

<https://t.me/UWorldNotesStep2>

GYNECOLOGY

UWorld Step 2 Tables and Images (Subject)

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Female Reproductive System & Breast

Breast disorders

BREAST CANCER

Breast cancer

Risk Factors	<ul style="list-style-type: none">• Age (most common)• Increased estrogen exposure*• Family history (eg, <i>BRCA</i> 1/2)
Clinical manifestations	<ul style="list-style-type: none">• Skin changes (eg, peau d'orange)• Nipple discharge• Axillary lymphadenopathy• Palpable breast mass• Abnormal mammogram
Diagnosis	<ul style="list-style-type: none">• Clinical breast examination• Mammogram ± ultrasound• Biopsy (eg, FNA, core needle biopsy)• Staging (eg, lymph node biopsy, MRI)
Management	<ul style="list-style-type: none">• Surgery (eg, lumpectomy, mastectomy)• Radiation• Chemotherapy (eg, neoadjuvant, endocrine)

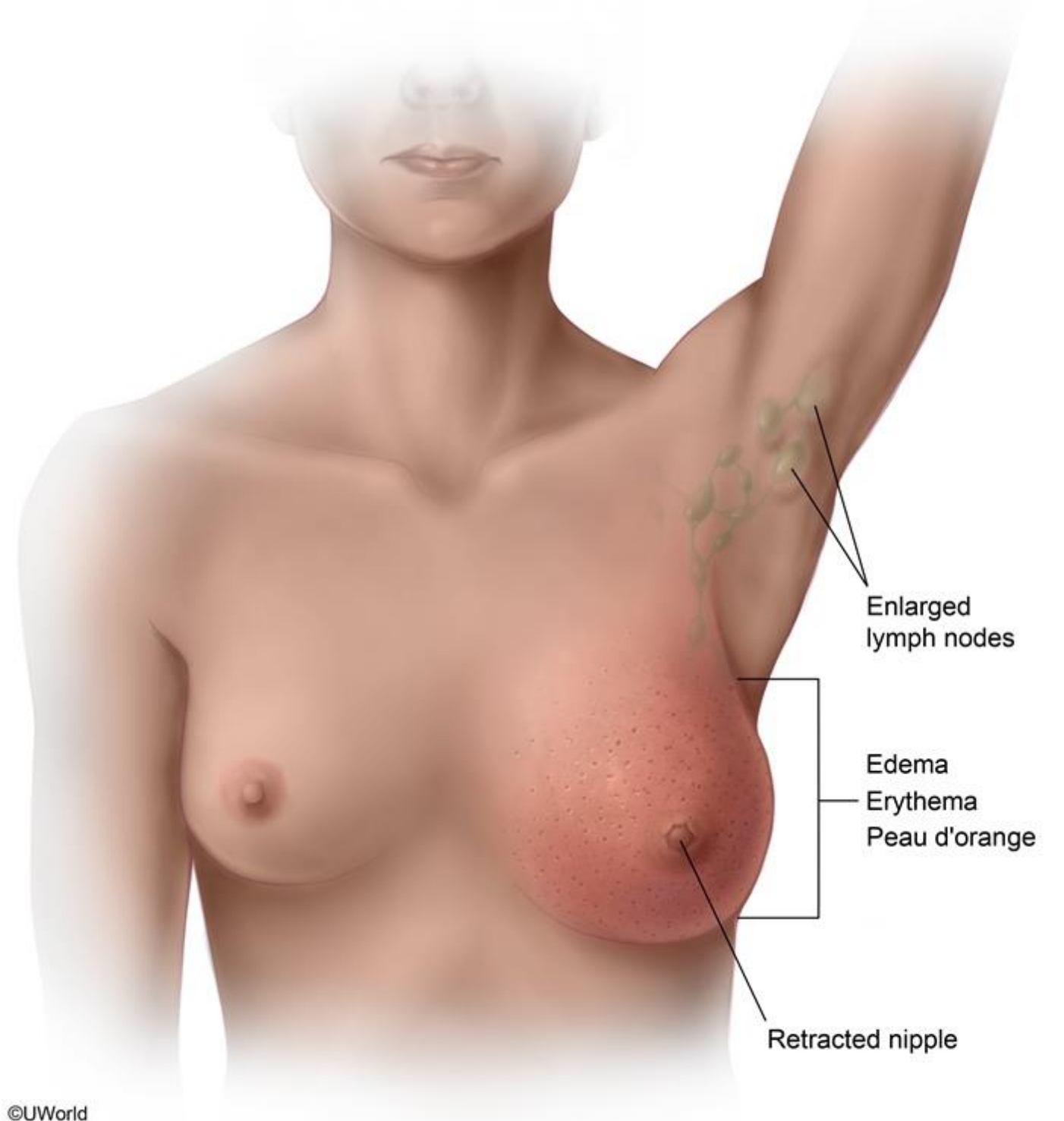
*Such as nulliparity, early menarche, and late menopause.

FNA = fine-needle aspiration.

Selective estrogen receptor modulators

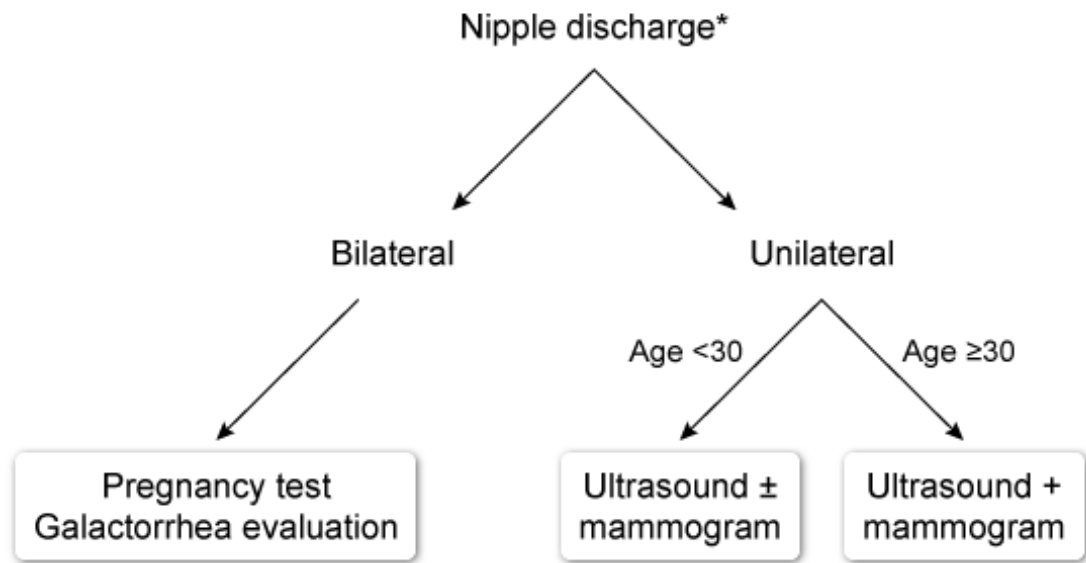
Drugs	<ul style="list-style-type: none">• Tamoxifen• Raloxifene
Mechanism of action	<ul style="list-style-type: none">• Competitive inhibitor of estrogen binding• Mixed agonist/antagonist action
Indications	<ul style="list-style-type: none">• Prevention of breast cancer in high-risk patients• Tamoxifen: adjuvant treatment of breast cancer• Raloxifene: postmenopausal osteoporosis
Adverse effects	<ul style="list-style-type: none">• Hot flashes• Venous thromboembolism• Endometrial hyperplasia & carcinoma (tamoxifen only)• Uterine sarcoma (tamoxifen only)

Inflammatory breast cancer



Inflammatory breast cancer

Breast discharge evaluation

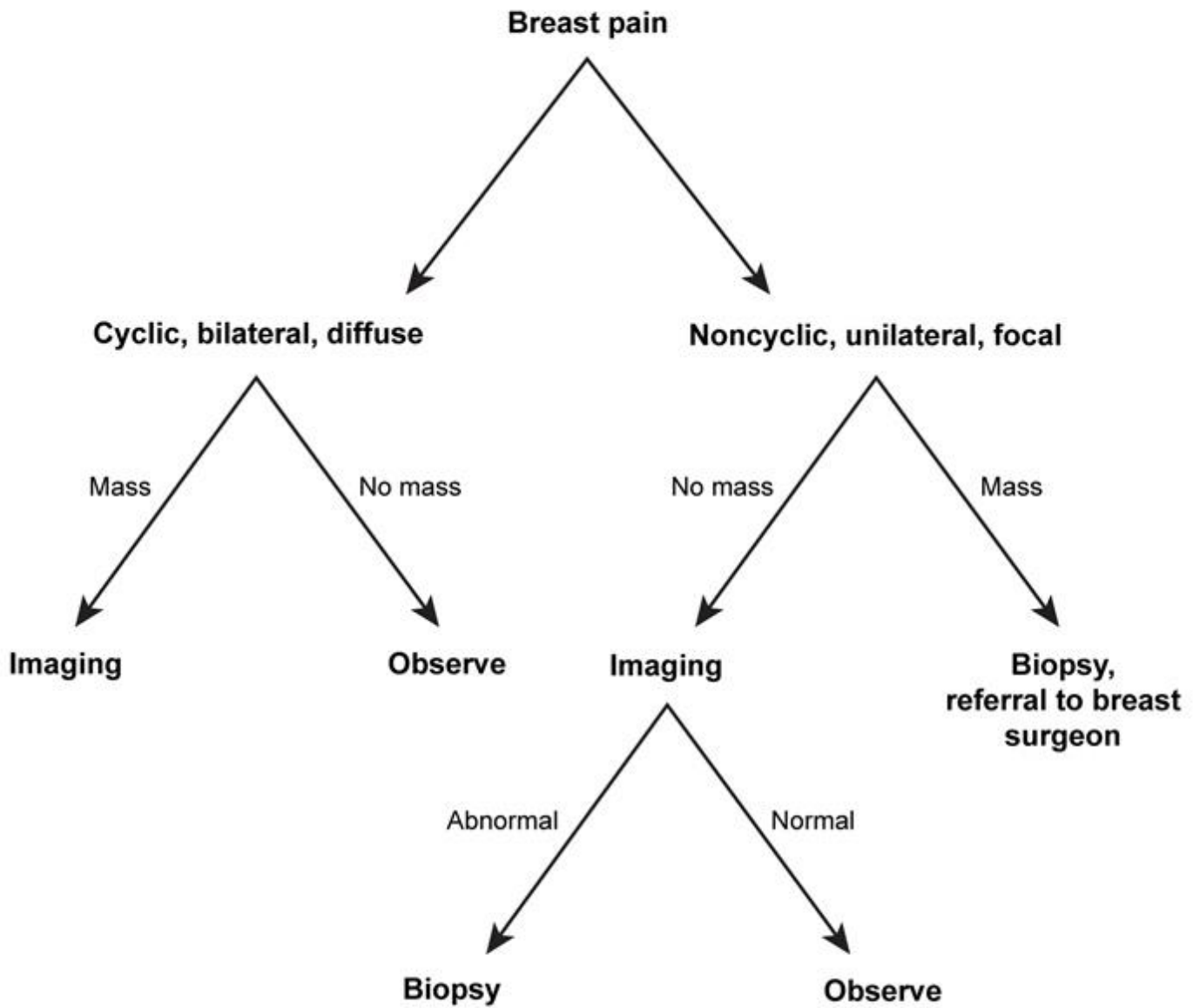


*Nonbloody discharge & normal breast examination
(eg, no masses, lymphadenopathy, or skin changes).

