

Benign Tumors and Tumor-like Conditions

Penile pathology: condyloma acuminatum and Peyronie disease

Condyloma acuminatum • Peyronie disease

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Learning objectives

- Describe the etiology and distribution of condyloma acuminatum.
- Recognize its gross and microscopic structural hallmarks.
- Explain the proposed pathogenesis and effects of Peyronie disease.
- Distinguish these lesions from adjacent malignant diagnoses.

Two disorders, two different tissue responses

Condyloma acuminatum

HPV-associated epithelial proliferation

Papillary exophytic lesion

Viral cytopathic change may be seen

Peyronie disease

Reactive connective-tissue fibrosis

Hard plaque near erectile structures

Curvature and intercourse-associated pain

Why both belong in one teaching unit

- “Benign tumors and tumor-like conditions” includes distinct etiologic mechanisms.
- Condyloma is a true benign HPV-associated proliferative wart.
- Peyronie disease appears reactive rather than neoplastic.
- Clinical lesion morphology reflects which tissue compartment is involved.

Classify the lesion before naming it

Surface epithelium



Papillary wart



Condyloma acuminatum

**Fibrous supporting
tissue**



Collagenous plaque



Peyronie disease

Atypical epithelium



Intraepithelial dysplasia



PeIN: Differential context

Where penile condylomata commonly arise

External genital / perineal
surface

Broader moist mucocutaneous distribution

Coronal sulcus

Frequent penile site

Inner prepuce

Frequent penile site

Schematic

Benign does not mean identical biology

Benign epithelial wart

Viral association: Low-risk HPV

Epithelial acanthosis/papillomatosis

Preserved maturation

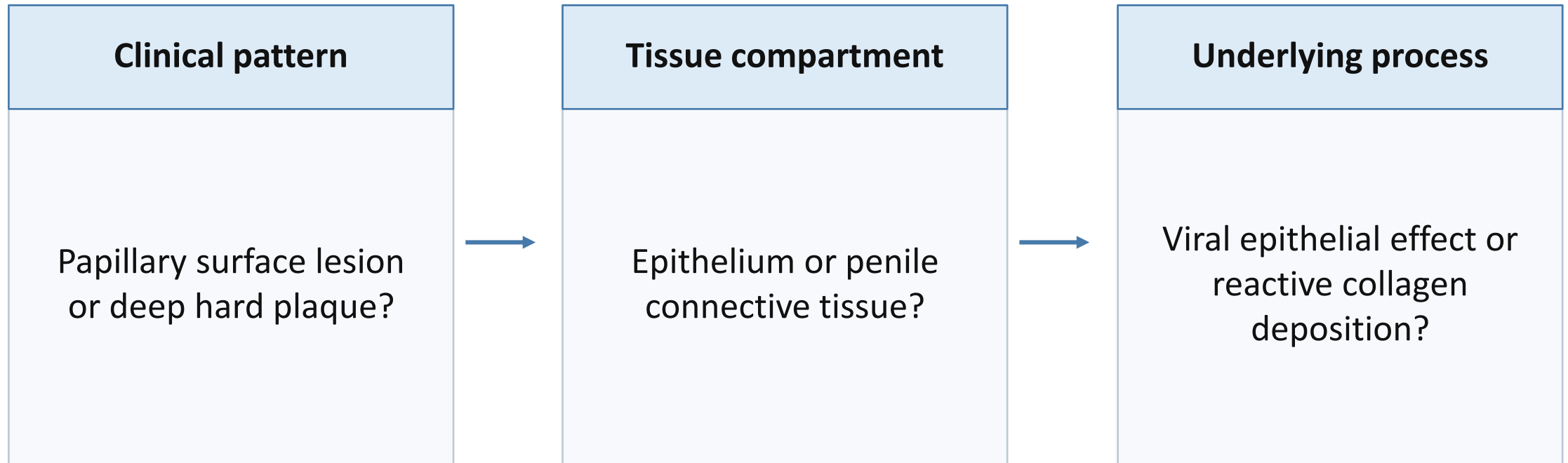
Tumor-like fibrous plaque

Proposed microvascular trauma

Collagen deposition

Not an epithelial wart

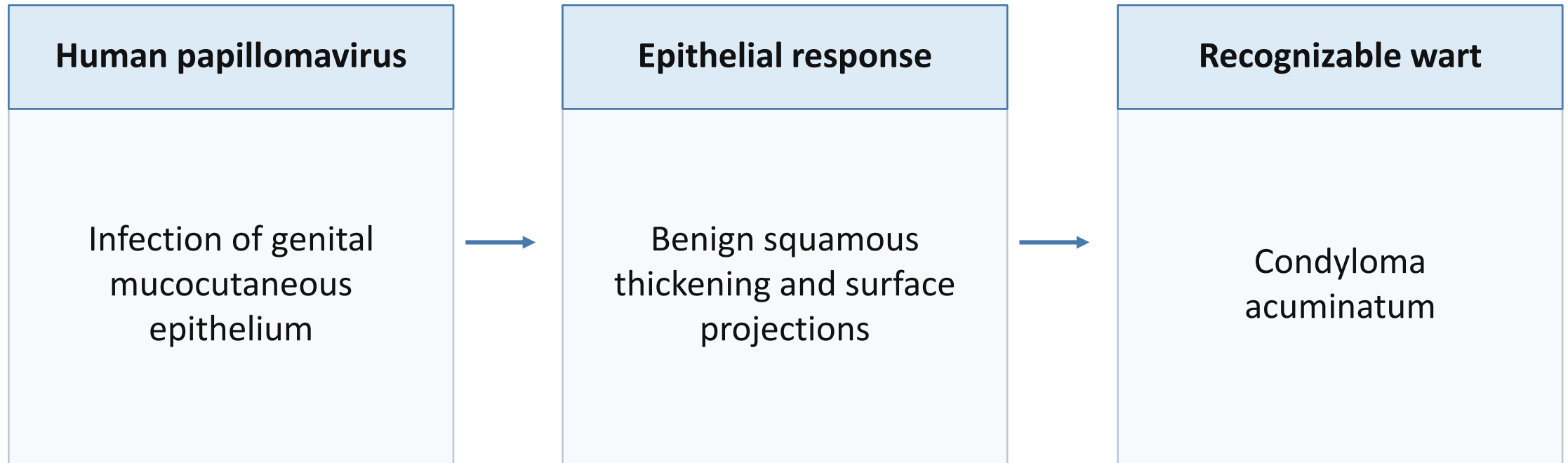
Clinical observation and histology answer different questions



Condyloma acuminatum: A benign genital wart

- A sexually transmitted lesion caused by human papillomavirus.
- Related to the common cutaneous wart.
- Can arise on moist mucocutaneous surfaces of external genitalia in either sex.
- Penile morphology is characteristically papillary.

HPV is the etiologic agent



Low-risk HPV types dominate condyloma

HPV 6

Most frequent type identified in tissue analysis

Described as low risk

Linked to benign genital warts

HPV 11

Less frequent than HPV 6

Also categorized as low risk

Associated with condylomata acuminata

Transmission is central to classification

- Condyloma acuminatum is described as a sexually transmitted wart.
- Its viral etiology is important in distinguishing it from a scar-related plaque.
- HPV type alone does not substitute for morphologic assessment.
- A benign wart and an HPV-associated precursor lesion are different diagnoses.

Affected mucocutaneous surfaces

- The lesion is not restricted to the penile shaft.
- It may arise on moist surfaces of the external genitalia.
- Perineal lesions also occur.
- Anatomic distribution should be documented separately from morphologic diagnosis.

Penile localization: Coronal sulcus and prepuce

External genital / perineal
surface

Broader moist mucocutaneous distribution

Coronal sulcus

Frequent penile site

Inner prepuce

Frequent penile site

Schematic

Single or multiple lesions can occur

Single lesion

One visible exophytic focus

Does not alter the histologic definition

May be sessile or pedunculated

Multiple lesions

Several papillary excrescences

Shared benign viral pathogenesis

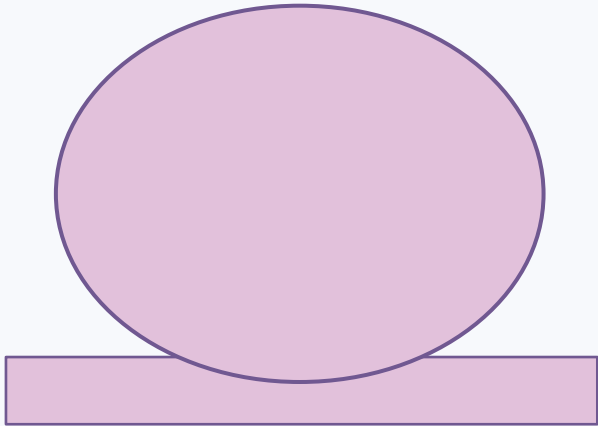
Each may show the same basic architecture

Gross appearance: Papillary excrescences

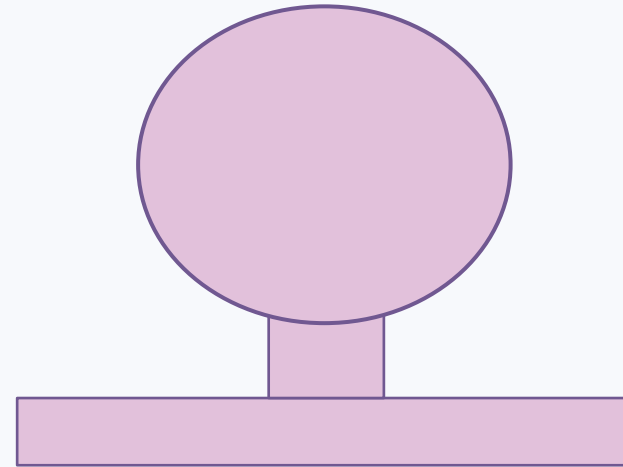
- Warts form red papillary surface projections.
- They are generally several millimeters in diameter in the Robbins description.
- Individual excrescences can be sessile or pedunculated.
- A papillary surface configuration corresponds to branching stromal cores.

