

Other Lower Female Genital Tract Infections

Etiology • Pathogenesis • Morphology • Clinicopathologic correlation

Infections of the vulva, vagina, and cervix — with their upper-tract implications

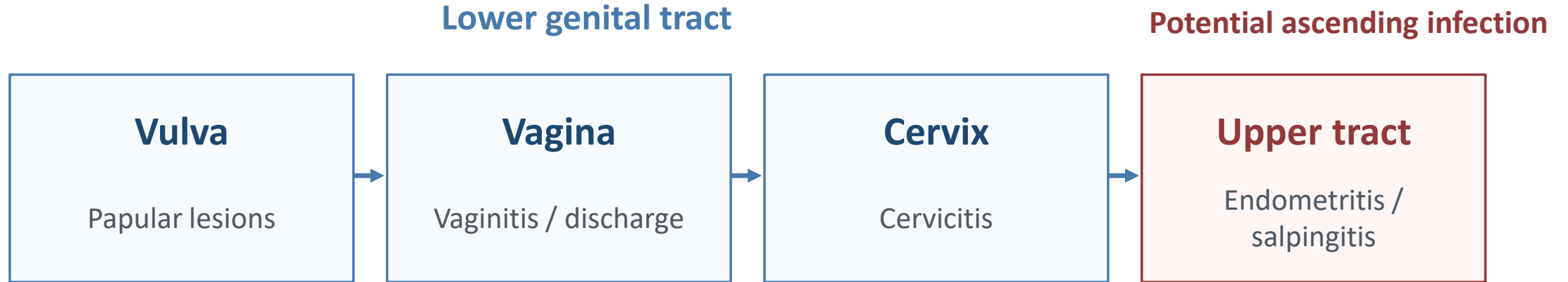
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The lower genital tract is the primary anatomical setting

FRAMEWORK



Conceptual site map — not an anatomical illustration

A single region contains several pathogen classes

FRAMEWORK

Poxvirus

Molluscum

Yeast

Candida

Protozoan

Trichomonas

Bacterial community

Bacterial vaginosis

Mollicutes

Ureaplasma / Mycoplasma

Bacterium

Chlamydia

Clinical presentations cluster into three patterns

FRAMEWORK

- Localized cutaneous or mucosal papules suggest a superficial lesion such as molluscum.
- Pruritus, erythema, and altered discharge direct attention to vaginitis-related syndromes.
- Cervicitis may be an initial lower-tract manifestation of an infection capable of ascending.
- The symptom pattern informs suspicion but should not replace organism-specific evidence.

Typical findings can distinguish common syndromes

FRAMEWORK

Condition	Characteristic clinical clue	Anatomic emphasis
Molluscum	Pearly, umbilicated papules	Skin / mucosa
Candida	Pruritus; Curdlike discharge	Vulvovaginal
Trichomonas	Yellow, frothy discharge	Vagina / cervix
Bacterial vaginosis	Thin, malodorous discharge	Vagina
Chlamydia	Cervicitis; Possible ascent	Cervix → upper tract

Transmission is not uniform across these infections

FRAMEWORK

Contact in childhood

- Molluscum: Direct contact or shared articles
- Sites often trunk, arms, legs
- A lesion does not by itself establish sexual transmission

Adult genital context

- Molluscum is typically sexually transmitted
- Trichomonas is usually sexually transmitted
- Candidiasis is not classified as an STI

Clinical appearance and morphologic evidence answer different questions

FRAMEWORK

- The type of lesion or discharge establishes a useful clinicopathologic pattern.
- Viral cytoplasmic inclusions, fungal elements, and coccobacilli-coated cells are distinct morphologic clues.
- Finding an organism-associated structure is different from concluding that every patient with similar symptoms has the same cause.
- Characteristic findings rather than a universal, stand-alone testing algorithm.

Molluscum contagiosum is caused by a poxvirus

MOLLUSCUM CONTAGIOSUM

- The infection forms cutaneous or mucosal lesions.
- Molluscum contagiosum viruses are designated MCV-1 through MCV-4.
- MCV-1 is described as the most prevalent type.
- MCV-2 is described as the type most often associated with sexual transmission.

The four MCV types have different epidemiologic emphases

MOLLUSCUM CONTAGIOSUM

Virus types	Textbook-supported relationship
MCV-1	Most prevalent
MCV-2	Most often sexually transmitted
MCV-3 and MCV-4	Listed as types; No further prevalence claim made

Childhood molluscum typically spreads through contact

MOLLUSCUM CONTAGIOSUM

- Infections are common in children aged approximately 2–12 years.
- Direct contact can transmit infection.
- Shared articles, including towels, offer another transmission route.
- The trunk, arms, and legs are common skin sites in this age group.

Adult molluscum frequently involves genital and adjacent skin

MOLLUSCUM CONTAGIOSUM

- In adults, infections are typically sexually transmitted.
- Characteristic sites include the genitals and lower abdomen.
- Buttocks and inner thighs are also affected.
- Anatomic distribution and exposure context help interpret the lesion.

