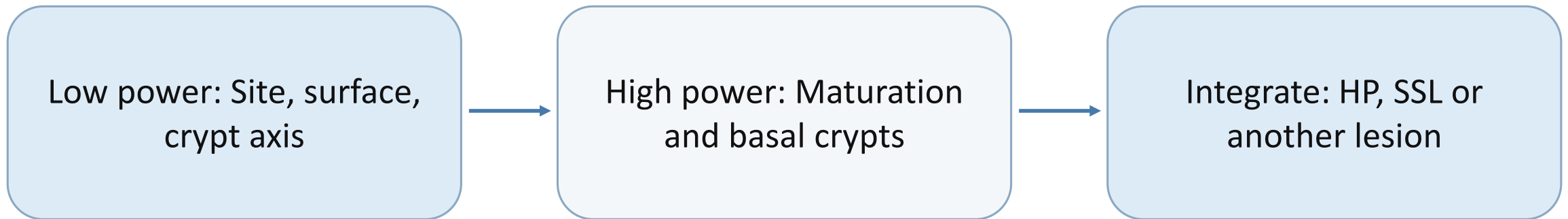
Gastric hyperplastic polyps are a separate topic

- “Hyperplastic polyp” also names a gastric lesion related to mucosal injury/gastritis.
- The current lecture concerns a specific colorectal serrated epithelial lesion.
- Do not transfer the colon lesion’s morphologic criteria or malignant-potential statement wholesale to the stomach.

Size and multiplicity cannot overrule histology

- The usual hyperplastic polyp is small and often distal—but exceptions exist.
- Architectural criteria still govern the classification of an atypical presentation.
- When basal architecture is unavailable or distorted, diagnostic certainty should be qualified.

Practical tissue-reading order



A morphology-first workflow reduces over-reliance on endoscopic appearance.

Case 1 · classic distal lesion

A 4-mm rectal nodule has mature epithelial lining, upper-crypt serration and nondilated crypt bases.

- A. Hyperplastic polyp
- B. Sessile serrated polyp
- C. Conventional adenoma
- D. Invasive adenocarcinoma

Expected pattern: Small, distal and serration restricted to the upper crypts.

Case 1 · reasoning

- Rectal location and small size match the typical distribution and gross profile.
- Mature epithelial cells and superficial serration fit a hyperplastic polyp.
- Preserved lower crypts make sessile serrated architecture less likely.

Case 2 · proximal serrated lesion

A right-colon lesion shows serration extending into the bases, crypt dilatation and lateral basal growth.

- A. Typical hyperplastic polyp
- B. Sessile serrated polyp
- C. Inflammatory polyp
- D. Conventional tubular adenoma

Basal dilation and lateral growth supersede superficial resemblance to HP.

Case 2 · reasoning

- Right-sided site increases clinical suspicion but is not sufficient alone.
- Basal crypt dilation and lateral extension are specific discriminators.
- The absence of conventional nuclear dysplasia would not negate the interpretation.

Case 3 · limited sampling

A tiny serrated fragment contains only the luminal half of the glands; Basal crypts are not represented.

- A. Crypt-base assessment is limited
- B. Sessile serrated polyp is excluded
- C. Location provides a definite answer
- D. Nuclear maturity rules out every precursor lesion

Surface-only sampling may not resolve HP versus SSL.

Case 3 · reasoning

- The superficial portion can look similar across serrated lesions.
- No inference about preserved basal architecture is possible if it is absent from the section.
- State the sampling limitation rather than assuming normal basal crypts.

Case 4 · conventional dysplasia

A polyp shows elongated, hyperchromatic, stratified epithelial nuclei rather than purely mature serrated lining.

- A. Conventional adenoma
- B. Simple hyperplastic polyp
- C. Reactive mucosal fold
- D. Normal colonic crypts

Cytologic dysplasia shifts the classification away from a conventional HP.

Case 4 · reasoning

- The cytologic nuclear phenotype is central to conventional adenoma diagnosis.
- A hyperplastic polyp does not require or explain conventional adenomatous dysplasia.
- Always integrate nuclear features with gland architecture before classification.

Case 5 · hyperplasia above a mass

An elevated lesion has hyperplastic surface epithelium, but a distinct deeper mass is present.

- A. Evaluate the deeper mass independently
- B. Discard the deeper mass as reactive
- C. Call the entire lesion a simple HP
- D. Assign colorectal cancer based on surface hyperplasia

Reactive hyperplasia can overlay another important lesion.

Case 5 · reasoning

- Surface epithelial hyperplasia can be a nonspecific response.
- The deeper process may determine the diagnosis and clinical significance.
- The label “hyperplastic” should not obscure a separate lesion.

Diagnostic synthesis at a glance

Observation	Supports HP	Prompts reconsideration
Anatomic distribution	Small, distal (typical)	Proximal / unusually large (context)
Surface	Upper-crypt serration	Serration reaches the bases
Lower crypt	Relatively straight / preserved	Dilation or lateral extension
Cytology	Mature cells	Dysplastic epithelial phenotype
Adjacent tissue	No separate pathologic process	Overlying reactive change above a mass

Five durable diagnostic principles

- Hyperplastic colorectal polyps are benign, typically diminutive distal lesions.
- Mature epithelial cells and surface-limited serration define the classical appearance.
- The proposed mechanism involves slowed epithelial shedding; It remains incompletely understood.
- Sessile serrated polyps are distinguished by abnormal crypt-base architecture.
- Reactive hyperplasia over another lesion must not end the diagnostic assessment.

Textbook references and boundaries

- Primary: Robbins, Cotran & Kumar, Pathologic Basis of Disease, 11th ed. (2026).
- Main text: The Gastrointestinal Tract — intestinal polyps and colorectal hyperplastic polyps.
- Comparison: colorectal adenomas and sessile serrated polyps in the same textbook chapter.
- Morphology illustrations in this presentation are original editable schematics, not histologic specimens.