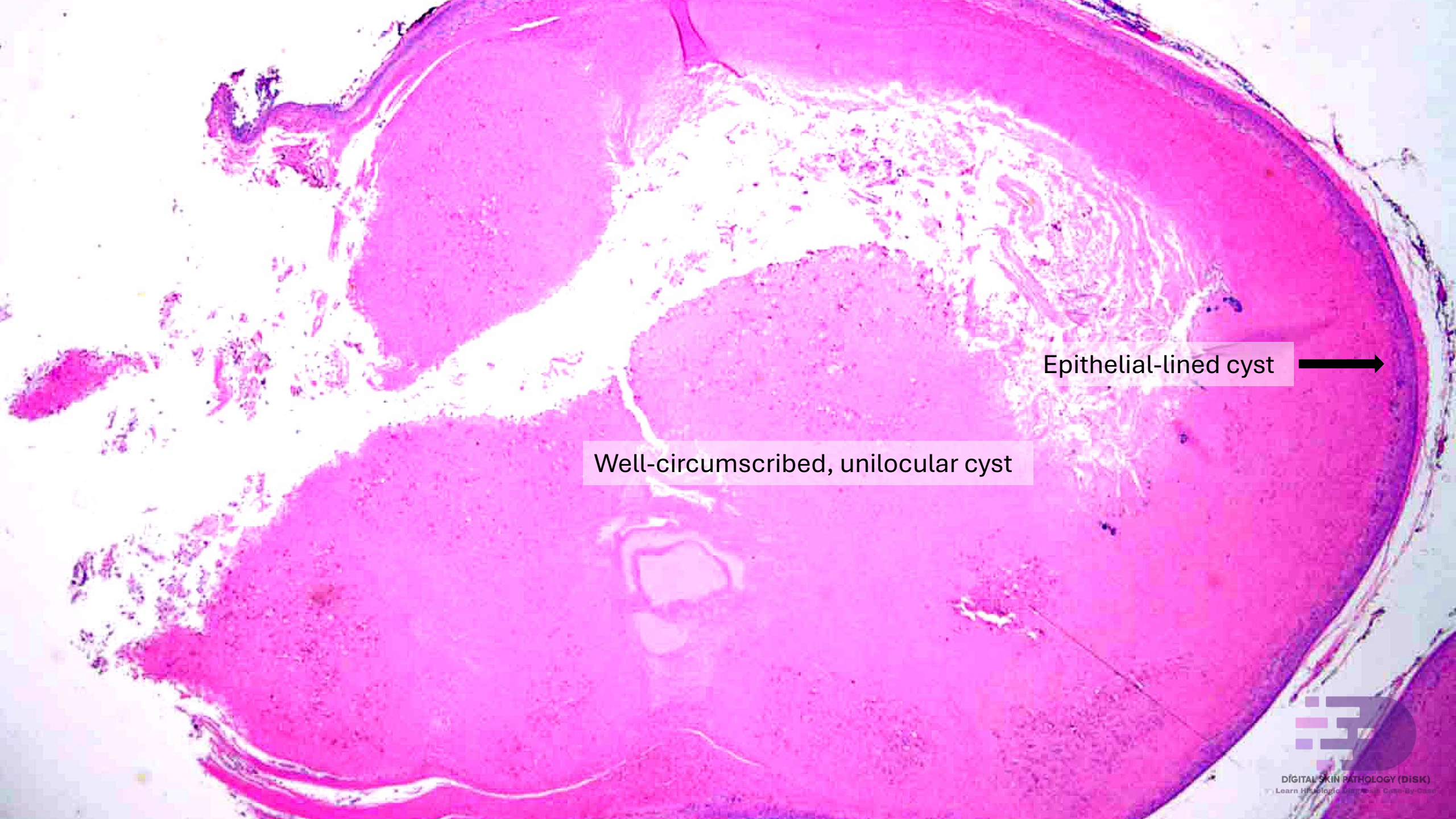


CASES OF CUTANEOUS CYSTS AND RELATED CONDITIONS PART 1

Soheil S. Dadras MD-PhD

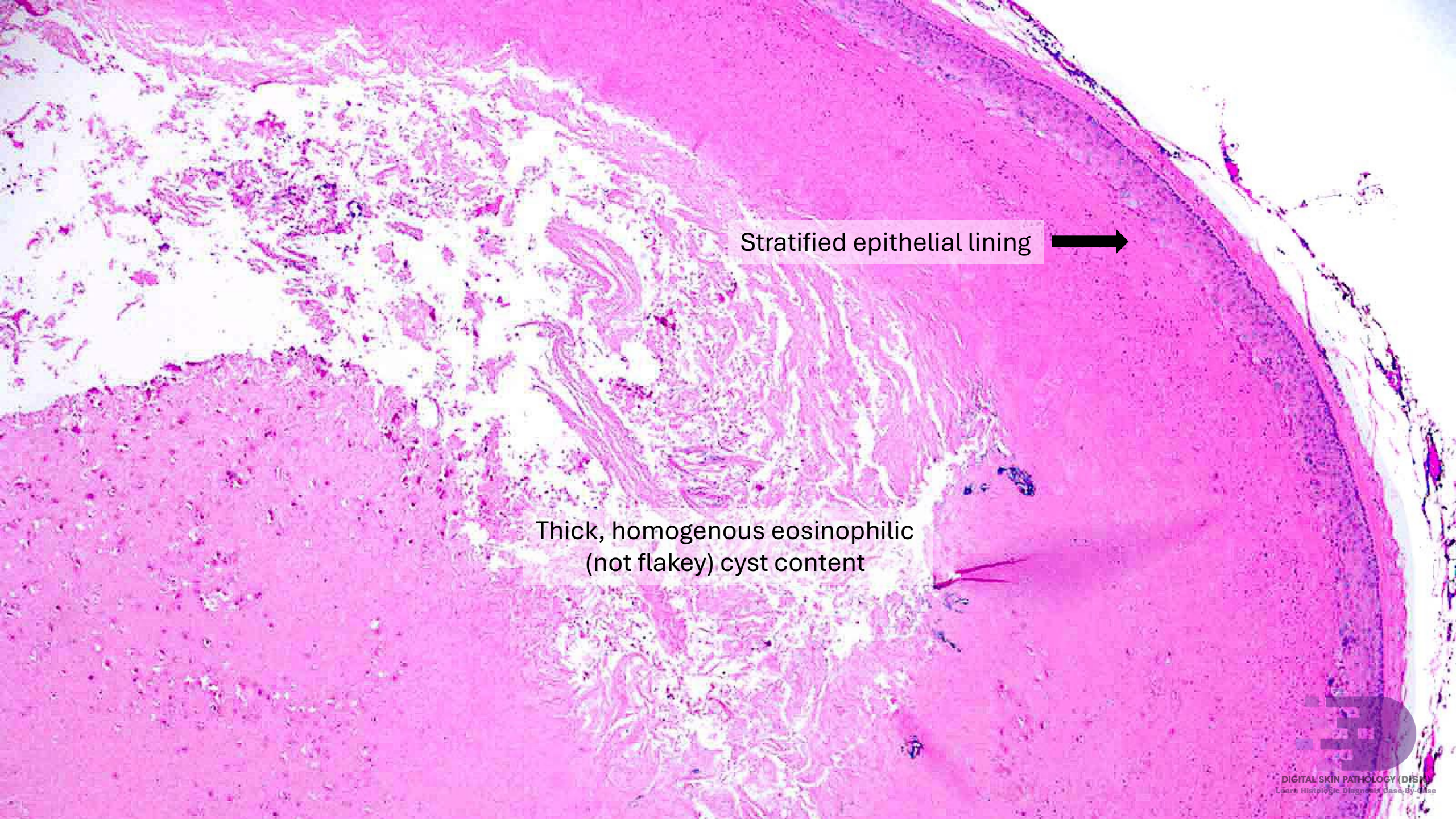


Epithelial-lined cyst



Well-circumscribed, unilocular cyst





Stratified epithelial lining



Thick, homogenous eosinophilic
(not flakey) cyst content





Palisading of nuclei at basal layer

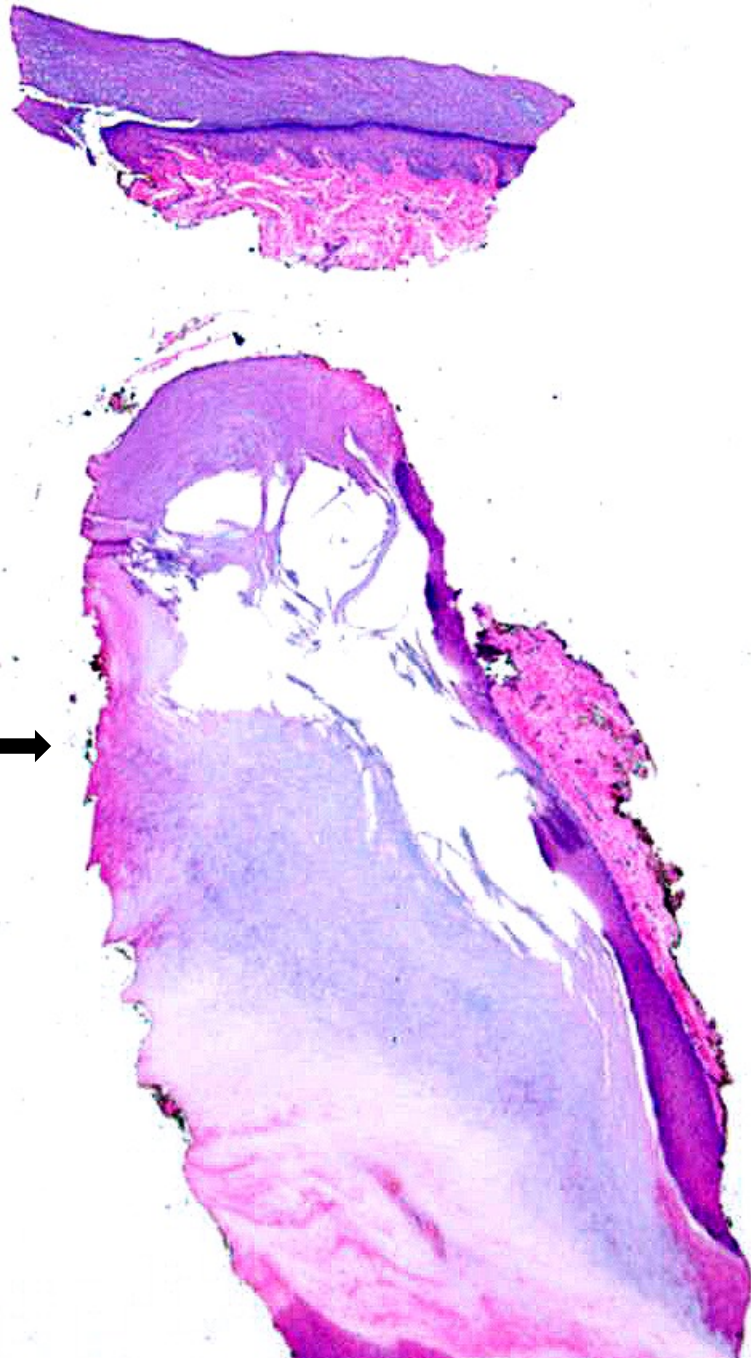


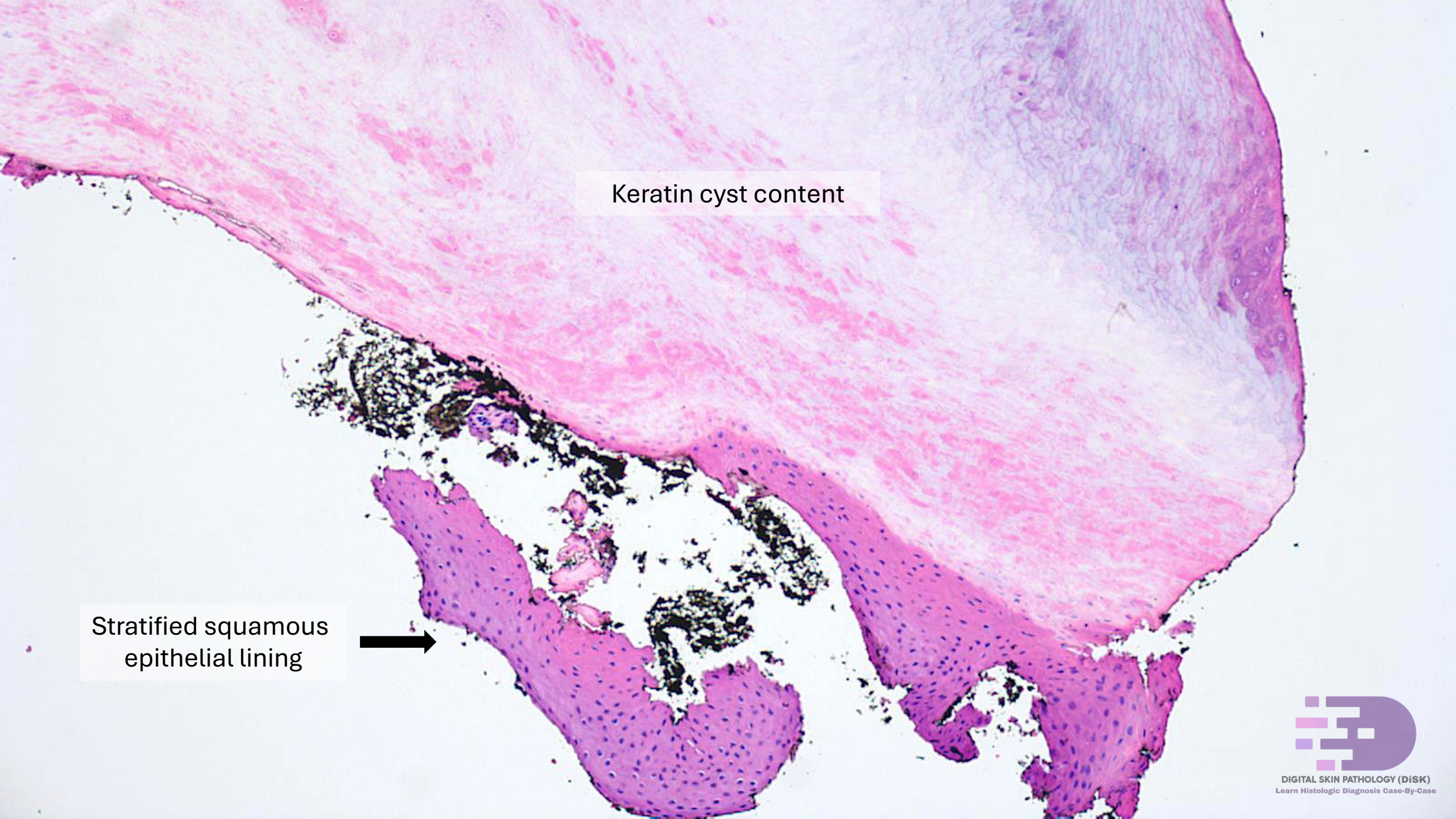
Absent granular cell layer

Cyst lining: Stratified squamous layer
Poorly defined intercellular bridges

- **Clinical Information:** 43 year-old female with scalp lesion (S21-338).
- **DIAGNOSIS:**
Skin, Scalp, Excision:
 - Pilar (trichilemmal) cyst, extending to tissue edges and base.
- **Teaching Points:**
 - Straight-forward histopathology
 - Look for complex epithelial growth (if present submit the entire specimen for histologic examination)
- **Minimal Diagnostic Criteria:**