Sessile versus pedunculated growth

Sessile — broad attachment



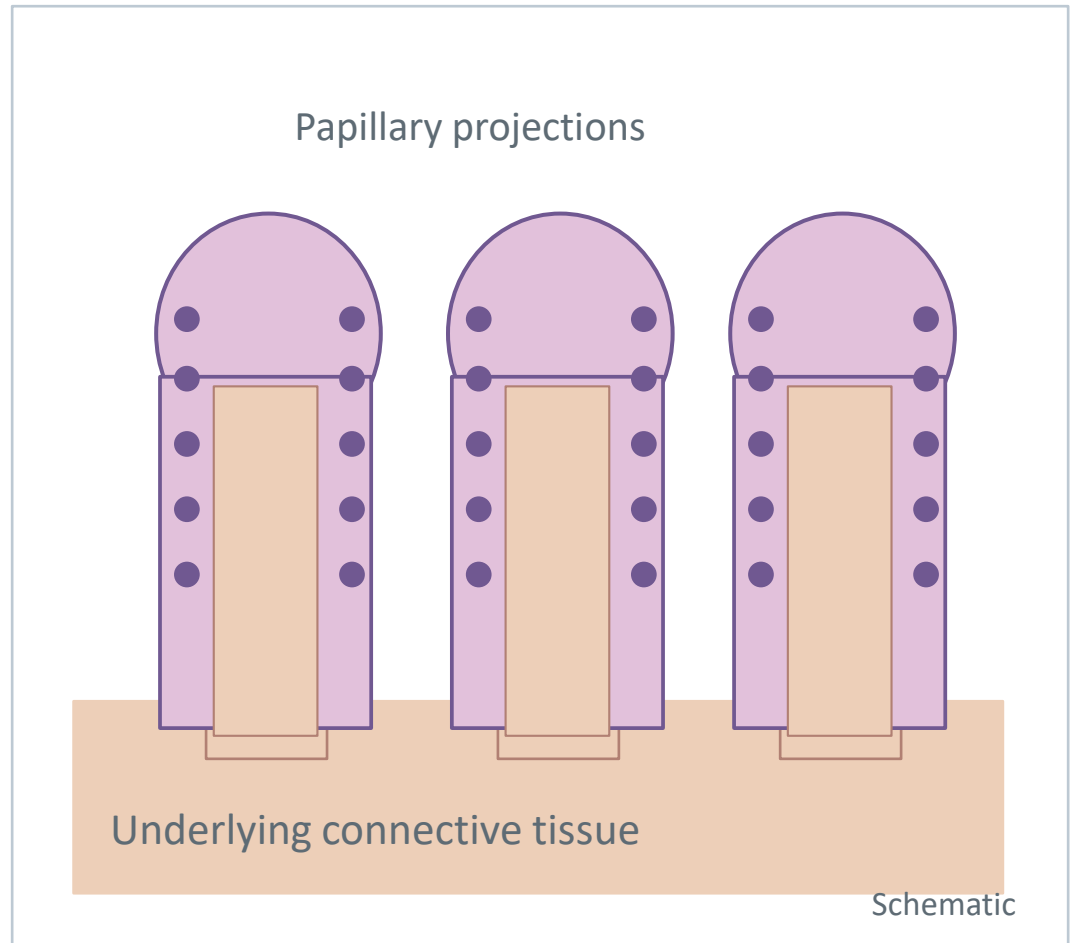
Pedunculated — stalk attachment



Schematic

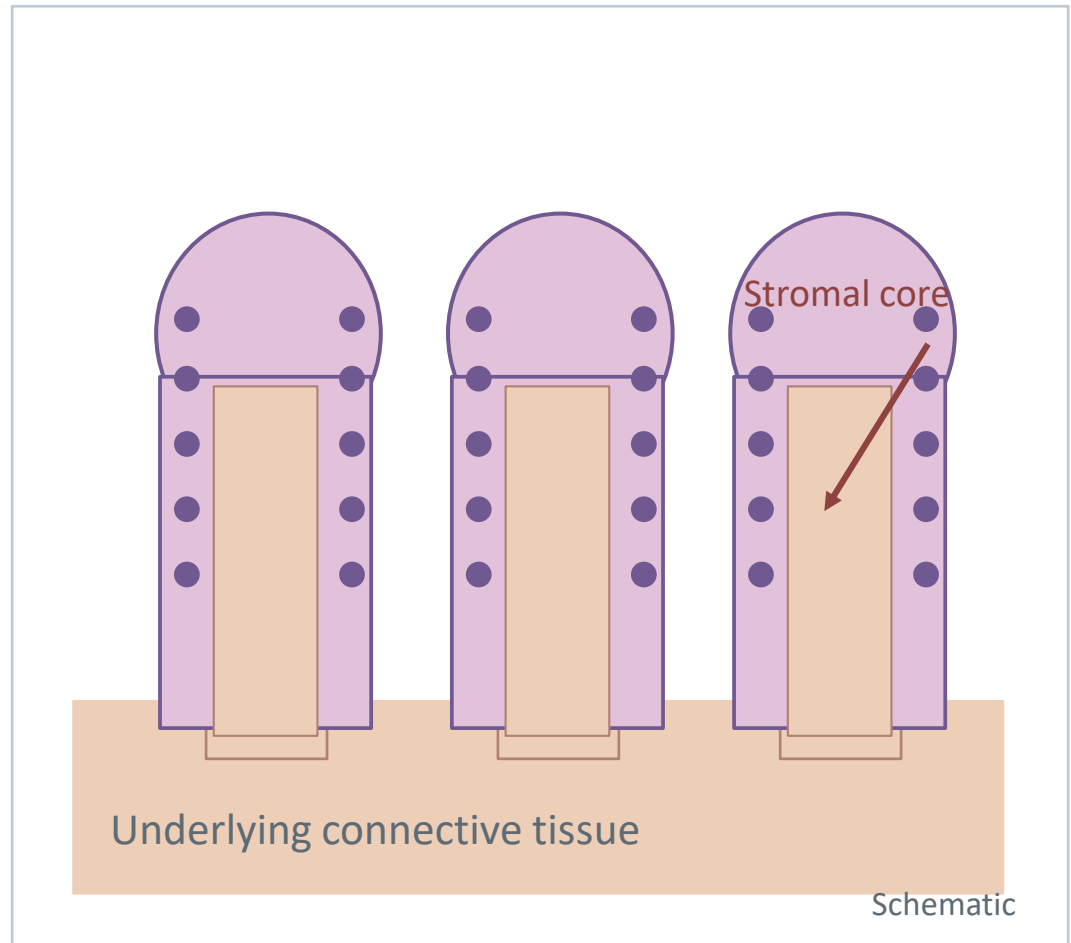
The low-power diagnostic silhouette

- The lesion projects outward rather than forming a deep fibrous plaque.
- Branching villous papillae support the elevated squamous epithelium.
- Stromal cores are covered by thickened squamous lining.



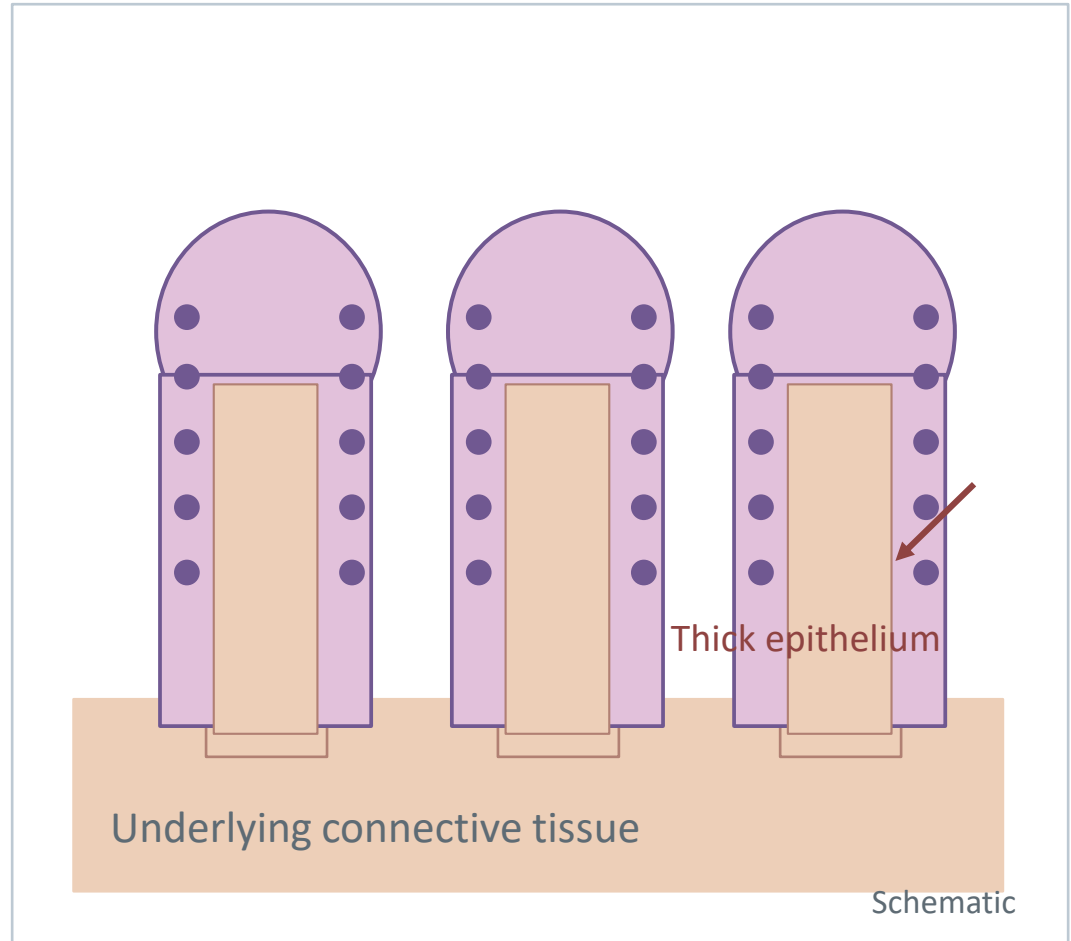
Papillae contain connective-tissue cores

