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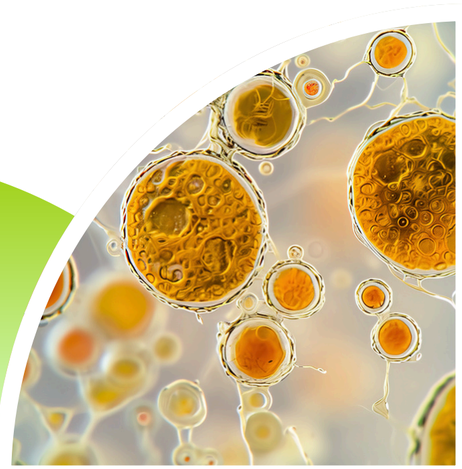
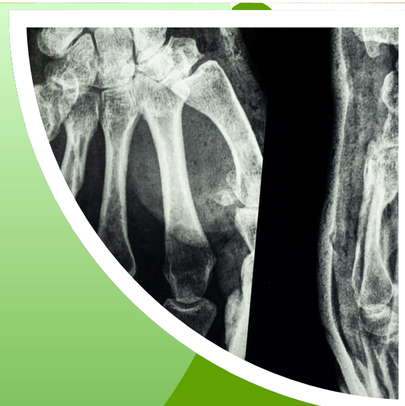





Mechanism and Illness of Human Body 2

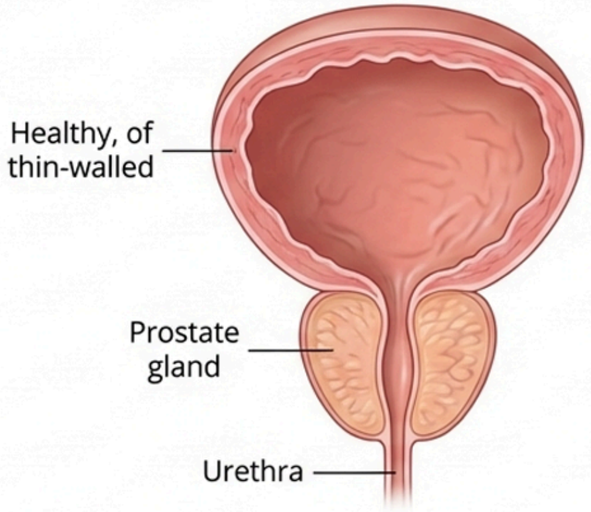
Lecturer Unchisa Rattanakunuprakarn
Asst.Prof. Jutatip Tepsuwan
Lecturer Napat Rattanahongsa

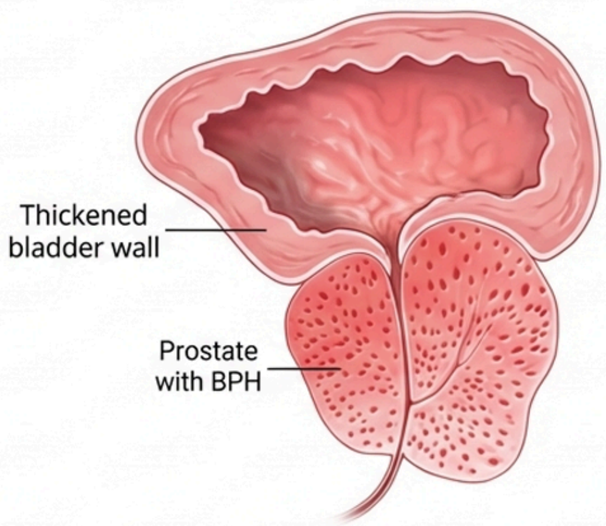
10

Disorders of the Reproductive System

Male Reproductive Disorders

Benign Prostatic Hyperplasia (BPH)

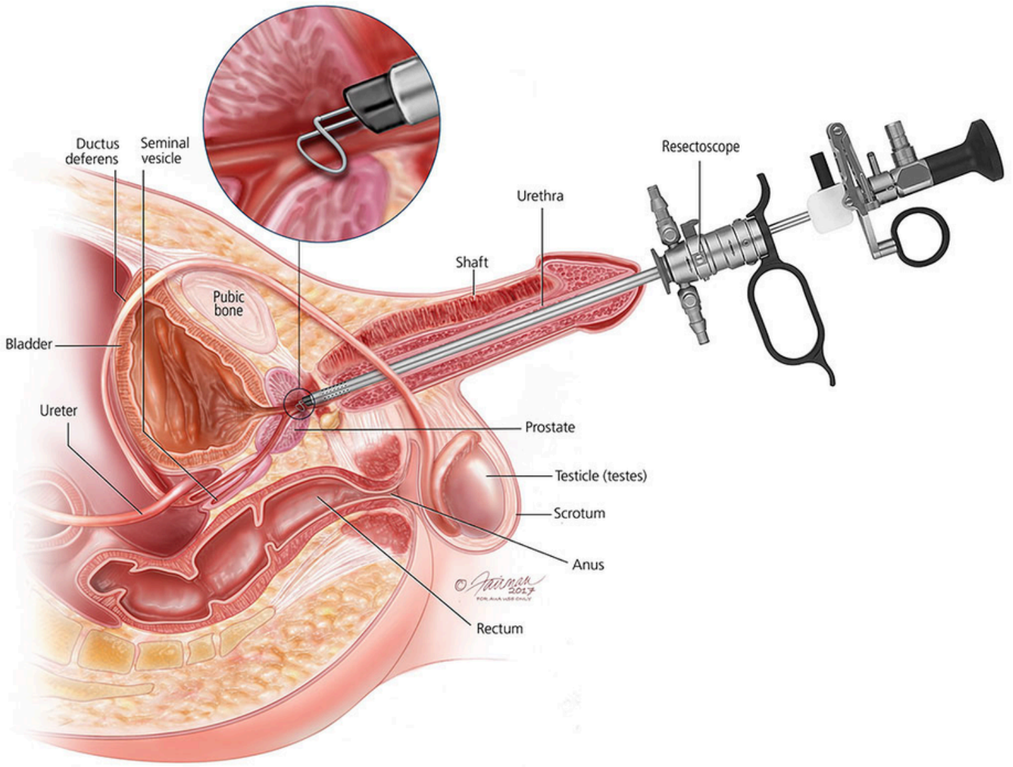




Pathophysiology: Non-cancerous enlargement driven by hormonal accumulation of DHT.

