

Chancroid

(Soft Chancre)

An ulcerative bacterial sexually transmitted infection

Etiology • temporal evolution • morphology • diagnostic limitations • differential diagnosis

Dr Abu Suraih Sakhri

MBBS, MD (Pathology)

www.abusuraisakhri.com

Learning outcomes

Recognize

Identify the characteristic painful, nonindurated genital ulcer.

Explain

Connect the clinical lesion with its three-layer histologic architecture.

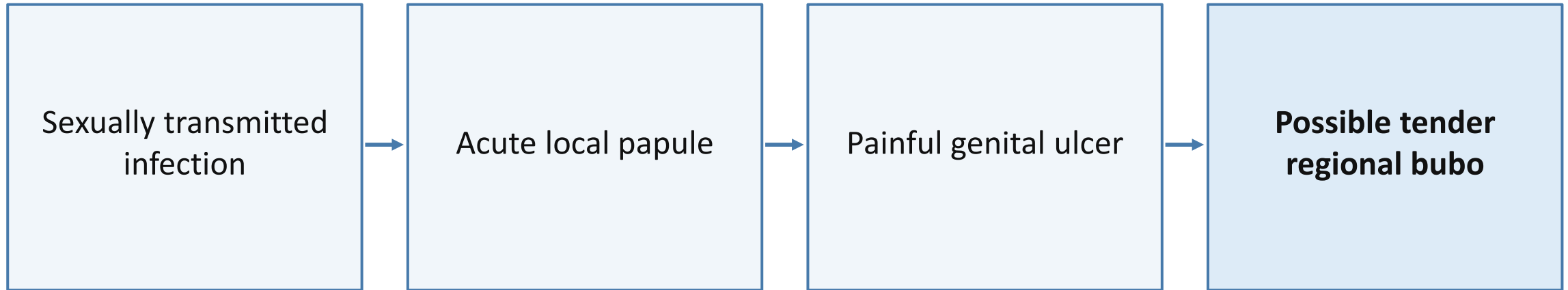
Distinguish

Contrast chancroid with syphilis, genital herpes and donovanosis.

Appraise

Explain why a suspected case can be difficult to confirm microbiologically.

Chancroid in the genital-ulcer framework



Core sequence; Node involvement is not universal.

Etiologic identity

- Causative organism: *Haemophilus ducreyi*.
- Classified among bacterial sexually transmitted infections.
- The dominant tissue lesion is an acute ulcer, rather than a chronic mass.
- The clinical and histologic findings must be integrated with laboratory limitations.

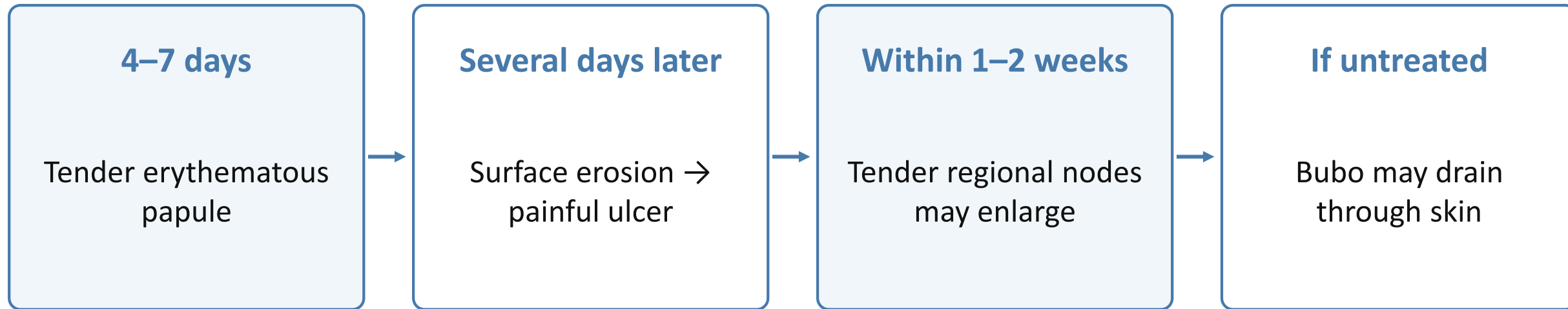
Four organisms in the differential

Condition	Etiologic agent	Characteristic source description
Chancroid	Haemophilus ducreyi	Acute painful soft ulcer
Primary syphilis	Treponema pallidum	Firm, typically nontender chancre
Genital herpes	HSV-1 or HSV-2	Vesicles → superficial ulcers
Donovanosis	Klebsiella granulomatis	Soft painless granulation-rich mass

The meaning of “soft chancre”

- Unlike a primary syphilitic chancre, the chancroid ulcer is not indurated.
- The term describes the clinical consistency of the lesion.
- Softness alone does not establish *H. Ducreyi* infection.
- Assess tenderness, ulcer contour, exudate, multiplicity and regional nodes together.

Typical evolution after inoculation



Intervals and subsequent events are source descriptions, not a universal course.

The earliest visible lesion

- A tender erythematous papule develops at the site of inoculation.
- Its appearance four to seven days after inoculation.
- At this stage an established crater-like ulcer is not yet required.
- The lesion evolves through surface erosion over ensuing days.

Usual anatomic sites described

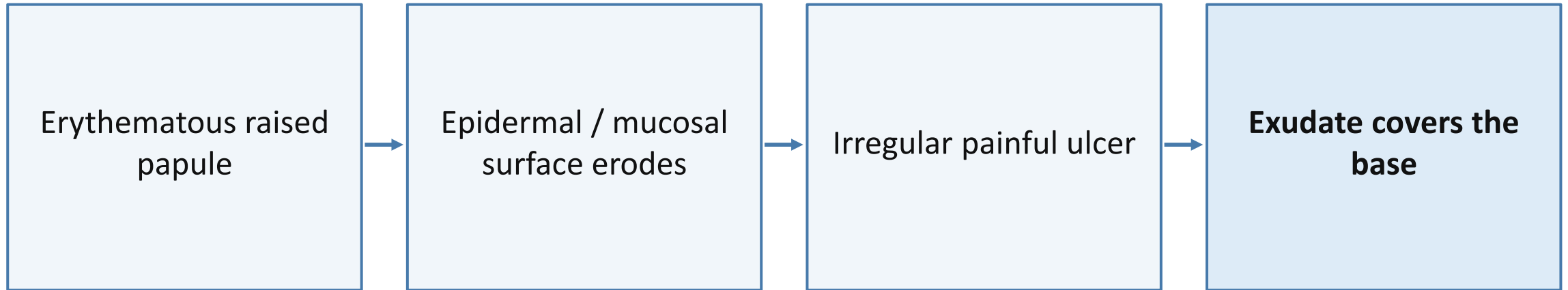
In males

- The primary lesion is usually on the penis.
- External genital location supports direct local inoculation.

In females

- Lesions most often in the vagina or periurethral area.
- Site variation changes how readily the lesion is seen.

Papule to ulcer: The local tissue sequence



Schematic clinical evolution — not a patient photograph.