 - Compact eosinophilic cyst content
 - Stratified squamous lining (not easily seen intercellular bridges)
 - Absent granular cell layer
 - Palisading of basal layer
- **Differential Diagnosis:**
 - Hybrid cyst (both epidermal and pilar differentiation)
 - Proliferating pilar tumor/cyst
 - Epidermal cyst

Subungual epithelial-lined cyst

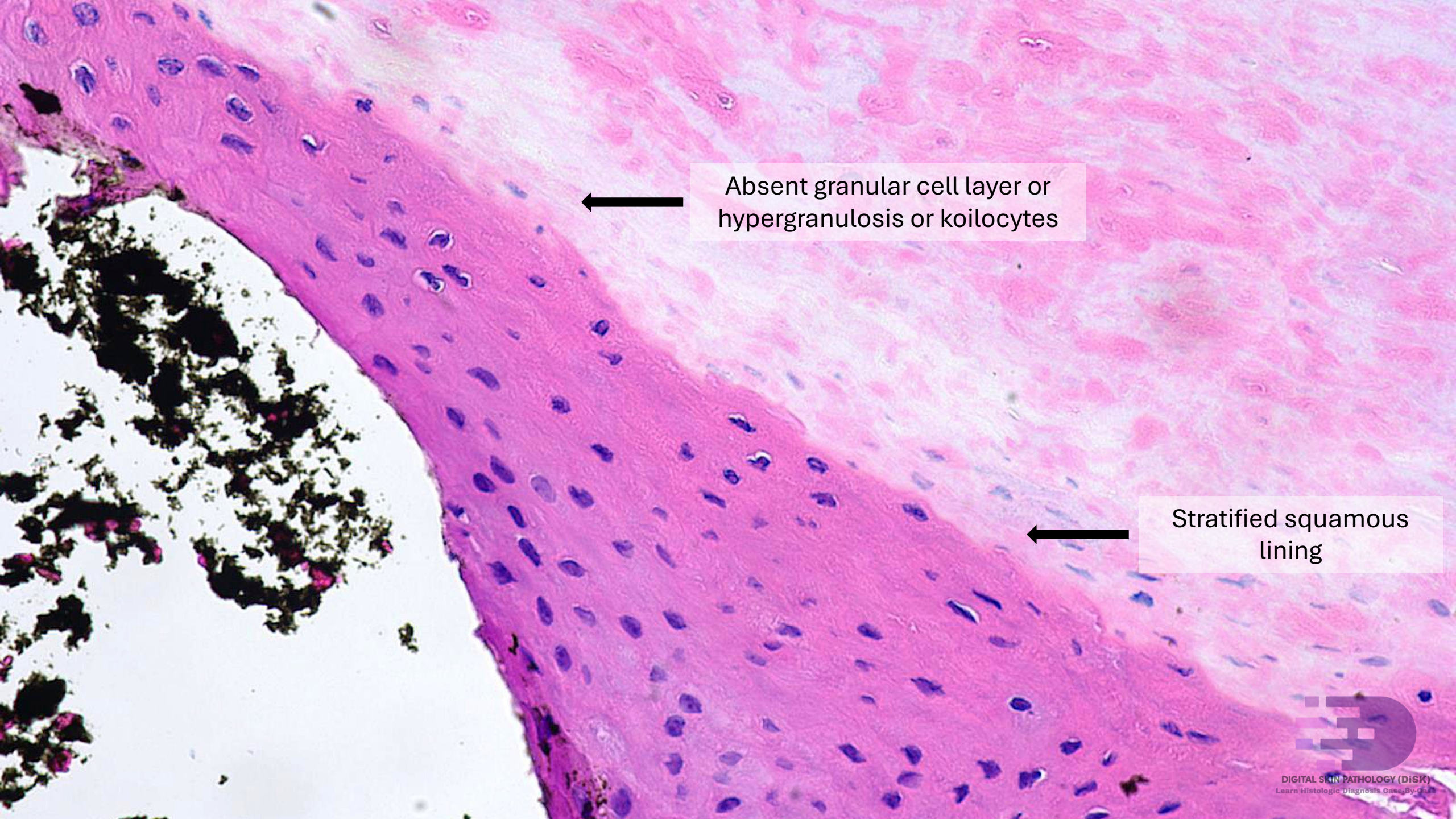




Keratin cyst content

Stratified squamous
epithelial lining





Absent granular cell layer or hypergranulosis or koilocytes

Stratified squamous lining



- **Clinical Information:** 59 year-old female, Right 3rd toenail bed, r/o malignancy (23-9635)

- **DIAGNOSIS:**

Toenail bed, Right 3rd, Punch Biopsy:

- Subungual onycholemmal cyst, extending to tissue edges and base.

Reference: Busquets, J. et al. Subungual Onycholemmal Cyst of the Toenail Mimicking Subungual Melanoma. *Cutis*. 2016 August;98(2):107-110