BPH Clinical Management

Symptoms: Hesitancy, dribbling, incomplete emptying.
Surgical Treatment: TURP (Transurethral Resection of the Prostate).
Cause: Absorption of irrigation fluid leading to water intoxication.
Signs: Hyponatremia (Na < 120 mEq/L), confusion, bradycardia, hypertension.



Urology Care Foundation (2026)

Prostate Cancer vs. BPH

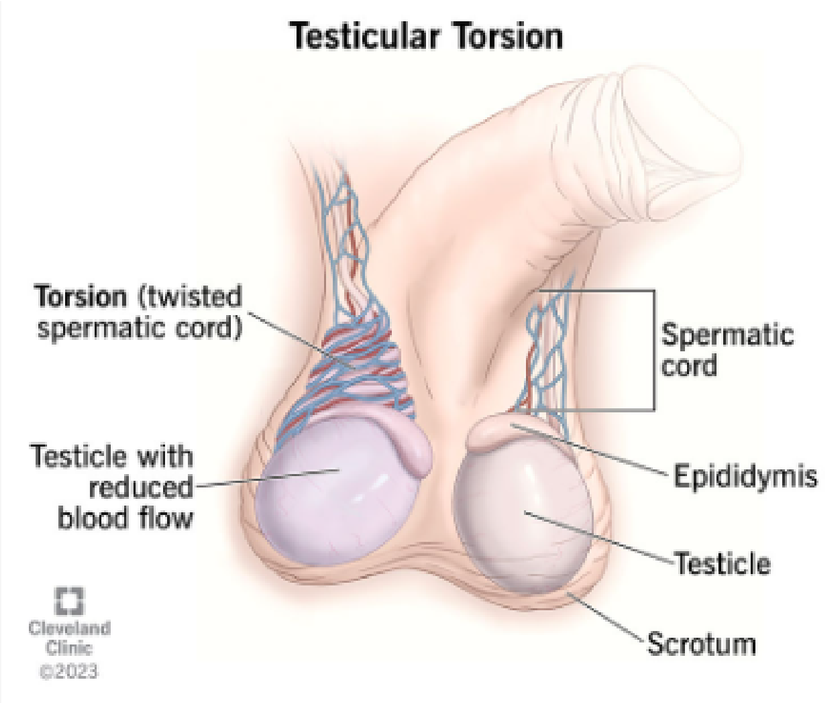
BPH: Usually affects the Transitional Zone (inner part)
Prostate Cancer: Usually affects the Peripheral Zone (outer part)

Screening Marker:
Prostate Specific Antigen (PSA): Normal 0-4 ng/ml. *
Suspicious level: > 20 ng/ml (indicates possible metastasis or high risk)

Male Reproductive Emergencies

Testicular Torsion:

Twisting of the spermatic cord ----> Ischemia.
Symptoms: Sudden severe scrotal pain, absence of cremasteric reflex. * **Urgency:** Surgical emergency (Detorsion) within 6 hours to save the testis.



Penile Paraffinoma:

Cause: Injection of foreign substances (e.g., olive oil, paraffin).
Pathology: Chronic inflammation, granuloma formation, fibrosis, and ulceration.

Female Reproductive Disorders

Dysfunctional Uterine Bleeding (DUB)

Definition: Abnormal bleeding without pelvic pathology (diagnosis of exclusion)

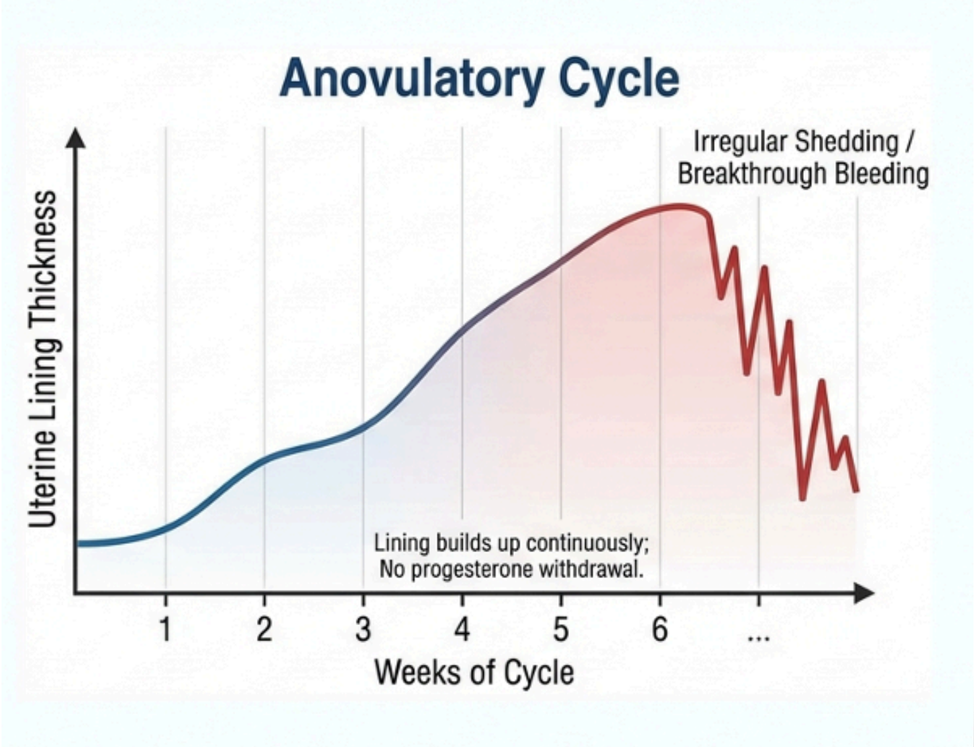
Most Common Cause: Anovulation (Failure to ovulate).