- A papilla is not simply a mound of epithelial cells.
- Each projection contains an underlying connective-tissue stromal component.
- Squamous epithelium covers the branching connective-tissue framework.



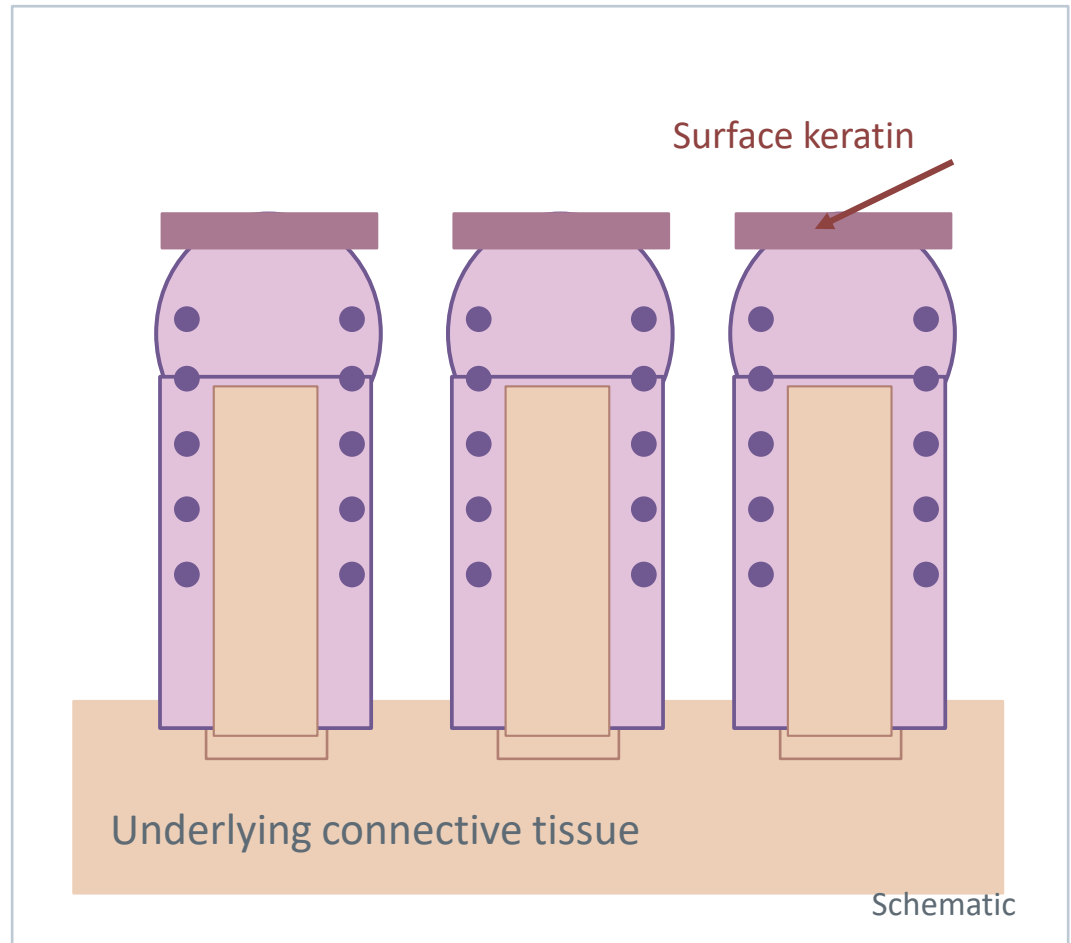
Acanthosis: Thickening of the squamous epithelium

- Acanthosis is increased epithelial thickness.
- It contributes to the expanded papillary lesion.
- Interpret this together with surface configuration and maturation.



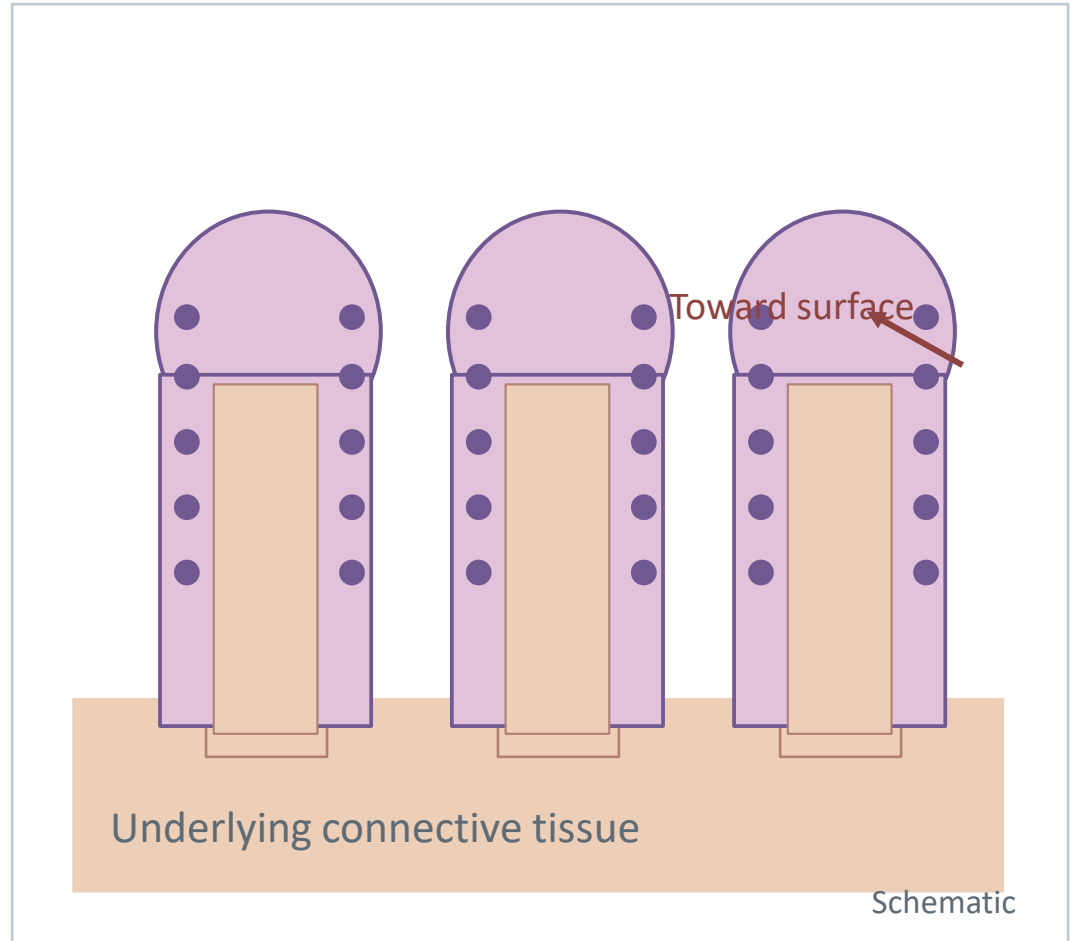
Hyperkeratosis may accentuate the surface

- Superficial hyperkeratosis can be considerable.
- It is a surface change above the underlying thickened epithelium.
- Presence or degree of keratinization alone does not define malignancy.