The characteristic molluscum lesion is small and umbilicated

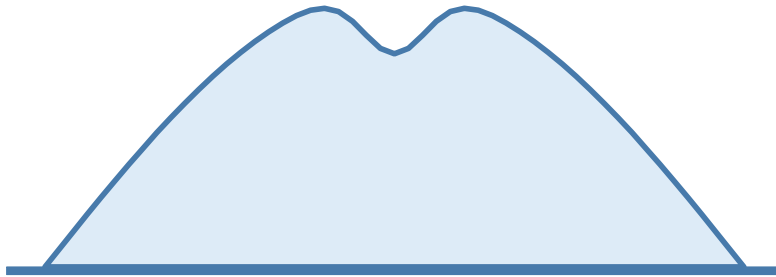
MOLLUSCUM CONTAGIOSUM

- The average incubation period is described as approximately 6 weeks.
- Papules measure roughly 1–5 mm in diameter.
- The surface is pearly and dome-shaped, with a dimpled center.
- Clinical recognition is based strongly on this characteristic appearance.

Papule architecture explains the clinical dimple and core

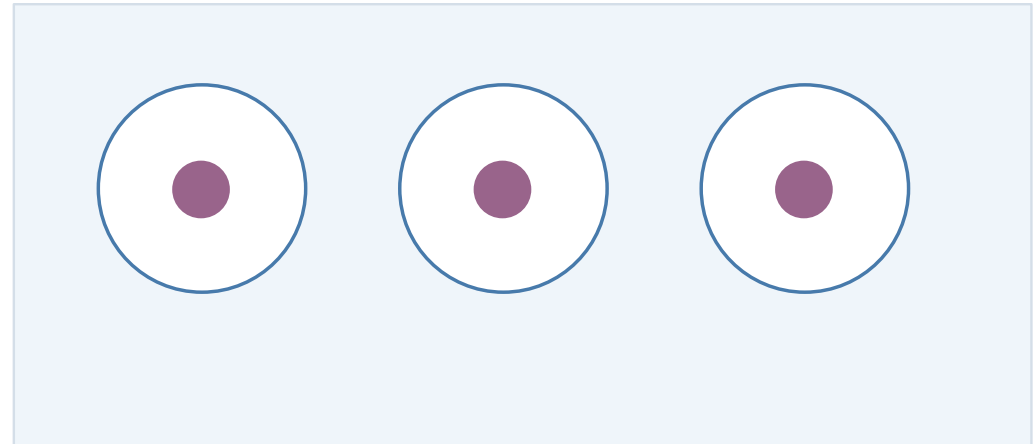
MOLLUSCUM CONTAGIOSUM

Surface appearance



Central umbilication

Underlying lesion contents



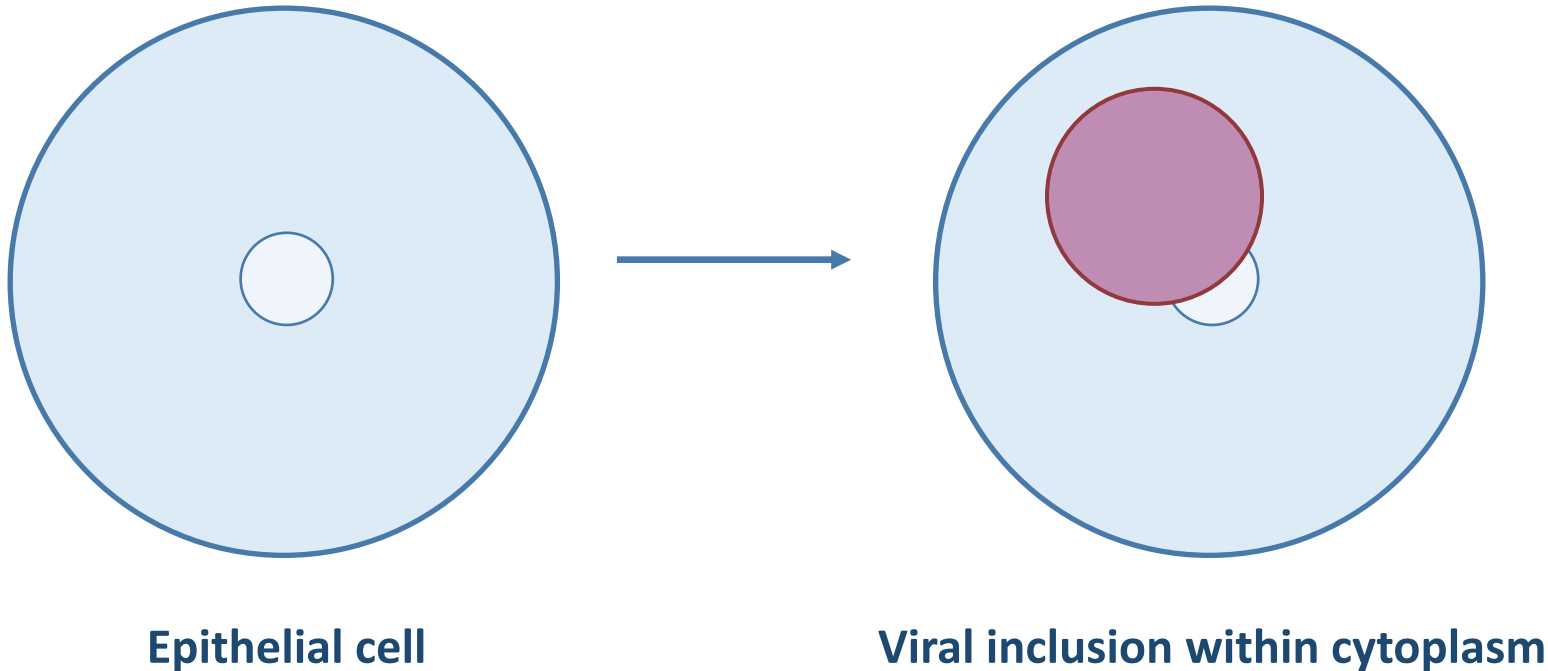
Epithelial cells with cytoplasmic inclusions