- **Teaching Points:**

- Resembles hair-bearing cutaneous epidermal cyst

- **Minimal Diagnostic Criteria:**

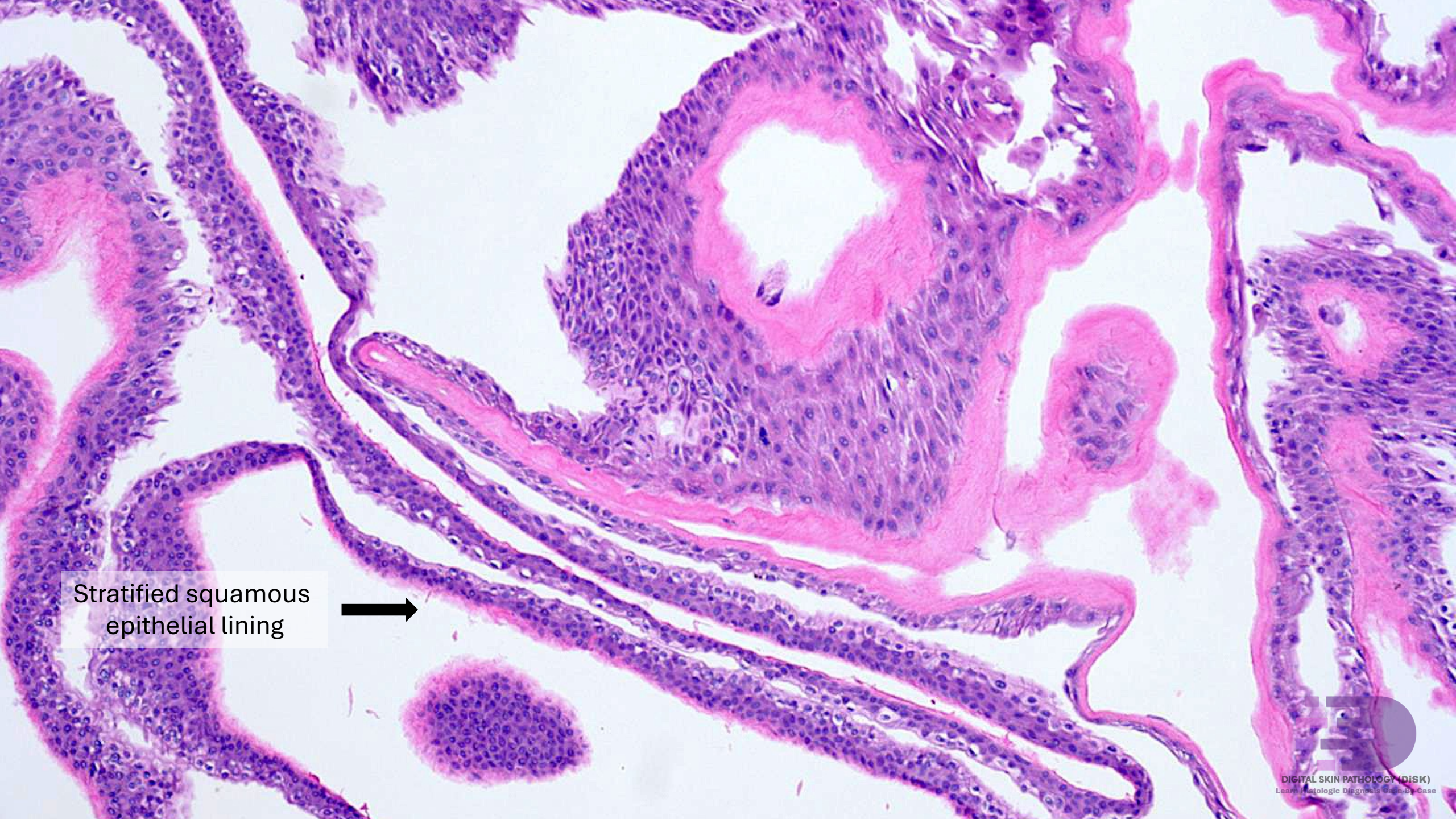
- Benign invagination of nailbed epithelium
- Stratified squamous lining
- No granular cell layer
- No hypergranulosis or alternating orthokeratosis vs. parakeratosis

- **Differential Diagnosis:**

- Epidermal cyst
- Subungual wart
- Cystic squamous cell carcinoma

Large cyst composed of thin layer
of non-keratinizing squamous cells





Stratified squamous
epithelial lining





Absent granular cell layer

Stratified cuboidal, squamous lining

Intercellular bridges

- **Clinical Information:** 70 year-old female, nasal bulbar conjunctival cystic lesion; H11.442 (22-8680)

- **DIAGNOSIS:**

Conjunctiva, Left Eye Nasal Bulbar, Excision:

- Conjunctival cyst, extending to tissue edges and base.

Reference: Thatte S, et al. Clinical study of histologically proven conjunctival cysts. Saudi J Ophthalmol. 2015 Apr-Jun;29(2):109-15. PMID: 25892928; PMCID: PMC4398796.

- **Teaching Points:**

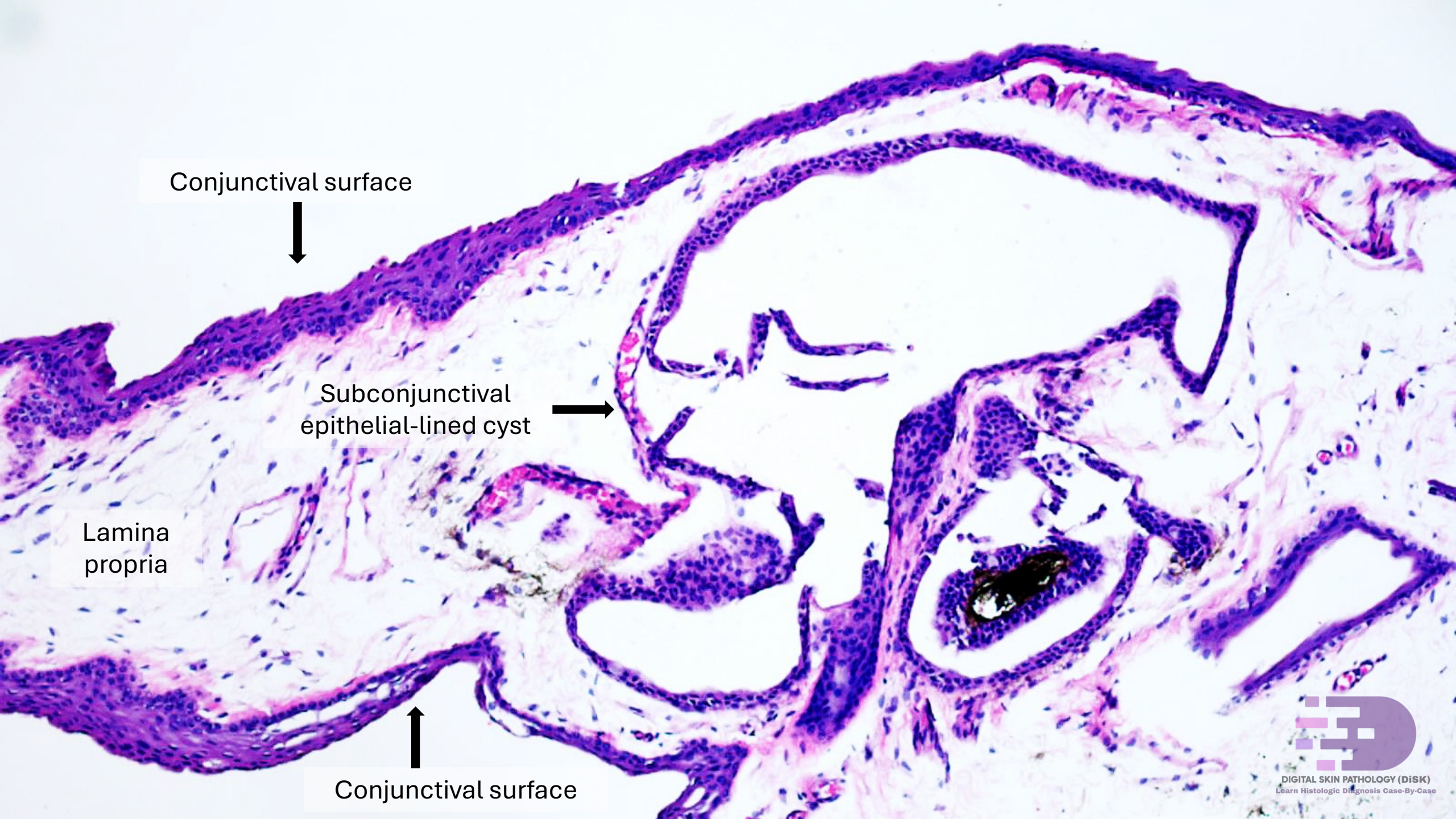
- Usually unilocular (simple) cystic space (may appear multiloculated, if a large expansile cyst)

- **Minimal Diagnostic Criteria:**

- Epithelial-lined cyst is composed of thin layer of cuboidal, squamous cells
- No stratum corneum or granular cell layer
- May see goblet cells in the lining
- Intercellular bridges confirm squamous lineage