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Breast discharge evaluation

Management of breast pain



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Management of breast pain

Lactational mastitis

Pathogenesis	<ul style="list-style-type: none"> • Skin flora (eg, <i>Staphylococcus aureus</i>) enters ducts through nipple & multiplies in stagnant milk
Risk factors	<ul style="list-style-type: none"> • History of mastitis • Engorgement & inadequate milk drainage due to: <ul style="list-style-type: none"> – Sudden increase in sleep duration – Replacing nursing with formula or pumped breast milk – Weaning – Pressure on the duct (tight bra or clothing, prone sleeping) – Cracked or clogged nipple pore – Poor latch
Clinical presentation	<ul style="list-style-type: none"> • Fever • Firm, red, tender, swollen quadrant of unilateral breast • \pm Myalgia, chills, malaise
Treatment	<ul style="list-style-type: none"> • Analgesia • Frequent breastfeeding or pumping • Antibiotics

Breast abscess

Risk factors	<ul style="list-style-type: none"> • Maternal age >30 • First pregnancy • Tobacco use
Clinical features	<ul style="list-style-type: none"> • Fever • Focal inflammation • Fluctuant, tender mass
Diagnosis	<ul style="list-style-type: none"> • Breast ultrasound
Management	<ul style="list-style-type: none"> • Antibiotics • Drainage

Breast abscess

Risk factors	<ul style="list-style-type: none">• Maternal age >30• First pregnancy• Tobacco use
Clinical features	<ul style="list-style-type: none">• Fever• Focal inflammation• Fluctuant, tender mass
Diagnosis	<ul style="list-style-type: none">• Breast ultrasound
Management	<ul style="list-style-type: none">• Antibiotics• Drainage

BREAST MASS

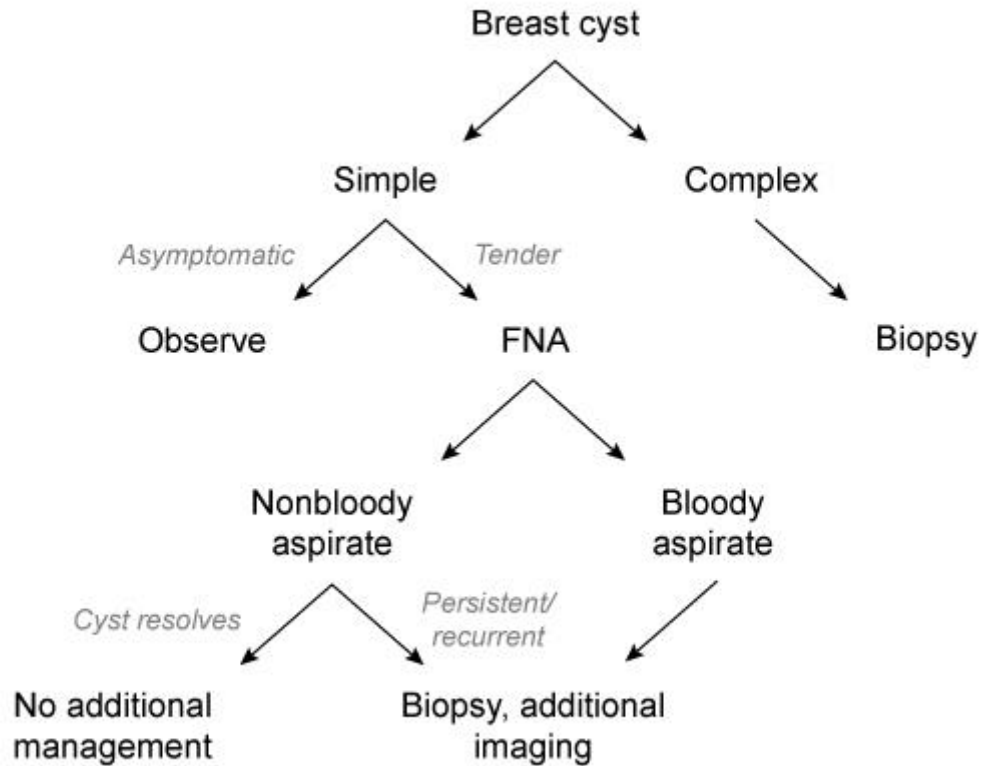
Benign breast disease

Diagnosis	Clinical features
Breast cyst	<ul style="list-style-type: none">• Solitary, well-circumscribed & mobile mass• ± Tenderness
Fibrocystic changes	<ul style="list-style-type: none">• Multiple, diffuse nodulocystic masses• Cyclic premenstrual tenderness
Fibroadenoma	<ul style="list-style-type: none">• Solitary, firm, well-circumscribed & mobile mass• Cyclic premenstrual tenderness
Fat necrosis	<ul style="list-style-type: none">• After trauma/surgery• Firm, irregular mass• ± Ecchymosis, skin/nipple retraction

Fibroadenoma

Pathogenesis	<ul style="list-style-type: none">• Benign, estrogen-sensitive fibroepithelial tumor
Epidemiology	<ul style="list-style-type: none">• Adolescent girls & women age <30
Clinical features	<ul style="list-style-type: none">• Unilateral, firm, mobile, well-circumscribed mass• Upper outer quadrant• Cyclic changes with menses (eg, premenstrual breast tenderness, size change)
Management	<ul style="list-style-type: none">• Observation & repeat examination in adolescents• Ultrasound in adults or patients with persistent mass

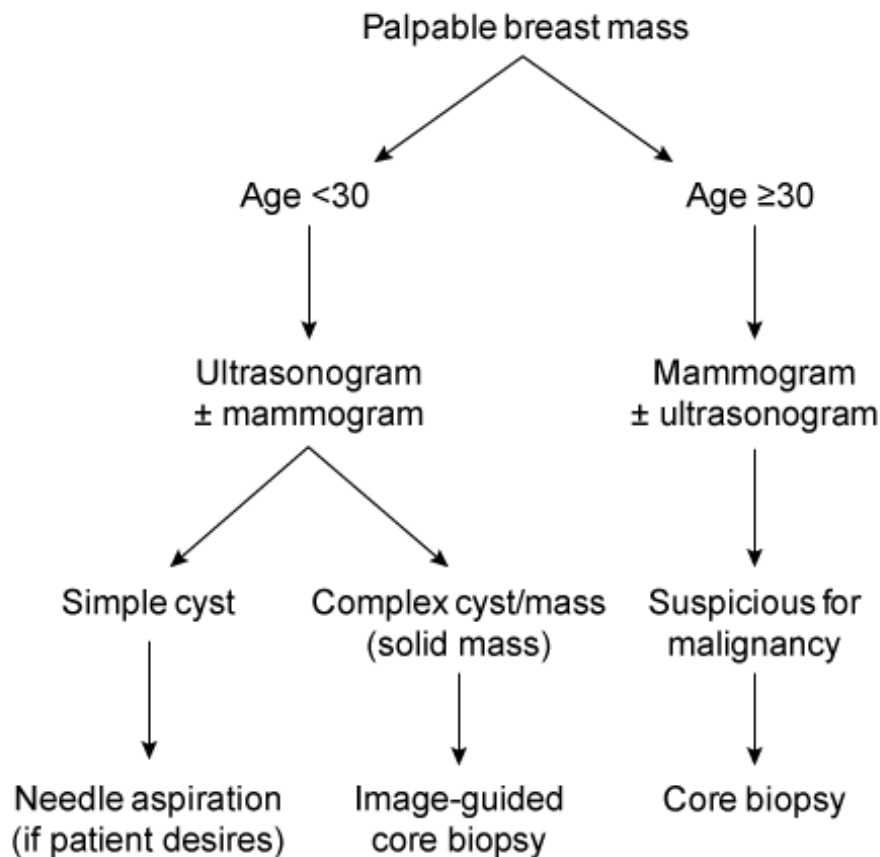
Breast cyst management



FNA= fine-needle aspiration.

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Breast cyst management



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GYNECOMASTIA

Pubertal gynecomastia

Etiology	<ul style="list-style-type: none"> Imbalance of estrogens & androgens during mid-puberty (Tanner stage 3-4)
Clinical features	<ul style="list-style-type: none"> Small (<4 cm), firm, unilateral or bilateral subareolar mass No pathologic features (eg, nipple discharge, axillary lymphadenopathy, systemic illness)
Management	<ul style="list-style-type: none"> Reassurance & observation Resolves within 1 year

INTRADUCTAL PAPILLOMA

Intraductal papilloma

Pathology	<ul style="list-style-type: none"> Benign papillary tumor arising from breast duct lining
Clinical features	<ul style="list-style-type: none"> Unilateral bloody nipple discharge (can be nonbloody) No associated breast mass or lymphadenopathy
Management	<ul style="list-style-type: none"> Mammography & ultrasound Biopsy ± excision

NIPPLE DISCHARGE

Breast cancer warning signs

Clinical finding	Pathophysiology
Nipple retraction	Invasion of lactiferous ducts
Nipple scaling or ulceration	Epidermal infiltration by neoplastic cells
Nipple discharge	Intraductal tumor growth ± necrosis
Skin retraction	Invasion of suspensory (Cooper) ligaments
Peau d'orange	Obstruction of dermal lymphatics
Fixed breast mass	Invasion into adjacent breast tissue
Axillary lymphadenopathy	Lymphatic spread to regional lymph nodes

Congenital and developmental anomalies

ANDROGEN INSENSITIVITY SYNDROMES

Androgen insensitivity syndrome

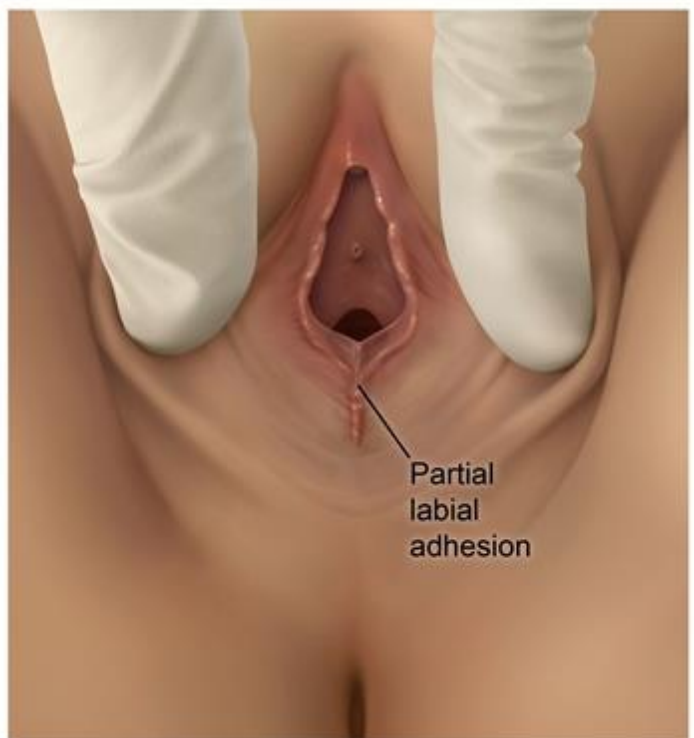
Pathophysiology	<ul style="list-style-type: none">• X-linked mutation in androgen receptor
Clinical features	<ul style="list-style-type: none">• Genotypically male (46,XY karyotype)• Phenotypically female• Breast development• Absent or minimal axillary & pubic hair• Female external genitalia• Absent uterus, cervix, & upper one-third of vagina• Cryptorchid testes
Management	<ul style="list-style-type: none">• Gender identity/assignment counseling• Gonadectomy (malignancy prevention)

Normal



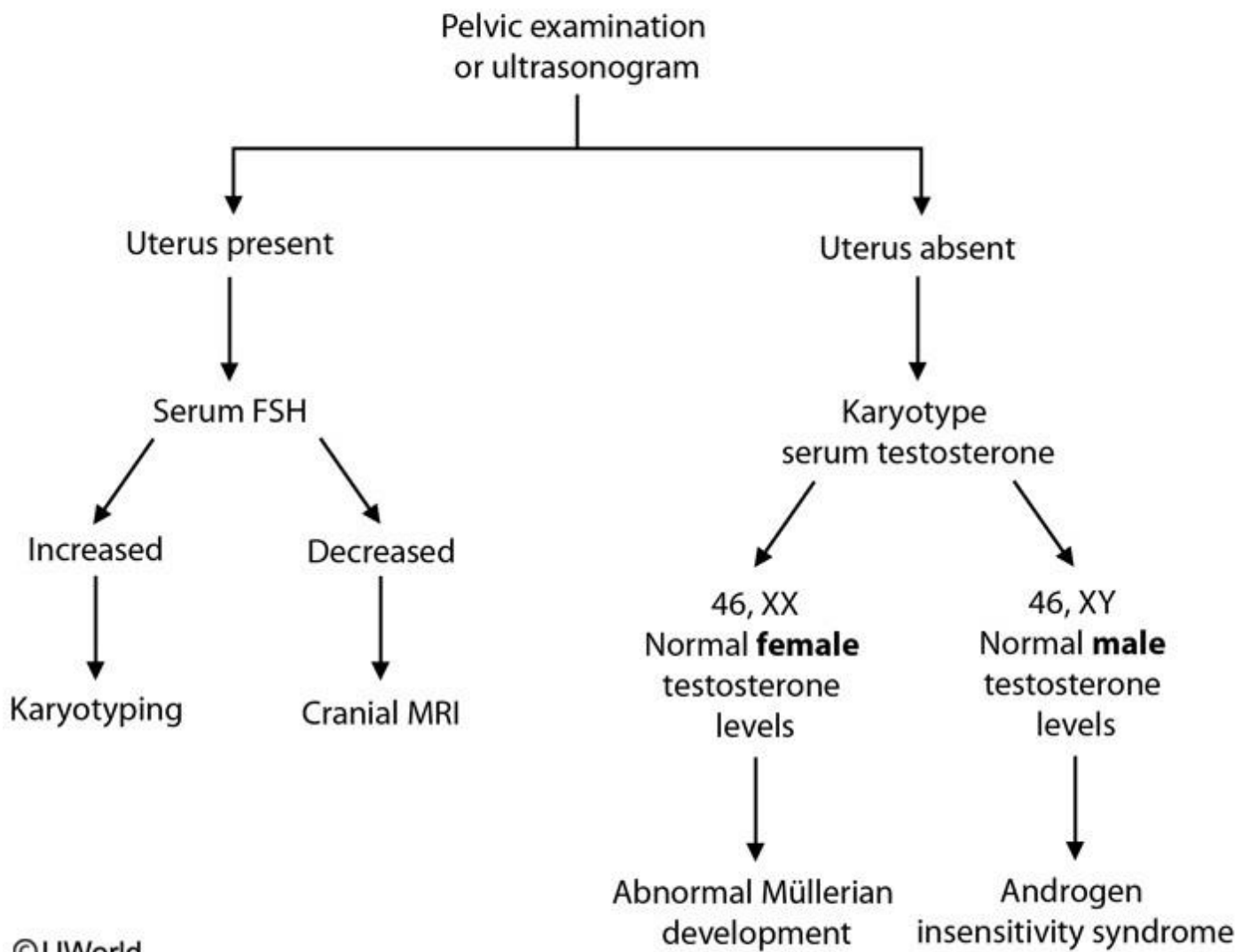
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Labial adhesion