Schematic — not a clinical photograph or photomicrograph

The waxy core contains cells with viral inclusions

MOLLUSCUM CONTAGIOSUM

Central waxy core contains inclusion-bearing cells



Schematic cellular illustration — not histology

The hallmark viral inclusion is cytoplasmic

MOLLUSCUM CONTAGIOSUM

- Molluscum-infected cells contain intracytoplasmic viral inclusions.
- The waxy central core contains inclusion-bearing cells.
- Clinical morphology and cellular inclusions describe different scales of the same lesion.
- Distinguish these cytoplasmic inclusions from intranuclear viral effects described for HSV.

The clinical and histologic signatures are complementary

MOLLUSCUM CONTAGIOSUM

Scale	Characteristic observation	Interpretation
Visible papule	Pearly dome with central dimple	Clinical morphology
Lesion core	Waxy material	Contains infected cells
Cellular finding	Cytoplasmic viral inclusions	Morphologic correlate

Case: Genital papules with central umbilication

MOLLUSCUM CONTAGIOSUM

An adult has multiple 2–3 mm pearly papules on the inner thigh and genital skin, each with a small central dimple. Which diagnosis best matches the description?

Molluscum contagiosum

Candidiasis

Bacterial vaginosis

Answer and reasoning in presenter notes

Molluscum papules differ from HSV vesicles and ulcers

MOLLUSCUM CONTAGIOSUM

Feature	Molluscum	HSV (adjacent section)
Initial recognizable lesion	Pearly umbilicated papule	Red papule → vesicle
Typical established lesion	Small dome-shaped papule	Painful coalescent ulcers
Viral inclusions	Intracytoplasmic	Intranuclear; Ground glass

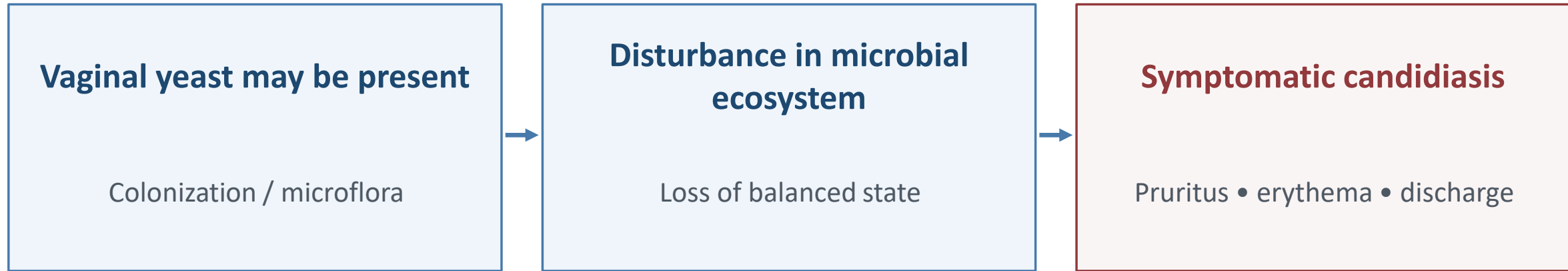
Candida may be part of normal vaginal microflora

CANDIDIASIS

- The presence of yeast in the vaginal environment does not automatically imply symptomatic disease.
- Candida among commonly present vaginal microorganisms.
- Symptomatic candidiasis frequently reflects a disturbance in the vaginal microbial ecosystem.
- This distinction explains why organism presence and clinical disease should not be treated as synonyms.