- **Differential Diagnosis:**

- Pterygium
- Epidermal cyst
- Cystic squamous cell carcinoma



Conjunctival surface



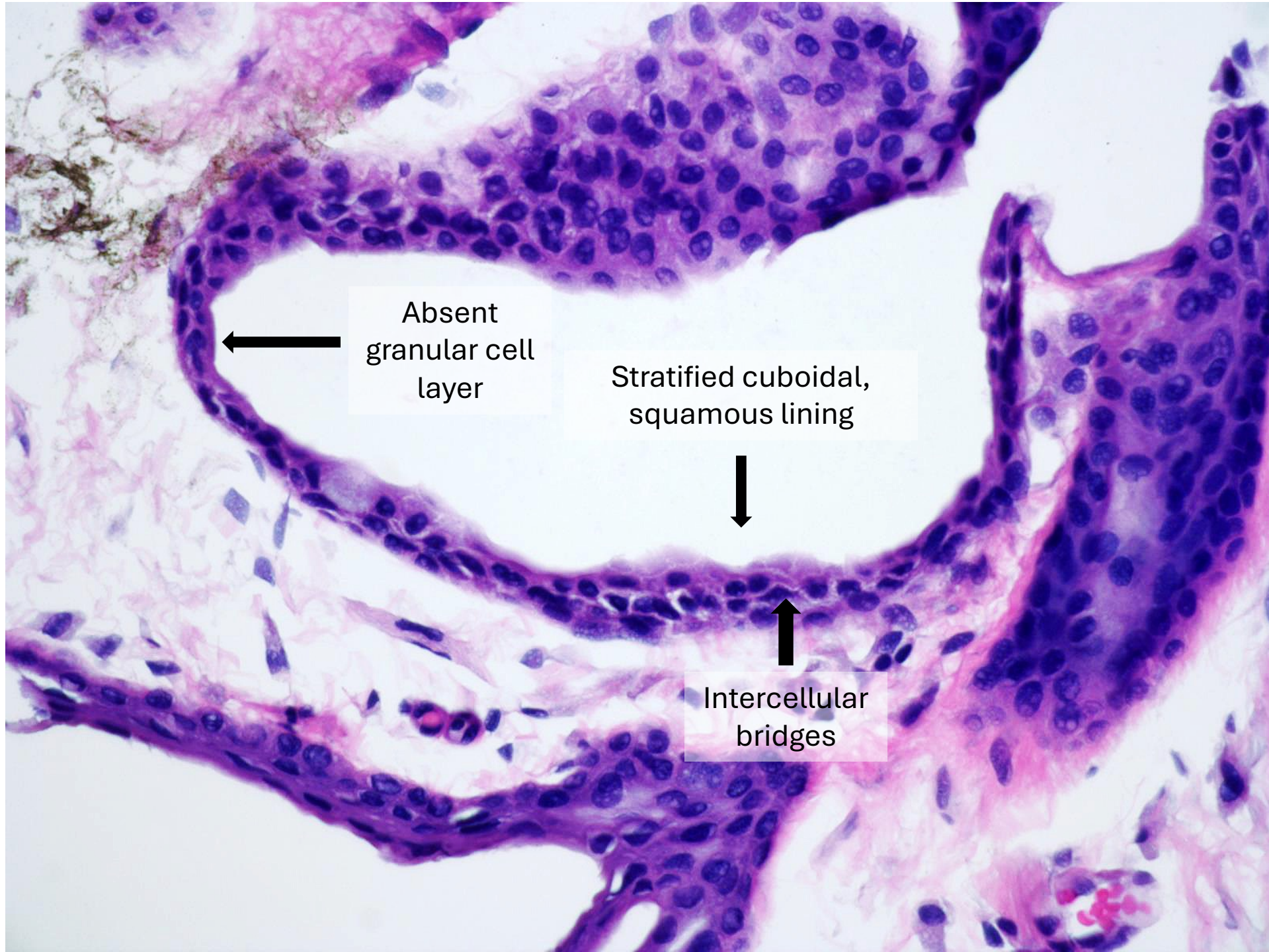
Subconjunctival
epithelial-lined cyst



Lamina
propria

Conjunctival surface

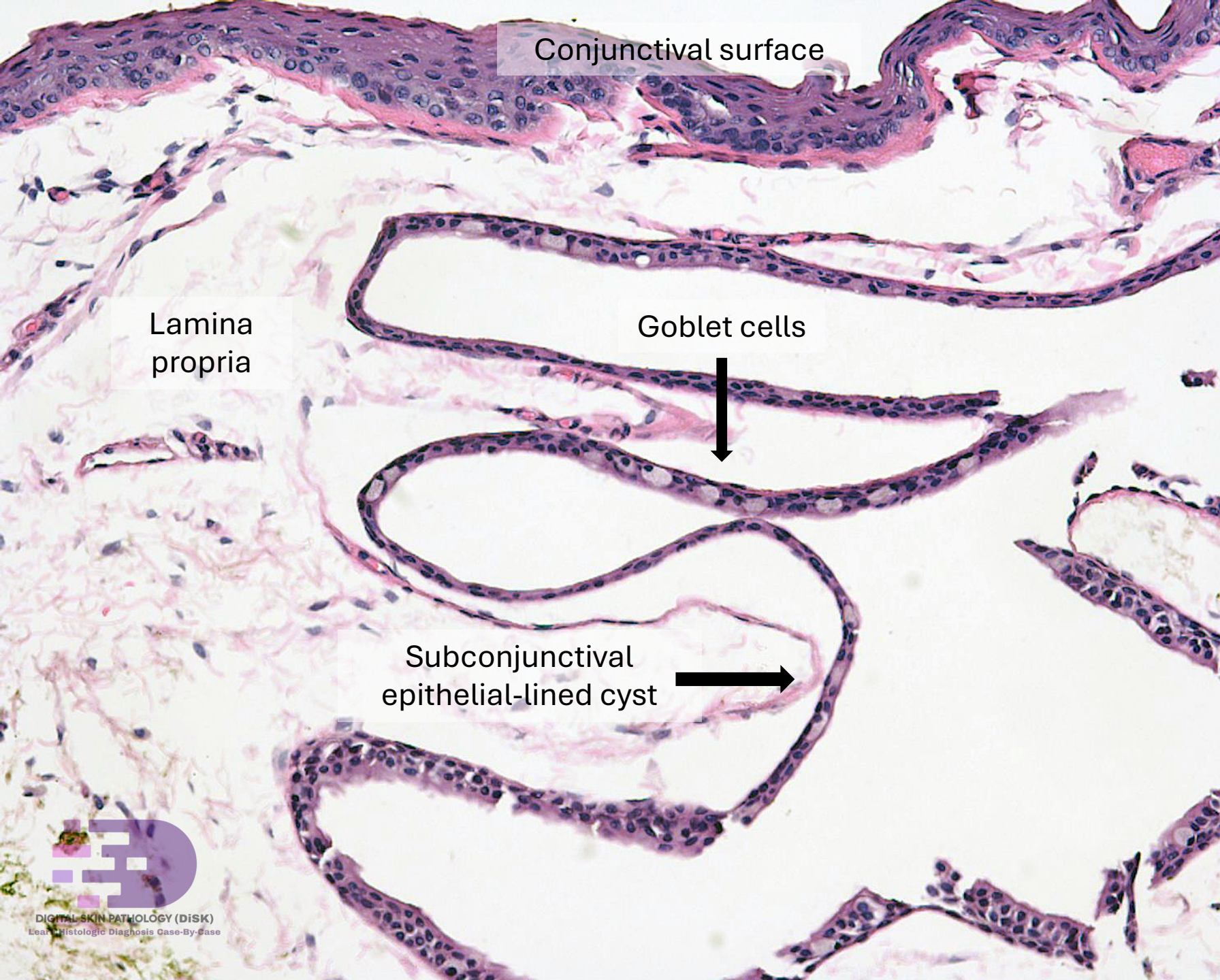




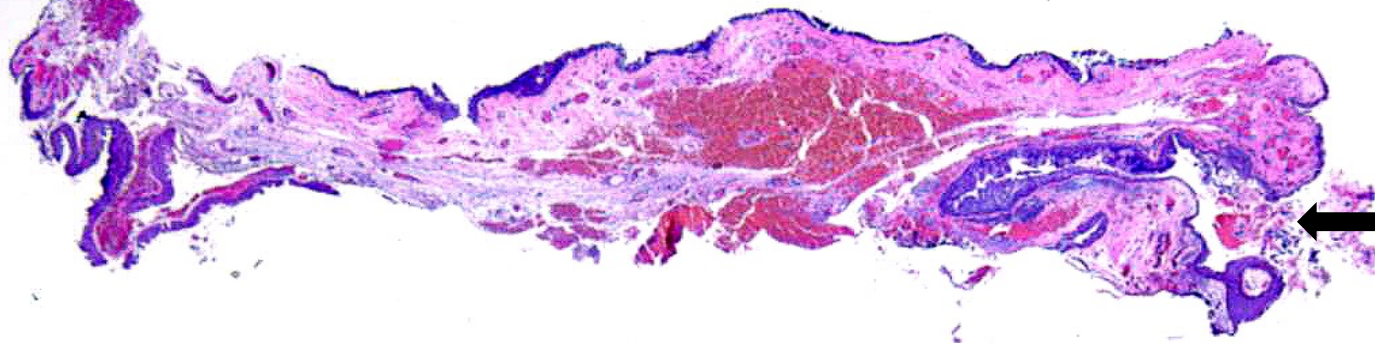
Absent granular cell layer

Stratified cuboidal, squamous lining

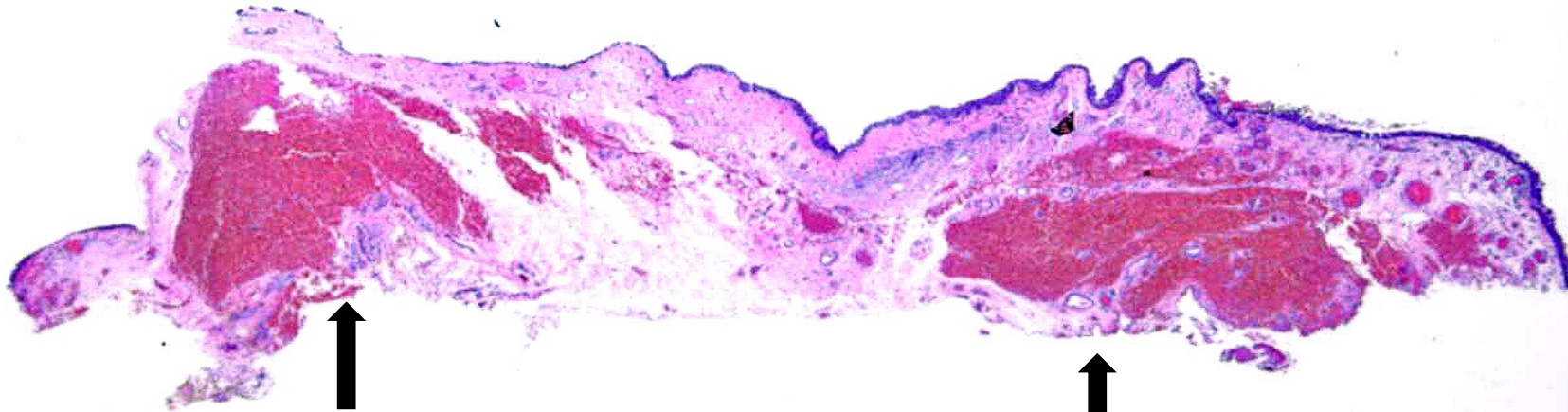
Intercellular bridges



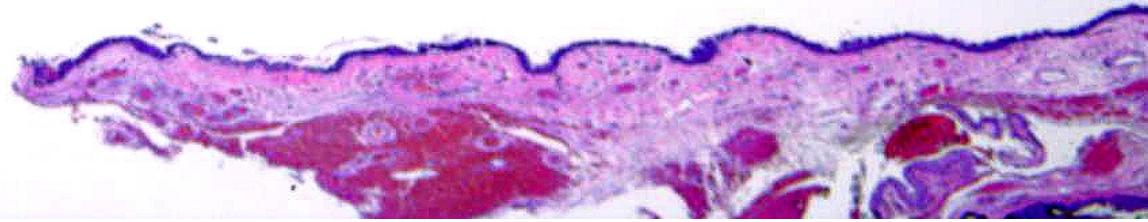
- **Clinical Information:** 66 year-old female, OD conjunctival lesion of temporal right eye (S22-21354)
- **DIAGNOSIS:**
Conjunctiva, Right Eye, Excision:
 - Conjunctival cyst, excised in planes of sections examined.
- **Teaching Points:**
 - Usually unilocular (simple) cystic space (may appear multiloculated, if a large expansile cyst)
- **Minimal Diagnostic Criteria:**
 - Epithelial-lined cyst is composed of thin layer of cuboidal, squamous cells
 - No stratum corneum or granular cell layer
 - May see goblet cells in the lining
 - Intercellular bridges confirm squamous lineage
- **Differential Diagnosis:**
 - Pterygium
 - Epidermal cyst
 - Cystic squamous cell carcinoma