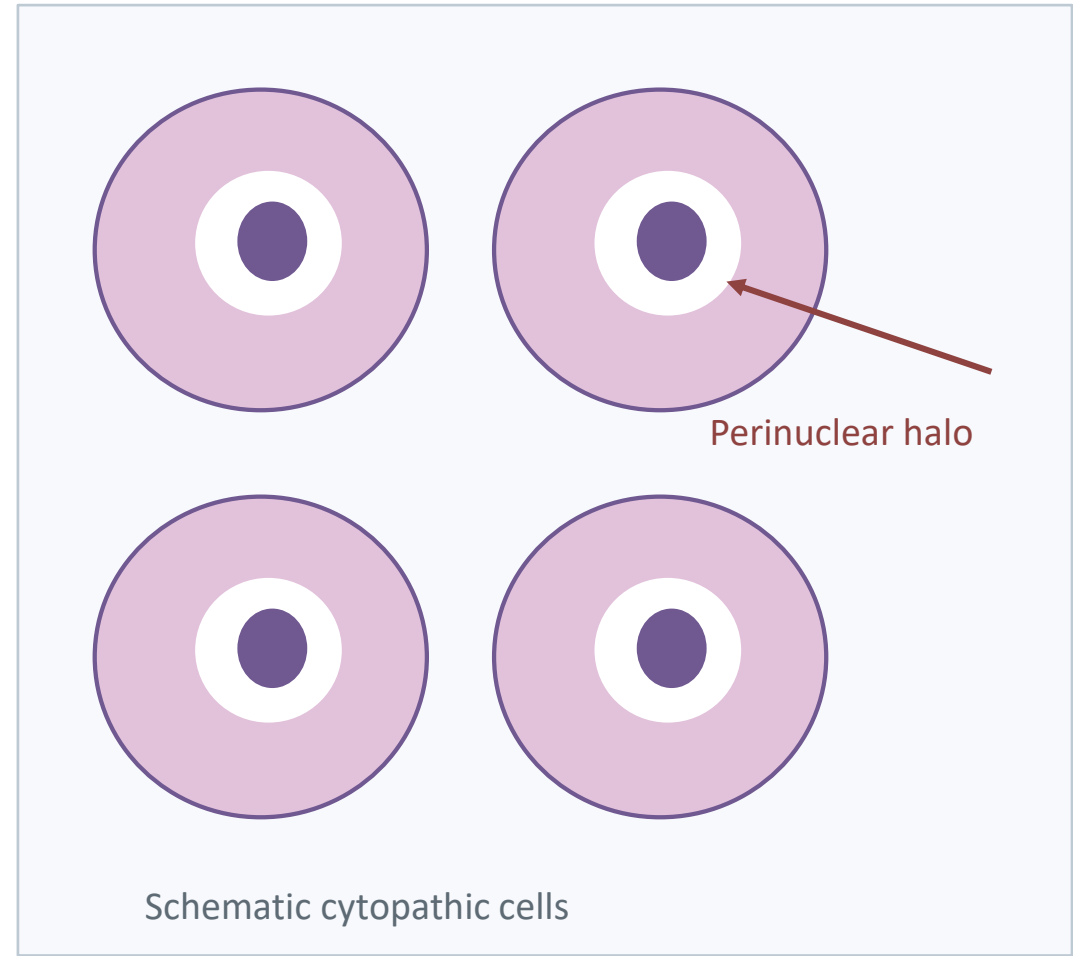
Orderly epithelial maturation is retained

- Cells retain the normal maturation sequence toward the surface.
- This favors the benign condylomatous process.
- Preserved maturation helps separate the wart from full-thickness dysplasia.



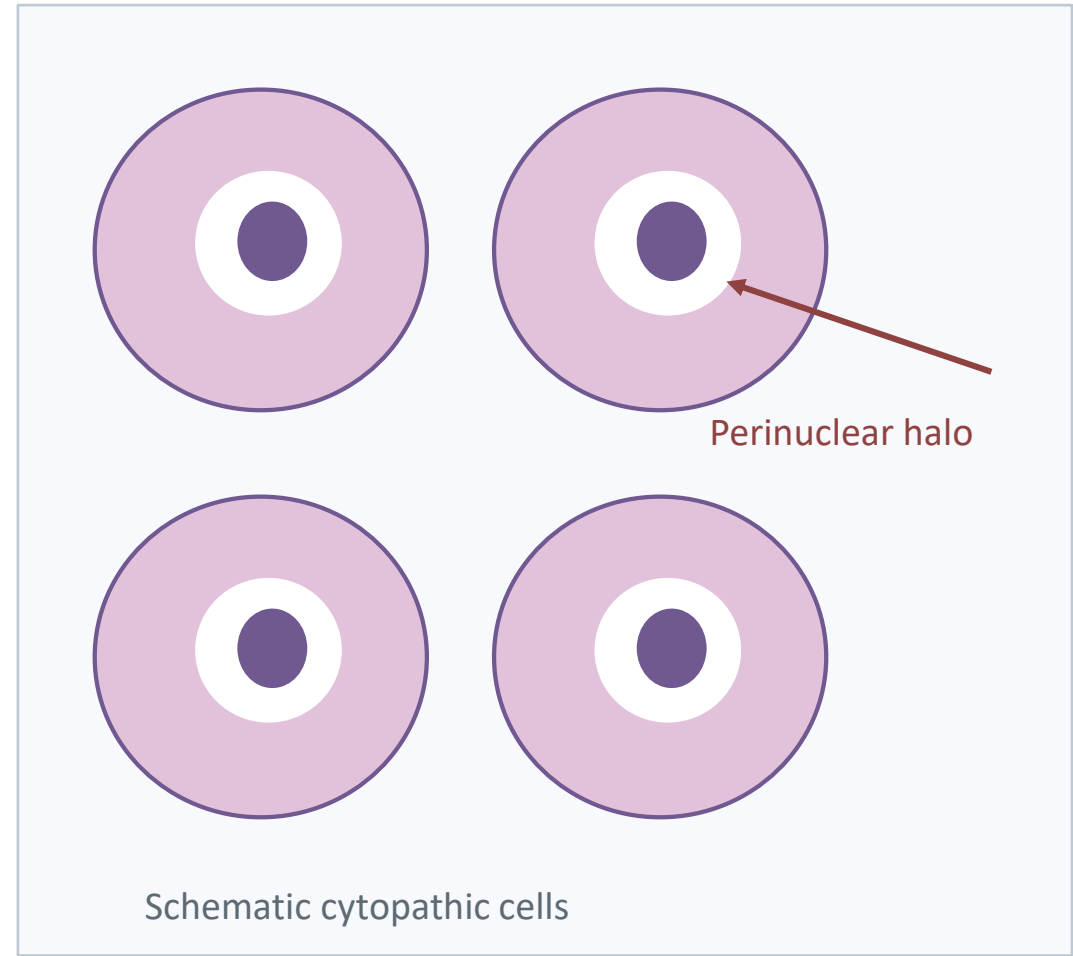
Koilocytosis is the characteristic viral cytopathic change

- Squamous epithelial cells may show perinuclear cytoplasmic vacuolization.
- This perinuclear clearing is called koilocytosis.
- It is characteristic of HPV infection in the setting of this lesion.



Interpret the koilocyte at cellular scale

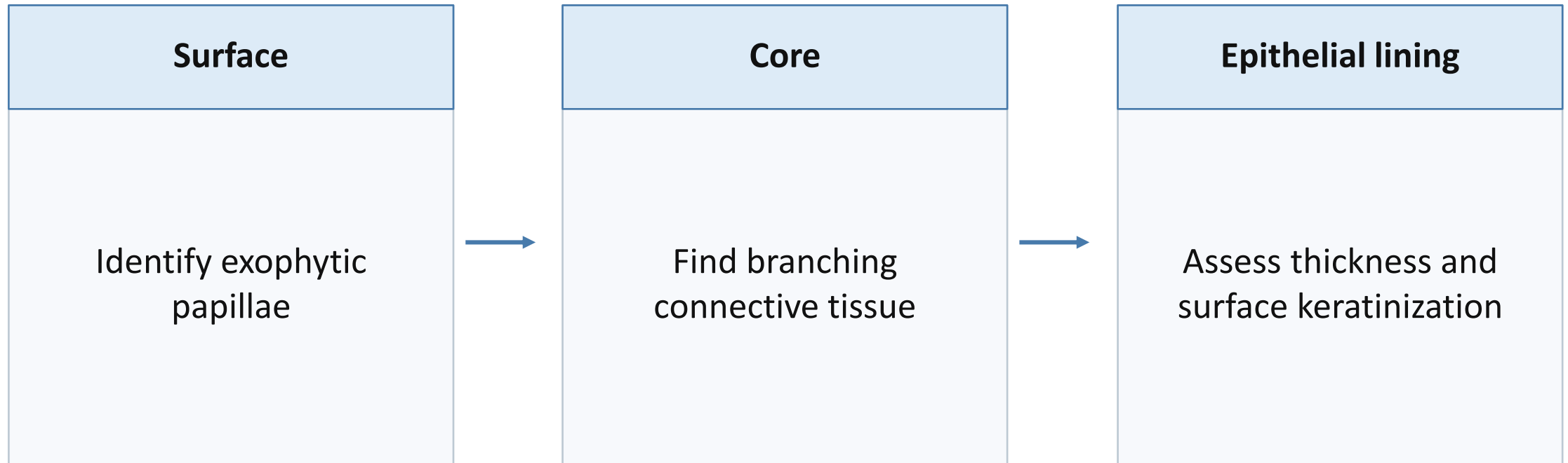
- Locate the nuclear region, then the surrounding clear cytoplasmic halo.
- Describe koilocytosis as a cytopathic feature, not a marker of invasion.
- Correlate the cellular change with the overall epithelial architecture.