A disturbed vaginal ecosystem predisposes to candidiasis

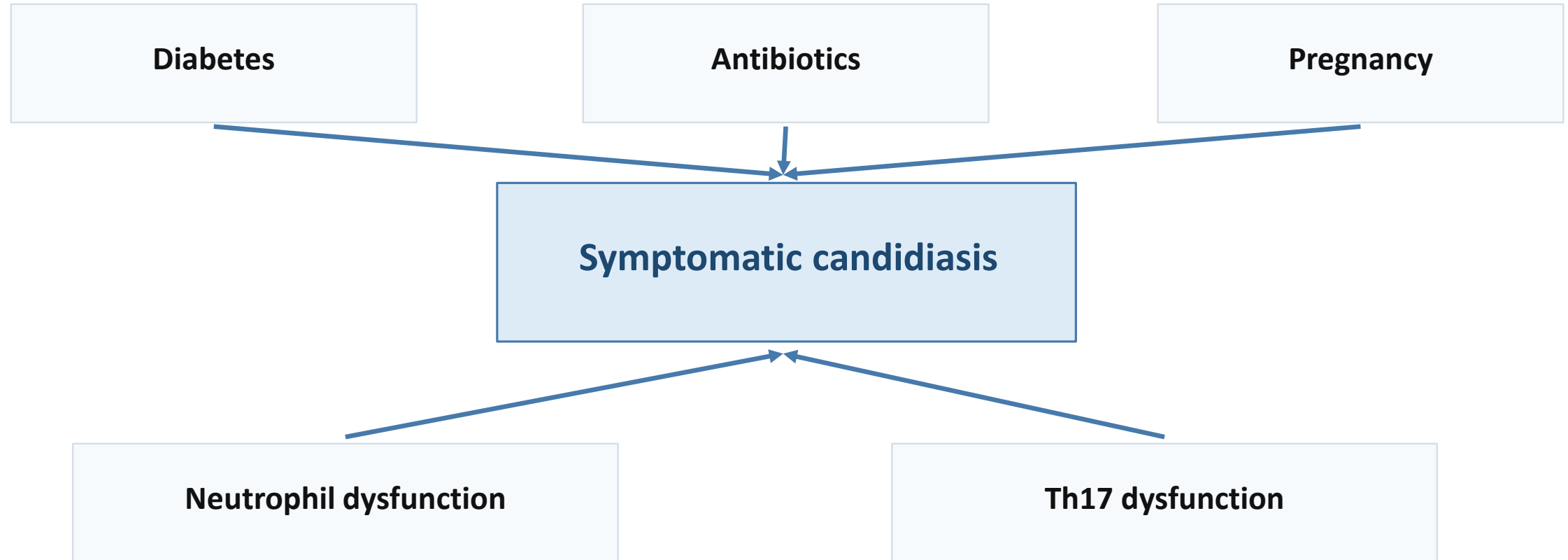
CANDIDIASIS



Conceptual process — not a claim that every colonized patient develops disease

Several clinical settings increase candidiasis susceptibility

CANDIDIASIS



Antifungal host defenses include neutrophils and Th17 cells

CANDIDIASIS

Neutrophil function

- Important in host defense
- Compromise raises symptomatic risk

Th17 T-cell function

- Important in mucosal antifungal immunity
- Impairment raises symptomatic risk

Both as susceptibility factors; It does not specify quantitative risk.

Pruritus is a prominent symptom of vulvovaginal candidiasis

CANDIDIASIS

- Marked vulvovaginal itching is characteristic.
- Erythema accompanies symptomatic mucosal inflammation.
- Swelling may be evident on examination.
- These inflammatory signs should be interpreted together with discharge and fungal findings.

Curdlike discharge complements the inflammatory findings

CANDIDIASIS

- The discharge is classically described as curdlike.
- Vulvovaginal pruritus, redness, and swelling create a recognizable syndrome.
- Severity varies; The textbook additionally describes mucosal ulcerations in severe infections.
- The discharge pattern is suggestive rather than uniquely pathogen-specific.

Severe candidiasis can injure the mucosal surface

CANDIDIASIS

- Inflammation may progress beyond superficial erythema and edema.
- Severe cases can produce mucosal ulcerations.
- Ulceration is an indication of substantial local mucosal injury.
- Clinical assessment should distinguish severe Candida-associated inflammation from other ulcerative causes.

Wet KOH examination can reveal fungal structures

CANDIDIASIS

Wet KOH preparation



Pseudospores / filamentous hyphae

What the finding contributes

- Direct morphologic evidence of fungal elements
- Interpret in the setting of symptoms and examination

Schematic microorganisms — not a photomicrograph

Fungal elements may also appear on cervical cytology

CANDIDIASIS

- Fungal structures on Papanicolaou smears.
- It describes pseudospores or filamentous fungal hyphae as visible structures.
- The morphological finding should be related to the clinical syndrome.
- A cytologic observation alone does not establish that symptoms are due to Candida.

Candidiasis is not classified as a sexually transmitted disease

CANDIDIASIS

- Sexual transmission of yeast has been documented.
- Nevertheless, the textbook does not classify vulvovaginal candidiasis as an STI.
- Symptomatic episodes commonly reflect altered local microbial conditions.
- Transmission history and mechanism of disease are therefore separate questions.

Case: Pruritus, curdlike discharge, and recent antibiotics

CANDIDIASIS

After antibiotic exposure, a patient develops marked vulvovaginal pruritus, erythema and curdlike discharge. Which infectious process is best supported?

Candidiasis

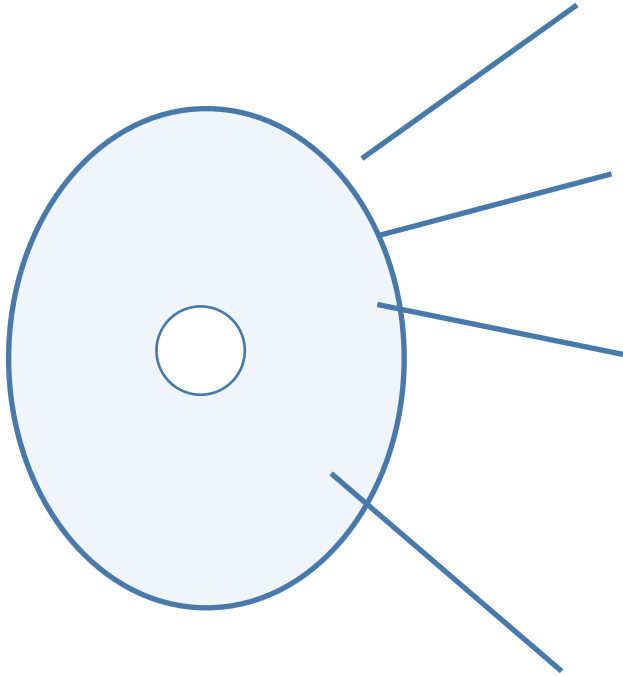
Molluscum

Chlamydial cervicitis

Answer and reasoning in presenter notes

Trichomonas vaginalis is a flagellated ovoid protozoan

TRICHOMONIASIS



Trichomonas vaginalis

- Large ovoid protozoan
- Flagellated organism
- Usually transmitted through sexual contact