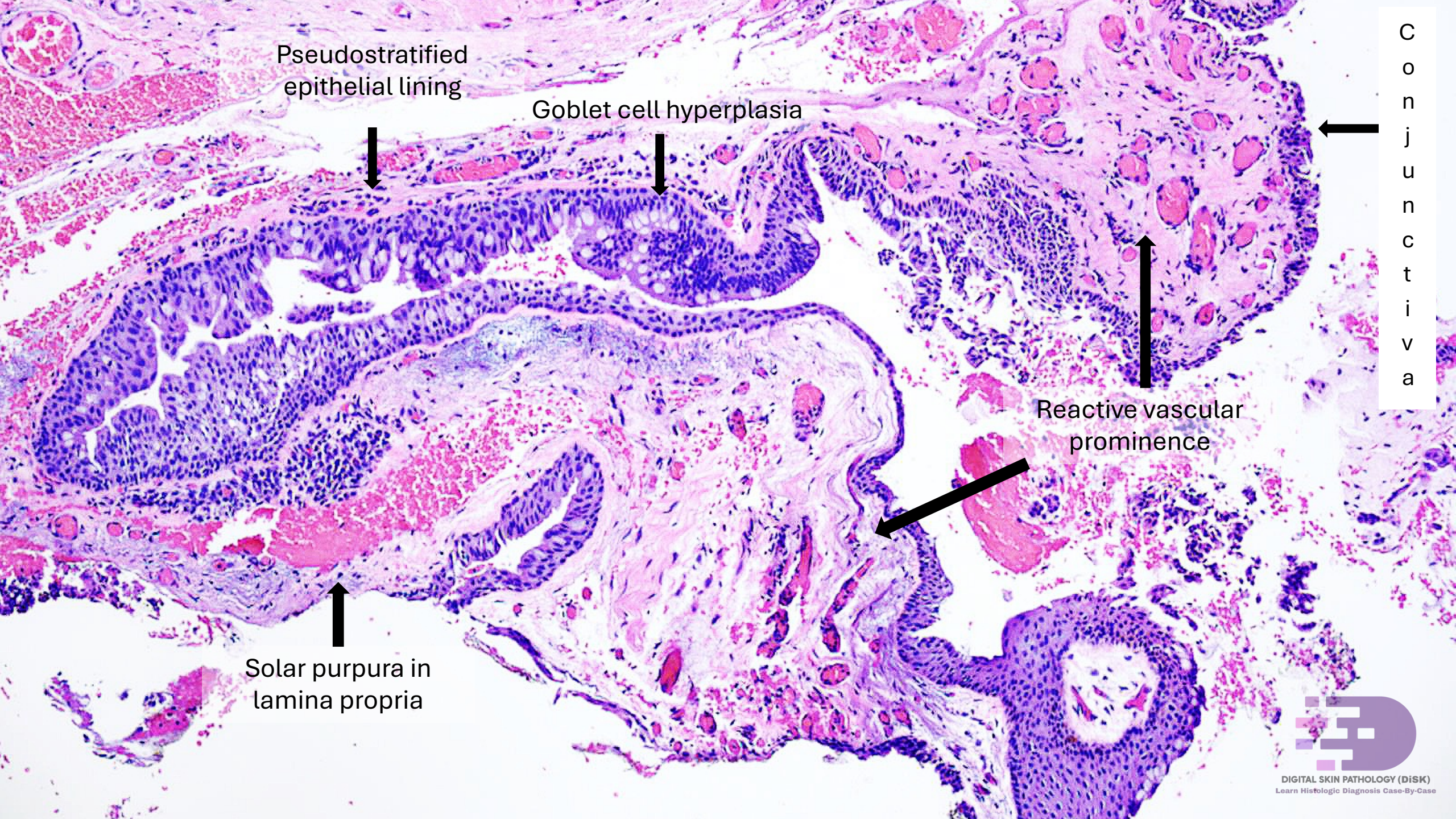


Subconjunctival
epithelial-lined cyst



Solar purpura in lamina propria





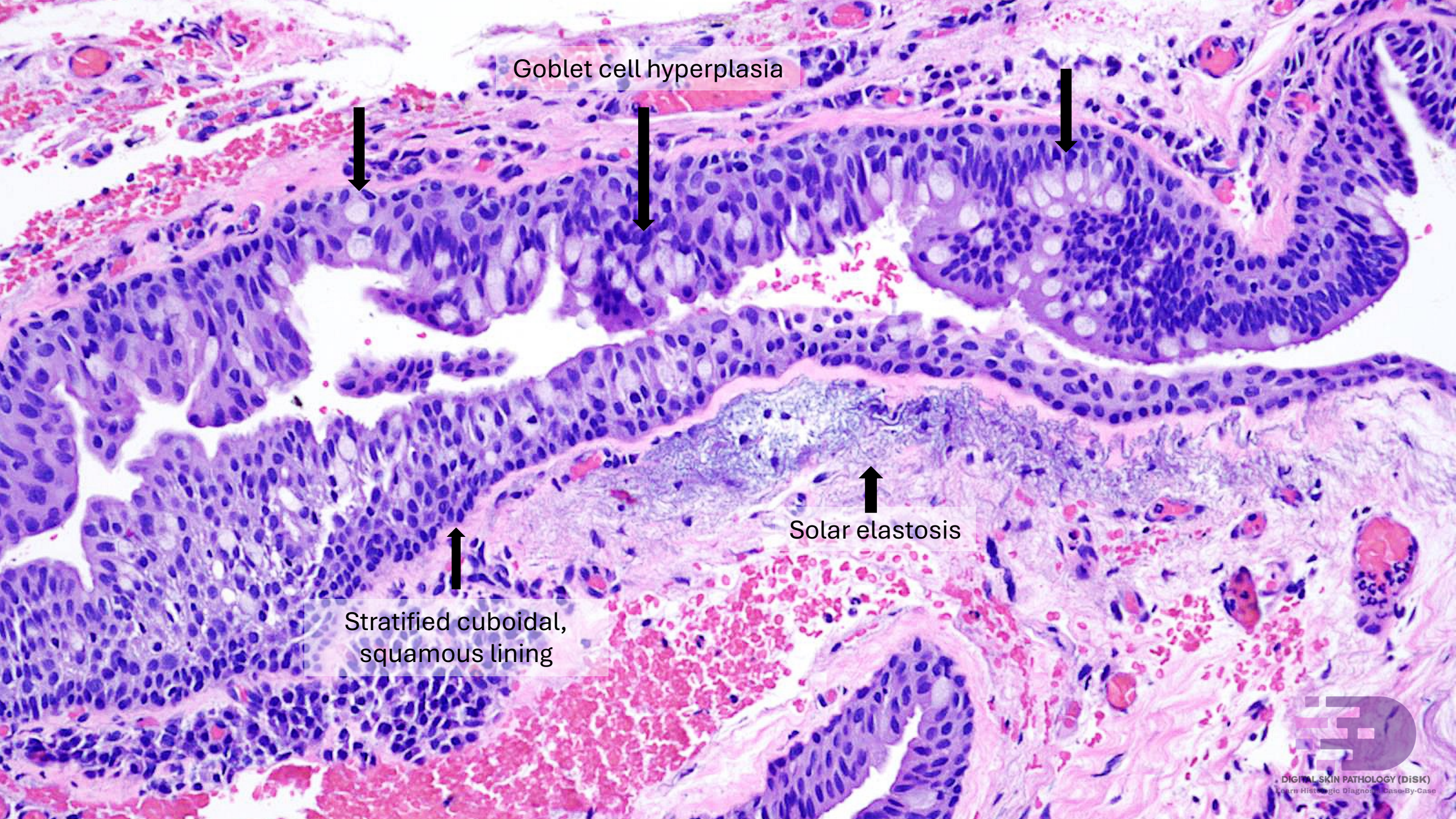
Pseudostratified
epithelial lining

Goblet cell hyperplasia

C
o
n
j
u
n
c
t
i
v
a

Reactive vascular
prominence

Solar purpura in
lamina propria



Goblet cell hyperplasia



Solar elastosis



Stratified cuboidal,
squamous lining



- **Clinical Information:** 87 year-old male, pterygium, r/o atypia (S21-48067)

- **DIAGNOSIS:**

Conjunctiva, Right Eye, Excision:

- Pterygium with cystic change, extending to tissue edges and base.

Reference: Thatte S, et al. Clinical study of histologically proven conjunctival cysts. Saudi J Ophthalmol. 2015 Apr-Jun;29(2):109-15. PMID: 25892928; PMCID: PMC4398796.

- **Teaching Points:**

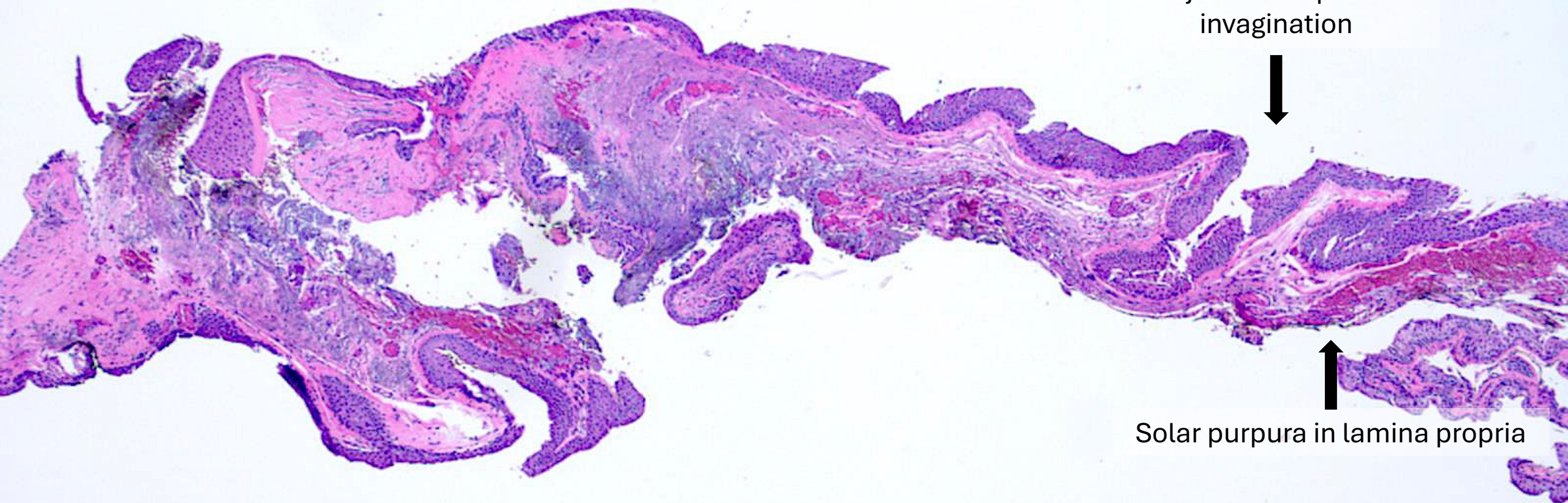
- Some cases of pterygium (~38%) may exhibit cystic change

- **Minimal Diagnostic Criteria:**

- Solar purpura in lamina propria
- Solar elastosis in lamina propria
- Reactive vascular prominence with telangiectasia
- Goblet cell hyperplasia