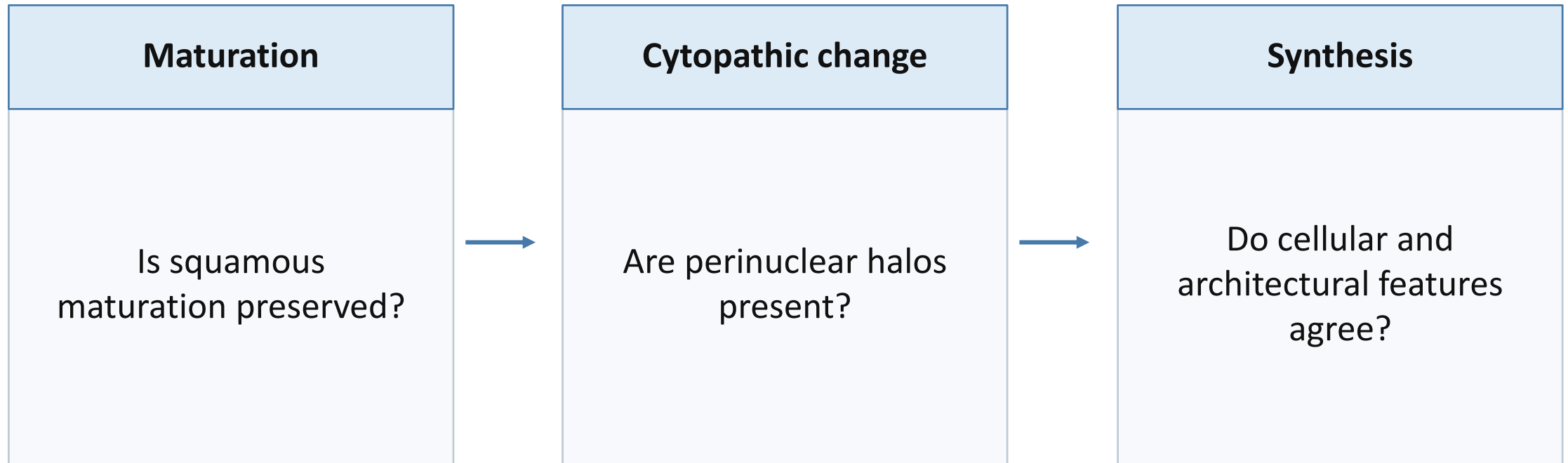
Architectural and cellular evidence are complementary

Low magnification	Higher magnification
Papillary, branching silhouette	Orderly squamous maturation
Epithelial thickening	Perinuclear vacuolization
Connective-tissue cores	Koilocytosis consistent with HPV effect

Reading a low-power wart section



Reading a high-power wart section



Epithelial thickening is not equivalent to dysplasia

Condylomatous growth

Acanthosis may be marked

Preserved orderly maturation

Koilocytosis may occur

Dysplastic precursor lesion

Abnormal squamous maturation

Atypical nuclear changes

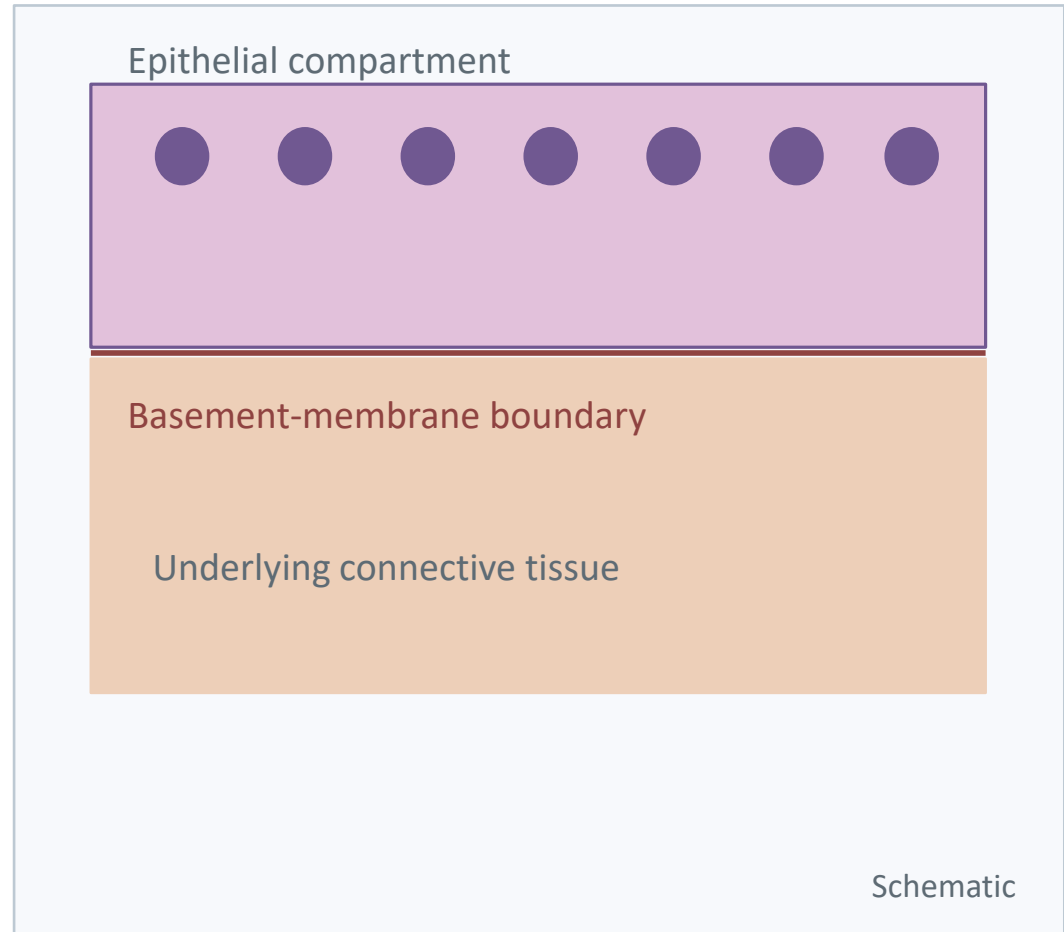
Separate intraepithelial diagnosis

Distinguish HPV low-risk and high-risk contexts

Condyloma context	PeIN context
HPV 6 and HPV 11	High-risk HPV, often HPV 16
Benign genital wart	Squamous dysplasia within epithelium
Papillary lesion with koilocytosis	Malignant-tumor section: Differential only

PeIN is confined above the basement membrane

- Penile intraepithelial neoplasia is an epithelial precursor lesion.
- Its abnormal cells remain within the epidermis when the basement membrane is intact.
- Condyloma is instead described by papillary growth and preserved epithelial maturation.



Bowen disease: A clinically relevant mimic

Condyloma

May be multiple or single

Exophytic red papillary excrescence

Orderly maturation and HPV effect

Bowen disease

Often solitary thickened plaque in older men

Full-thickness squamous atypia

Lacks orderly maturation

Bowenoid papulosis: Papules are not all warts

Condyloma	Bowenoid papulosis
Low-risk HPV 6/11	Usually multiple reddish-brown papules
Papillary wart architecture	Associated with high-risk HPV 16
Benign squamous maturation	Histologically PeIN-like atypia

Surface resemblance can mislead

- An exophytic or papillary gross pattern alone is not a histologic diagnosis.
- In the adjacent malignant section, some penile carcinomas may also be warty or papillary.
- The presence of a destructive or pushing invasive growth pattern changes the diagnostic category.
- Full-thickness epithelial dysplasia differs from an orderly maturing condyloma.

Verrucous carcinoma is not a benign condyloma

Condyloma acuminatum

Benign, low-risk HPV-related wart

Papillary stromal cores

No invasive carcinoma described

Verrucous carcinoma

HPV-independent carcinoma subtype

Warty, well-differentiated appearance

Locally invasive pushing border

A morphology-first comparison

Feature	Condyloma acuminatum	PeIN / carcinoma context
Predominant pattern	Exophytic papillae	Dysplasia or invasion
Squamous maturation	Preserved	Disordered in PeIN
Viral context	Often HPV 6; also HPV 11	HPV 16 common in HPV-related PeIN
Tissue level	Benign surface lesion	Intraepithelial or invasive disease

Clinicopathologic exercise: Papillary lesion

A patient has several small red papillary lesions along the inner prepuce. A biopsy description notes papillary stromal cores, acanthosis, intact maturation, and koilocytosis.

Which lesion does this combination favor, and which feature supports HPV association?

Case reasoning: Integrate form and cytology

- Favored diagnosis: Condyloma acuminatum.
- Papillary cores and acanthosis explain the exophytic gross appearance.
- Koilocytosis is the characteristic HPV-related cytopathic finding.
- Preserved maturation is consistent with the benign histologic pattern.

Peyronie disease: A fibrosing penile disorder

- Defined by hard penile plaques composed of deposited collagen.
- The lesion appears reactive rather than neoplastic.
- Fibrosis affects connective tissue between the corpora cavernosa and tunica albuginea.
- Curvature and pain during intercourse are described clinical effects.