The mature ulcer: Surface characteristics

- The ulcer is irregular in outline.
- The lesion is painful.
- The base carries shaggy yellow-gray exudate.
- The absence of induration is a key contrast with the syphilitic chancre.

Multiplicity is compatible with chancroid

- More than one ulcer may be present.
- A single lesion does not rule out chancroid.
- Lesion count should be documented alongside pain, consistency and exudate.
- Do not rely on multiplicity as a stand-alone diagnostic criterion.

Clinical descriptors are not synonyms

Painful

Clinical symptom reported at the ulcer.

Nonindurated

Palpation finding: No characteristic firmness.

Irregular

Description of the ulcer border and configuration.

Exudative

Shaggy yellow-gray material covering the base.

Chancroid versus primary syphilis

Chancroid

- Painful irregular ulcer
- Not indurated
- May be multiple
- Yellow-gray shaggy exudate

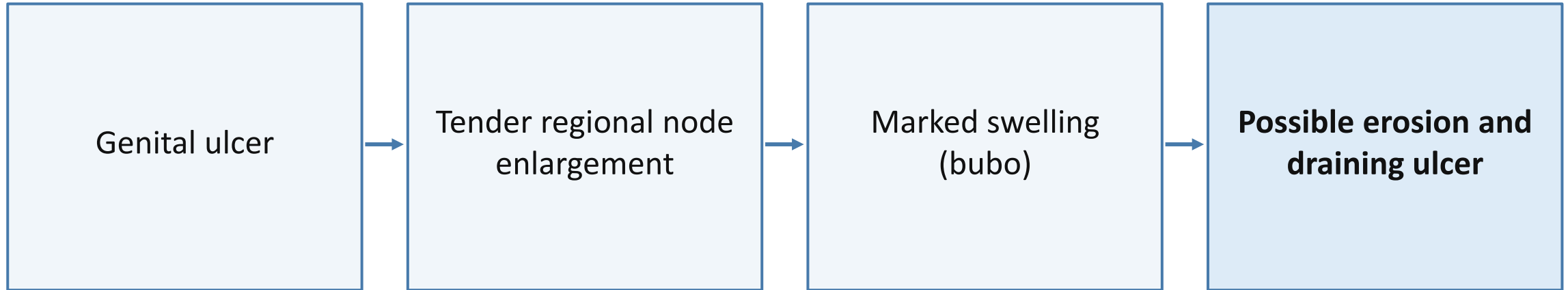
Primary syphilis

- Typically nontender
- Firm primary chancre
- Often a single lesion
- Different pathogen: T. Pallidum

Tender regional lymphadenopathy

- Regional nodes may enlarge and become tender.
- This finding in about 50% of cases.
- The reported time is within one to two weeks after primary infection.
- Absence of enlarged nodes therefore does not exclude chancroid.

Formation of a bubo



Progression to cutaneous drainage is described for untreated disease.

When lymphadenitis complicates the ulcer

- The genital ulcer and a regional bubo are distinct anatomic lesions.
- Nodes are tender as well as enlarged.
- Buboes can erode overlying skin when untreated.
- The late result can be a chronic draining ulcer over the node.

Primary ulcer and draining bubo

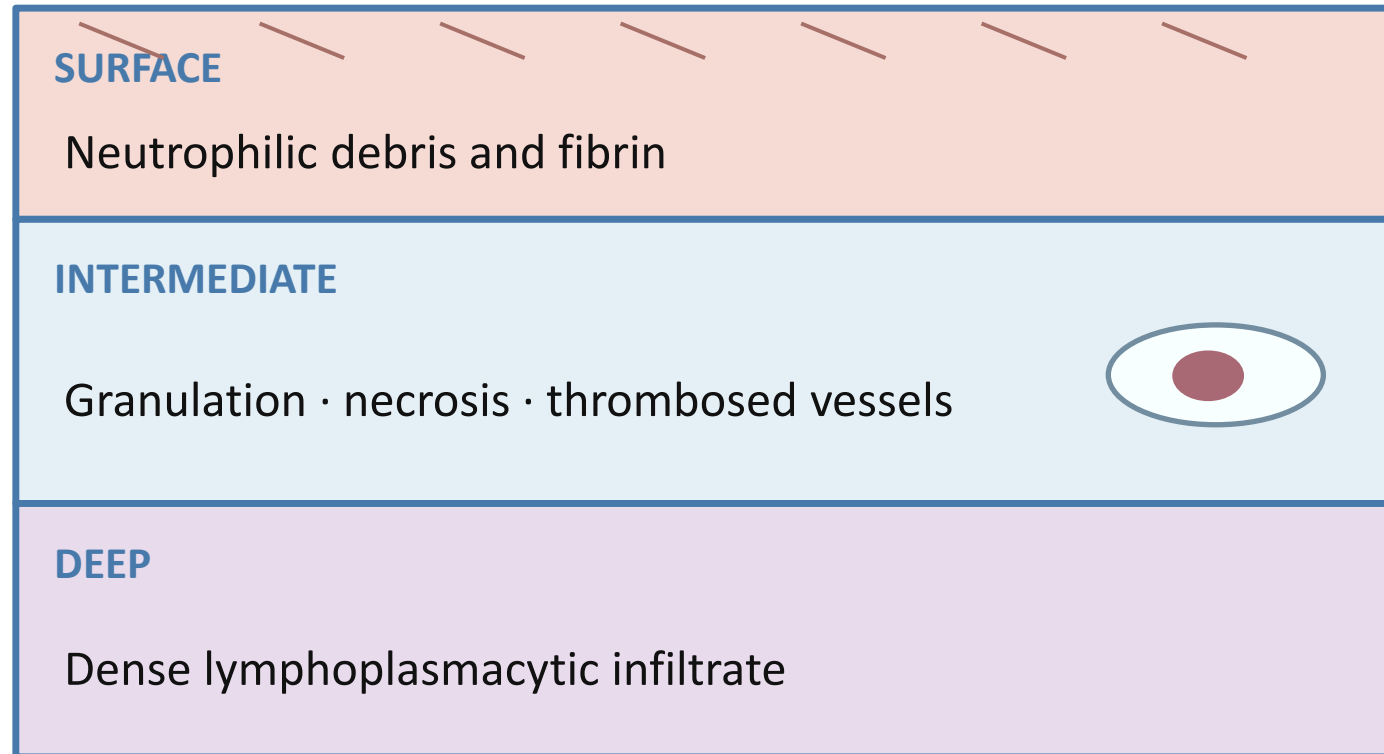
Primary inoculation-site ulcer

- Originates from the tender papule
- Irregular, painful and exudative
- Located on genital epithelium

Secondary bubo-related ulcer

- Begins in an enlarged regional node
- Develops after nodal erosion through skin
- May become chronically draining