High-Risk Groups:

Adolescents (immature HPO axis). *

Perimenopausal women

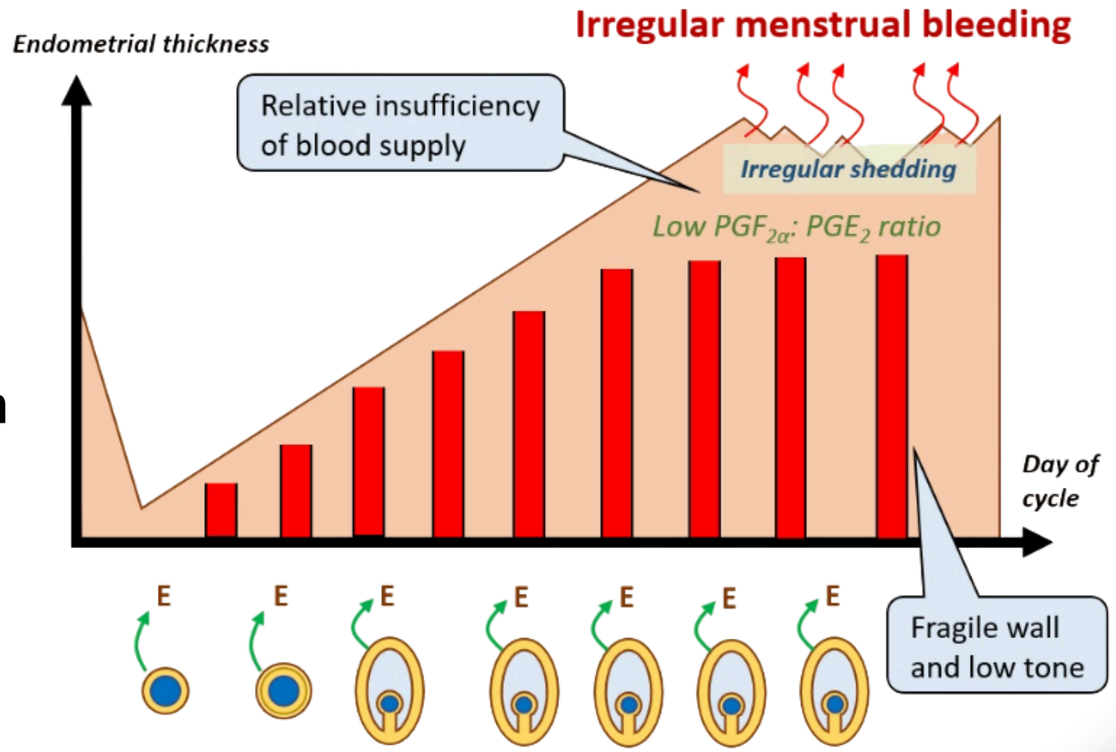
(declining ovarian function)



Mechanisms of DUB

Estrogen Withdrawal: Sudden drop in estrogen (e.g., bilateral oophorectomy).
Estrogen Breakthrough: Prolonged low-dose estrogen creates an unstable endometrium.

Progesterone Withdrawal: Normal mechanism of menstruation.
Progesterone Breakthrough: High progesterone/estrogen ratio (e.g., OCP use) ---> Atrophy.