Schematic organism only; No scale or flagellar count is implied

Trichomoniasis is usually sexually transmitted

TRICHOMONIASIS

- The causative organism is *Trichomonas vaginalis*.
- The typical transmission route is sexual contact.
- Genital symptoms may occur in the vaginal and cervical regions.
- Exposure context is informative but does not predict whether symptoms will be present.

An infected patient may remain asymptomatic

TRICHOMONIASIS

- The source explicitly describes asymptomatic infections.
- Others develop vulvovaginal symptoms and altered discharge.
- Absence of complaints is therefore not equivalent to absence of infection.
- This variable expression affects reliance on symptom-only recognition.

Yellow, frothy discharge is a characteristic clinical clue

TRICHOMONIASIS

- The described discharge is yellow and frothy.
- The finding accompanies a vaginal inflammatory syndrome.
- The discharge pattern provides an immediate clue to trichomoniasis.
- Morphology of the organism, exposure history, and mucosal findings can refine the interpretation.

Urinary and intercourse-associated discomfort may occur

TRICHOMONIASIS

- Vulvovaginal discomfort is common among symptomatic patients.
- Dysuria refers to painful urination.
- Dyspareunia refers to painful intercourse.
- These complaints extend the syndrome beyond discharge alone.

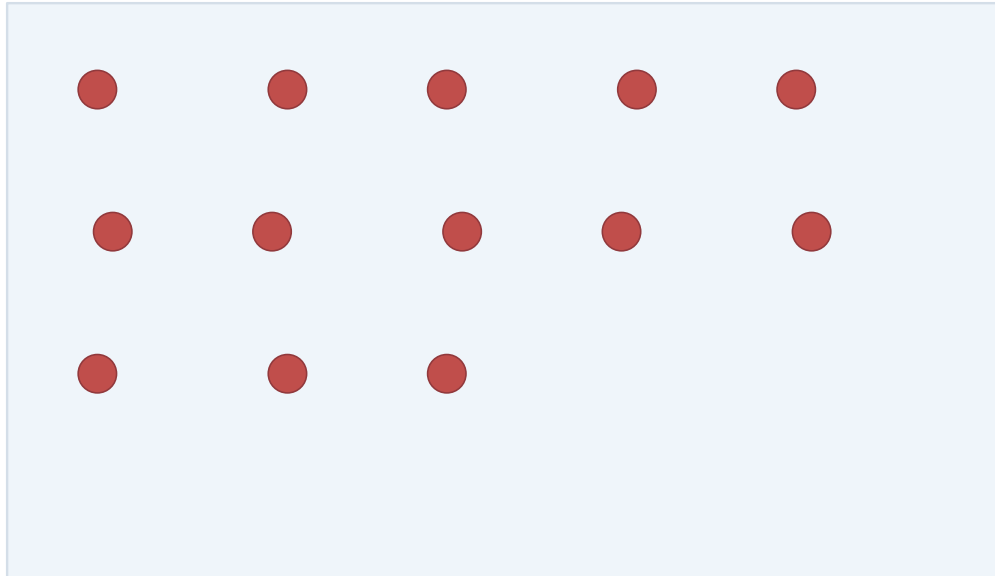
The vaginal and cervical mucosa may appear fiery red

TRICHOMONIASIS

- The source describes a markedly erythematous appearance.
- The observation reflects an inflammatory mucosal response.
- The cervix may show prominent mucosal vascular dilation.
- This vascular appearance underlies the classic strawberry-cervix description.

“Strawberry cervix” is a vascular colposcopic pattern

TRICHOMONIASIS



Prominent mucosal vascular dilation

“Strawberry cervix”

- Characteristic colposcopic appearance
- Reflects conspicuous cervical mucosal vessels
- Occurs with trichomonal inflammation

Stylized vascular-pattern schematic — not a colposcopic image

Case: Frothy discharge, dysuria, and a red cervix

TRICHOMONIASIS

A patient reports yellow frothy discharge, dysuria, and discomfort with intercourse. Examination reveals a markedly erythematous cervix. Which source-described infection is most consistent?