Histologic architecture: Overview

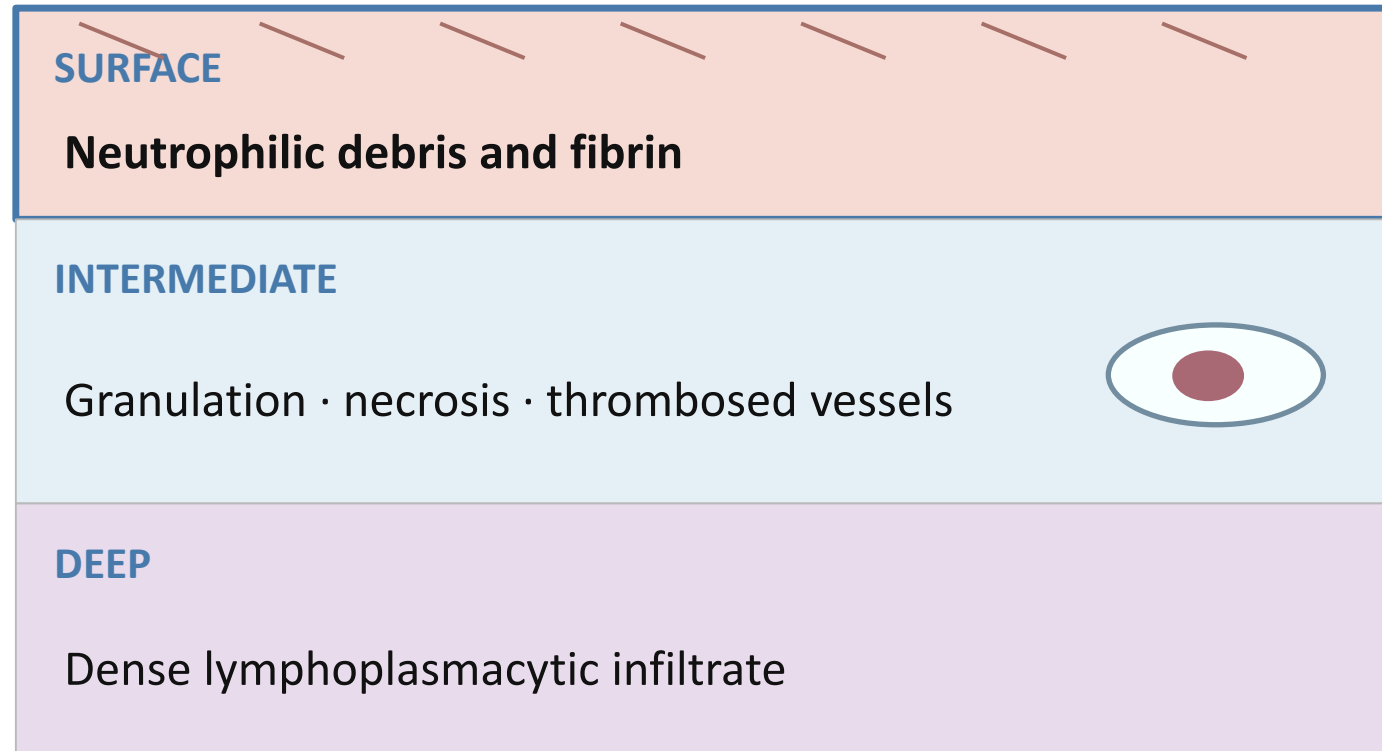


Teaching interpretation

The ulcer has three recognizable vertically arranged inflammatory zones.

Schematic cross-section — not a histologic specimen

Surface layer: Neutrophilic debris

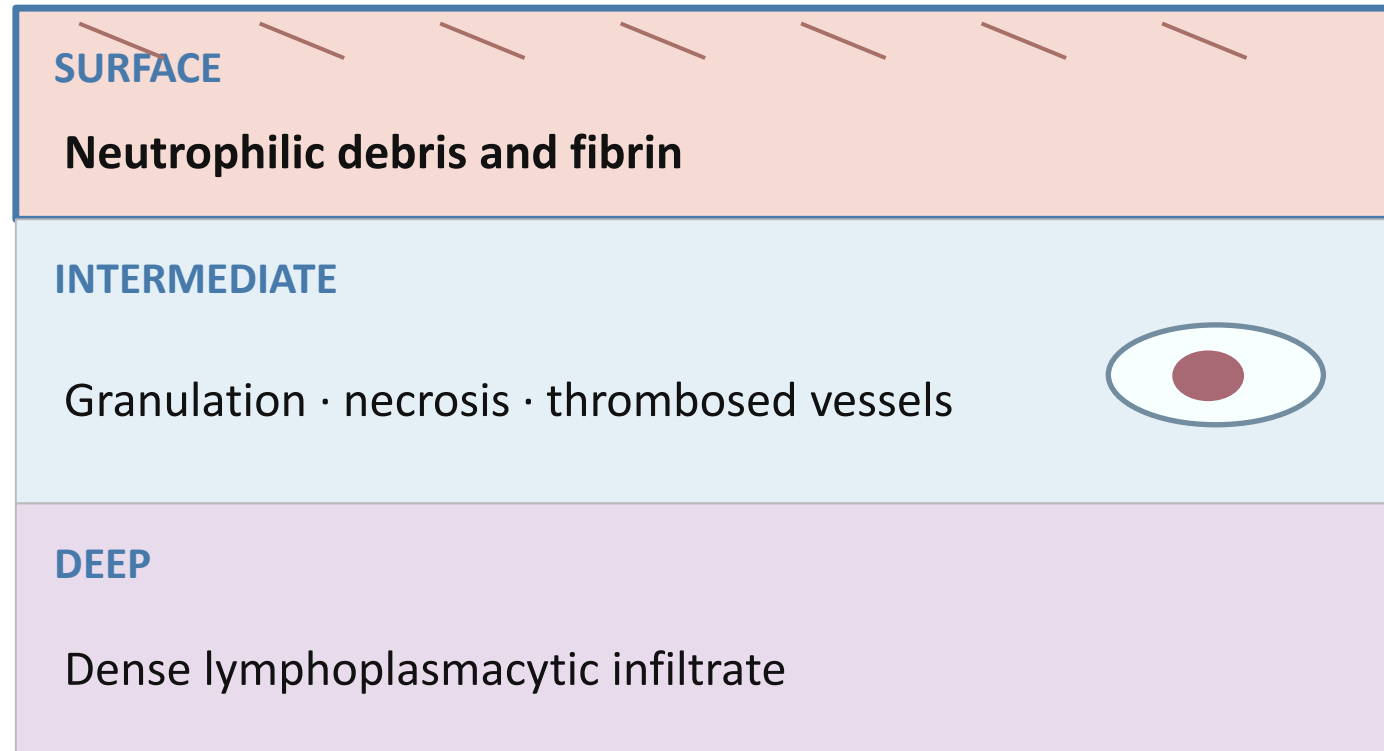


Teaching interpretation

The uppermost zone contains neutrophilic debris and fibrin.