Labial adhesion

Evaluation of primary amenorrhea



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Evaluation of primary amenorrhea

Turner syndrome

Narrow, high-arched palate

Low hairline

Webbed neck

Broad chest with
widely spaced nipples

Cubitus valgus

Short stature



Coarctation
of aorta



Bicuspid
aortic valve



Horseshoe kidney

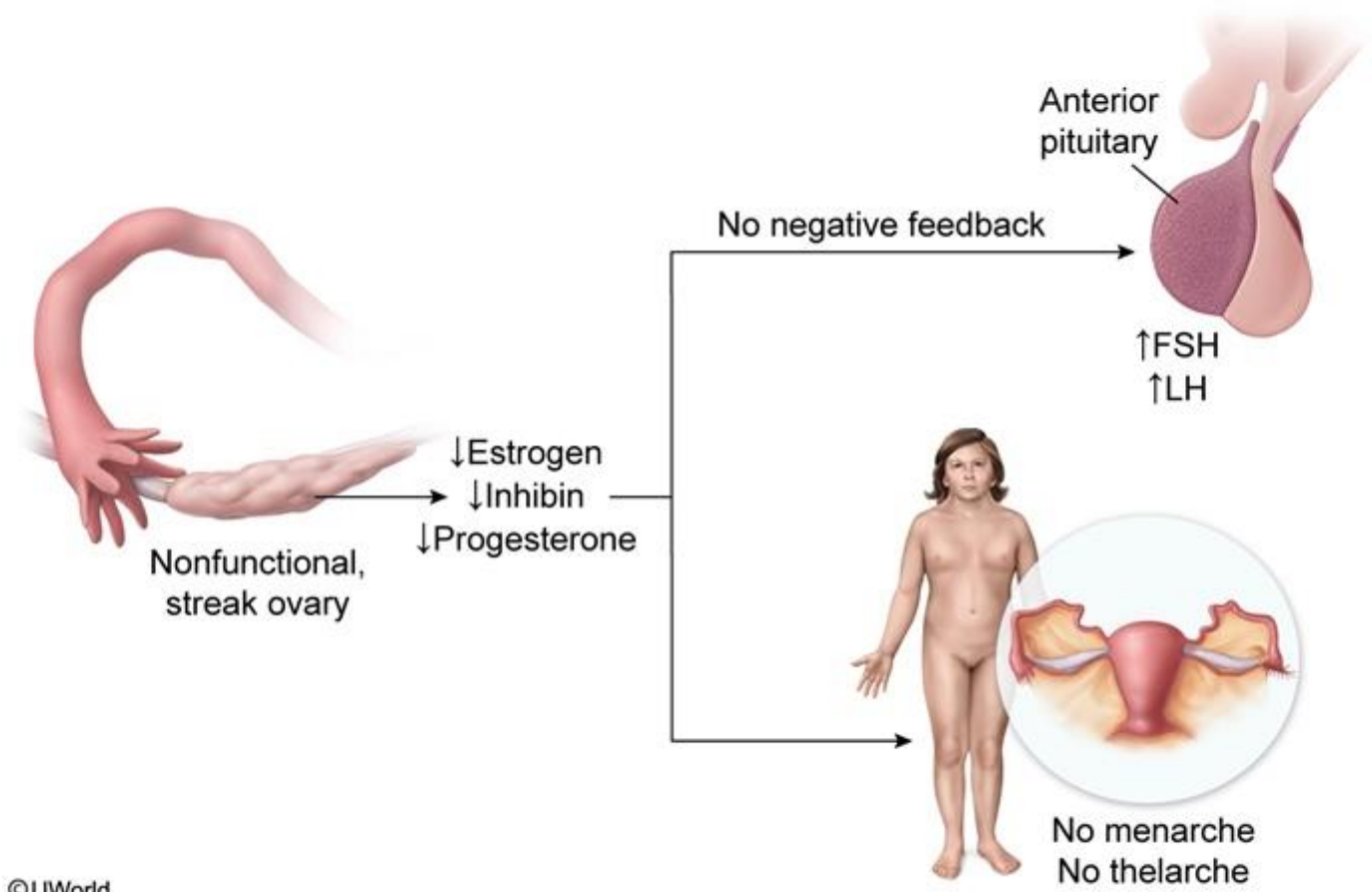


Streak ovaries,
amenorrhea
& infertility

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Turner syndrome

Primary ovarian insufficiency

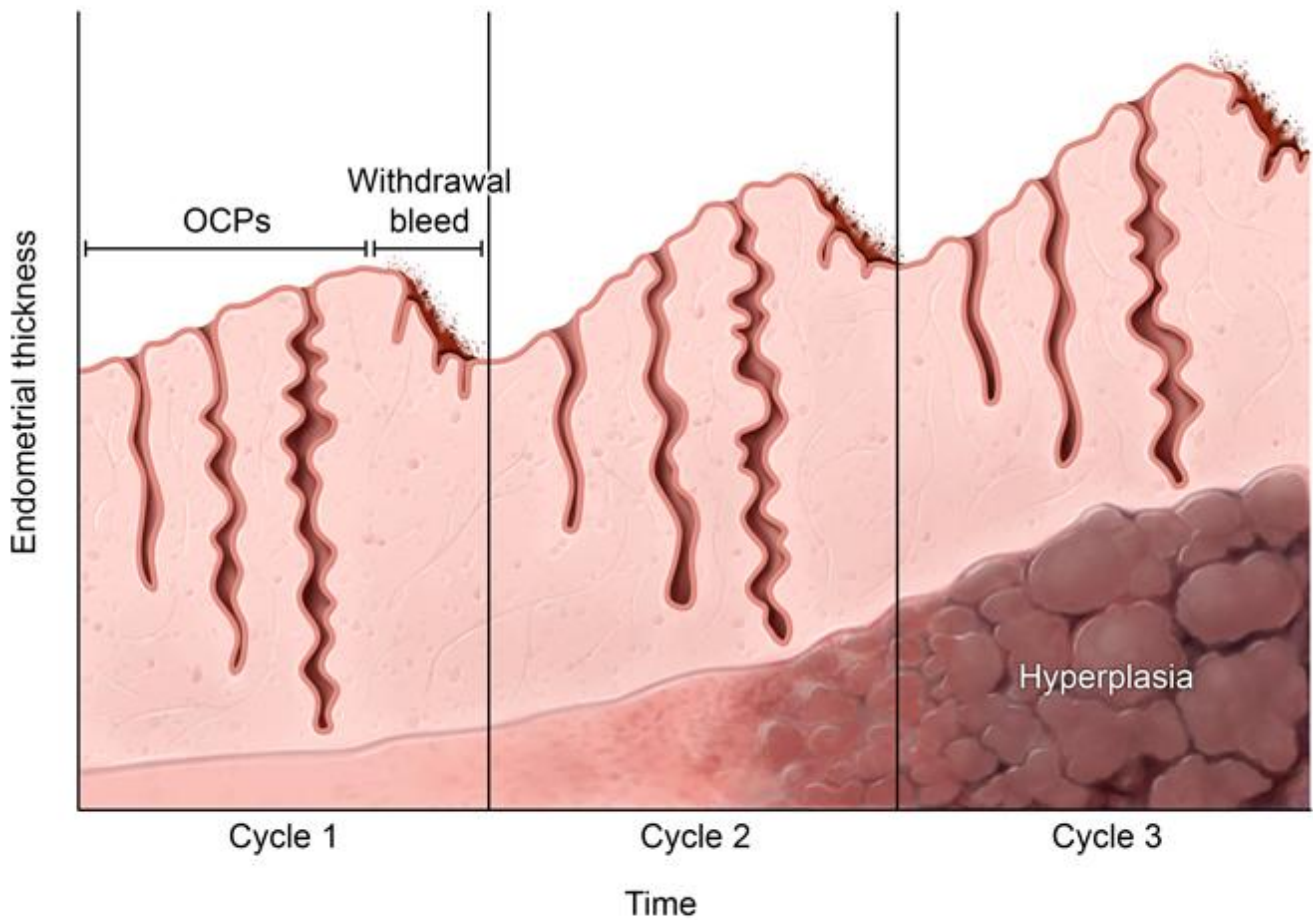


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Primary ovarian insufficiency

Genital tract tumors and tumor-like lesions

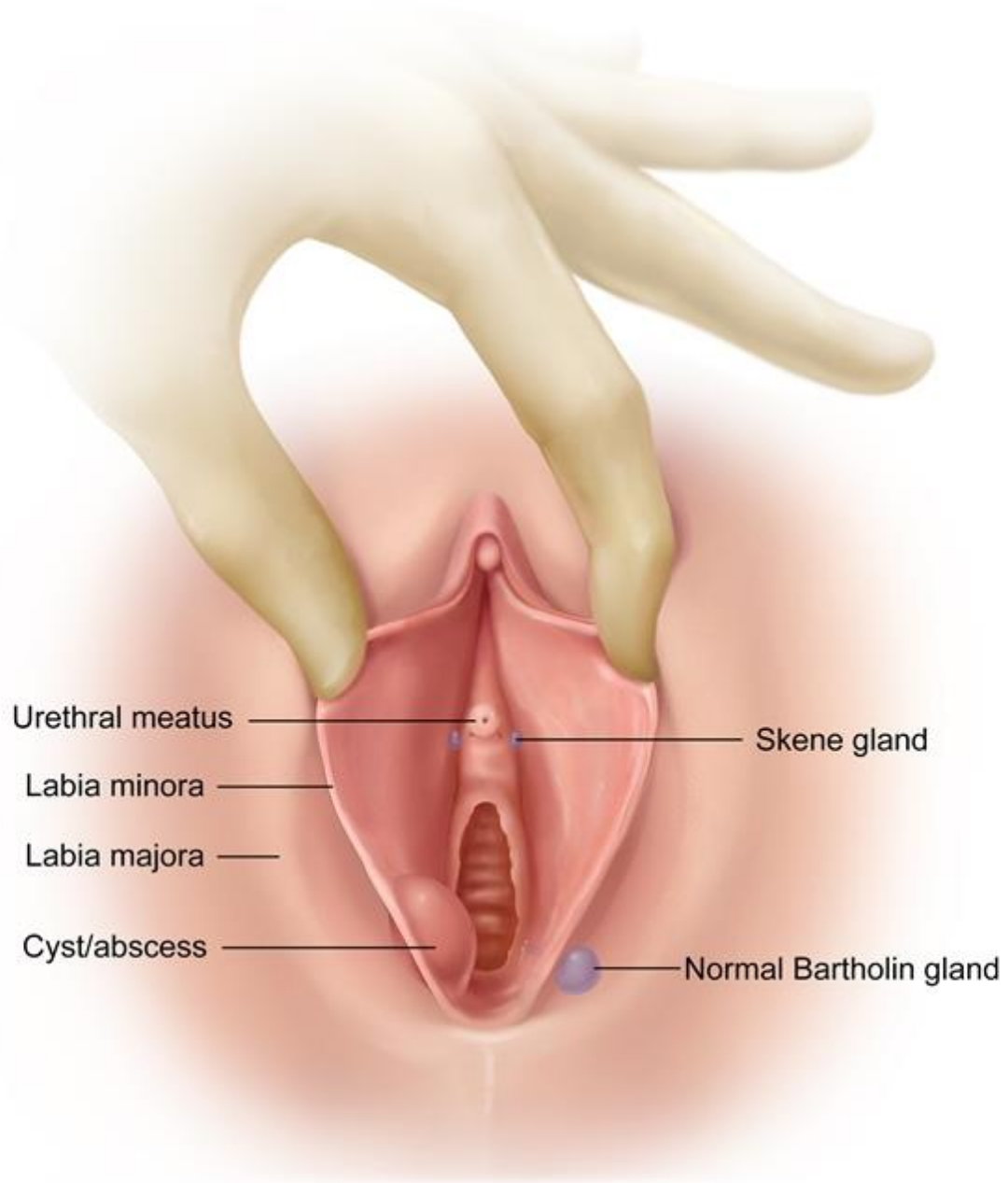
Abnormal uterine bleeding on oral contraceptives



OCP = oral contraceptive pills.
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Abnormal uterine bleeding on oral contraceptives

Bartholin gland cyst/abscess



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Bartholin gland cyst/abscess

Human papillomavirus

Disease associations	<ul style="list-style-type: none"> • Cervical cancer • Vulvar & vaginal cancers • Anal cancer • Penile cancer • Oropharyngeal cancer • Anogenital warts • Recurrent respiratory papillomatosis
Vaccine indications	<ul style="list-style-type: none"> • All female and male patients* age 11-26 (but may be given to those age 9-45) • Not indicated in pregnant women

*Including those with a history of genital warts, abnormal Pap cytology, or positive human papillomavirus DNA test.