- **Differential Diagnosis:**

- Conjunctival cyst
- Goblet cell adenocarcinoma

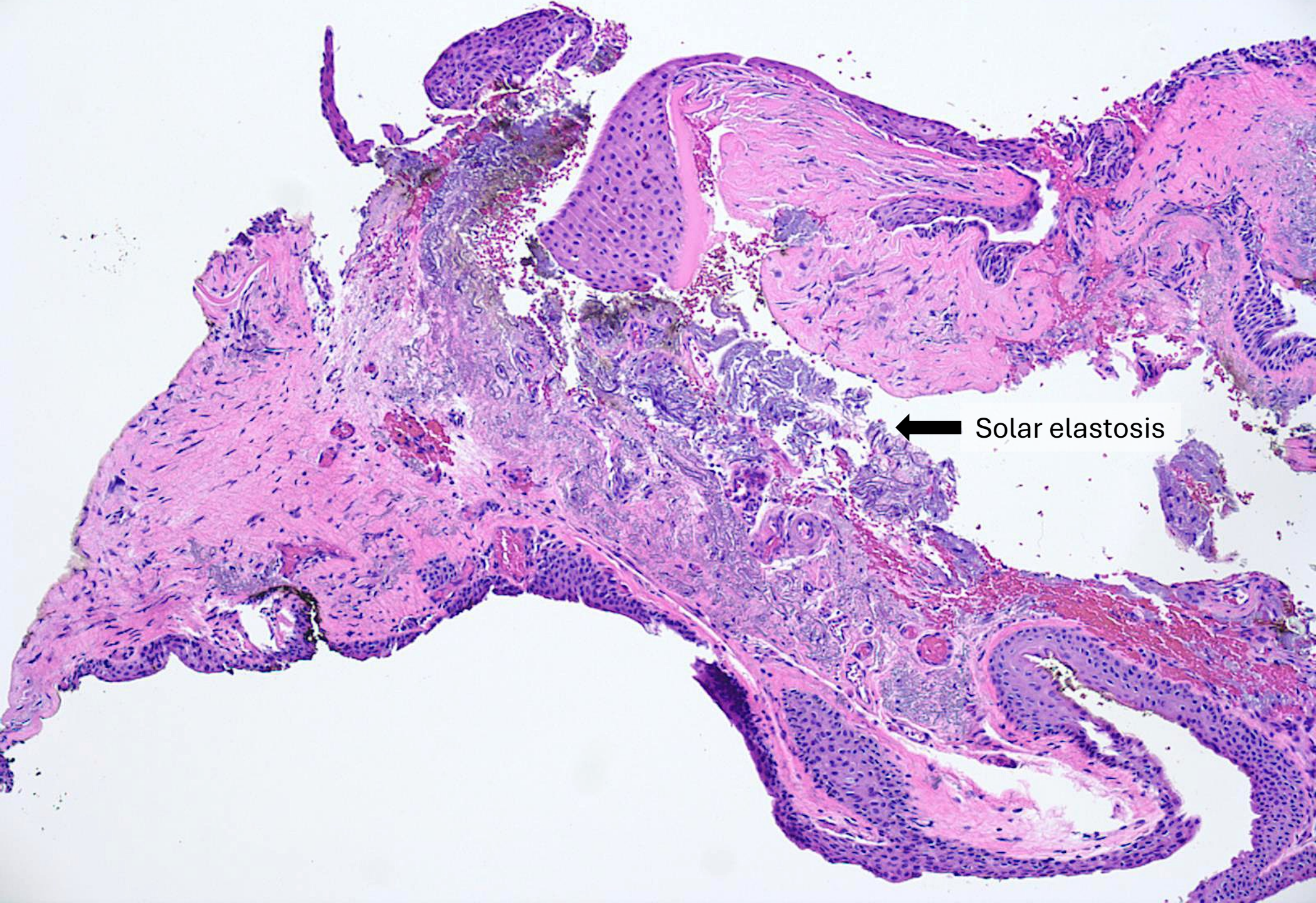


Conjunctival epithelial
invagination



Solar purpura in lamina propria





← Solar elastosis

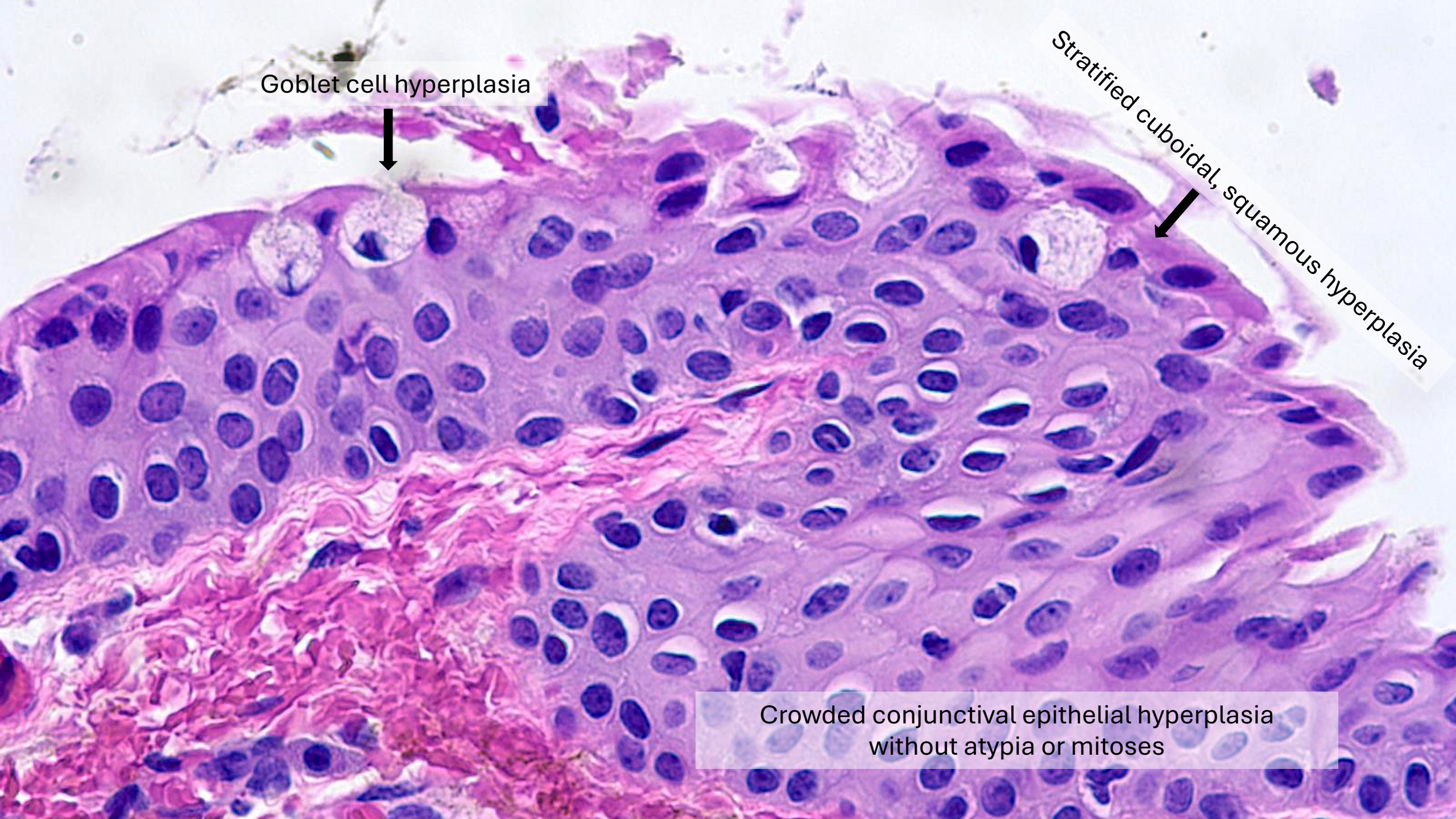
Goblet cell hyperplasia



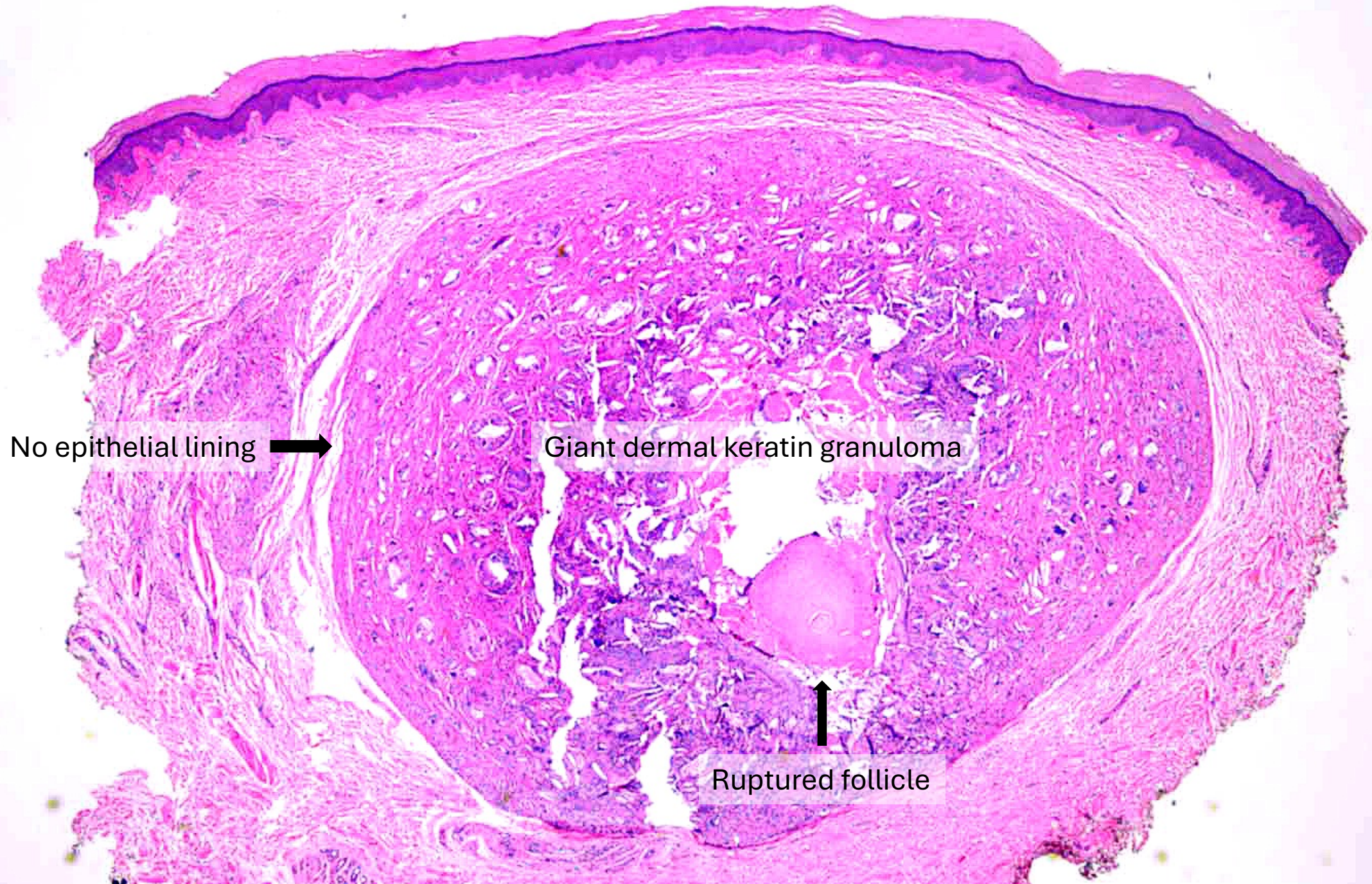
Stratified cuboidal, squamous hyperplasia