Schematic cross-section — not a histologic specimen

Surface layer: Fibrin

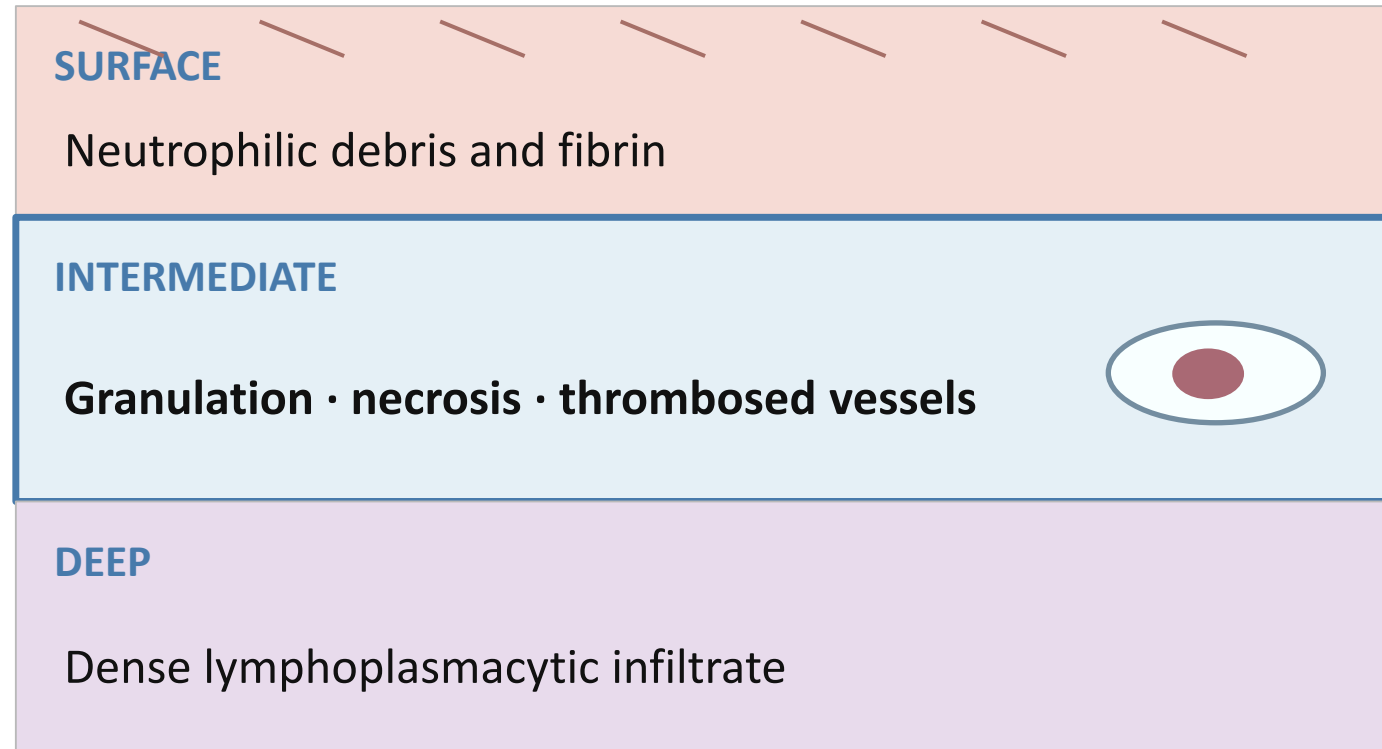


Teaching interpretation

Fibrin accompanies the superficial neutrophil-rich ulcer debris.

Schematic cross-section — not a histologic specimen

Middle layer: Granulation tissue

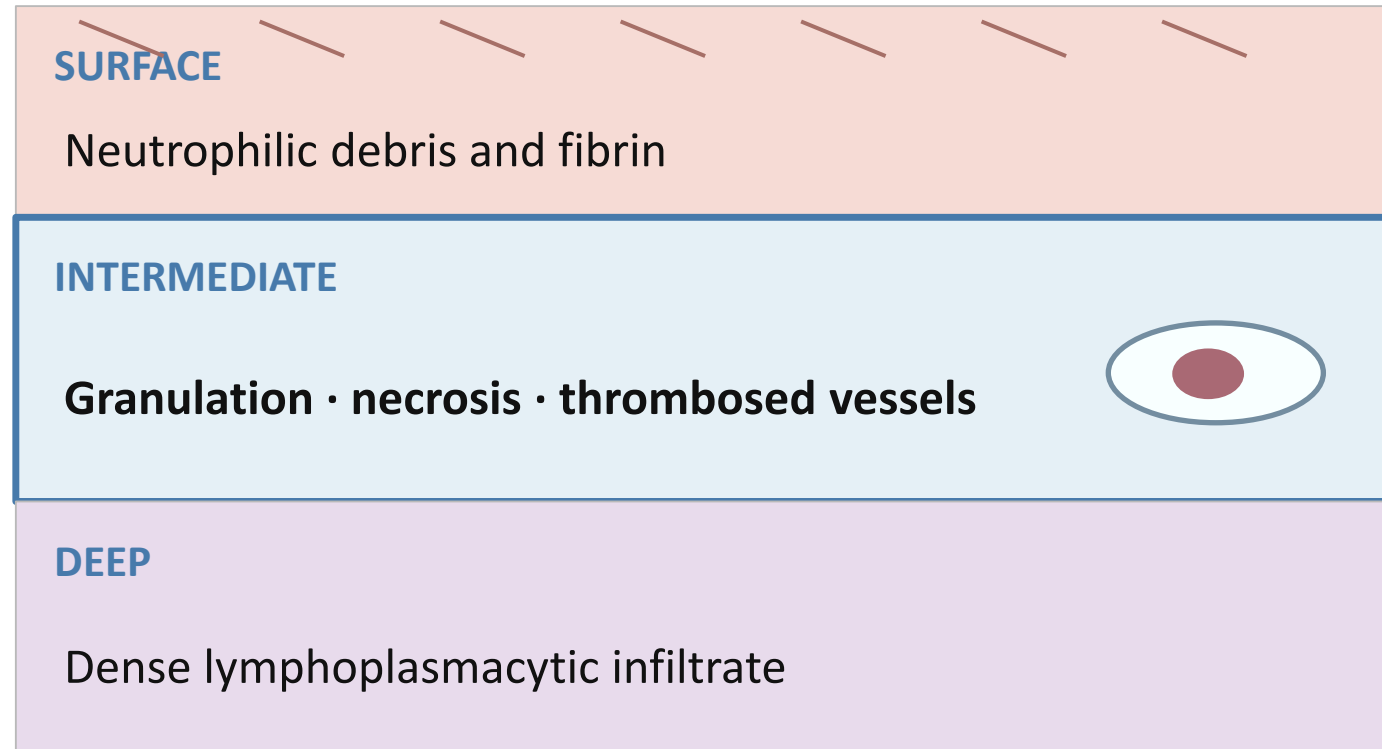


Teaching interpretation

A reparative-appearing granulation-tissue zone lies below the surface debris.