Post-Menopausal Bleeding

Vaginal bleeding occurring >1 year after menopause

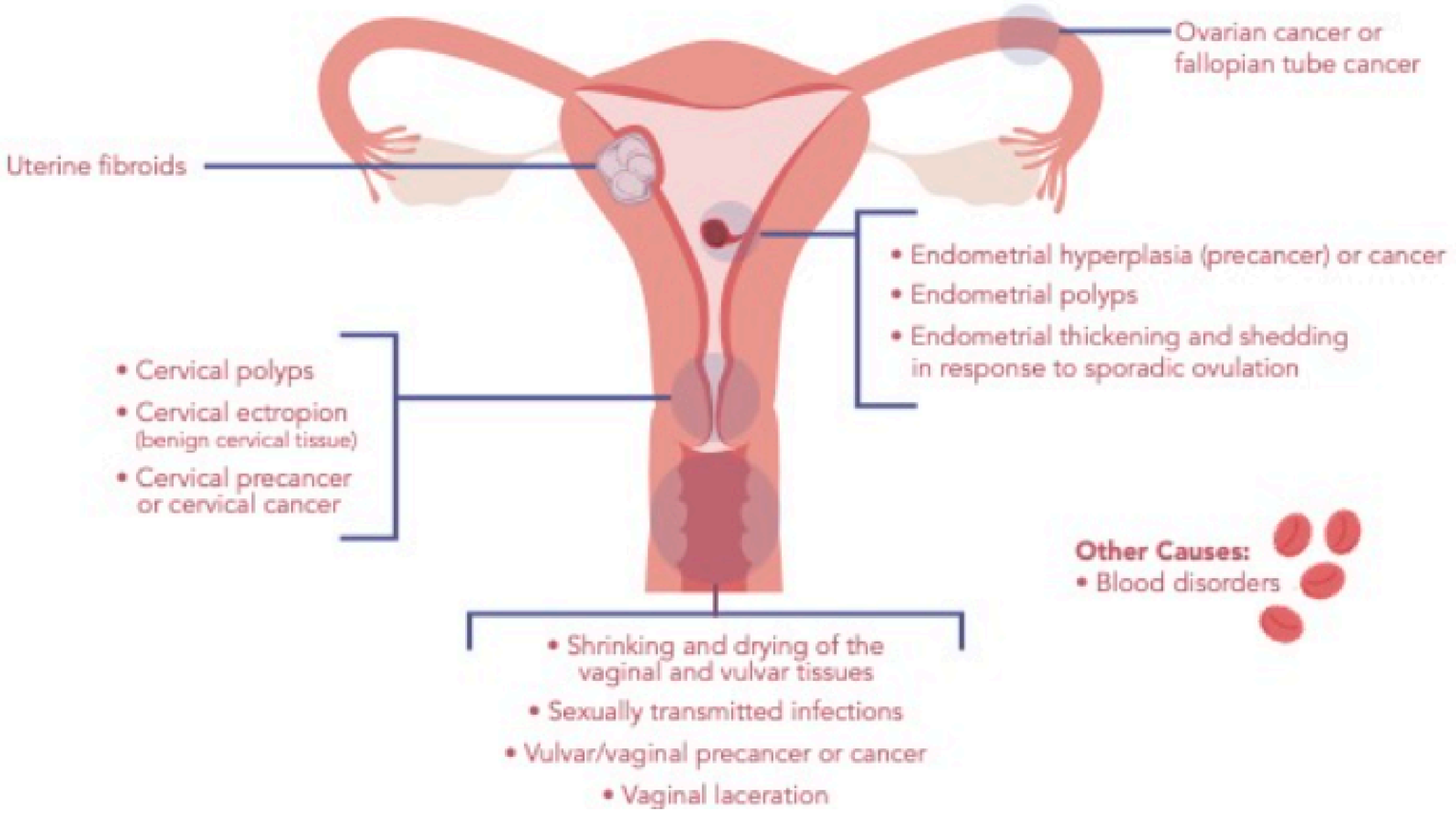
Critical Rule-Out:

Endometrial Cance

Other Causes:

Atrophic Vaginitis (common due to hypoestrogenism)

Cervical Polyps



Temerty Faculty of Medicine (2025)

Uterine Leiomyoma (Myoma Uteri)

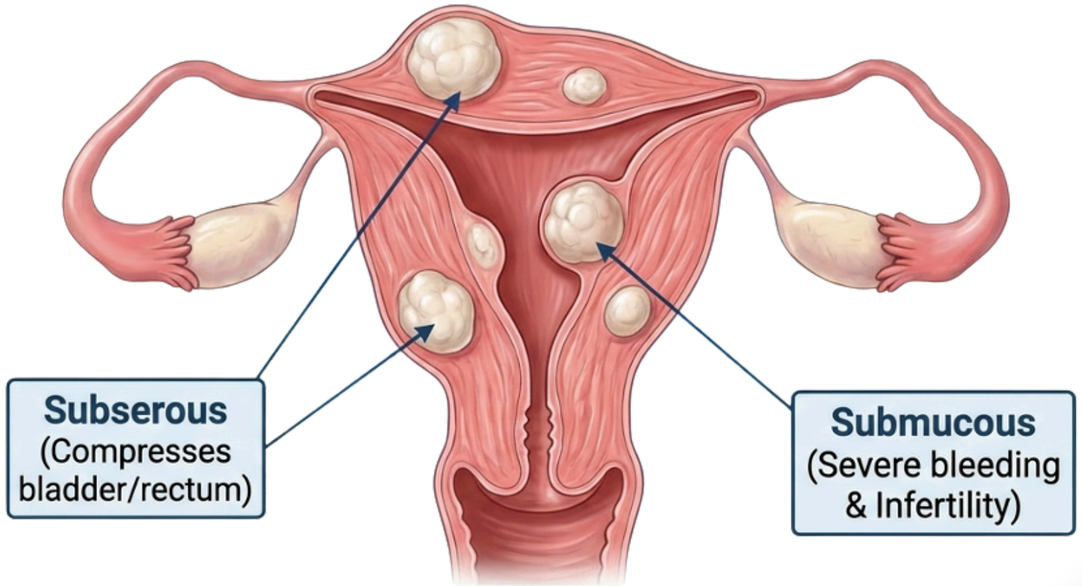
Benign smooth muscle tumor of the uterus

Classification by Location:

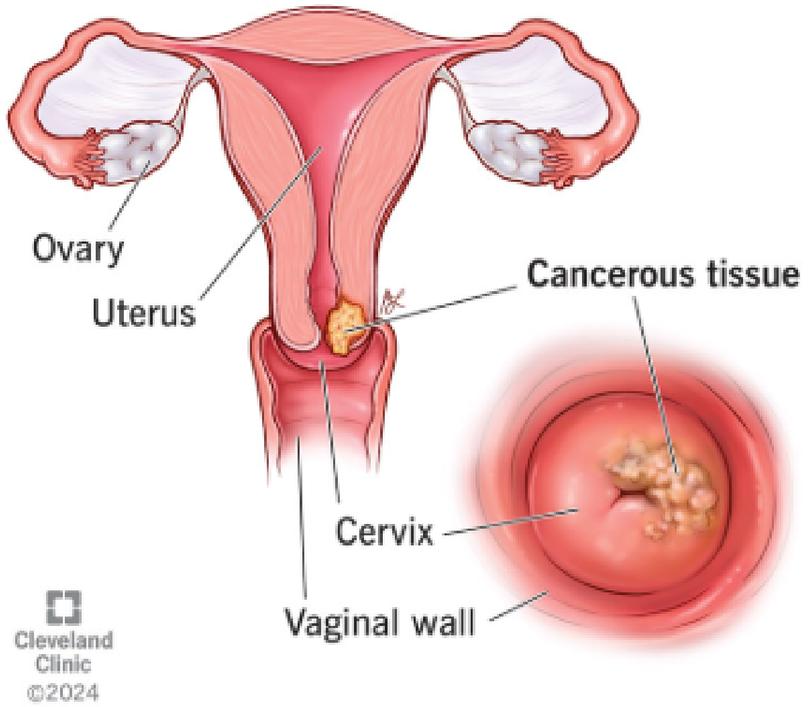
Subserous: Projects outward (can compress bladder/rectum)

Intramural: Within the myometrium (most common)

Submucous: Projects into the uterine cavity (Causes most severe bleeding/infertility)



Cervical Cancer



Primary Cause: Persistent infection with Human Papillomavirus (HPV)
High-Risk Strains: HPV 16 and 18 (Cause ~70% of cases)
Risk Factors: Early sexual activity, multiple partners, smoking
Screening: Pap Smear (detects cell changes before cancer develops)

Cervical Cancer: Progression

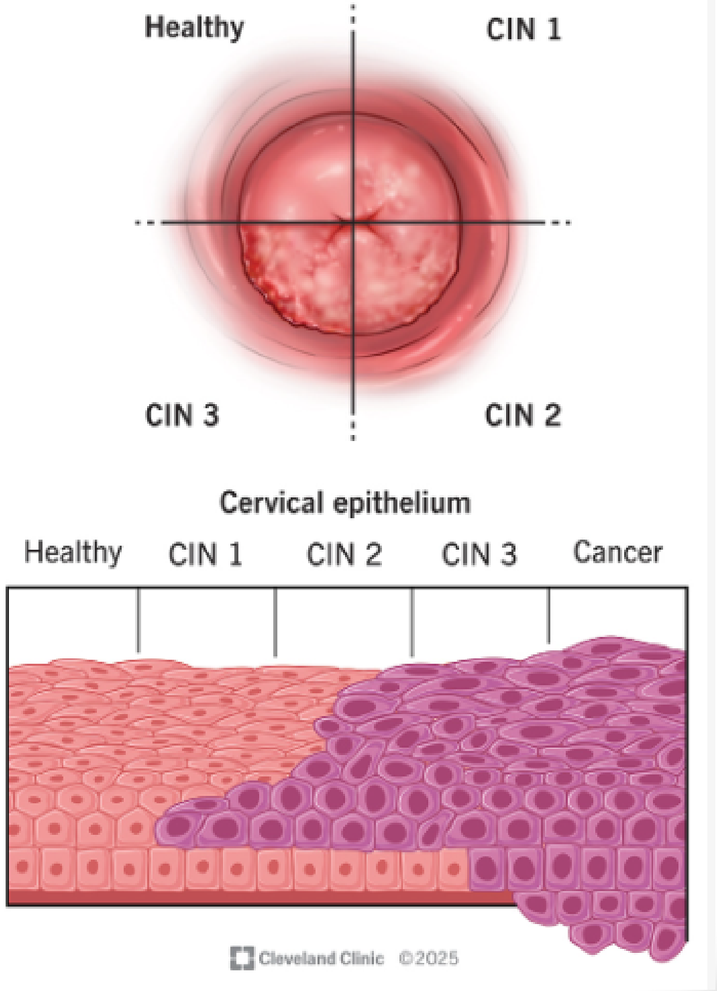
Pathogenesis: Normal ----> CIN (Cervical Intraepithelial Neoplasia) ----> CIS (Carcinoma in Situ) ----> Invasive Cancer

Symptoms:

Early: Asymptomatic

Late: Post-coital bleeding (Contact bleeding), malodorous discharge

Treatment: LEEP, Conization, Radical Hysterectomy



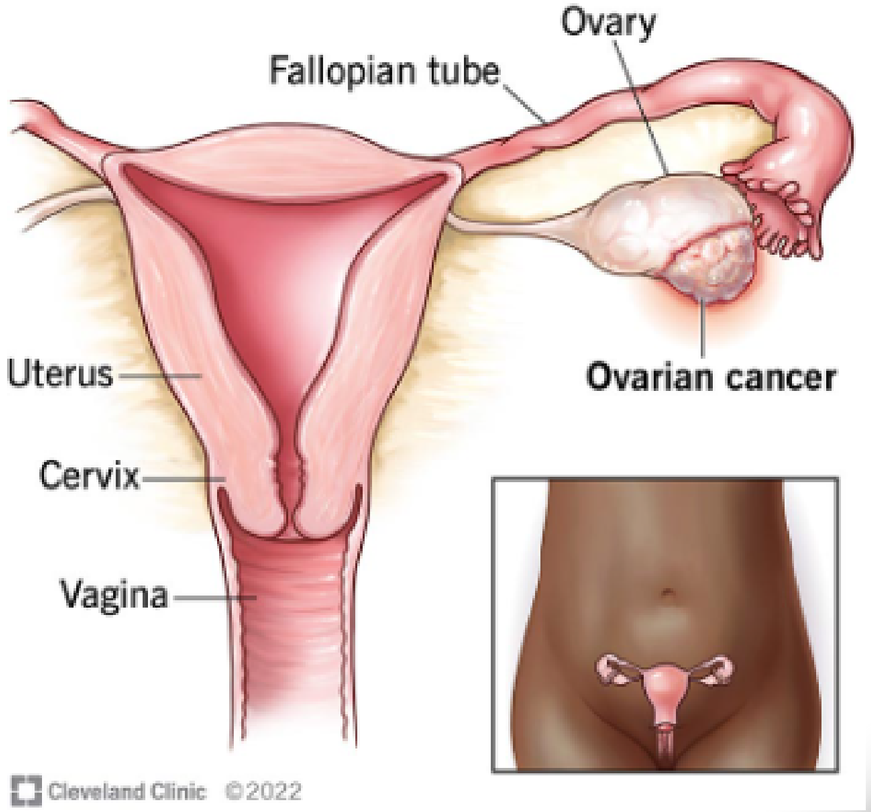
Ovarian Cancer

Clinical Manifestations (Advanced Stage):

- Ascites (Fluid in abdomen)
- Abdominal bloating/distension

Gastrointestinal symptoms (Dyspepsia, early satiety)

Metastasis: Often spreads via Surface Exfoliation (seeding into peritoneal cavity)

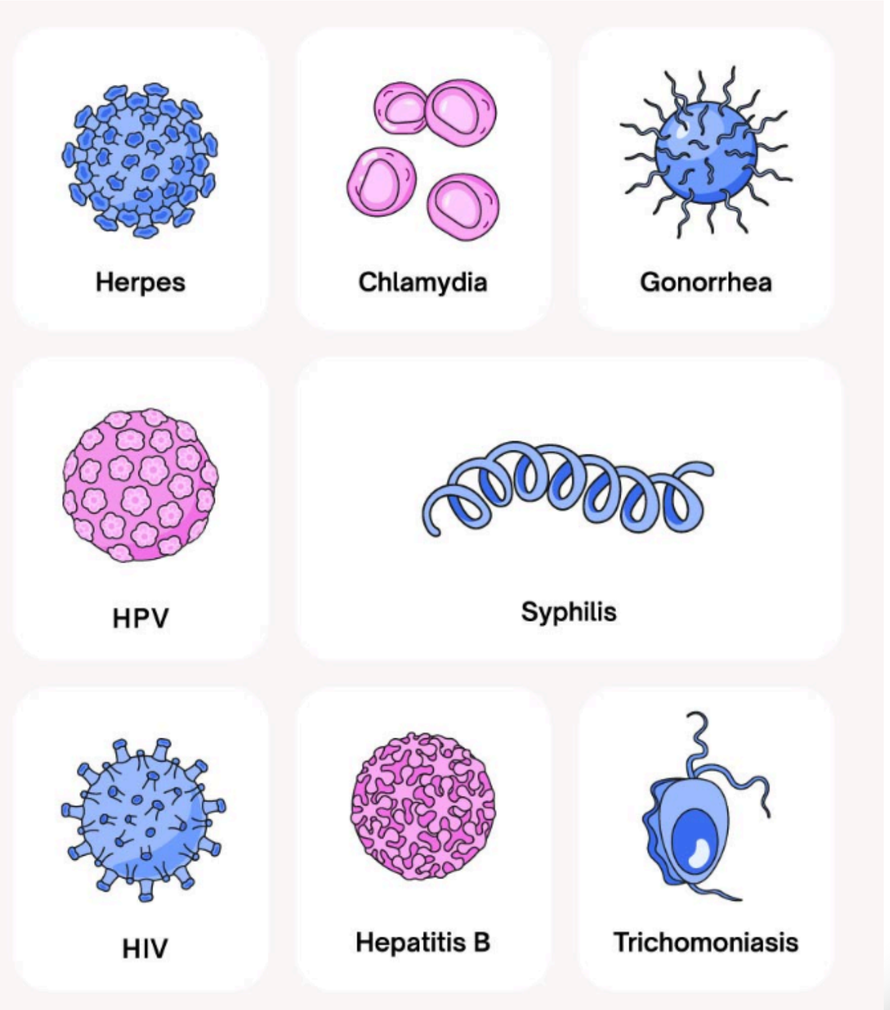


Sexually Transmitted Infections (STIs)

Common Pathogens: Bacteria, Viruses, Protozoa, Fungi

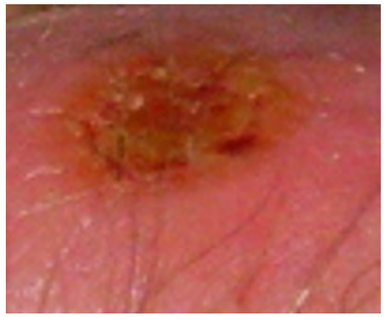
General Symptoms:

- Urethritis/Cervicitis (Discharge)
- Genital Ulcers (Painful vs. Painless)
- Vaginitis (Itching, Odor)

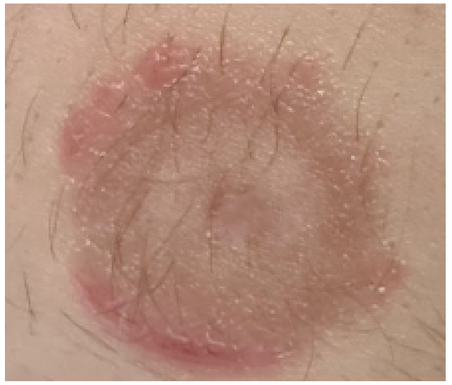


Syphilis (Treponema pallidum)