Cervical cancer

Risk factors	<ul style="list-style-type: none"> • Immunocompromise (eg, HIV) • Early onset of sexual activity • Multiple or high-risk sexual partners • Previous sexually transmitted infection • Tobacco use
Pathogenesis	<ul style="list-style-type: none"> • HPV infection (types 16 & 18)
Clinical manifestations	<ul style="list-style-type: none"> • Asymptomatic • Postcoital or intermenstrual bleeding • Increased vaginal discharge • Inguinal lymphadenopathy • Pelvic or low back pain
Diagnosis	<ul style="list-style-type: none"> • Cervical biopsy on colposcopy

HPV = human papillomavirus.

Risk factors for cervical cancer

<ul style="list-style-type: none"> • Infection with high-risk HPV strains (eg, 16, 18) • History of sexually transmitted diseases • Early onset of sexual activity • Multiple or high-risk sexual partners • Immunosuppression • Oral contraceptive use • Low socioeconomic status • Tobacco use
--

HPV= human papillomavirus.

Cervical conization

Indications	Cervical intraepithelial neoplasia grades 2 & 3*
Complications	<ul style="list-style-type: none">• Cervical stenosis• Preterm birth• Preterm premature rupture of membranes• Second trimester pregnancy loss

*Observation preferred for cervical intraepithelial neoplasia 2 in young women.

Endometrial biopsy indications

Age ≥ 45	<ul style="list-style-type: none">• Abnormal uterine bleeding• Postmenopausal bleeding
Age < 45	Abnormal uterine bleeding PLUS: <ul style="list-style-type: none">• Unopposed estrogen (obesity, anovulation)• Failed medical management• Lynch syndrome (hereditary nonpolyposis colorectal cancer)
Age ≥ 35	<ul style="list-style-type: none">• Atypical glandular cells on Pap test

Cervical c

Age <21

Age 21-29

Age 30-64

Age >65

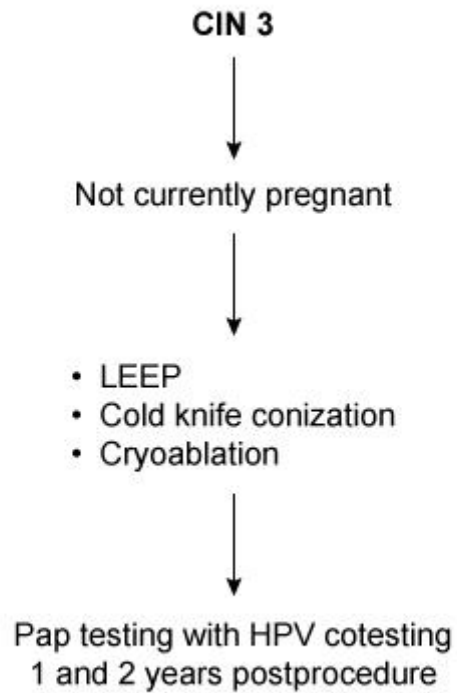
Hysterect
(with cer

HIV

Immunos
(eg, SLE, c
transplan

HPV = hu

Management of CIN 3

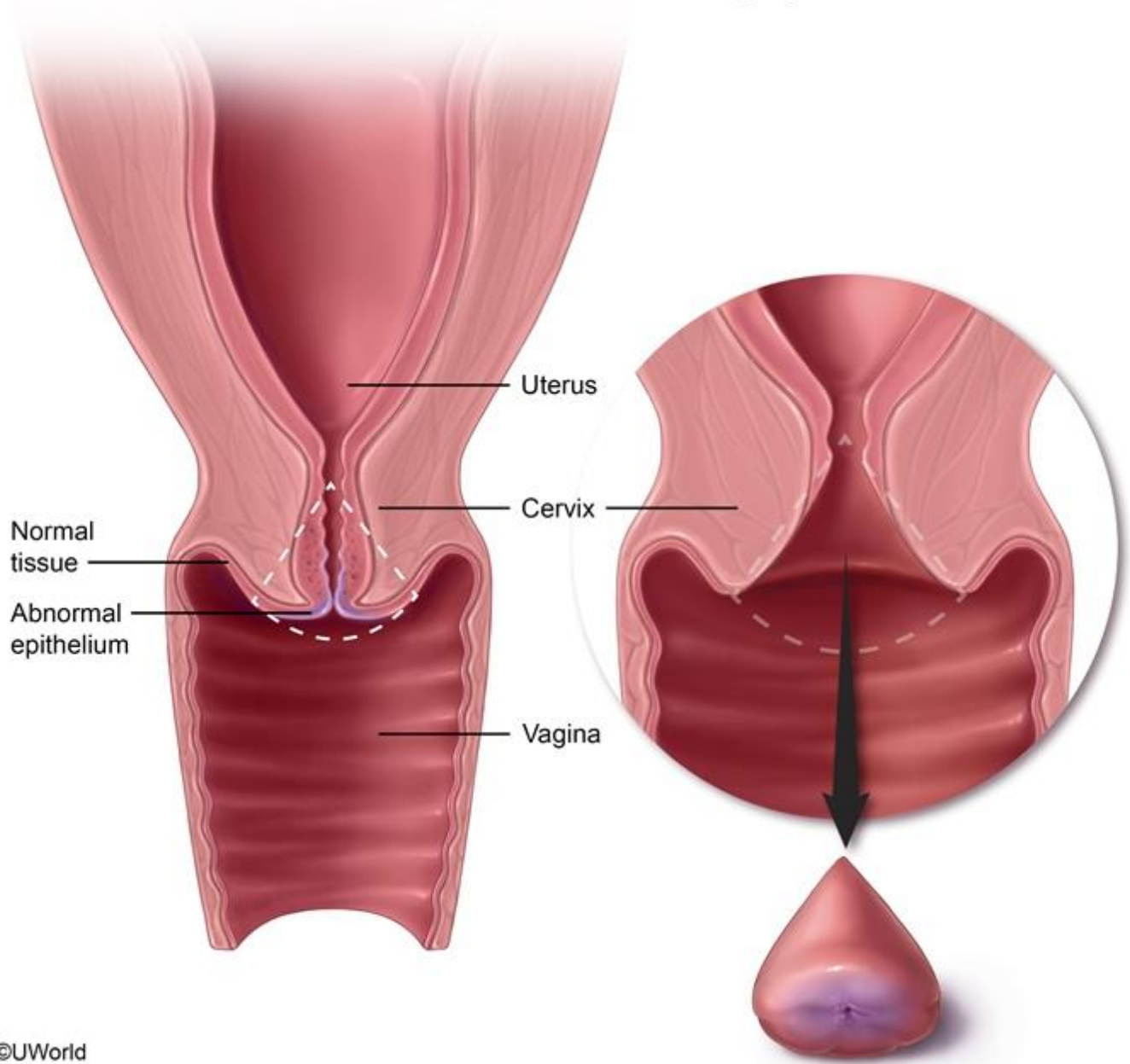


CIN 3 = cervical intraepithelial neoplasia 3;
LEEP = loop electrosurgical excision procedure;
HPV = human papillomavirus.