Schematic cross-section — not a histologic specimen

Middle layer: Necrosis

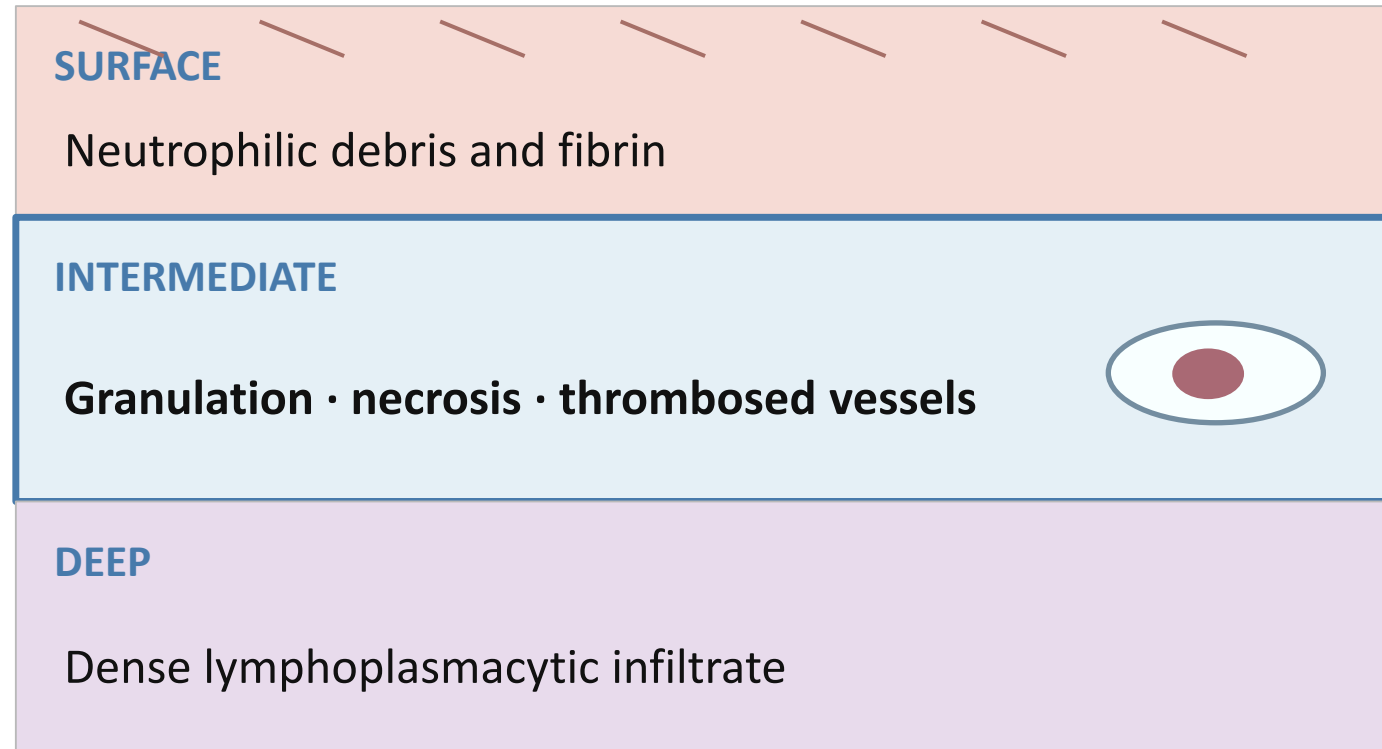


Teaching interpretation

Foci of tissue necrosis within the granulation zone.

Schematic cross-section — not a histologic specimen

Middle layer: Thrombosed vessels

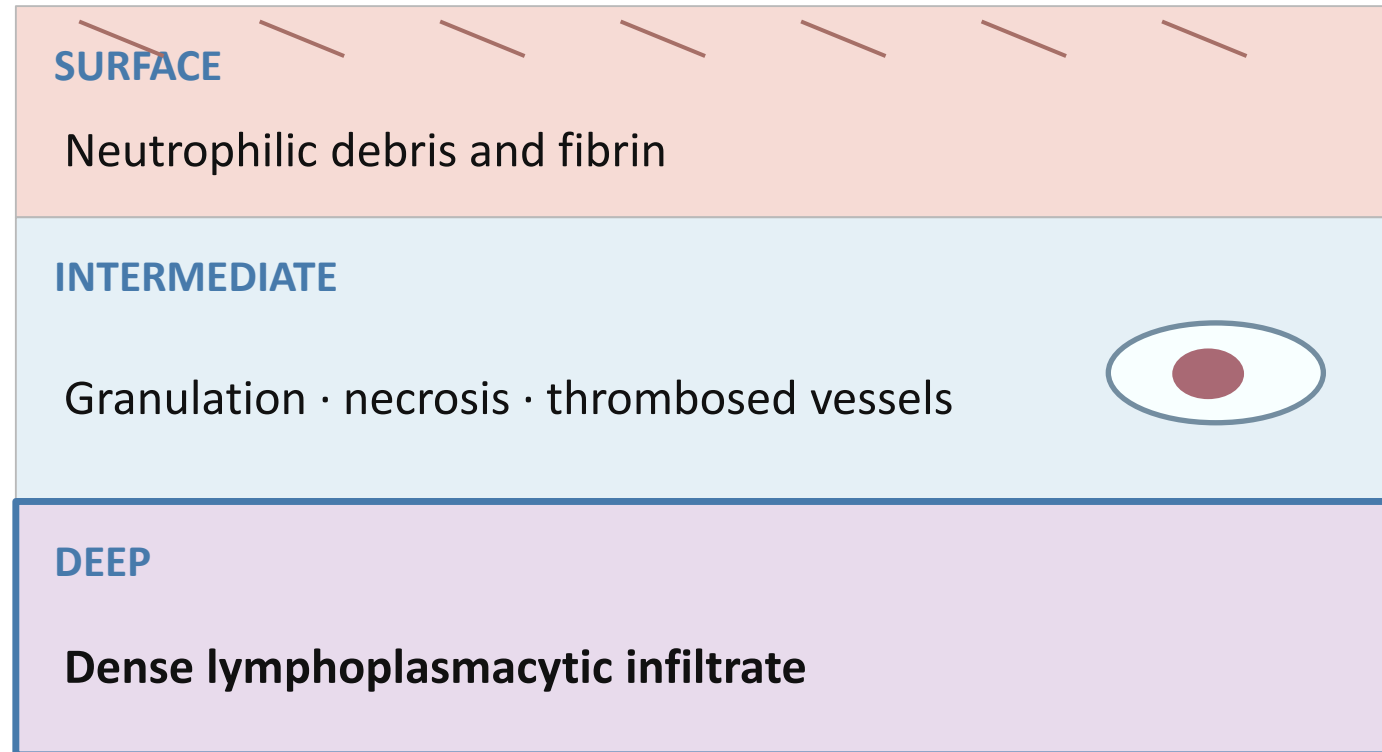


Teaching interpretation

Thrombosed vessels are another component of the intermediate ulcer zone.

Schematic cross-section — not a histologic specimen

Deep layer: Lymphoplasmacytic infiltrate



Teaching interpretation

A dense lymphoplasmacytic inflammatory infiltrate underlies the granulation zone.

Schematic cross-section — not a histologic specimen

Microscopy: Top-to-bottom reading

Anatomic level	Dominant appearance	Interpretive task
Superficial	Neutrophilic debris + fibrin	Locate ulcer surface
Intermediate	Granulation, necrosis, thrombosed vessels	Describe tissue injury and response
Deeper	Dense lymphoplasmacytic infiltrate	Recognize subjacent inflammation

Why a layer-by-layer description matters

Orientation

A surface-to-depth sequence prevents conflating superficial debris with deeper inflammation.