Crowded conjunctival epithelial hyperplasia
without atypia or mitoses



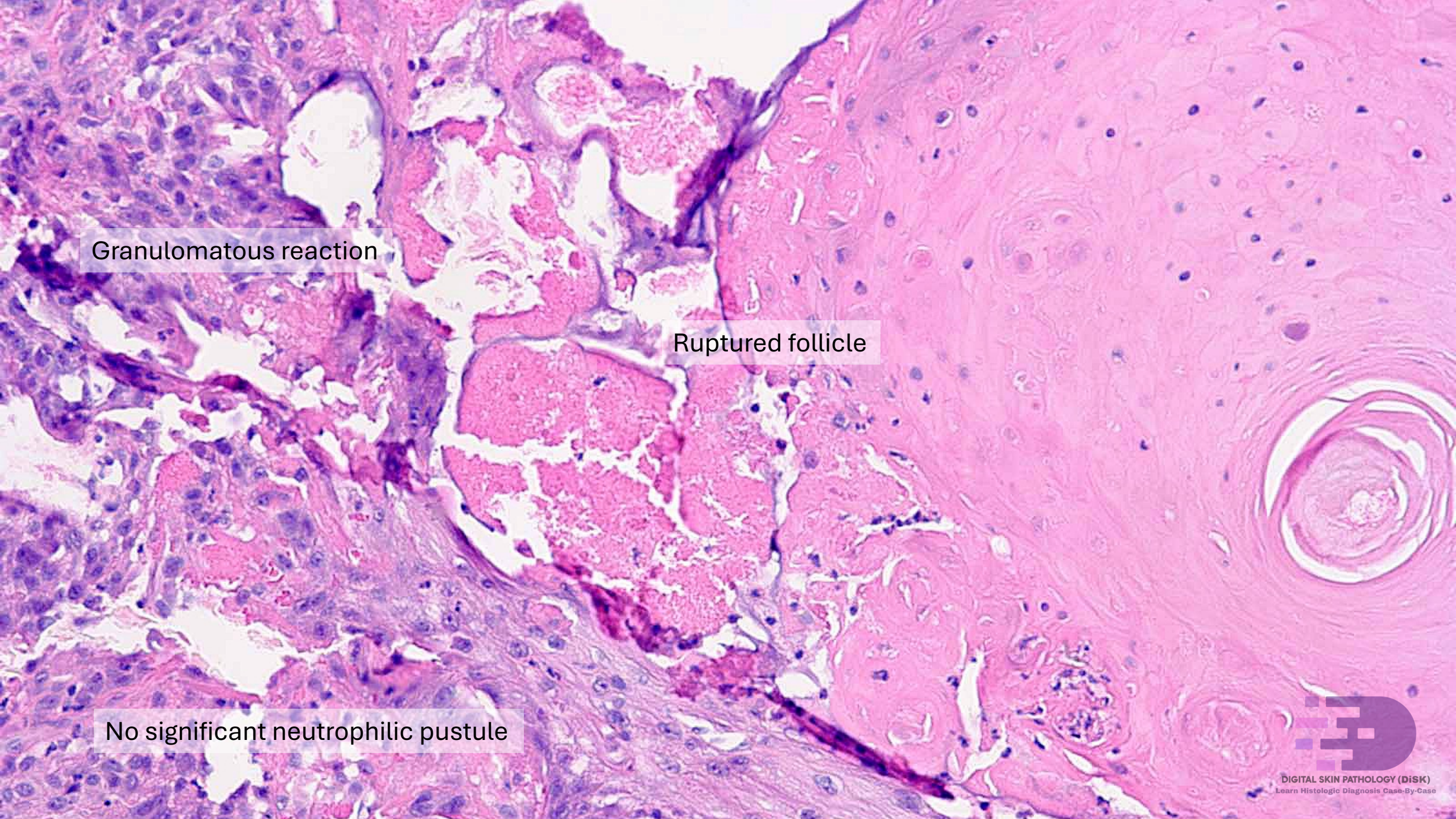
- **Clinical Information:** 64 year-old female; pterygium, H11.003 (S22-14626)
- **DIAGNOSIS:**
Conjunctiva, Right Eye, Excision:
 - Pterygium, extending to tissue edges and base.
- **Teaching Points:**
 - Some cases of pterygium (~38%) may exhibit cystic change
- **Minimal Diagnostic Criteria:**
 - Solar purpura in lamina propria
 - Solar elastosis in lamina propria
 - Reactive vascular prominence with telangiectasia
 - Goblet cell hyperplasia
 - Crowded conjunctival epithelial hyperplasia without atypia or mitoses (not carcinoma in situ)
- **Differential Diagnosis:**
 - Conjunctival cyst
 - Conjunctival squamous cell carcinoma in situ



No epithelial lining →

Giant dermal keratin granuloma

↑
Ruptured follicle

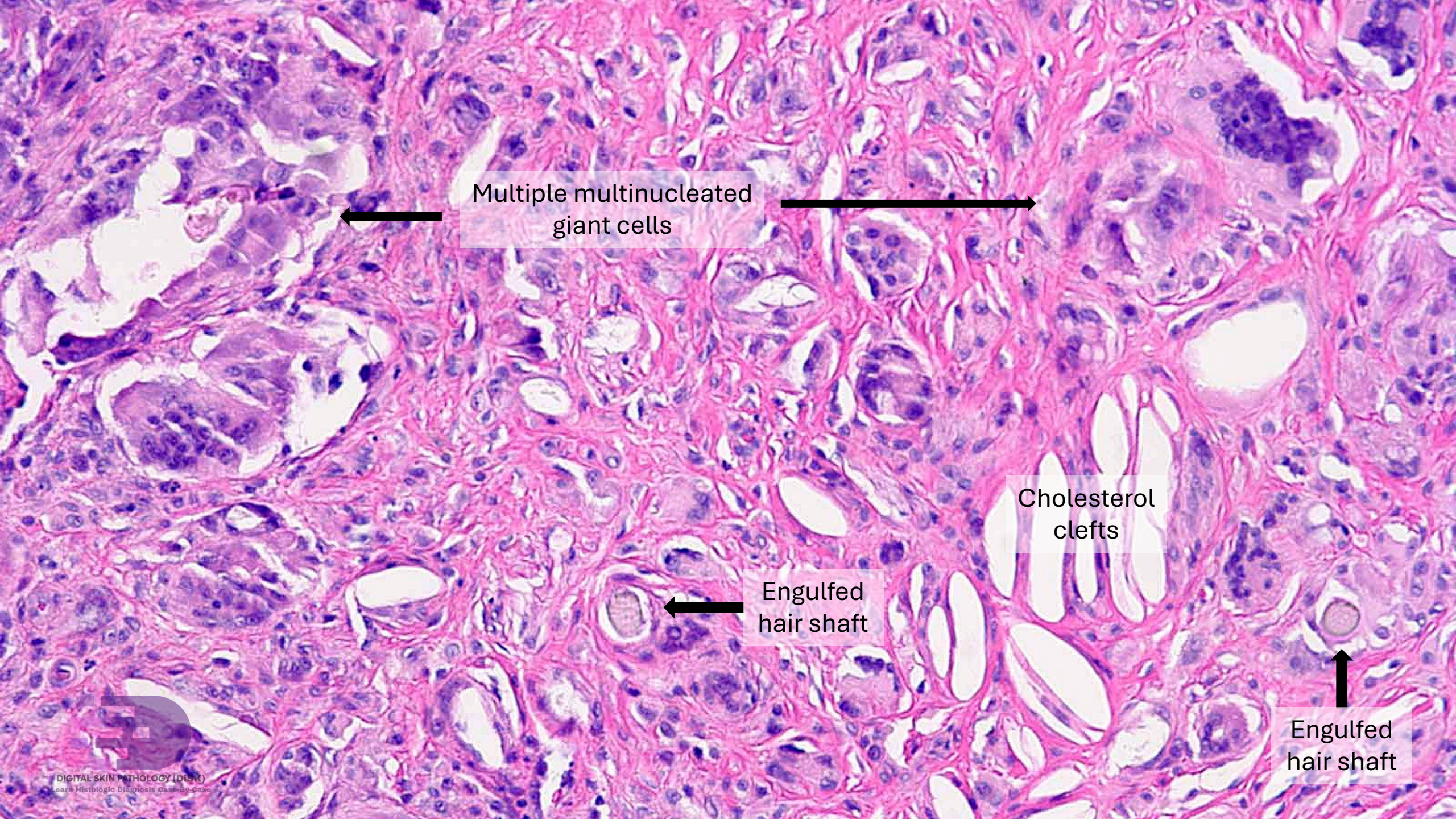


Granulomatous reaction

Ruptured follicle

No significant neutrophilic pustule





Multiple multinucleated
giant cells

Cholesterol
clefts

Engulfed
hair shaft

Engulfed
hair shaft

- **Clinical Information:** 22 year-old male, cyst on back (S21-503)

- **DIAGNOSIS:**

Skin, Back, Excision:

- Ruptured hair follicle and marked granulomatous reaction to fragments of broken hair shaft and keratin, excised in the planes of sections examined.

Comment: The findings may represent a ruptured epidermal cyst. The differential diagnosis may also include ruptured folliculitis. PAS and Gram special stains are negative for microorganisms.

- **Teaching Points:**

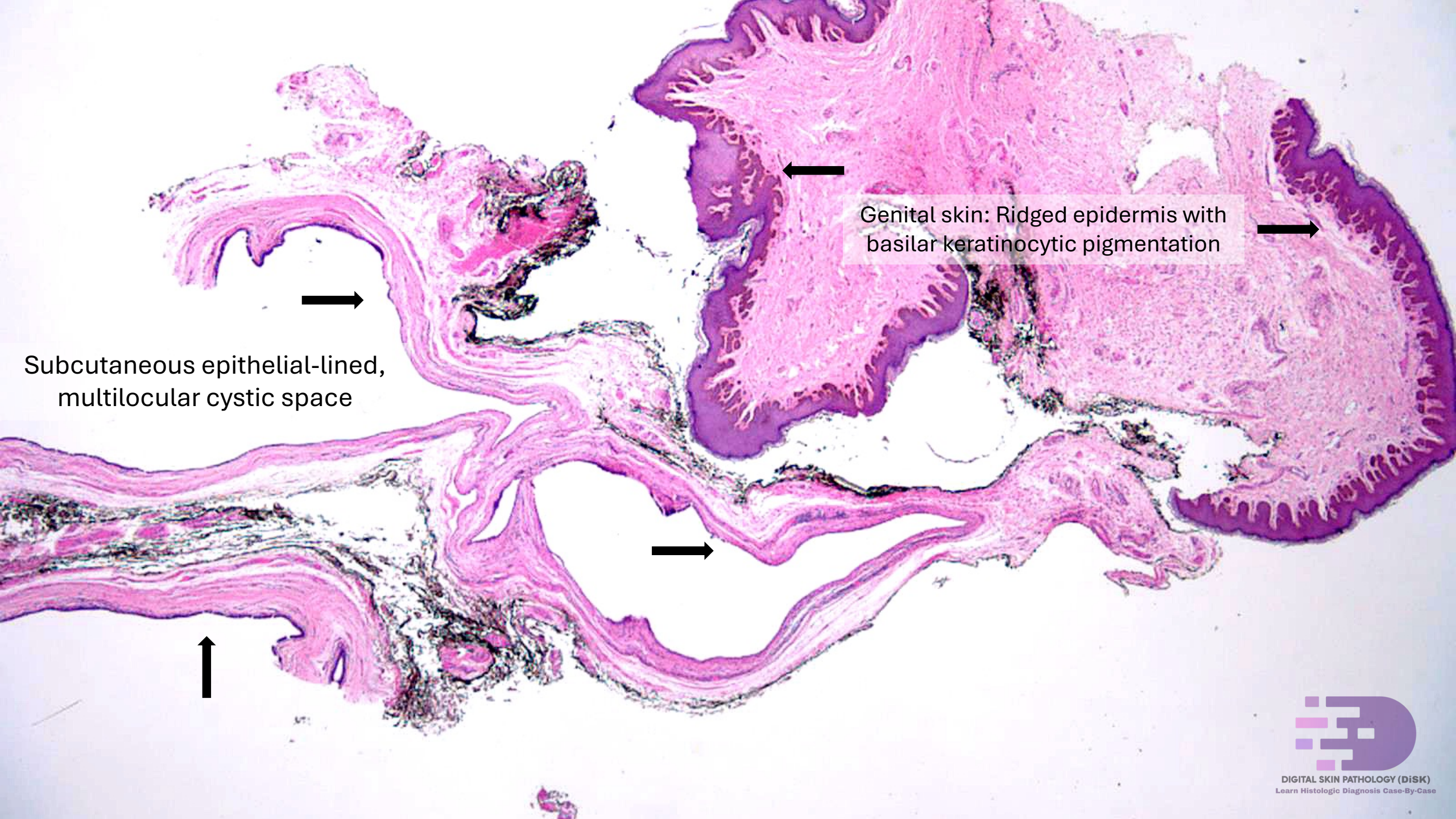
- Some ruptured epidermal cysts may not show epithelial lining (either absorbed, not found in the section or not submitted for histology)
- Numerous keratin granulomas engulfing fragments of loose keratin or broken hair shaft
- Need to rule out suppurative folliculitis (perform PAS and Gram)