Primary Syphilis: Hard Chancre (Painless, indurated ulcer at inoculation site)



Secondary Syphilis: Hematogenous spread.
Rash on palms/soles.
Condyloma lata (Flat, moist warts in intertriginous areas)



Diagnosis: VDRL, RPR

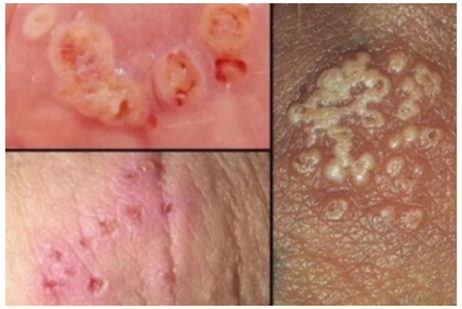
(Andrade et al., 2013)

Gonorrhea vs. Chlamydia

Gonorrhea (N. gonorrhea):

Symptoms: Purulent (pus-like) discharge, dysuria

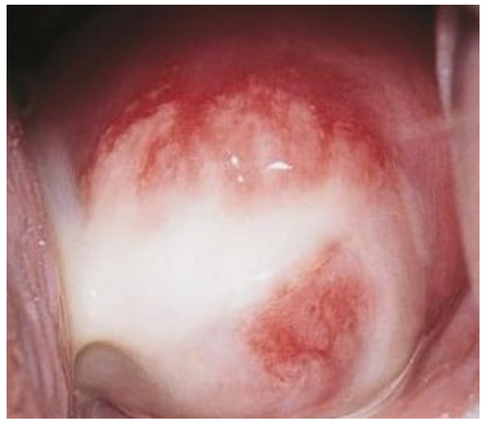
Complication: PID, Infertility



Chlamydia (C. trachomatis):

Often asymptomatic ("Silent infection")

Cause of Non-gonococcal urethritis (NGU)



(bhopalskindrannaalex, 2025)

Candidiasis (Yeast Infection)

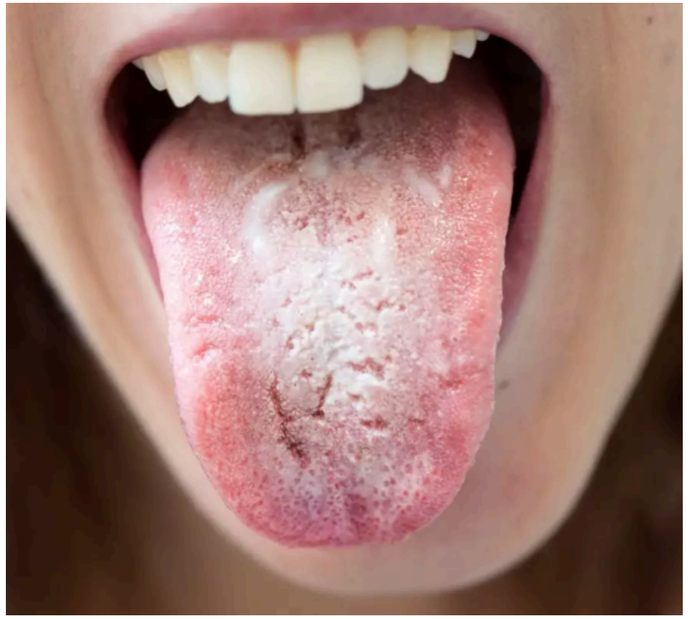
Pathogen: Candida albicans.

Risk Factors: Antibiotic use, Diabetes, Pregnancy (High estrogen).

Clinical Features:

Severe pruritus (itching). Curd-like discharge (White, thick, non-malodorous)

Diagnosis: Wet smear with 10% KOH (Budding yeast/Pseudohyphae)



The Pharmaceutical Journal (2020)

Trichomoniasis

Pathogen: Trichomonas vaginalis (Protozoa)

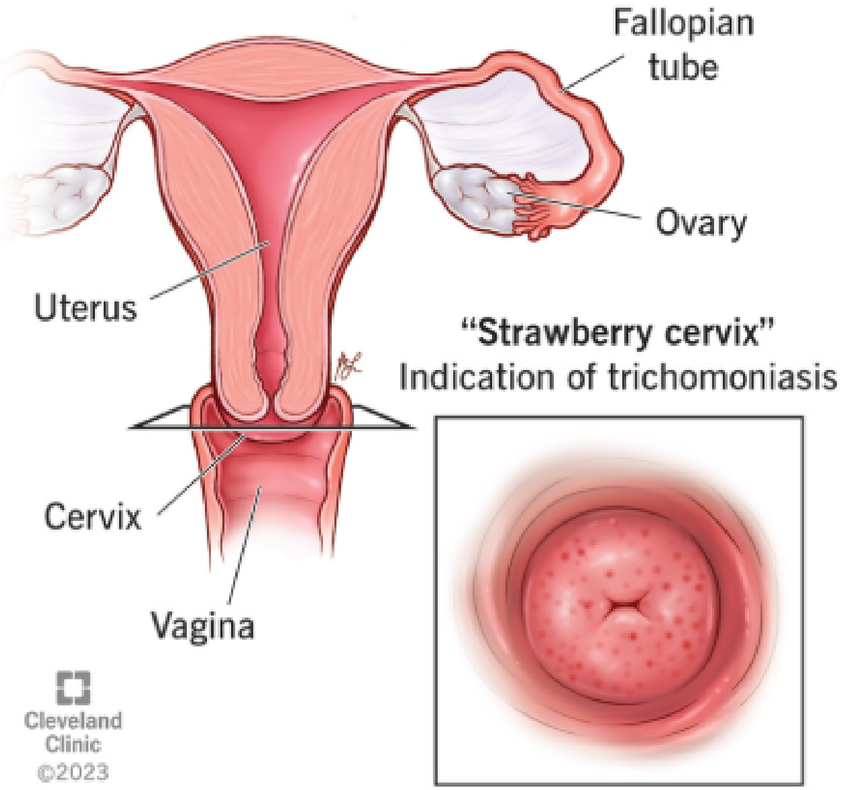
Clinical Features:

Frothy, yellow-green discharge.