Coexistence

Acute neutrophil-rich injury and deeper mononuclear inflammation coexist.

Vascular changes

Necrosis and thrombosis belong to the granulation-tissue zone.

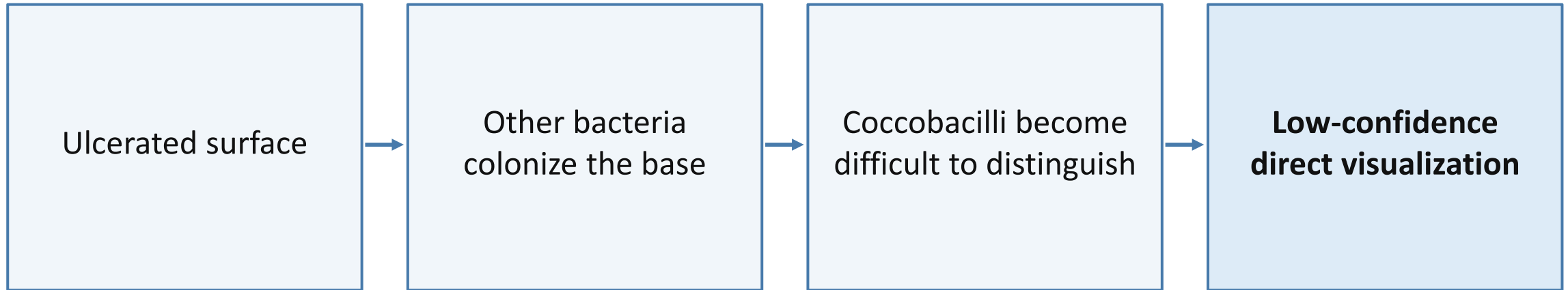
Histology supports, but does not name, the agent

- The three-zone pattern describes a tissue reaction to the ulcerative infection.
- Necrosis and thrombosed vessels should not be mistaken for proof of a unique pathogen.
- Organism detection is difficult even when the inflammatory pattern is present.
- Clinicopathologic interpretation must account for potentially overlapping genital-ulcer causes.

H. Ducreyi on tissue-based stains

- Coccobacilli may occasionally be demonstrated with Gram or silver stains.
- They are not reliably seen in routine lesion material.
- Other bacteria often colonize the ulcer base and obscure the pathogen.
- An organism-negative stain does not contradict the described ulcer morphology.

Why lesion Gram staining is unreliable



Diagnostic limitation described in the Robbins source; No sensitivity figure is given.

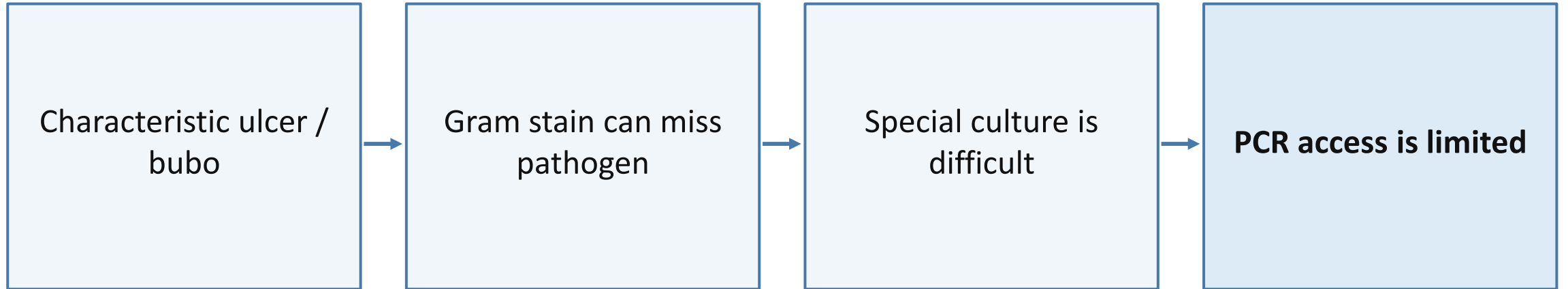
Culture is technically demanding

- H. Ducreyi grows poorly in culture.
- It requires uncommon, highly enriched culture media.
- Routine culture workflows may therefore fail to demonstrate the organism.
- Culture limitations contribute to uncertainty in clinical recognition.

PCR availability is another constraint

- PCR-based tests for *H. Ducreyi* are not widely available account.
- Availability is distinct from analytic performance.
- Robbins provides no PCR sensitivity or specificity values here.
- Avoid treating absent testing as a negative molecular result.

The evidence bottleneck in chancroid



Consequence: Cases may be underdiagnosed.

Separate clinical evidence from organism proof

Clinical pattern

Painful, irregular, nonindurated ulcer; Possible bubo.

Histologic pattern

Surface debris → granulation + injury → deep lymphoplasmacytic infiltrate.

Microbial evidence

H. Ducreyi is difficult to demonstrate by stain and culture.

Why a negative stain is not an exclusion test

- Organisms are sometimes demonstrable, rather than consistently visible.
- Colonizing organisms may visually obscure *H. Ducreyi*.
- The specimen reflects the ulcer's mixed microbial environment.
- A negative result must be interpreted against the clinical presentation.

Limits of the supplied diagnostic evidence

- Poor culture growth and restricted PCR access.
- The chapter section does not supply a formal case-definition algorithm.
- It does not provide test performance characteristics or recommended drug regimens.
- The lecture therefore treats diagnosis as a clinicopathologic problem, not an invented quantitative score.

Geographic distribution

Sub-Saharan Africa

Identified as a region of relatively greater occurrence.

Southeast Asia

Several affected settings are described.

South America

Part of the listed geographic distribution.

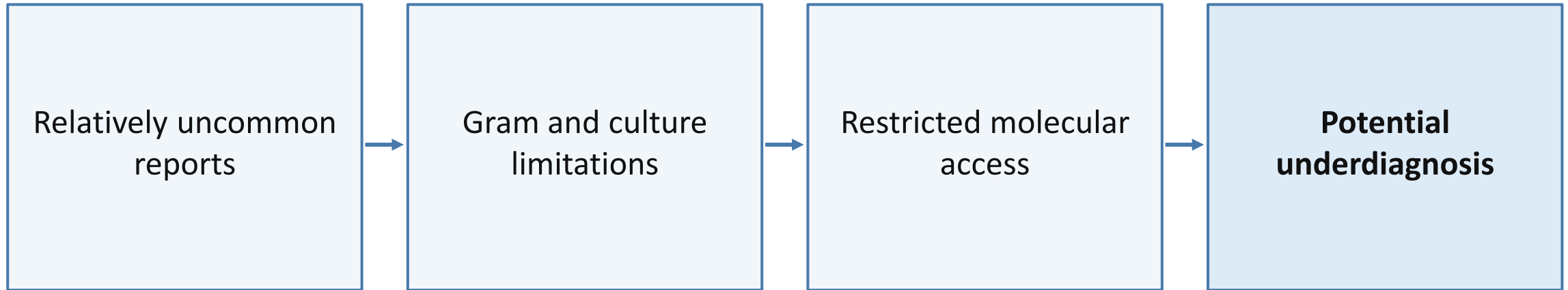
Central America

Part of the listed geographic distribution.