The word “tumor-like” matters

Why it resembles a mass

Hard palpable plaque

Localized thickening of tissue

May cause focal anatomic distortion

Why it is not a tumor

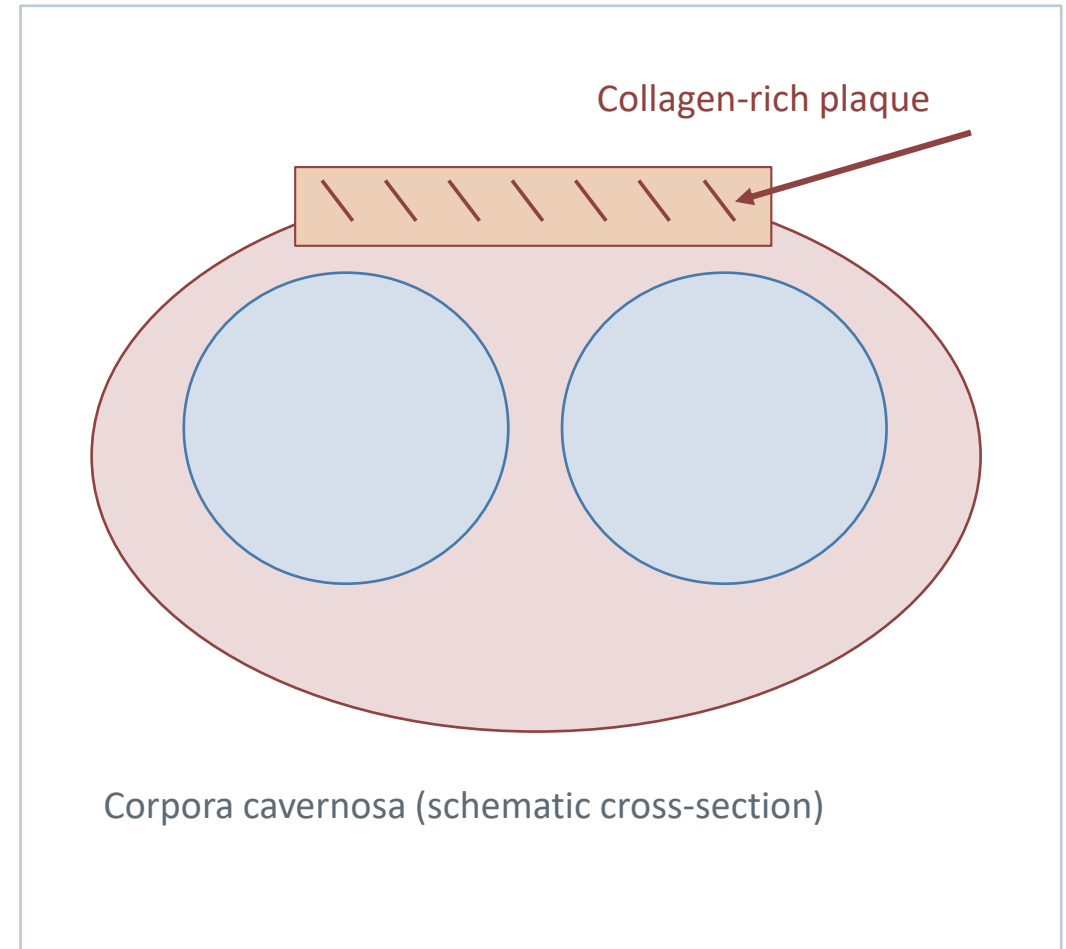
Collagen deposition is the central process

Reactive rather than neoplastic

Mechanism relates to injury-associated fibrosis

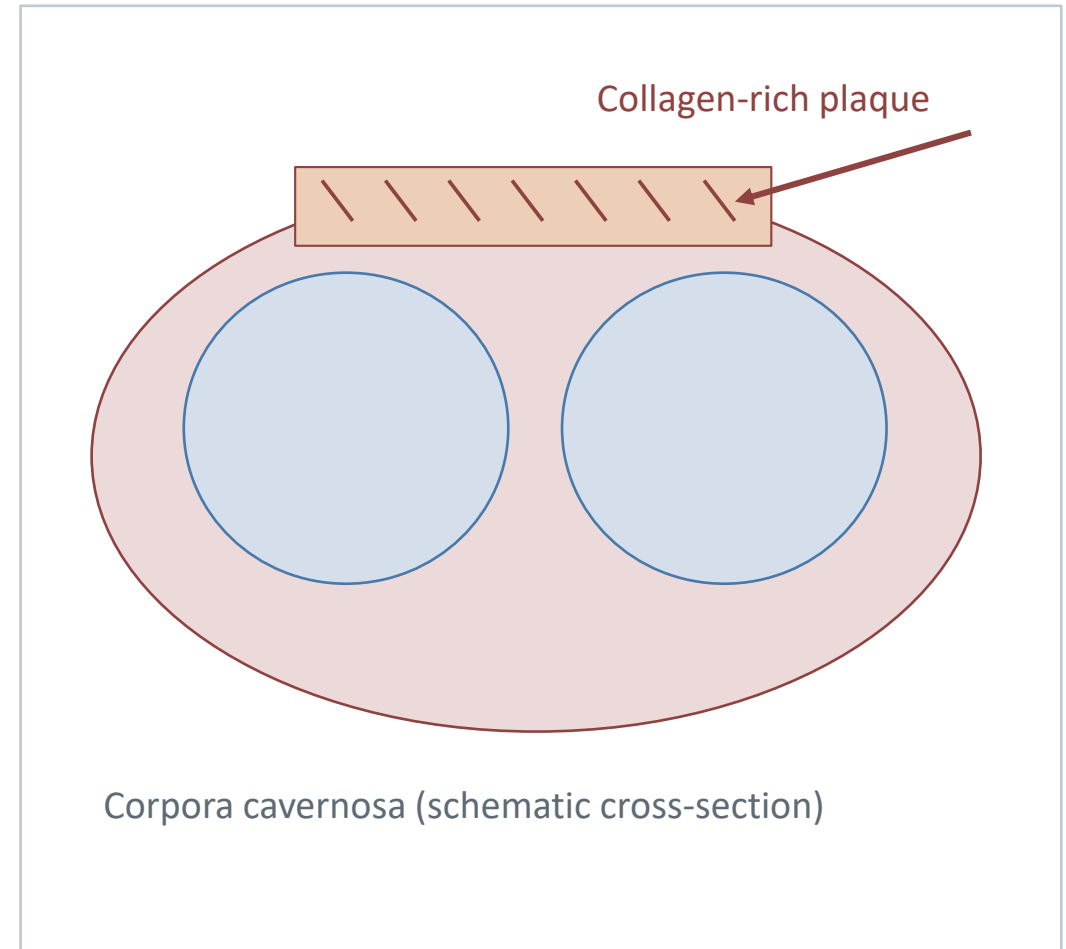
Identify the implicated connective-tissue plane

- The corpora cavernosa are erectile structures.
- Tunica albuginea surrounds the erectile tissue.
- The collagenous lesion is described near their tissue interface.

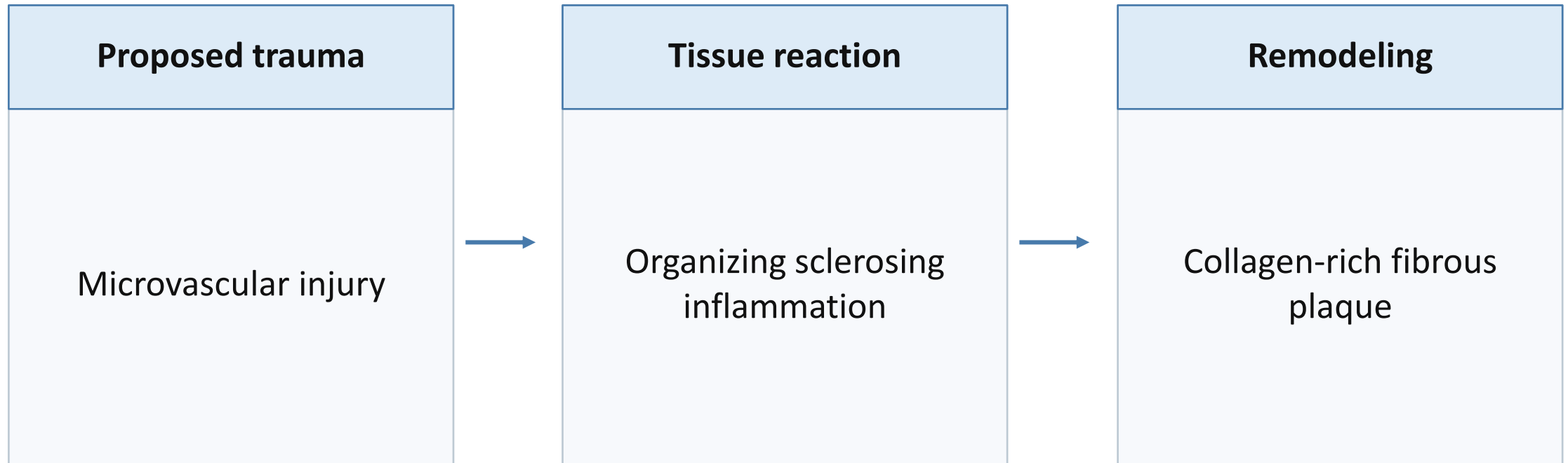


Collagen deposition is the defining substrate

- The palpable hard plaque reflects accumulated collagen.
- This process is stromal rather than an epithelial surface proliferation.
- The composition explains why the lesion is firm and relatively noncompliant.