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Management of CIN 3

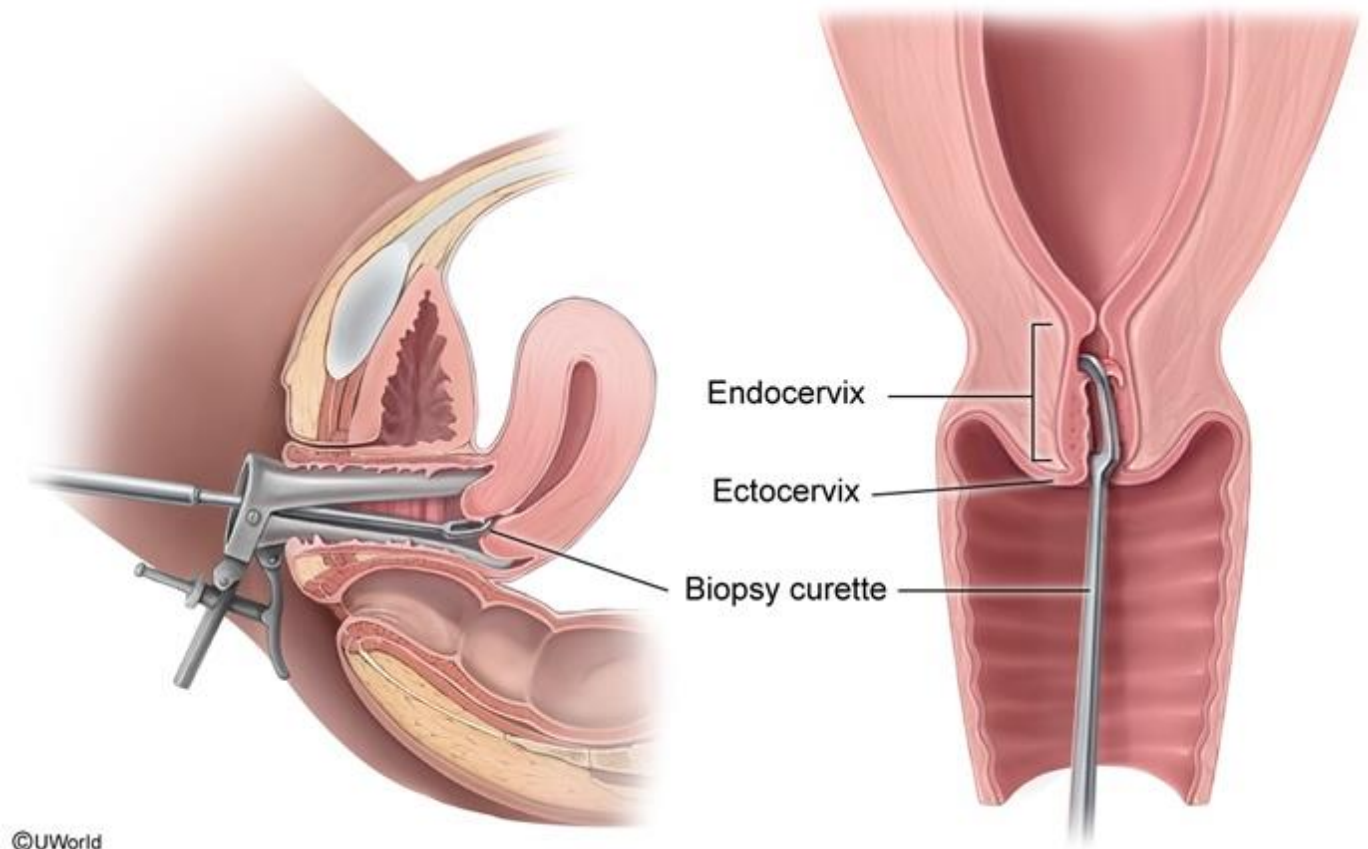
Cervical cone biopsy



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Cervical cone biopsy

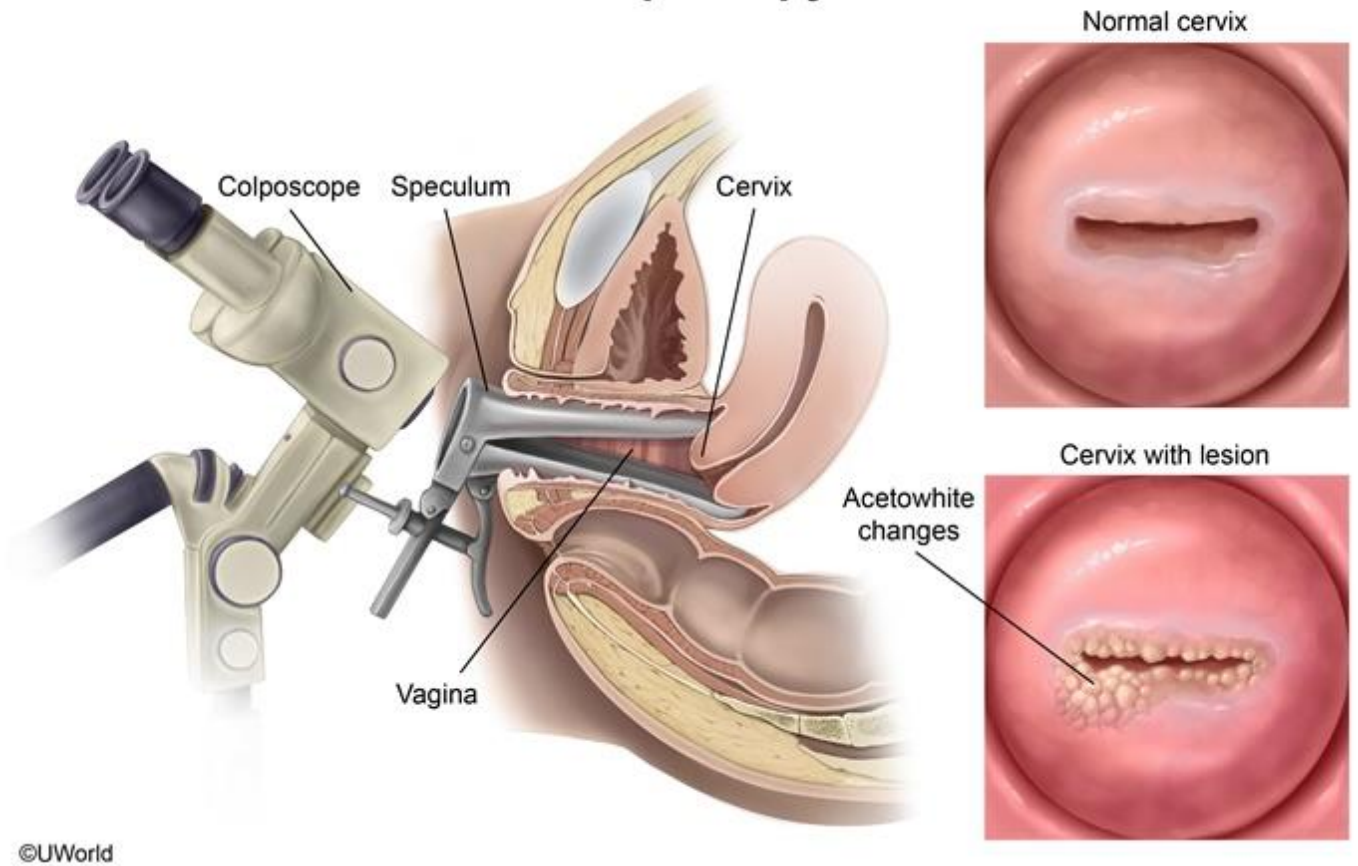
Endocervical curettage



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Endocervical curettage

Colposcopy



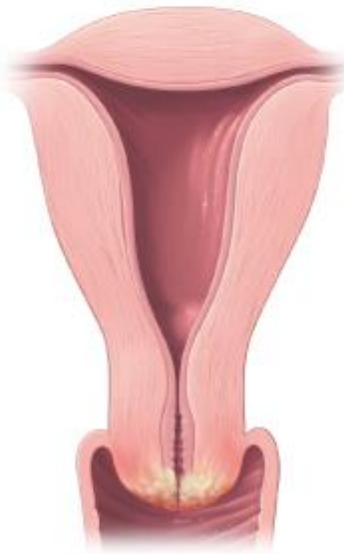
Colposcopy

Progression of cervical cancer

Carcinoma in situ



Early stage



Advanced stage



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Progression of cervical cancer

Endometrial hyperplasia/cancer

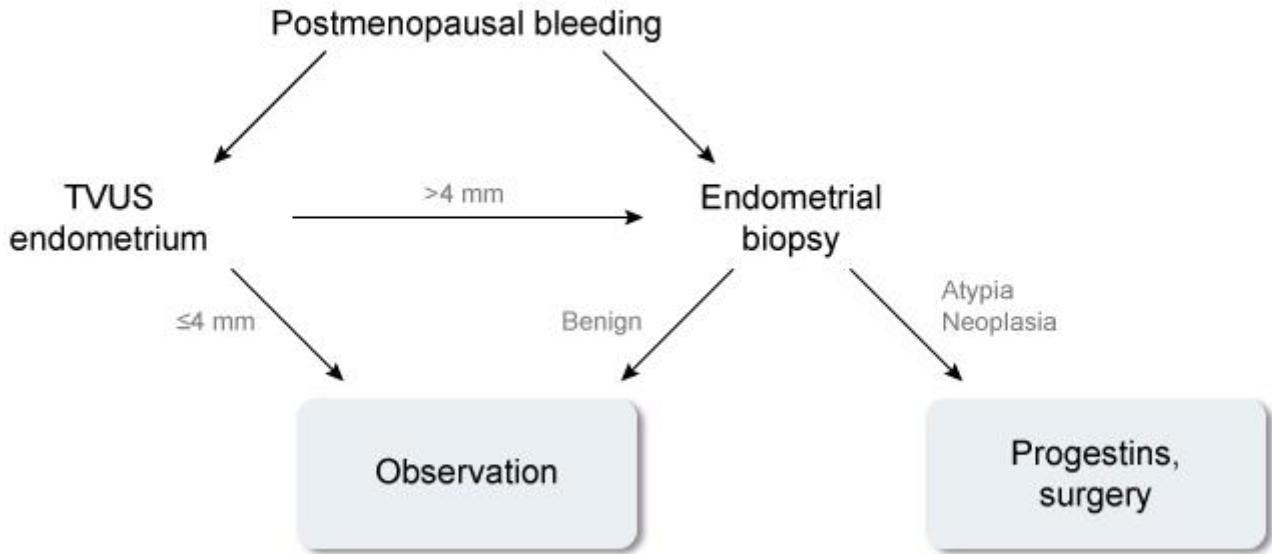
Risk factors	<p>Excess estrogen</p> <ul style="list-style-type: none"> • Obesity • Chronic anovulation/PCOS • Nulliparity • Early menarche or late menopause • Tamoxifen use
Clinical features	<ul style="list-style-type: none"> • Heavy, prolonged, intermenstrual &/or postmenopausal bleeding
Evaluation	<ul style="list-style-type: none"> • Endometrial biopsy (gold standard) • Pelvic ultrasound (postmenopausal women)
Treatment	<ul style="list-style-type: none"> • Hyperplasia: progestin therapy or hysterectomy • Cancer: hysterectomy

PCOS = polycystic ovary syndrome.

Pap smear results requiring endometrial evaluation

Result	Group requiring endometrial sampling
Benign-appearing endometrial cells	<ul style="list-style-type: none"> • Premenopausal women with: <ul style="list-style-type: none"> – Abnormal uterine bleeding OR – Risk for endometrial hyperplasia • Postmenopausal women
Atypical glandular cells	<ul style="list-style-type: none"> • Women age ≥ 35 OR at risk for endometrial hyperplasia
Atypical glandular cells, favor neoplastic	<ul style="list-style-type: none"> • All women

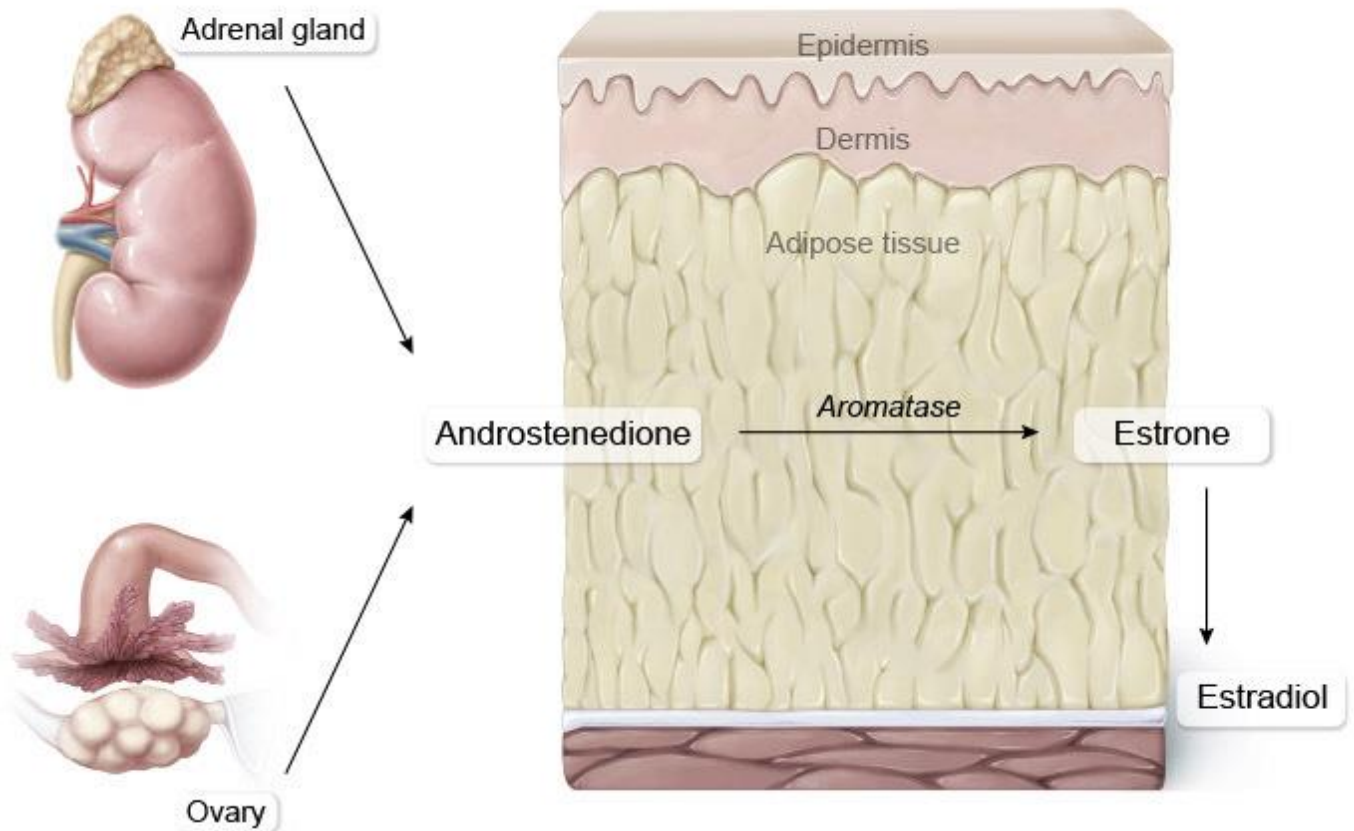
Approach to postmenopausal bleeding



TVUS = transvaginal ultrasound.
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Approach to postmenopausal bleeding