Foul smell (fishy). Strawberry Cervix

(Punctate hemorrhages)

Treatment: Metronidazole



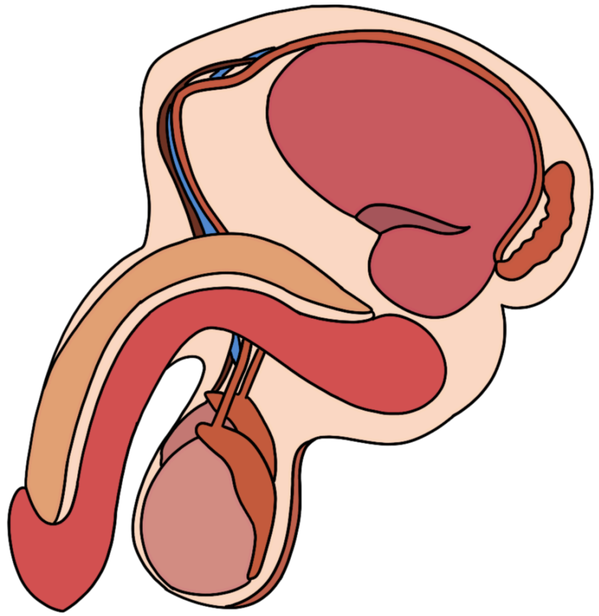
Aging & Male Reproductive System

Aging leads to hormonal imbalance.

Testosterone is converted into Dihydrotestosterone (DHT) by the enzyme 5-alpha reductase.

DHT accumulation stimulates stromal and epithelial cell growth

- **Benign Prostatic Hyperplasia (BPH)**
- **Prostate Cancer**

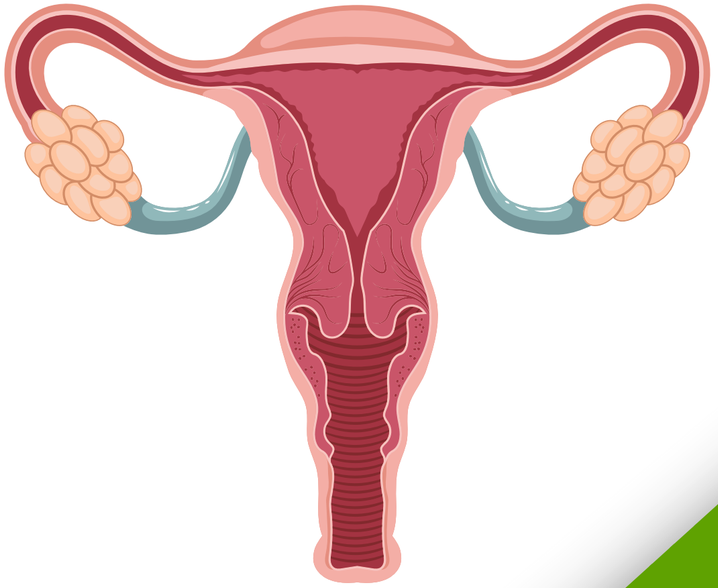


Aging & Female Reproductive System

- Cessation of ovarian function ----> Low Estrogen
- Atrophic Vaginitis: Inflammation and thinning of vaginal walls due to hormone deficiency

⚠ **Post-Menopausal Bleeding:** Any vaginal bleeding >1 year after menopause is abnormal

⚠ **Endometrial Cancer**



Case study

Mr. S. (75 years old) Chief Complaint: "I have trouble starting to urinate, and the stream is very weak. I have to wake up 3-4 times at night to go to the bathroom."

History: The symptoms have gradually worsened over the past 2 years. He often feels like his bladder is not completely empty after voiding.

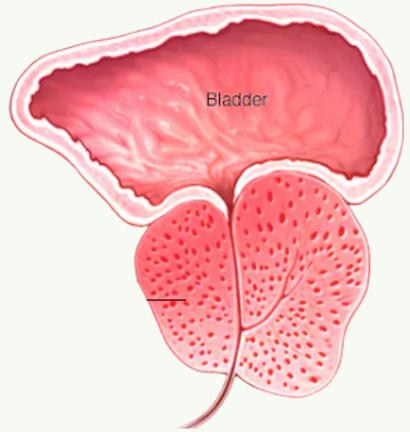
Question

1. Based on the clinical presentation and age group, what is the most likely diagnosis?
2. Which molecular mechanism is the primary cause of this condition?

Answer

1 **Benign Prostatic Hyperplasia (BPH)**

Rationale: The symptoms of hesitancy, weak stream, and incomplete emptying in an elderly male are classic signs of BPH, leading to urinary obstruction



2 **Testosterone to Dihydrotestosterone (DHT)**

Rationale: The key pathophysiology of BPH involves hormonal changes in aging men. The enzyme 5-alpha reductase converts Testosterone into Dihydrotestosterone (DHT). DHT accumulates and stimulates the hyperplasia (growth) of stromal and epithelial cells in the prostate gland

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