Trichomoniasis

Molluscum

Bacterial vaginosis

Answer and reasoning in presenter notes

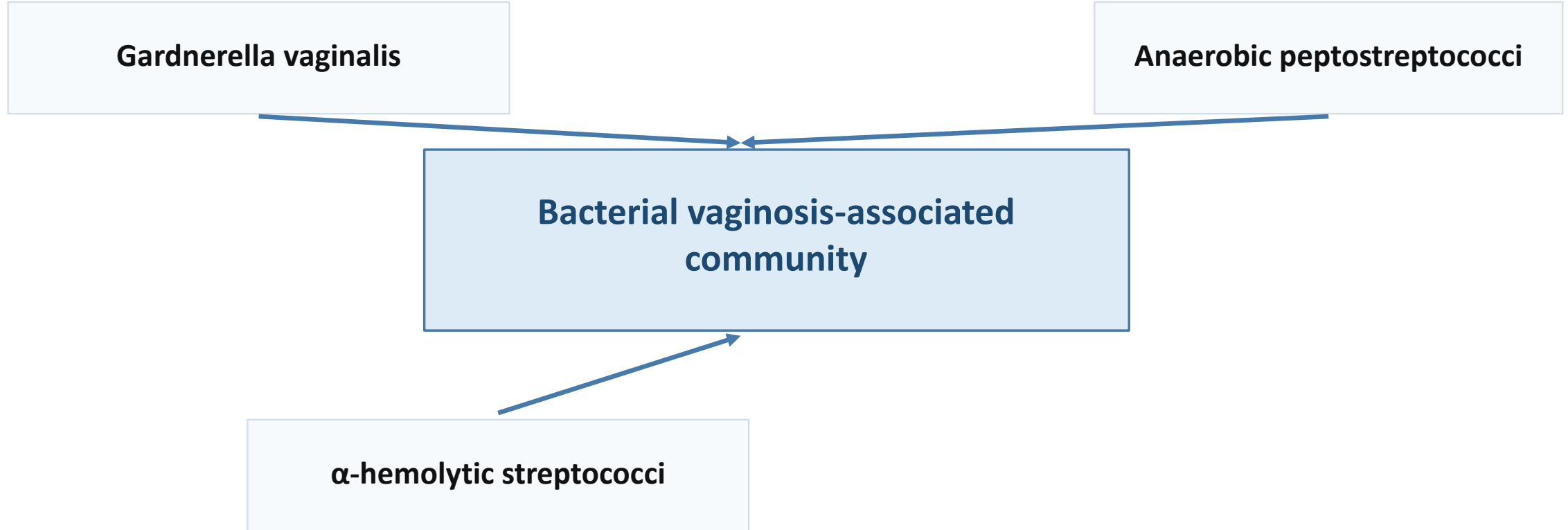
Gardnerella is strongly associated with bacterial vaginosis

BACTERIAL VAGINOSIS

- Gardnerella vaginalis as a major organism associated with the syndrome.
- It describes G. Vaginalis as a gram-negative coccobacillus.
- The associated microbiologic setting is not limited to a single bacterial species.
- The characteristic clinical syndrome involves altered, malodorous discharge.

Bacterial vaginosis involves a mixed bacterial pattern

BACTERIAL VAGINOSIS



Source describes a mixed bacterial picture; No organism proportions are implied.

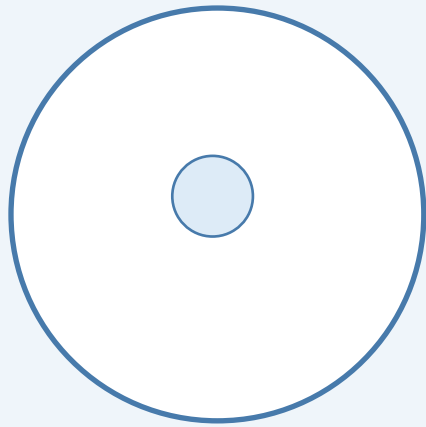
Thin, malodorous discharge contrasts with curdlike discharge

BACTERIAL VAGINOSIS

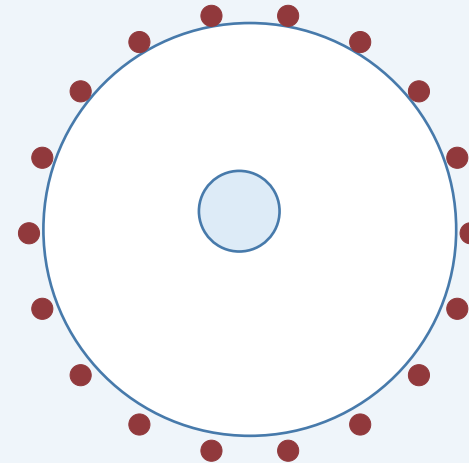
- The discharge is described as thin and green-gray.
- A fishy odor is a characteristic observation.
- The source contrasts implicitly with the curdlike discharge of candidiasis.
- Symptom pattern can orient clinical recognition without identifying every associated bacterium.

Coccobacilli coat squamous cells in bacterial vaginosis

BACTERIAL VAGINOSIS



Squamous cell



Cell coated with coccobacilli

Conceptual cell morphology — not a Pap smear image

Pap cytology may display shaggy-coated squamous cells

BACTERIAL VAGINOSIS

- The source describes superficial and intermediate squamous cells on Pap smears.
- Coccobacilli cover the cells, creating a shaggy-appearing border.
- The appearance is commonly called a clue-cell pattern.
- It represents adherence of bacterial organisms to epithelial surfaces.

The bacterial background may include several organisms

BACTERIAL VAGINOSIS

Organism/group	Reported association
Gardnerella vaginalis	Main implicated coccobacillus
Anaerobic peptostreptococci	Other organisms identified by culture
Aerobic α-hemolytic streptococci	Additional organisms identified by culture

Pregnancy makes bacterial vaginosis clinically relevant

BACTERIAL VAGINOSIS

- The textbook associates bacterial vaginosis with premature labor.
- This is an obstetric association, not a quantitative individual risk estimate.
- Infection-associated adverse outcomes should be interpreted within the broader pregnancy context.
- No specific screening, treatment, or numerical risk threshold is provided in this source passage.