Peripheral estrogen conversion in adipose tissue



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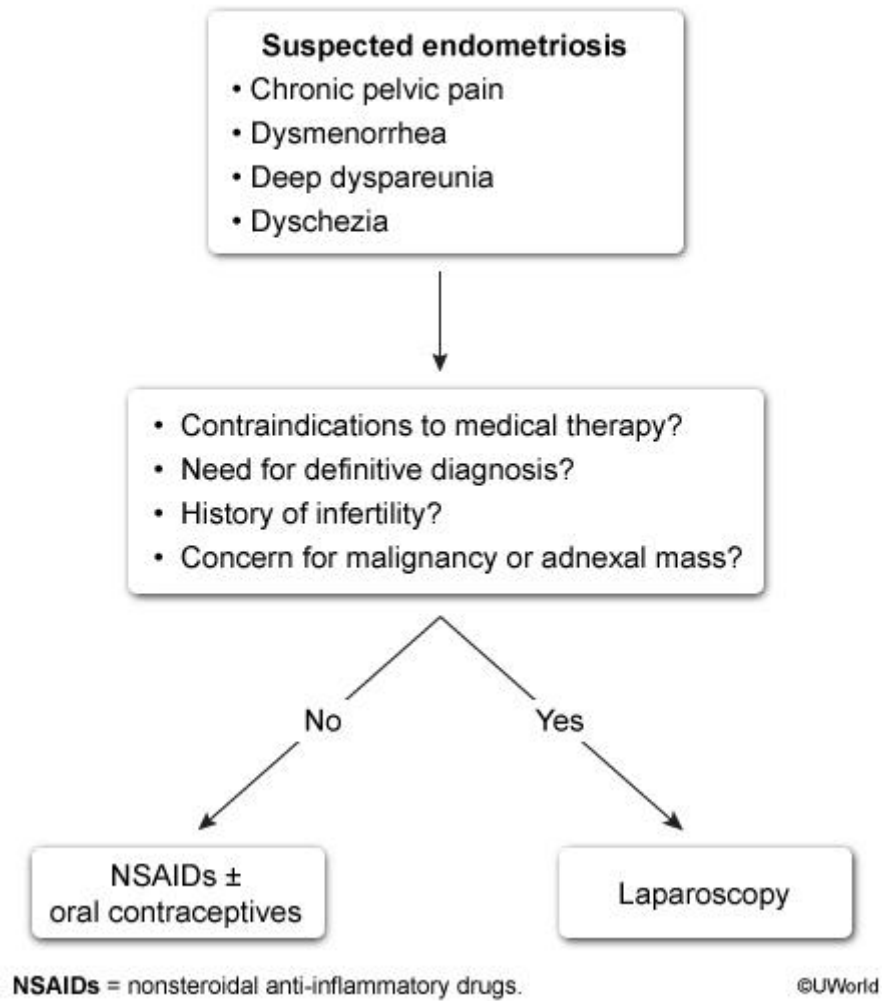
Peripheral estrogen conversion in adipose tissue

Endometriosis

Pathogenesis	<ul style="list-style-type: none"> • Ectopic implantation of endometrial glands
Clinical features	<ul style="list-style-type: none"> • Dyspareunia • Dysmenorrhea • Chronic pelvic pain • Infertility • Dyschezia • Cyclic dysuria, hematuria
Physical examination	<ul style="list-style-type: none"> • Immobile uterus • Cervical motion tenderness • Adnexal mass • Rectovaginal septum, posterior cul-de-sac, uterosacral ligament nodules
Diagnosis	<ul style="list-style-type: none"> • Direct visualization & surgical biopsy
Treatment	<ul style="list-style-type: none"> • Medical (oral contraceptives, NSAIDs) • Surgical resection

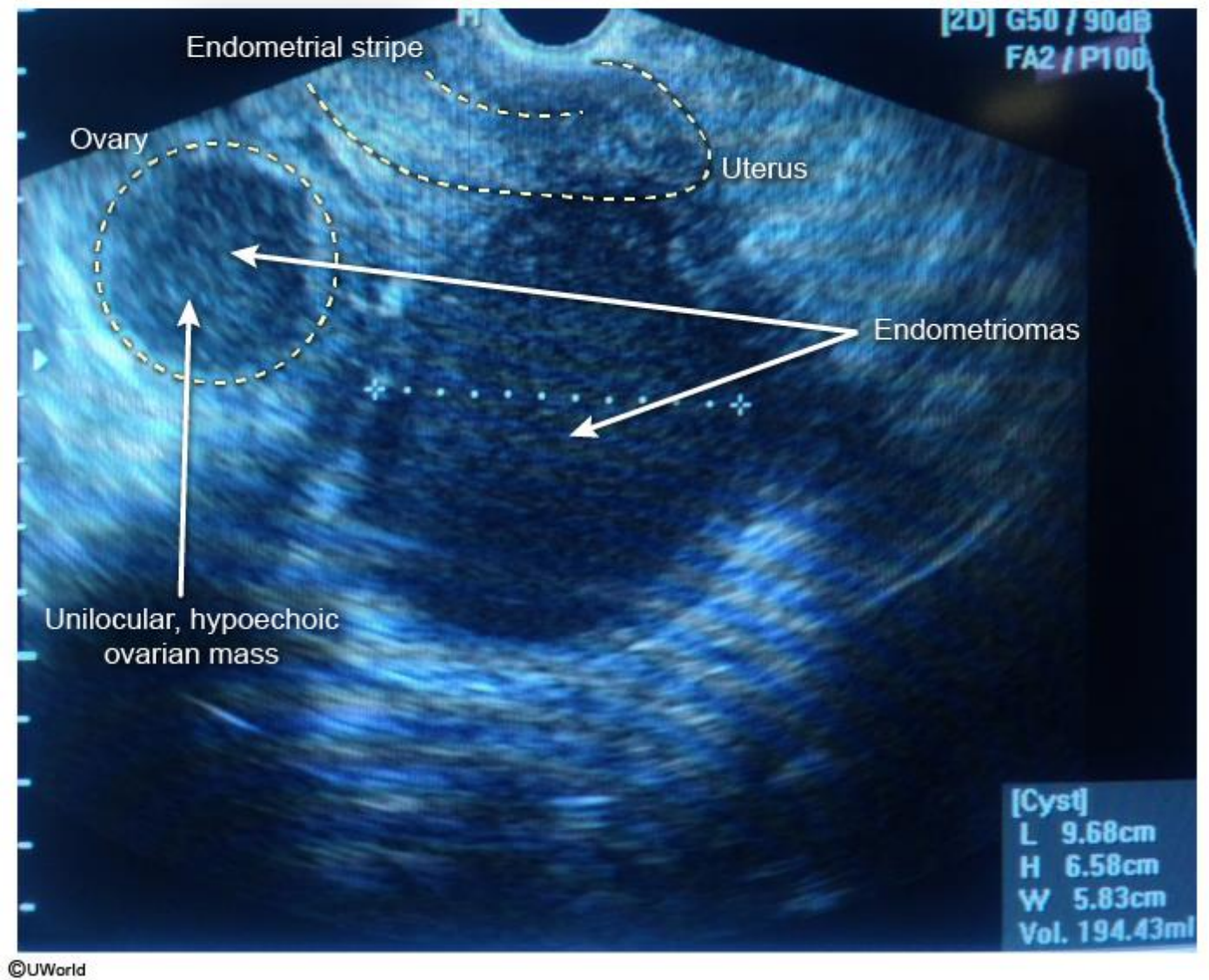
NSAIDs = nonsteroidal anti-inflammatory drugs.

Management of endometriosis



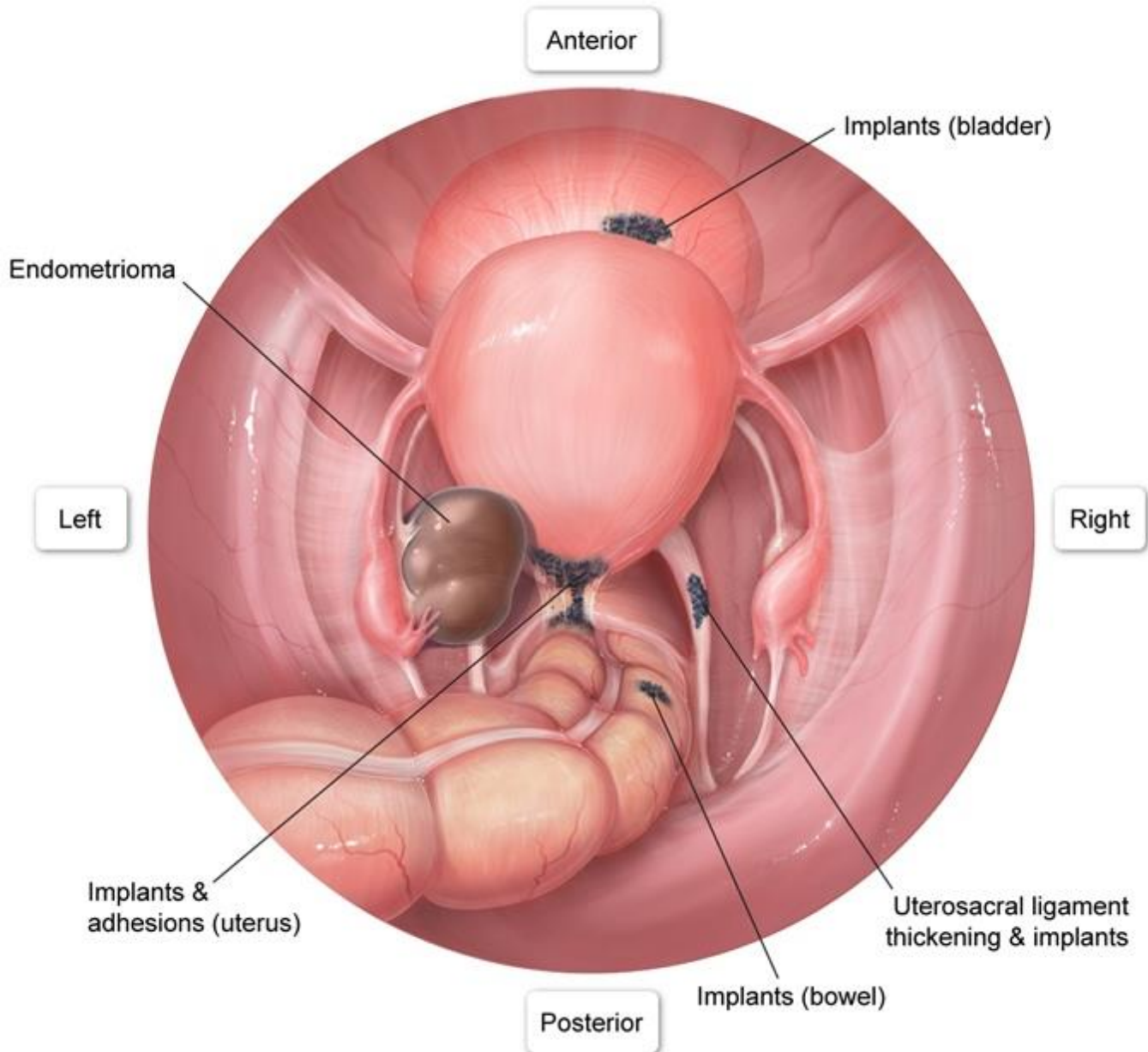
Management of endometriosis

Endometriomas on pelvic ultrasound



Endometriomas on pelvic ultrasound

Pelvic endometriosis



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Pelvic endometriosis

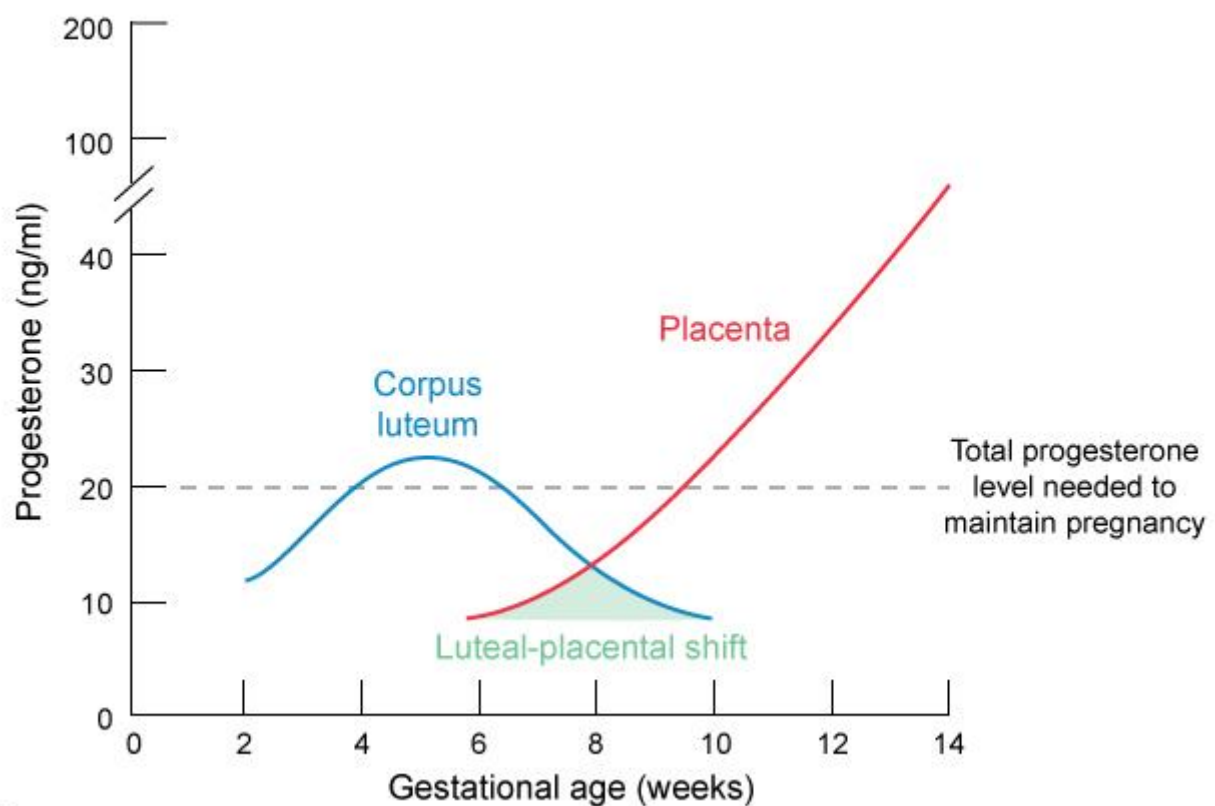
GESTATIONAL TROPHOBLASTIC DISEASE

Choriocarcinoma

Risk factors	<ul style="list-style-type: none"> • Advanced maternal age • Prior complete hydatidiform mole
Presentation	<ul style="list-style-type: none"> • Amenorrhea or abnormal uterine bleeding • Pelvic pain/pressure • Symptoms from metastases (lung, vagina) • Uterine mass • Elevated β-hCG level
Treatment	<ul style="list-style-type: none"> • Chemotherapy