Trends should be reported with their context

- Falling prevalence in Thailand and several African nations.
- Chancroid is described as uncommon in the United States.
- The figure of fewer than 20 U.S. Reports per year refers to “the past several years” in the source.
- Do not interpret that textbook figure as a live 2026 surveillance count.

Recognized burden versus underlying burden



Qualitative relationship only; The source gives no estimate of the hidden burden.

Relationship with HIV transmission

- Chancroid as an important cofactor in HIV transmission.
- The STI chapter notes that co-infection risks can coexist through shared exposures.
- An ulcerative STI has implications beyond the visible local lesion.
- The chancroid section does not quantify an HIV risk multiplier.

An STI is not evaluated in isolation

Local lesion

Document ulcer morphology and regional-node findings.

Coinfection context

The STI chapter states that one STI increases the likelihood of others.

Partner/public health context

STI transmission depends on person-to-person contact; Reporting may support contact testing.

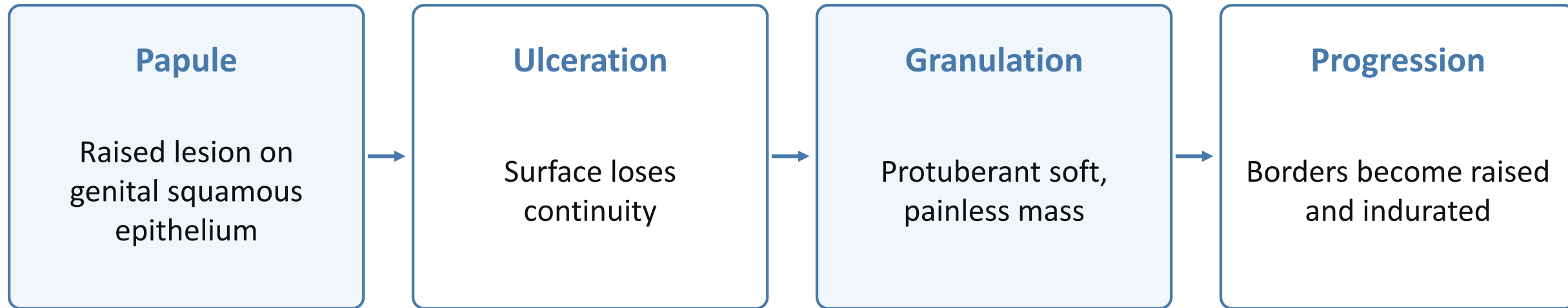
Donovanosis: Why it belongs in this lecture

- The project topic file explicitly groups granuloma inguinale with chancroid.
- Both conditions are sexually transmitted bacterial infections with genital ulceration.
- Their typical lesion morphology and nodal behavior differ.
- The comparison sharpens the distinction between acute ulcer and chronic granulation-rich lesion.

Donovanosis: Etiologic identity

- Also called granuloma inguinale.
- Caused by *Klebsiella granulomatis*, formerly *Calymmatobacterium donovani*.
- Described as a chronic inflammatory sexually transmitted infection.
- The organism is a minute encapsulated coccobacillus.

Donovanosis lesion evolution



A different lesion sequence from the painful chancroid ulcer.

Granulation-rich morphology in donovanosis

- Abundant granulation tissue creates a protuberant mass.
- The typical described lesion is soft and painless.
- As the lesion enlarges, its borders become raised and indurated.
- This pattern is clinically distinct from the acute painful chancroid ulcer.

Regional nodes discriminate the two entities

Chancroid

- Tender lymphadenopathy is common enough to be a core finding.
- Bubo may erode and drain when untreated.

Donovanosis

- Regional lymph nodes typically are spared.
- If affected, changes are generally nonspecific and reactive.

Late morbidity in untreated donovanosis

- Disfiguring scars may develop.
- Scarring can be associated with urethral, vulvar or anal strictures.
- Lymphatic obstruction may produce genital lymphedema.
- Robbins refers to severe genital swelling as genital elephantiasis.

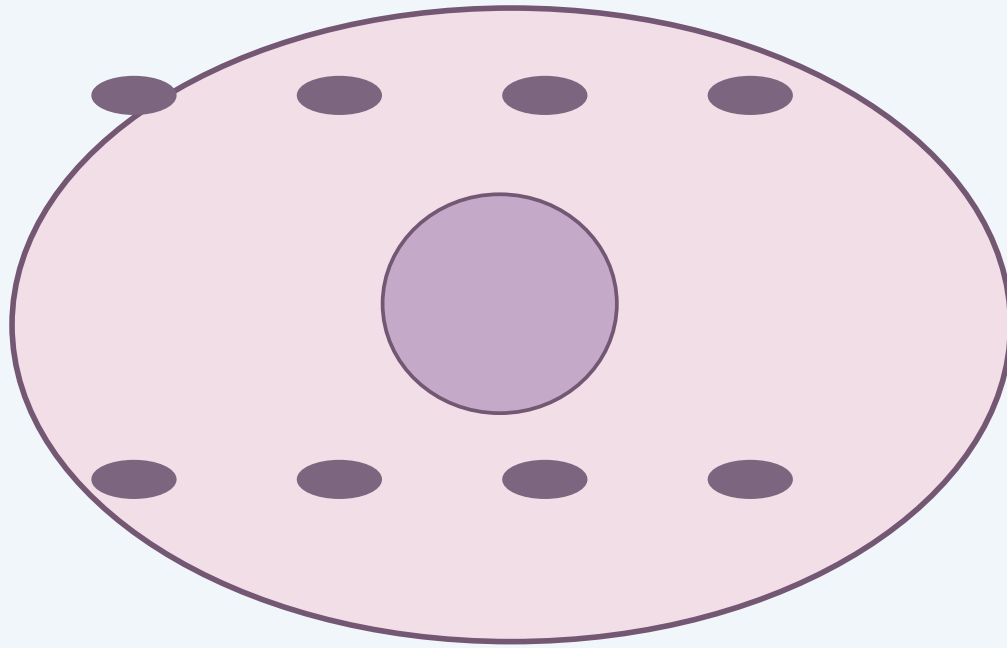
Donovanosis at the ulcer edge

- Marked epithelial hyperplasia may develop at the borders.
- The epithelial proliferation may resemble carcinoma.
- Robbins calls this pseudoepitheliomatous hyperplasia.
- Interpretation requires recognizing a reactive change in the ulcer's setting.

Donovanosis: Inflammatory compartment

- Neutrophils and mononuclear inflammatory cells mix at the ulcer base.
- The infiltrate also extends beneath nearby epithelium.
- This differs from the particularly described three-zone chancroid architecture.
- Bacterial demonstration relies on examining exudate smears or biopsy material.

Donovan bodies: What the pathologist seeks



Macrophage (schematic)

Organism localization

Giemsa-stained ulcer exudate can show encapsulated coccobacilli within macrophages; These are Donovan bodies.