Case: Thin fishy discharge and coated squamous cells

BACTERIAL VAGINOSIS

A patient has thin, fishy-smelling green-gray discharge. Squamous cells in cytology are densely coated by small coccobacilli. Which syndrome best matches?

Bacterial vaginosis

Candidiasis

Molluscum

Answer and reasoning in presenter notes

Two Mollicutes are discussed in lower genital tract infection

UREAPLASMA AND MYCOPLASMA

- The source specifically names *Ureaplasma urealyticum*.
- It also names *Mycoplasma hominis*.
- These organisms account for some reported cases of vaginitis and cervicitis.
- Their clinical relevance spans the lower tract and pregnancy-associated disorders.

Ureaplasma and Mycoplasma have a lower-tract presentation

UREAPLASMA AND MYCOPLASMA

- Vaginitis is among the conditions linked to these organisms.
- Cervicitis is another recognized presentation in the source.
- The supplied passage gives no pathognomonic discharge, smear appearance, or diagnostic criterion.
- A teaching distinction is that attribution to these organisms cannot be made from a unique clinical hallmark here.

Pregnancy-associated complications include chorioamnionitis

UREAPLASMA AND MYCOPLASMA

- Both organisms are implicated in pregnancy-associated chorioamnionitis.
- The source also associates them with premature delivery.
- These statements describe reported clinical involvement, not an exact risk magnitude.
- The wording “implicated” should be preserved rather than presented as proof of causality in every case.

Association does not specify a diagnostic threshold

UREAPLASMA AND MYCOPLASMA

- The source provides names and associated syndromes, but not standardized microbiologic cutoffs.
- It does not specify sensitivity or specificity for individual organism detection.
- No single specific morphologic lesion is assigned to these infections in this excerpt.
- A sound pathology lecture should not invent a laboratory threshold or characteristic smear.

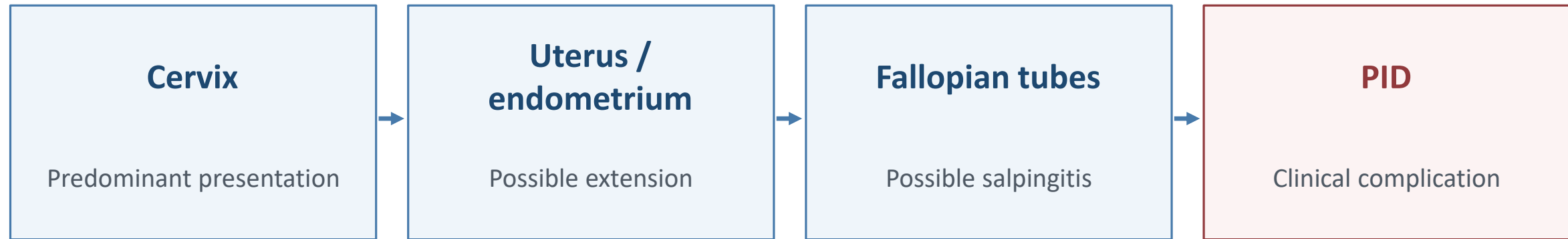
Chlamydia trachomatis principally presents as cervicitis

CHLAMYDIAL INFECTION

- The dominant lower-tract manifestation discussed is cervicitis.
- The cervical focus distinguishes the emphasis from predominantly vaginal discharge syndromes.
- The same organism can also cause disease beyond the cervix.
- The clinical significance is the potential transition from a lower-tract infection to upper-tract inflammation.

Some chlamydial infections spread upward

CHLAMYDIAL INFECTION



Only a subset of cervical infections ascend to the upper tract.

Ascending infection can cause endometritis

CHLAMYDIAL INFECTION

- The uterus is a potential site of upward spread.
- Infection of the endometrial region causes endometritis.
- The source places this within progression beyond cervicitis.
- Endometritis is part of a spectrum of upper-tract involvement, not the usual initial described presentation.

Fallopian-tube involvement produces salpingitis

CHLAMYDIAL INFECTION

- An ascending infection may reach the fallopian tubes.
- Salpingitis refers to inflammation of those tubes.
- The tube is an important upper-tract site of clinical concern.
- The next Robbins topic addresses the more extensive pathology of pelvic inflammatory disease.