Cervical insufficiency

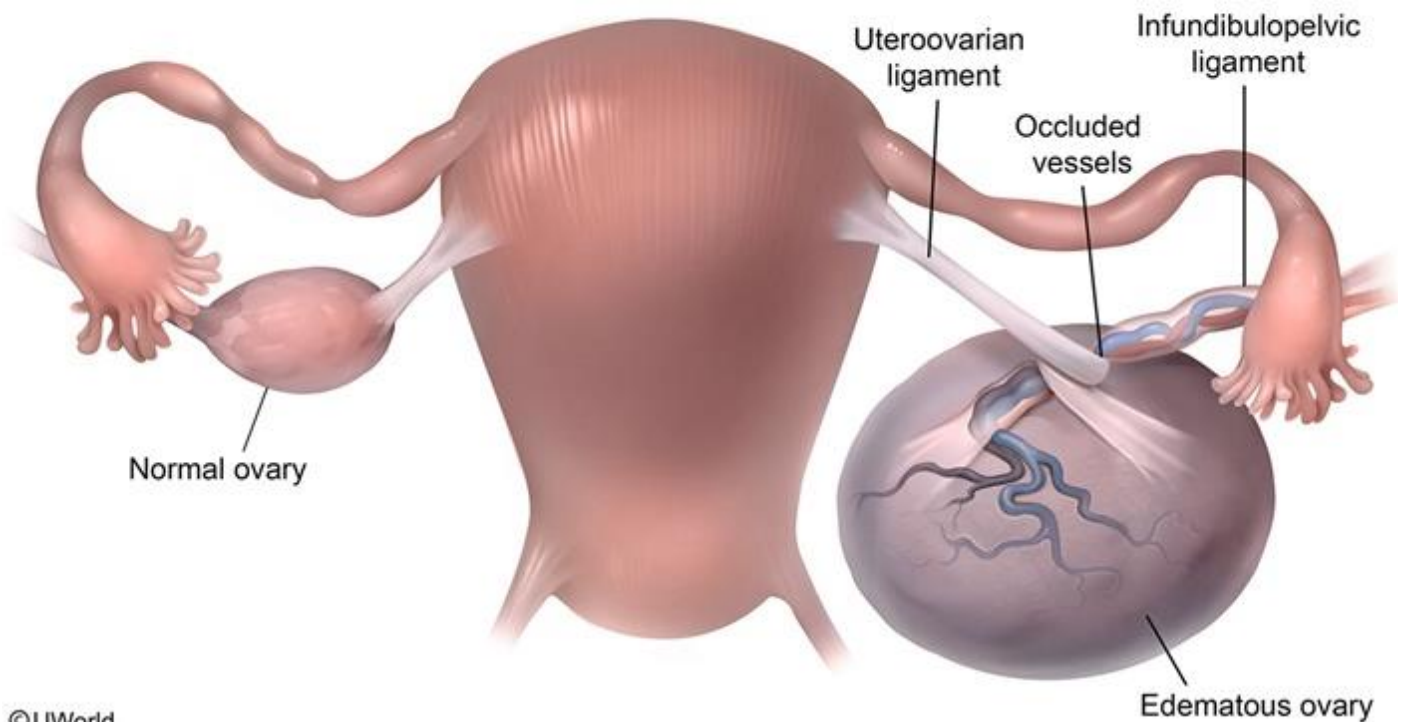
Risk factors	<ul style="list-style-type: none"> • Collagen defects • Uterine abnormalities • Cervical conization • Obstetric injury
Clinical features	<ul style="list-style-type: none"> • ≥ 2 prior painless, 2nd-trimester losses • Painless cervical dilation
Management	<ul style="list-style-type: none"> • Cerclage placement

Progesterone source during pregnancy

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Progesterone source during pregnancy

Ovarian torsion



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Ovarian torsion

OVARIAN CANCER

Granulosa cell tumor

Pathogenesis	<ul style="list-style-type: none"> • Sex cord–stromal tumor • ↑ Estradiol • ↑ Inhibin
Clinical features	<ul style="list-style-type: none"> • Complex ovarian mass • Juvenile subtype <ul style="list-style-type: none"> – Precocious puberty • Adult subtype <ul style="list-style-type: none"> – Breast tenderness – Abnormal uterine bleeding – Postmenopausal bleeding
Histopathology	<ul style="list-style-type: none"> • Call-Exner bodies (cells in rosette pattern)
Management	<ul style="list-style-type: none"> • Endometrial biopsy (endometrial cancer) • Surgery (tumor staging)

Sertoli-Leydig cell tumor

Pathogenesis	<ul style="list-style-type: none">• Sex cord–stromal tumor• ↑ Testosterone
Clinical features	<ul style="list-style-type: none">• Rapid-onset virilization<ul style="list-style-type: none">– Voice deepening– Male-pattern balding– Increased muscle mass– Clitoromegaly• Oligomenorrhea• Unilateral, solid adnexal mass
Management	<ul style="list-style-type: none">• Surgery (tumor staging)

Mature cystic teratoma

Pathology	<ul style="list-style-type: none">• Benign ovarian germ cell tumor• Endoderm, mesoderm, ectoderm tissue
Clinical features	<ul style="list-style-type: none">• Most asymptomatic• Ovarian torsion• Struma ovarii subtype: hyperthyroidism• Unilateral adnexal mass• Ultrasound: complex, cystic, calcifications• Gross appearance: sebaceous fluid, hair, teeth
Management	<ul style="list-style-type: none">• Ovarian cystectomy or oophorectomy

Epithelial ovarian carcinoma

Clinical presentation	<ul style="list-style-type: none">• Acute: shortness of breath, obstipation/constipation with vomiting, abdominal distension• Subacute: pelvic/abdominal pain, bloating, early satiety• Asymptomatic adnexal mass
Laboratory findings	<ul style="list-style-type: none">• ↑ CA-125
Ultrasound findings	<ul style="list-style-type: none">• Solid mass• Thick septations• Ascites
Management	<ul style="list-style-type: none">• Exploratory laparotomy

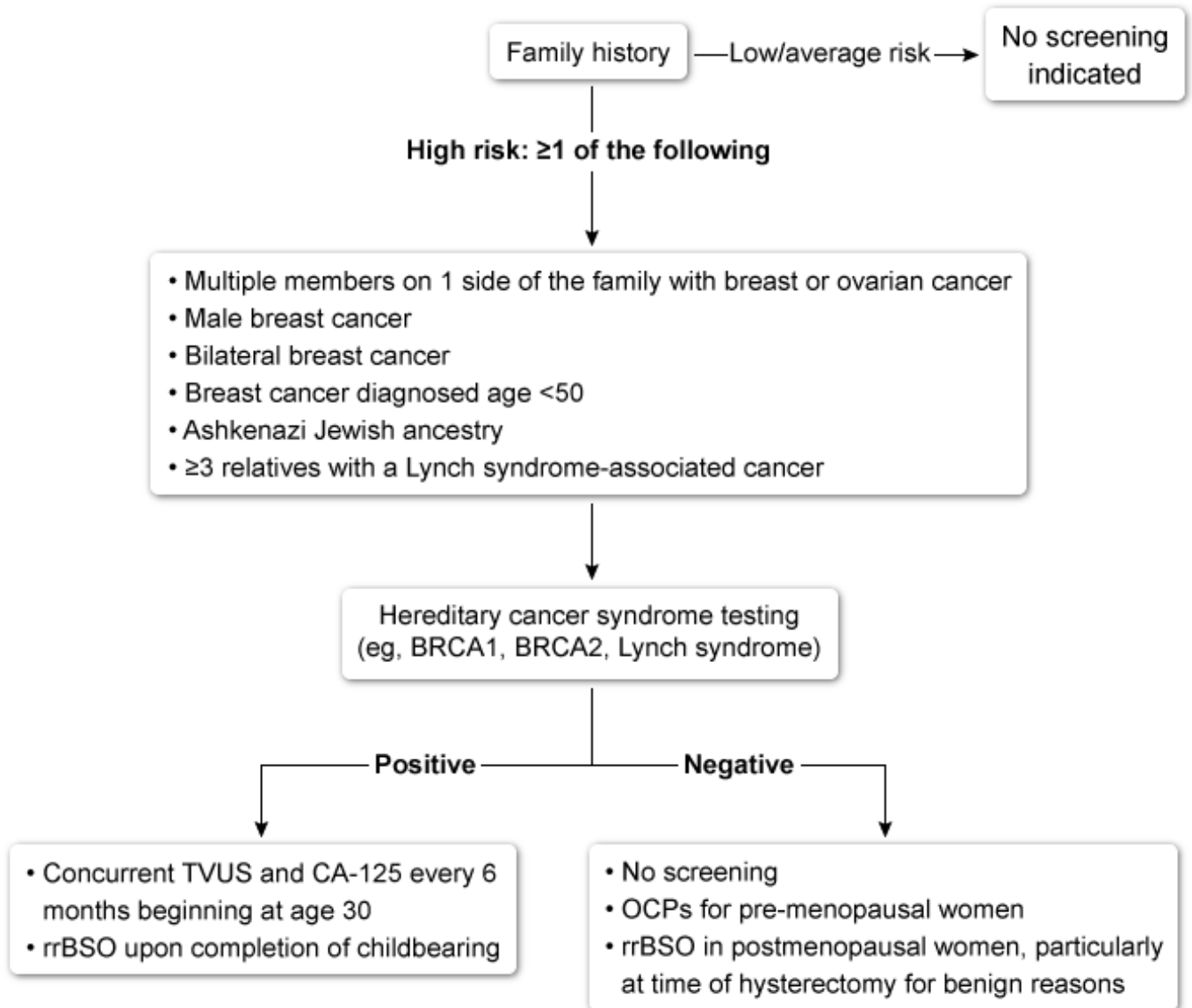
Causes of hirsutism in women

Etiology	Clinical features
Polycystic ovary syndrome	<ul style="list-style-type: none">• Oligomenorrhea, hyperandrogenism, obesity• Associated with type 2 diabetes, dyslipidemia, hypertension
Idiopathic hirsutism	<ul style="list-style-type: none">• Normal menstruation• Normal serum androgens
Nonclassic 21-hydroxylase deficiency	<ul style="list-style-type: none">• Similar to polycystic ovary syndrome• Elevated serum 17-hydroxyprogesterone
Androgen-secreting ovarian tumors, ovarian hyperthecosis	<ul style="list-style-type: none">• More common in postmenopausal women• Rapidly progressive hirsutism with virilization• Very high serum androgens
Cushing syndrome	<ul style="list-style-type: none">• Obesity (usually of the face, neck, trunk, abdomen)• Increased libido, virilization, irregular menses

Ovarian torsion

Risk factors	<ul style="list-style-type: none">• Ovarian mass• Women of reproductive age• Infertility treatment with ovulation induction
Clinical presentation	<ul style="list-style-type: none">• Sudden-onset unilateral pelvic pain• Nausea & vomiting• ± Palpable adnexal mass
Ultrasound	<ul style="list-style-type: none">• Adnexal mass with absent Doppler flow to ovary
Treatment	<ul style="list-style-type: none">• Laparoscopy with detorsion• Ovarian cystectomy• Oophorectomy if necrosis or malignancy