Proposed initiating event: Microvascular trauma

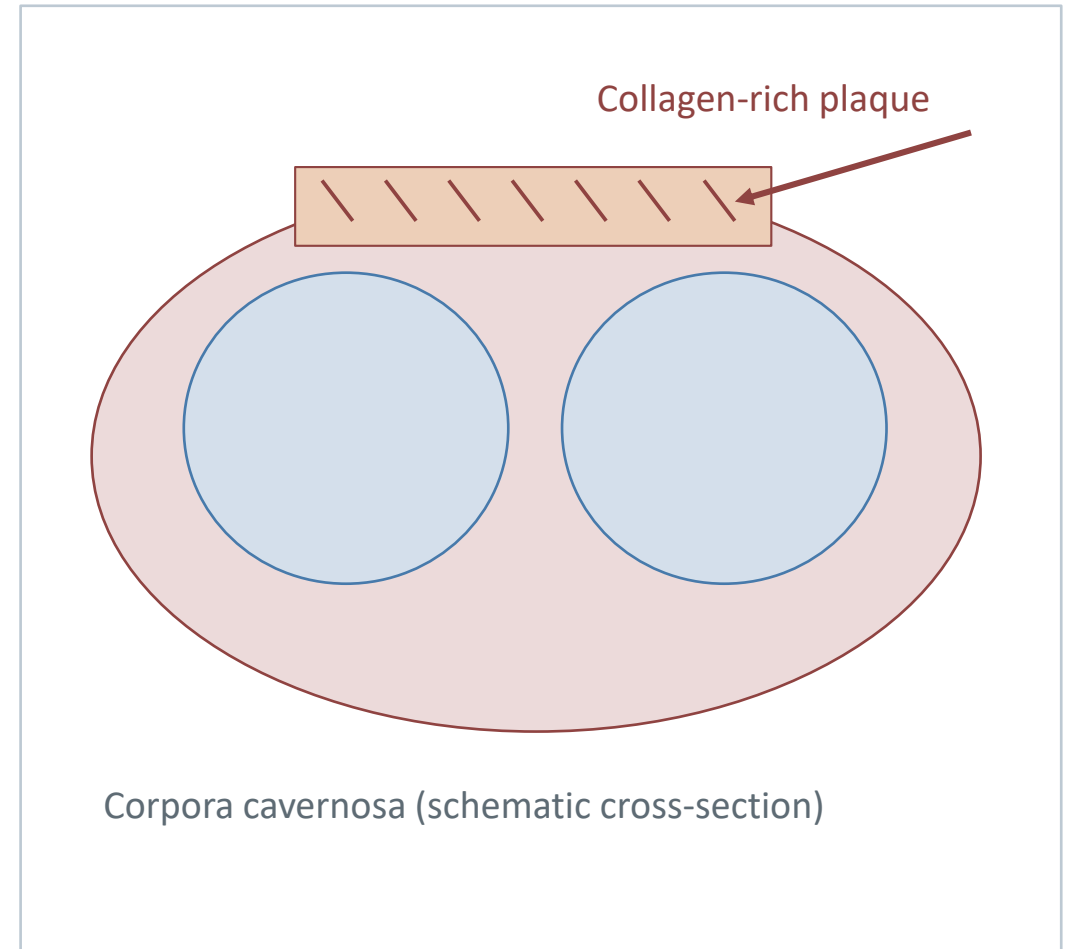


Peyronie pathogenesis is a proposed sequence

- Robbins characterizes the traumatic hypothesis as a belief, not a proven universal cause.
- Microvascular trauma is proposed to lead to subsequent tissue organization.
- A sclerosing chronic inflammatory response and collagen deposition follow.
- Avoid implying that all individual cases have documented trauma.

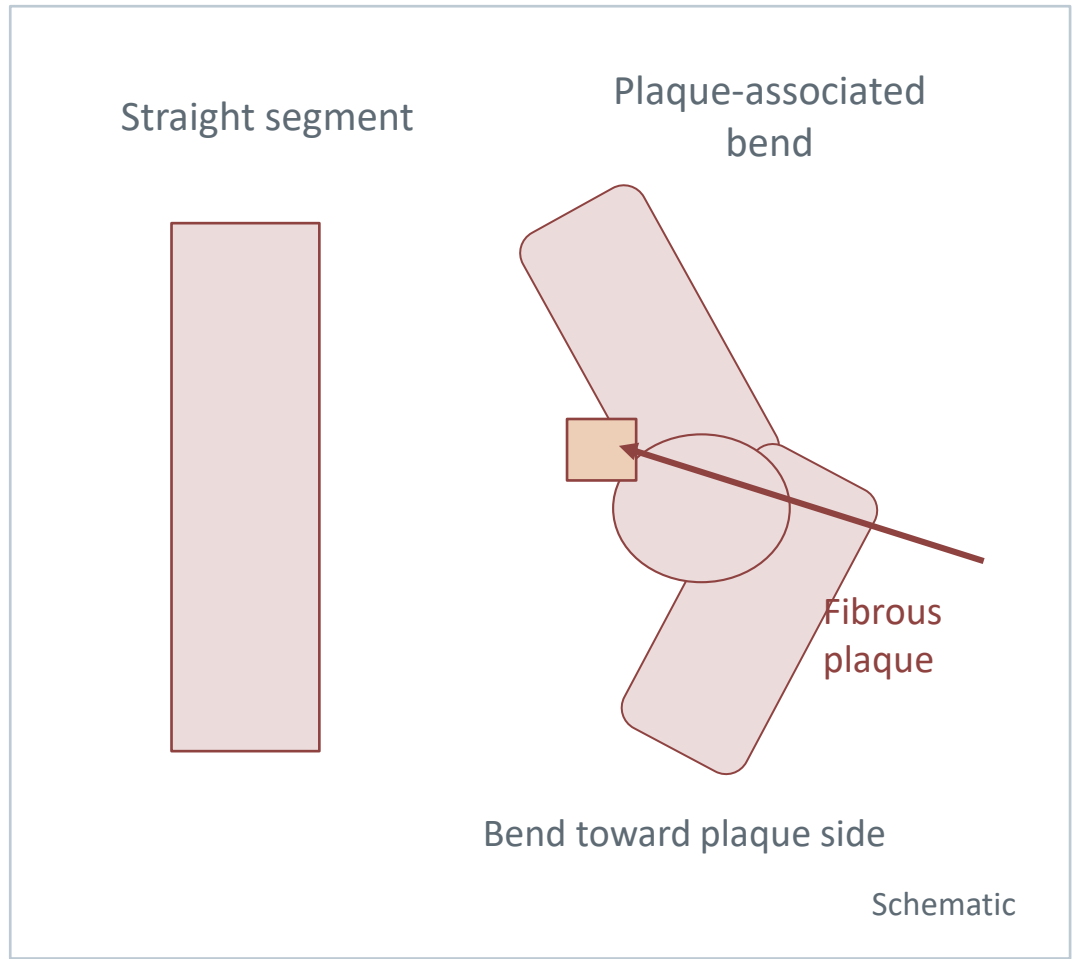
Fibrosis produces a mechanically abnormal segment

- The collagen-rich plaque is less compliant than nearby erectile tissue.
- This asymmetry provides a mechanical explanation for penile curvature.
- It is a clinical interpretation of the scar-like tissue response.



Curvature is directed toward the plaque

- Curvature develops toward the side of the lesion.
- Plaque localization therefore helps explain the observed deformity.
- The local collagenous plaque is distinct from a papillary epithelial growth.



The same scar can cause distortion and pain

Structural effect	Clinical effect
Fibrous plaque near erectile tissue	Pain during intercourse
Differential tissue compliance	Hard penile plaque
Curvature toward lesion	Disorder is not described as an epithelial viral wart