- **Minimal Diagnostic Criteria:**

- Loose, flakey cyst content
- Stratified squamous lining (easily seen intercellular bridges)
- Granular cell layer
- Ruptured epidermal cyst may show granulomatous reaction

- **Differential Diagnosis:**

- Ruptured folliculitis (usually numerous neutrophils)



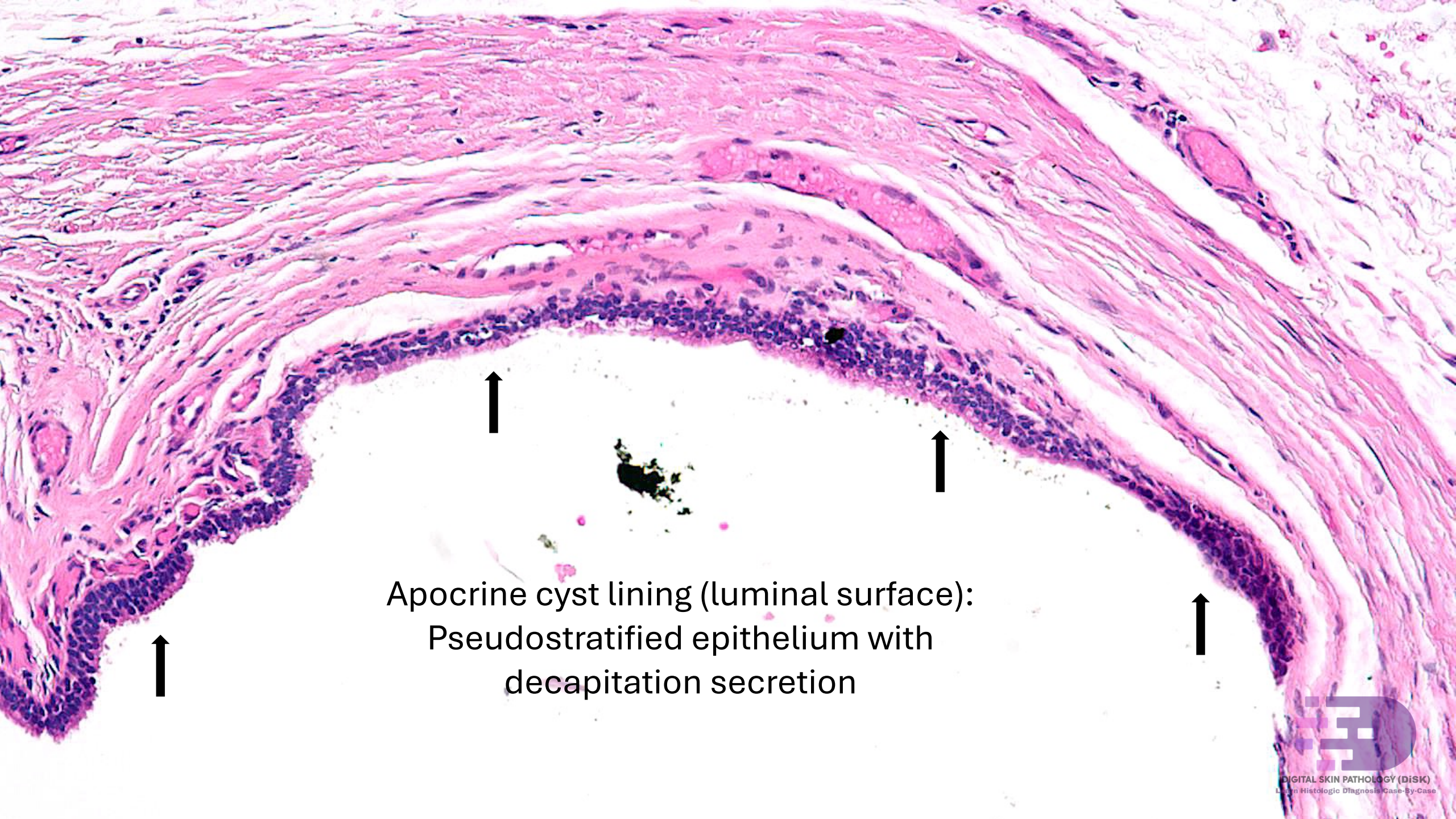
Genital skin: Ridged epidermis with basilar keratinocytic pigmentation

Subcutaneous epithelial-lined, multilocular cystic space



Subcutaneous epithelial-lined,
multilocular cystic space





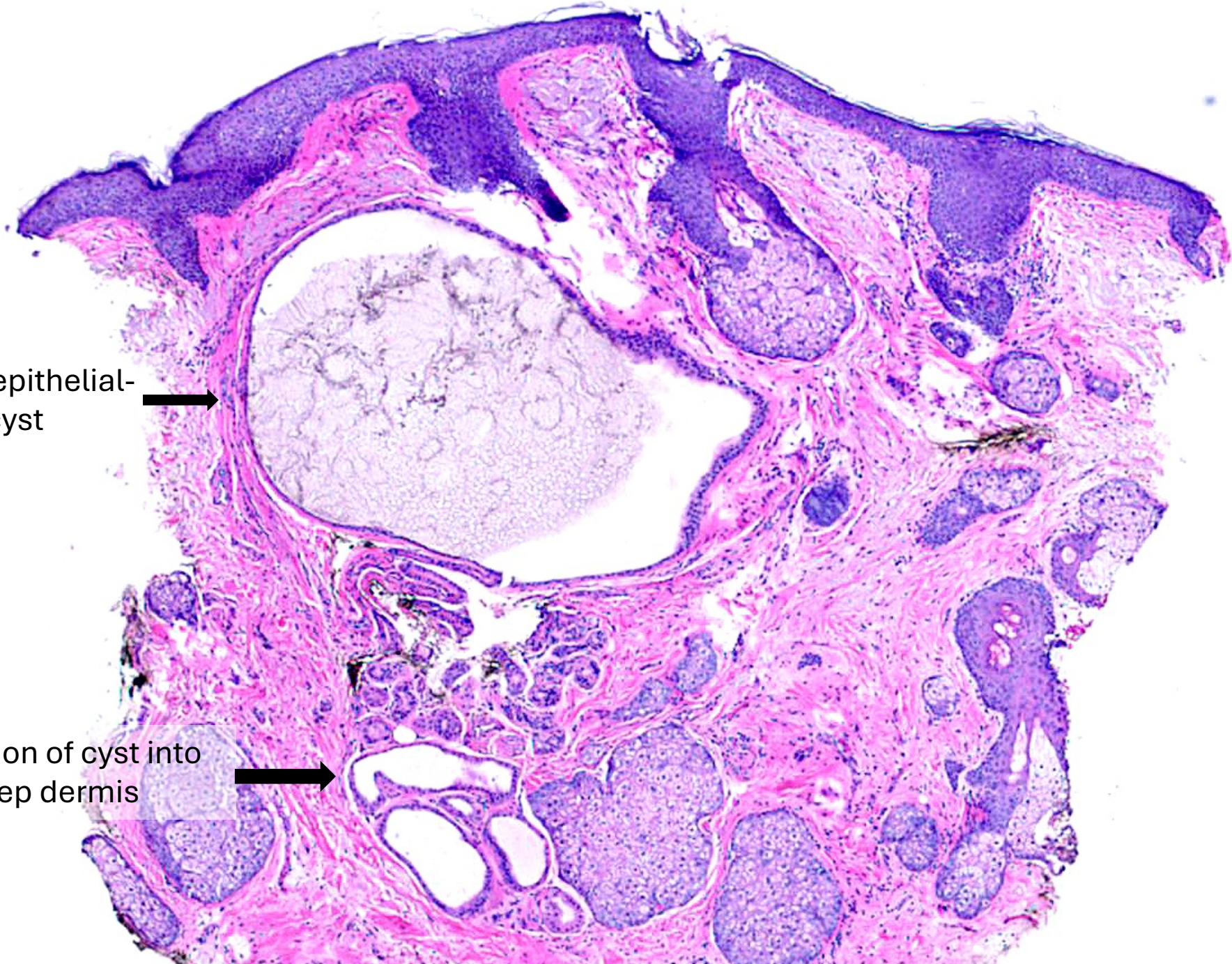
Apocrine cyst lining (luminal surface):
Pseudostratified epithelium with
decapitation secretion

- **Clinical Information:** 48 year-old male penile lump excision (S20-37872)
- **DIAGNOSIS:**
Skin, Penis, Excision:
 - Median raphe cyst, extending to tissue edges and base.
- **Teaching Points:**
 - Midline, males 1st three decades, ventral genitoperineal surface
- **Minimal Diagnostic Criteria:**
 - Multiloculated subcutaneous cyst of genital skin
 - Apocrine cyst lining of pseudostratified epithelium with decapitation secretion
 - May show papillary architecture
 - Ancillary IHC: Epithelial cell: CK7+, CEA+, CK20-; myoepithelial cells: p63+
- **Differential Diagnosis:**
 - Apocrine cystadenoma

Intradermal epithelial-lined cyst



Extension of cyst into deep dermis




Micropapillary
architecture



Extension of cyst into
deep reticular dermis



Decapitation
secretion



Glandular architecture: single apocrine cells
(luminal surface)

- **Clinical Information:** 66 year-old male, 1 mm dark, blue-black papule, dermal nevus, rule out atypia (S22-14938)
- **DIAGNOSIS:**
 - Skin, Left Upper Cutaneous Lip, Punch Biopsy:
 - Apocrine cystadenoma, extending to tissue base.
 - Negative for melanocytic proliferation.
- **Teaching Points:**
 - Decapitation secretion may appear bluish-black
- **Minimal Diagnostic Criteria:**
 - Intra-dermal glandular proliferation, extending deep into the reticular dermis
 - Well-organized glands with cystic dilatation
 - Glandular space is lined by a single layer of apocrine cells
 - Large, epithelioid cells with eosinophilic cytoplasm, decapitation secretion and hyperchromatic nuclei
- **Differential Diagnosis:**
 - Apocrine hidrocystoma