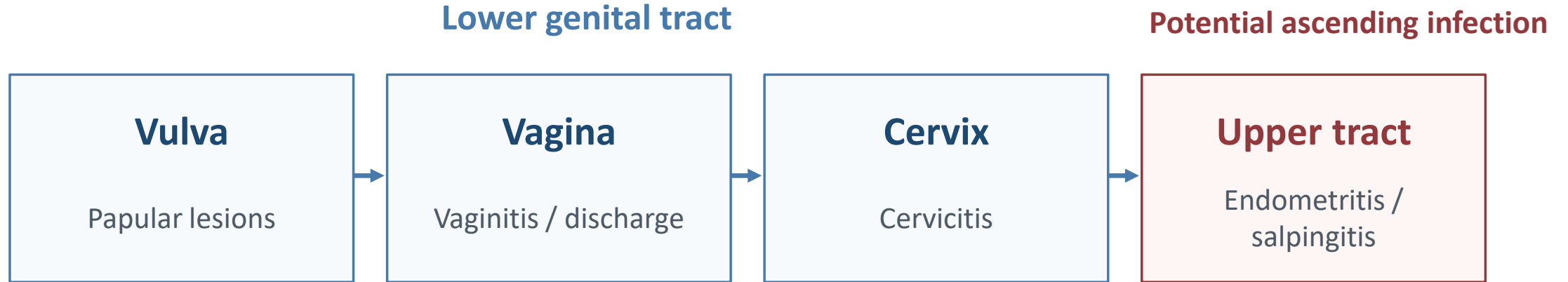
Chlamydia is one cause of pelvic inflammatory disease

CHLAMYDIAL INFECTION

- Ascending infection can involve both the endometrium and fallopian tubes.
- The source explicitly identifies Chlamydia as an etiologic cause of PID.
- PID is broader than an isolated cervical infection.
- This lecture limits the PID discussion to the ascending-infection connection.

Site progression links cervicitis to upper-tract disease

CHLAMYDIAL INFECTION



Conceptual site map — not an anatomical illustration

Case: Cervicitis with later uterine and tubal involvement

CHLAMYDIAL INFECTION

A patient initially has cervicitis; Later investigations indicate endometritis and salpingitis.
Which organism in this lesson is explicitly associated with this pattern?

Chlamydia trachomatis

Molluscum contagiosum

Candida

Answer and reasoning in presenter notes

Discharge phenotypes provide a practical comparison

INTEGRATION

Condition	Typical discharge	Additional clue
Candida	Curdlike	Marked itching; Erythema
Trichomonas	Yellow, frothy	Dysuria; Fiery-red cervix
Bacterial vaginosis	Thin, green-gray; Fishy	Coccobacilli-coated squamous cells

Specimen-level clues differ among these infections

INTEGRATION

Infection	Source-described morphology	Where it is identified
Molluscum	Intracytoplasmic viral inclusions	Cells in lesion core
Candida	Pseudospores / hyphae	Wet KOH mount or Pap smear
Bacterial vaginosis	Coated squamous cells	Pap smear

A lesion–discharge–cervicitis framework guides teaching

INTEGRATION

Papules

Superficial lesion

Molluscum

Discharge / vaginitis

Local mucosal syndrome

Candida • Trichomonas • BV

Cervicitis

Possible ascending route

Chlamydia • Mollicutes

Obstetric relevance differs across the infectious groups

INTEGRATION

Infection	Pregnancy-related statement
Candidiasis	Pregnancy is a susceptibility context
Bacterial vaginosis	Implicated in premature labor
Ureaplasma / Mycoplasma	Implicated in chorioamnionitis and premature delivery
Chlamydia	Upper-tract ascent emphasized; No pregnancy outcome in this passage

Route of transmission must not be inferred from symptoms

INTEGRATION

Condition	Source-supported transmission framing
Molluscum	Childhood contact/fomites; Adults typically sexually transmitted
Trichomonas	Usually sexually transmitted
Candida	Sexual spread documented, but not classified as an STI
Chlamydia	Included among sexually transmitted infections in parent context
Bacterial vaginosis	No route classified in this excerpt

A positive finding and a causal diagnosis are not identical

INTEGRATION

- Normal microflora can include Candida without symptomatic candidiasis.
- Bacterial vaginosis is associated with a mixture of bacteria rather than a single isolated organism description.
- Ureaplasma and Mycoplasma are “implicated” in several outcomes; This does not identify a unique patient-level mechanism.
- Morphology, clinical syndrome, and anatomic site should be interpreted together.

Case: Match the phenotype to the source-defined syndrome

INTEGRATION

Which pairing is correct according to the source: Curdlike discharge and coccobacilli-coated cells; Frothy discharge and strawberry cervix; Or umbilicated papules and chlamydial cervicitis?

**Frothy discharge + strawberry
cervix**

Curdlike + coated squamous cells

Umbilicated papules + cervicitis

Answer and reasoning in presenter notes

The central comparisons integrate pathogen, site, and morphology

INTEGRATION

- Molluscum: Poxvirus papules with cytoplasmic inclusions.
- Candida: Ecosystem disturbance, pruritus, curdlike discharge, and fungal structures.
- Trichomonas: Usually sexually transmitted protozoan with frothy discharge and red mucosa.
- Bacterial vaginosis: Mixed bacteria, thin fishy discharge, and coated squamous cells.
- Ureaplasma/Mycoplasma: Some vaginitis/cervicitis and reported obstetric complications.
- Chlamydia: Cervicitis with potential ascent to endometrium and fallopian tubes.

Primary source and scope limitations

REFERENCES

- Robbins, Cotran & Kumar. Pathologic Basis of Disease. 11th edition (2026). Chapter 22, “The Female Genital Tract,” pp. 897–898.
- Topic subsection: “Other Lower Female Genital Tract Infections”; nearby HSV and PID sections used solely for stated contrasts and transitions.
- Figures are original native PowerPoint teaching schematics, not reproduced textbook figures or diagnostic specimen images.
- The supplied Markdown extract was available; original Chapter 22 PDF and original figure panels were not supplied for inspection.