Conceptual vector diagram — not an observed smear

Stains for *K. Granulomatis*

- Giemsa staining of exudate smears can demonstrate Donovan bodies.
- Silver stains, including Warthin–Starry, may show the organisms.
- Routine culture is difficult; PCR is not widely available account.
- The microscopic search is therefore central to the source-described diagnostic approach.

Chancroid versus donovanosis

Feature	Chancroid	Donovanosis
Agent	H. Ducreyi	K. Granulomatis
Course	Acute painful ulcer	Chronic painless granulation mass
Node response	Tender buboes may develop	Usually spared / reactive
Microscopy	Three-zone ulcer with thrombosis	Pseudoepitheliomatous edge; Donovan bodies
Sequelae	Chronic draining buboes	Scarring, strictures, lymphedema

Genital herpes: A different initiating lesion

Chancroid

- Tender papule → erosion → irregular painful ulcer
- Bacterial agent: H. Ducreyi
- Ulcer with layered inflammatory architecture

Genital herpes

- Vesicles → superficial ulcerations
- Usually HSV-2, also HSV-1
- Viral cytopathic change may show multinucleation / inclusions

Syphilis: Distinct initial and vascular features

Chancroid

- Irregular, tender, nonindurated ulcer
- Multiple lesions possible
- Granulation zone may contain thrombosed vessels

Primary syphilis

- Single firm, typically nontender chancre
- Organism is *T. Pallidum*
- Proliferative endarteritis is a characteristic pathologic process

Genital ulcer comparison: Read across

Disease	Initial morphology	Histologic / laboratory clue
Chancroid	Painful nonindurated irregular ulcer	Surface debris; Granulation; Deep lymphoplasmacytic cells
Syphilis	Firm usually single nontender chancre	T. Pallidum; Proliferative endarteritis
Herpes	Vesicles progressing to superficial ulcers	Cowdry A inclusions / syncytia
Donovanosis	Soft painless granulation-rich ulcerated mass	Donovan bodies in macrophages

Case 1: Painful ulcer with nodes

Clinical vignette

A patient develops a tender genital papule. Several days later there is an irregular, painful ulcer with yellow-gray exudate. One week afterward the ipsilateral regional nodes are tender and enlarged.

Which Robbins-described syndrome is most consistent, and which findings carry the greatest weight?

Assess evolution, induration, exudate and the node response.

Case 1: Clinicopathologic reasoning

- A chancroid pattern is supported by papule-to-painful-ulcer evolution.
- The irregular, nonindurated, exudative ulcer is characteristic in the source.
- Tender regional nodes support associated lymphadenitis.
- Microbiologic confirmation remains difficult; Do not confuse a characteristic pattern with proven isolation.

Case 2: Protuberant painless lesion

Clinical vignette

A chronic genital ulcer becomes a soft, protruding, painless granulation-rich lesion. Its edge is raised. Regional nodes are clinically unremarkable.

Which related bacterial ulcerative STI should be prioritized in the morphologic differential?

Consider which entity typically spares regional nodes.

Case 2: Donovanosis interpretation

- Granuloma inguinale is a strong source-supported match.
- K. Granulomatis causes this chronic ulcerative infection.
- Raised indurated margins and nodal sparing fit the description.
- A Giemsa-stained smear may reveal Donovan bodies within macrophages.

Case 3: Firm, nontender lesion

Clinical vignette

A solitary genital lesion is described as firm and nontender. It is called a “chancre,” but the examiner is uncertain whether “chancre” automatically implies chancroid.

What is the key terminology and diagnostic distinction?

The adjective “soft” matters.

Case 3: Do not equate the two chancres

- A firm, nontender primary chancre is characteristic of syphilis.
- Chancroid more often gives a painful, nonindurated ulcer.
- The organisms differ: *T. Pallidum* versus *H. Ducreyi*.
- Descriptive terminology alone is not microbiologic confirmation.

Case 4: Negative lesion Gram stain

Clinical vignette

A genital ulcer has the classic clinical appearance of chancroid, but the direct Gram stain does not convincingly show *H. Ducreyi*.

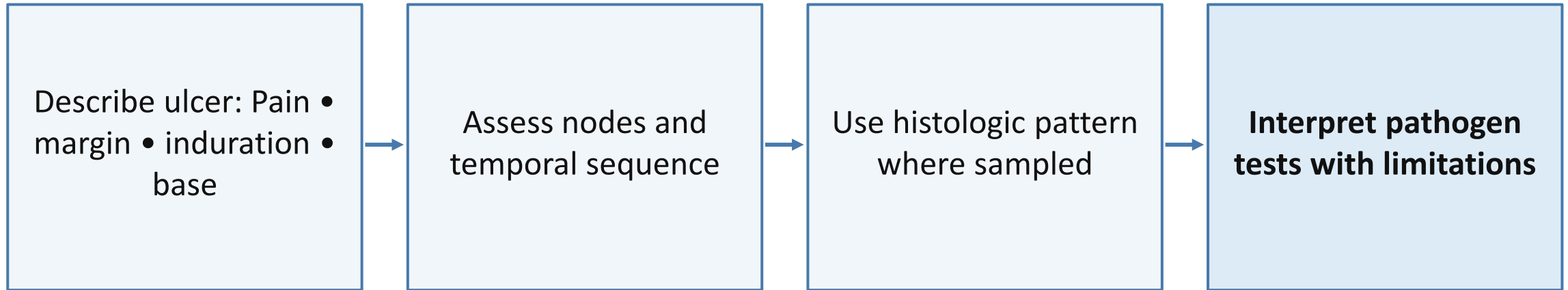
What pathology-based limitations prevent a simple exclusion?

Think about the composition of the ulcer base.

Case 4: Explain the discordance

- Coccobacilli may be difficult to demonstrate by Gram stain.
- Bacteria colonizing the ulcer base can obscure the causative organism.
- Culture requires uncommon enriched media; PCR may not be accessible.
- The source explicitly notes that the disease may be underdiagnosed.

Practical morphology-first synthesis



This is a teaching framework derived descriptions, not a formal clinical diagnostic guideline.

High-yield distinctions

Chancroid

Painful, nonindurated ulcer; Regional bubo; Layered ulcer reaction.

Primary syphilis

Firm, typically nontender primary chancre.

Herpes

Genital vesicles progressing to shallow ulcers.

Donovanosis

Painless granulation-rich lesion; Nodal sparing; Donovan bodies.

What the source does not establish

- No validated numerical diagnostic score or stain-test sensitivity is given.
- No drug-treatment schedule is presented in the extracted chancroid subsection.
- No genuine chancroid micrograph is included among the accessible project assets.
- Clinical examples and diagrams here are source-derived teaching constructs, not observed patients.

Selected source locations

Robbins, Cotran & Kumar. Pathologic Basis of Disease. 11th ed. (2026). Chapter 8, pp. 333–334: chancroid and granuloma inguinale.

Chapter 8, pp. 321–322: herpes simplex virus; pp. 341–342: syphilis.

Chapter 8, pp. 313–314: sexually transmitted infection framework and etiologic table.

All diagrammatic lesions in this deck are original, editable schematics—not diagnostic specimens.