Hard plaque and papillary wart are not synonyms

Hard connective-tissue plaque

Tissue: Fibrous connective tissue

Surface: May lack papillary excrescence

Mechanism: Reactive fibrosis

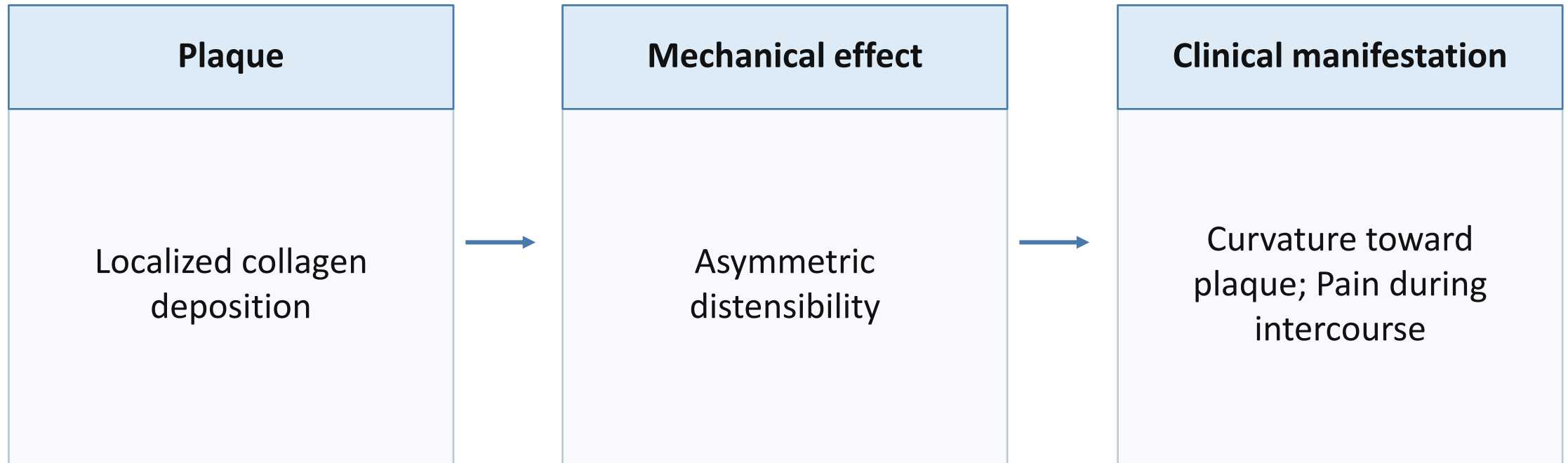
Condylomatous wart

Tissue: Squamous epithelium

Surface: Papillary excrescence

Mechanism: HPV-associated proliferation

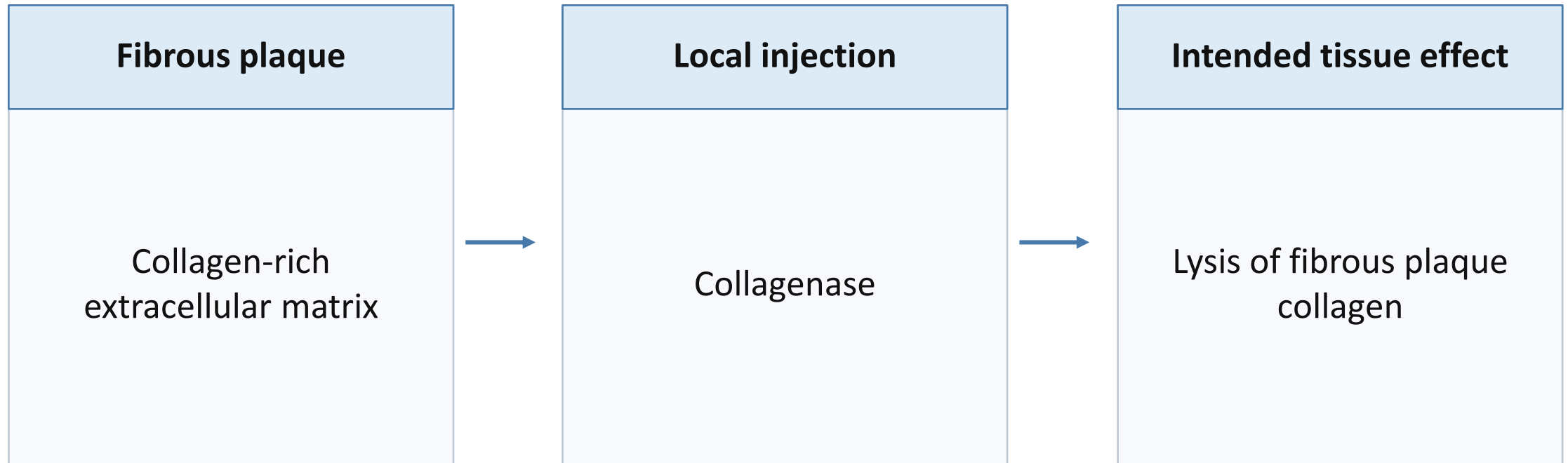
Anatomy explains the symptom pattern



Treatment mentioned by Robbins: Surgery

- Surgery is listed among treatment options.
- The source does not provide specific operative methods or comparative outcomes.
- In a pathology lecture, the teaching link is the correction of a fibrous deformity.
- Specific selection criteria would require dedicated clinical guideline sources.

Treatment mentioned by Robbins: Collagenase



Treatment follows the lesion composition

Collagenase injection

Targets collagenous extracellular matrix

Conceptually addresses plaque composition

No efficacy percentage supplied in source

Surgical approach

Addresses clinically important deformity

Listed by Robbins as an option

No procedure or success rate supplied

Interpret “reactive” with precision

- Reactive means the lesion is considered a tissue response, rather than neoplastic growth.
- A localized mass effect can be caused by fibrosis.
- A proposed injury pathway is not proof of a specific inciting event.
- Distinguish underlying mechanism from observable plaque morphology.

Clinicopathologic exercise: Penile curvature

A patient presents with a hard penile plaque and curvature toward the affected side. Pain is reported during intercourse. No papillary wart is described.

Which tissue process explains the plaque, curvature, and pain?

Case reasoning: Localized collagen-rich plaque

- Favored disorder: Peyronie disease.
- Collagen deposition between the corpora cavernosa and tunica albuginea explains firmness.
- Plaque-related mechanical asymmetry explains curvature toward the lesion.
- Pain during intercourse as a clinical effect.

Direct comparison of the two conditions

Dimension	Condyloma acuminatum	Peyronie disease
Process	Low-risk HPV-related wart	Reactive collagenous fibrosis
Compartment	Squamous epithelium	Penile connective tissue
Appearance	Papillary exophytic lesion	Hard localized plaque
Microscopic key	Acanthosis; koilocytosis	Collagen deposition
Clinical clue	Genital surface wart	Curvature; painful intercourse

Different pathways produce different morphology

HPV infection



Epithelial proliferation



Papillary condyloma

**Proposed microvascular
trauma**



Organizing sclerosis



Fibrous penile plaque

**High-risk HPV /
inflammation**

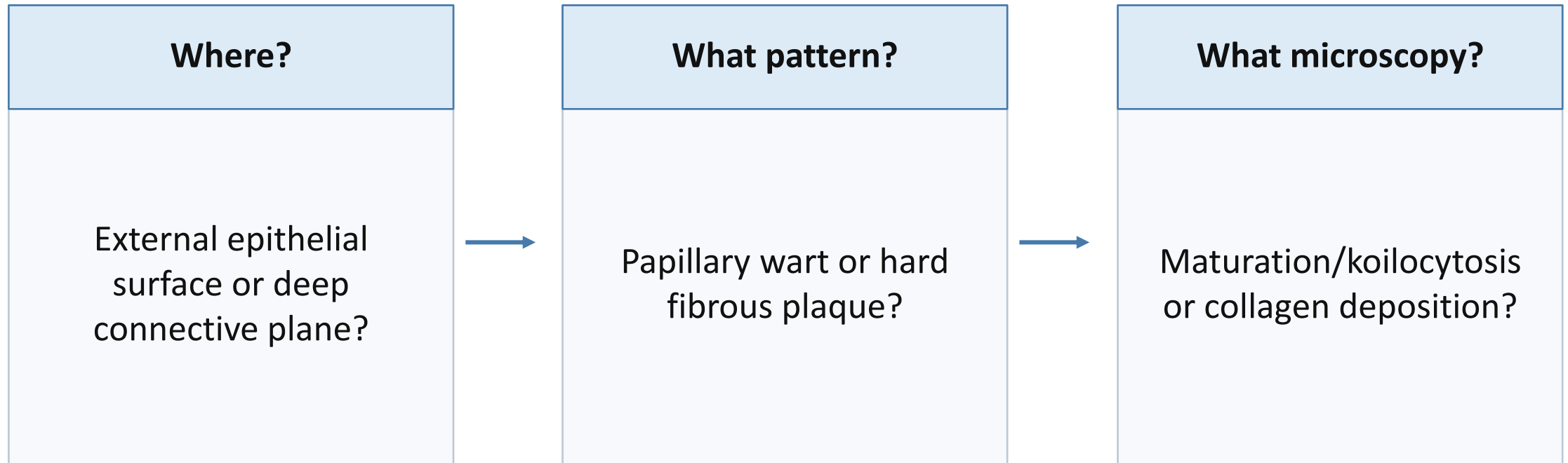


Squamous dysplasia or
carcinoma



**Different diagnostic
category**

Three key questions for a new penile lesion



Diagnostic pitfall: Relying on gross wart-like appearance

- Condyloma is benign, but some carcinomas also form papillary or verruciform masses.
- Use cytologic maturation and the tissue invasion pattern to distinguish categories.
- The neighboring Robbins malignant-tumor discussion is differential context only.
- Do not label an epithelial lesion as low risk solely from a warty gross silhouette.

Diagnostic pitfall: Calling a fibrous plaque neoplastic

- A palpable mass need not be a tumor.
- Peyronie disease results from collagenous tissue remodeling.
- Its anatomic plane and curvature differ from a papillary epithelial wart.
- Distinguish evidence of fibrosis from evidence of epithelial atypia.

Application: Compare two clinical vignettes

Lesion A: Several small pedunculated red papillae at the coronal sulcus. Lesion B: An indurated plaque associated with curvature toward the involved side.

For each, identify the likely disorder, involved tissue compartment, and defining morphology.

Vignette answer: Use morphology to assign mechanism

- Lesion A: Condyloma acuminatum; Epithelial papillary growth, commonly HPV 6/11-related.
- Lesion B: Peyronie disease; Reactive collagen-rich connective-tissue plaque.
- A histologic diagnosis should integrate growth pattern, maturation, and anatomic compartment.
- Surface papillomatosis and deep fibrosis should not be conflated.

High-yield morphologic signatures

Observation	Interpretation	Important qualification
Koilocytosis	Characteristic HPV effect	Correlate with architecture
Papillary stromal cores	Condylomatous architecture	Not sufficient alone for benignity
Orderly maturation	Benign wart pattern	Assess full specimen context
Collagenous hard plaque	Reactive Peyronie process	Anatomic site supports diagnosis

Final synthesis

Condyloma acuminatum

HPV 6/11 → benign genital wart

Papillary projections + acanthosis

Preserved maturation + koilocytosis

Peyronie disease

Reactive collagen deposition

Hard plaques near tunica/corpora

Curvature toward plaque; Intercourse pain

Textbook reference

- Robbins, Cotran & Kumar: Pathologic Basis of Disease. 11th edition (2026).
- Chapter 21: The Lower Urinary Tract and Male Genital System — penile benign lesions.
- For the main comparison, read the adjacent discussion of penile intraepithelial neoplasia and invasive carcinoma.
- All pathology drawings shown here are schematics; interpretation of actual microscopy requires genuine tissue sections.