Risk-based ovarian cancer screening & management

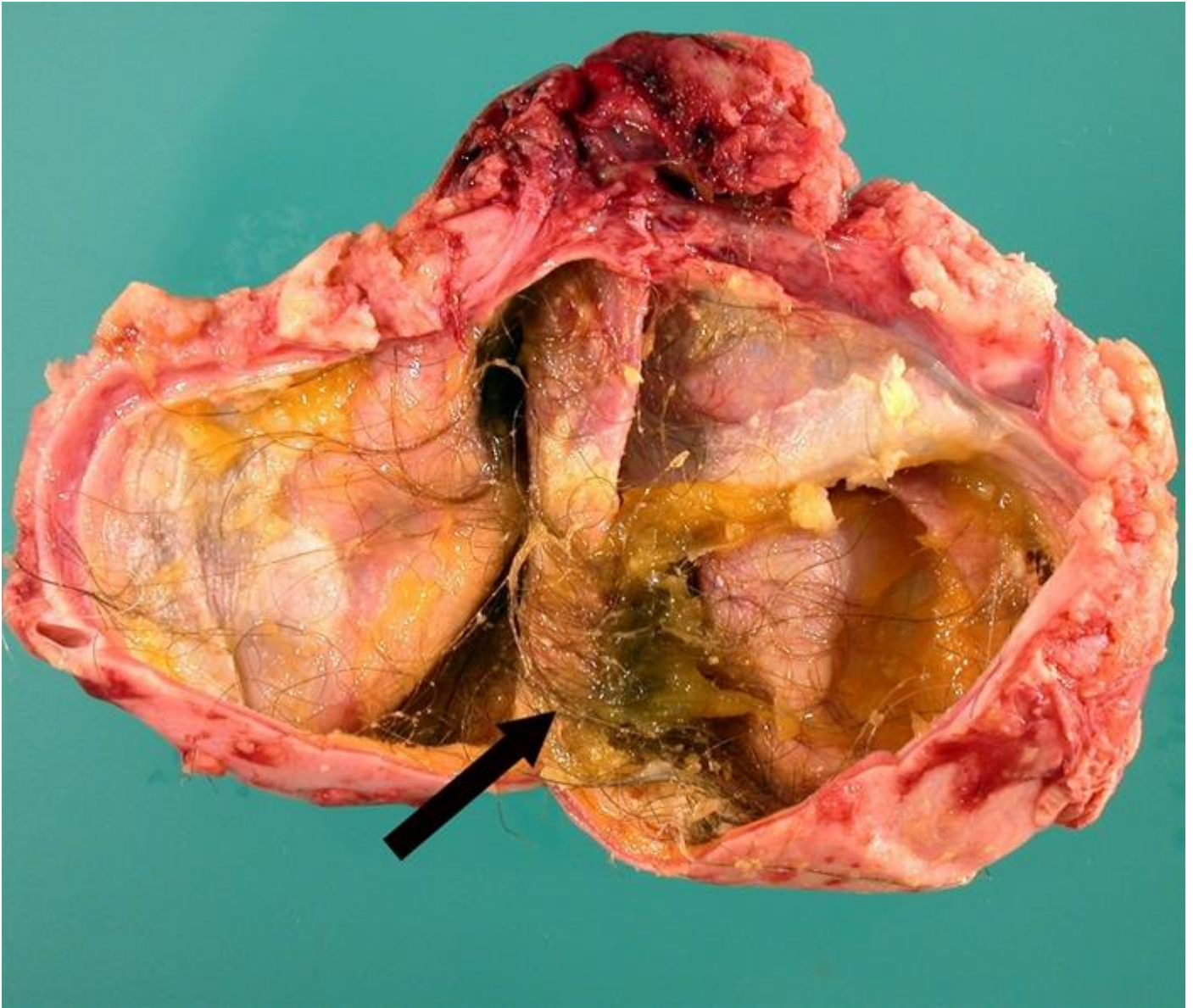


OCP = oral contraceptive pill; **rrBSO** = risk reducing bilateral salpingo-oophorectomy;

TVUS = transvaginal ultrasound.

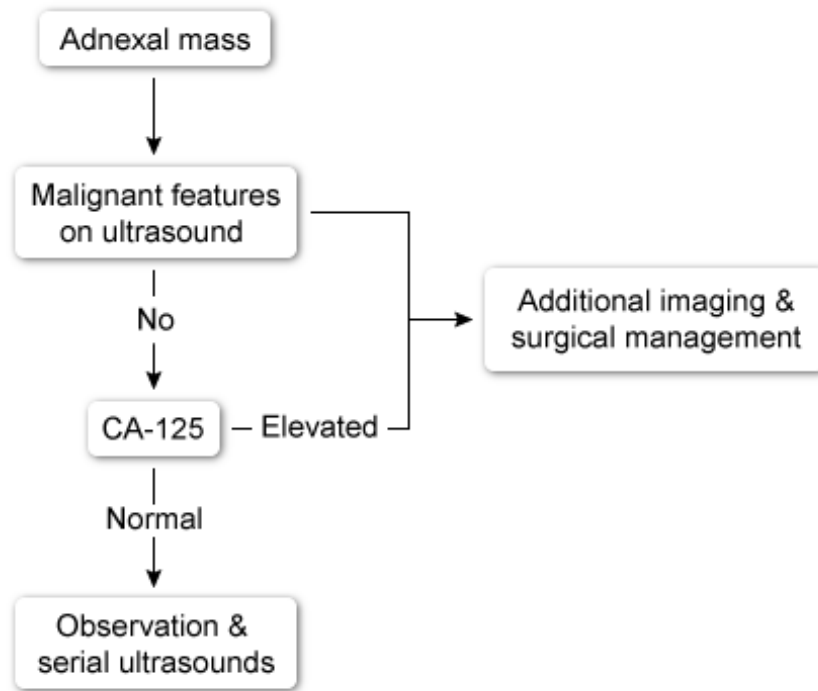
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Risk-based ovarian cancer screening & management



Ovarian cancer

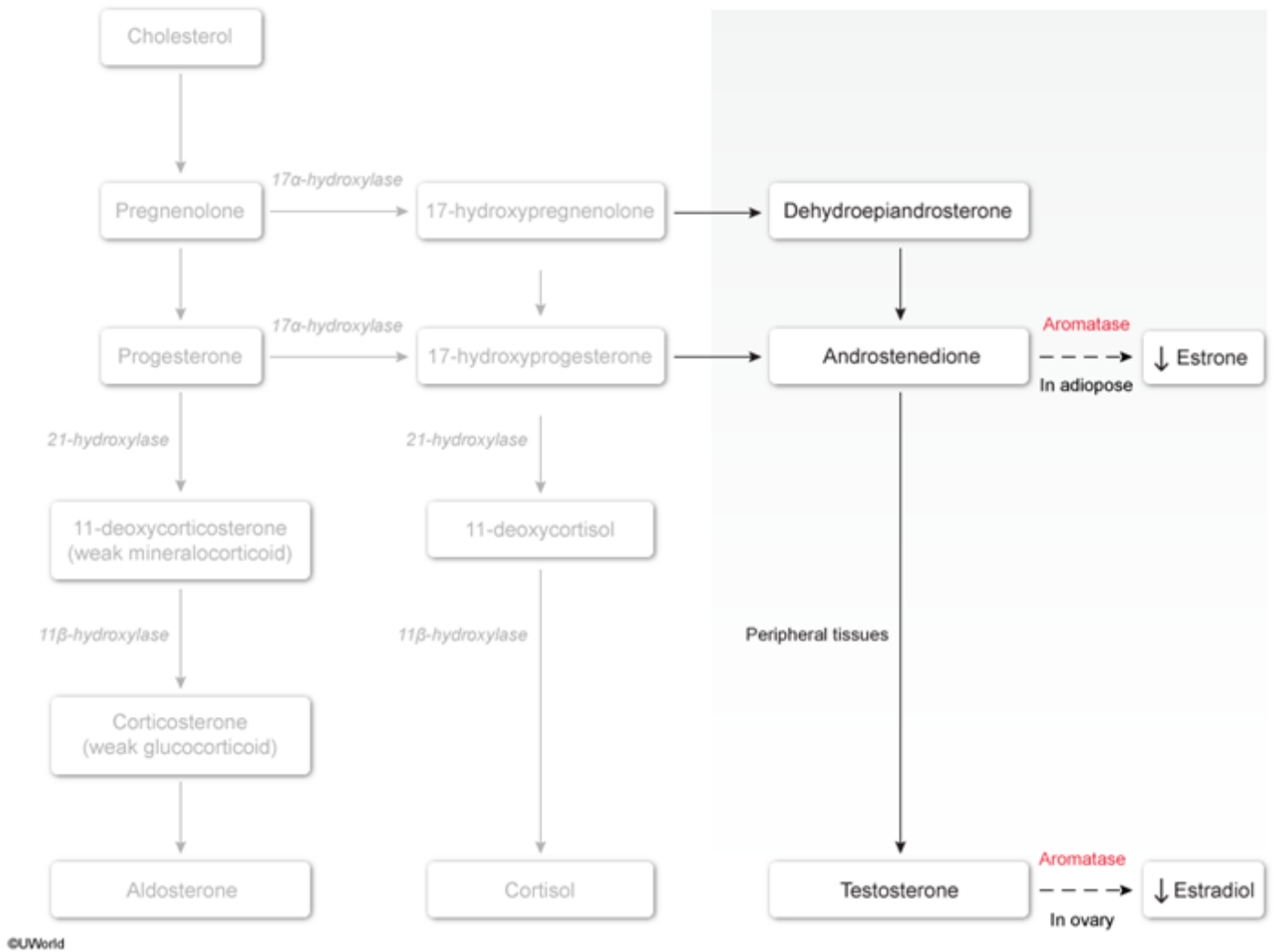
Postmenopausal adnexal mass evaluation



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Postmenopausal adnexal mass evaluation

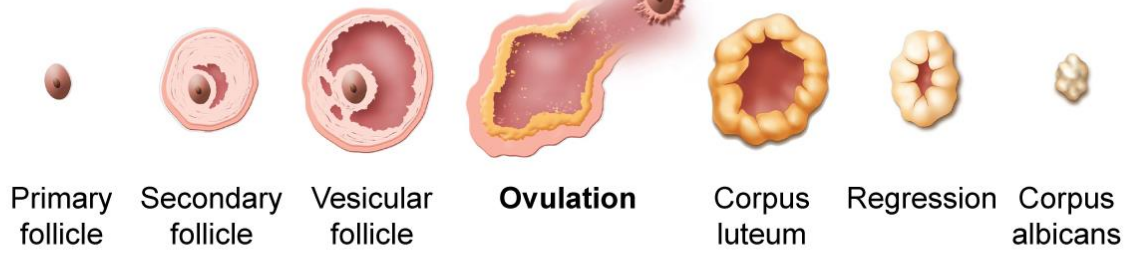
Aromatase deficiency



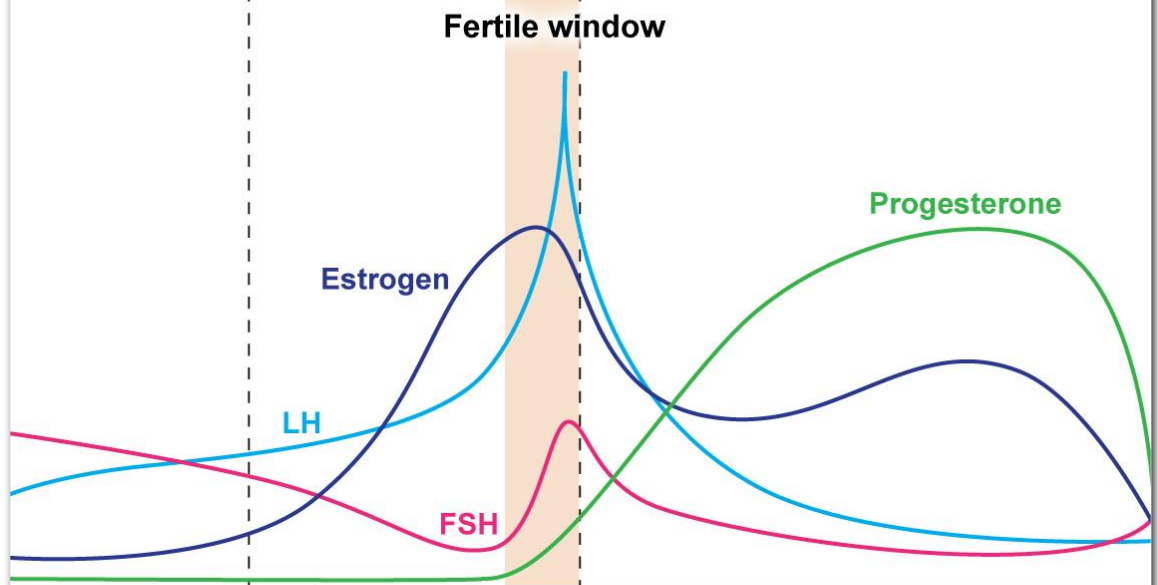
Aromatase deficiency

Physiology of the fertile window

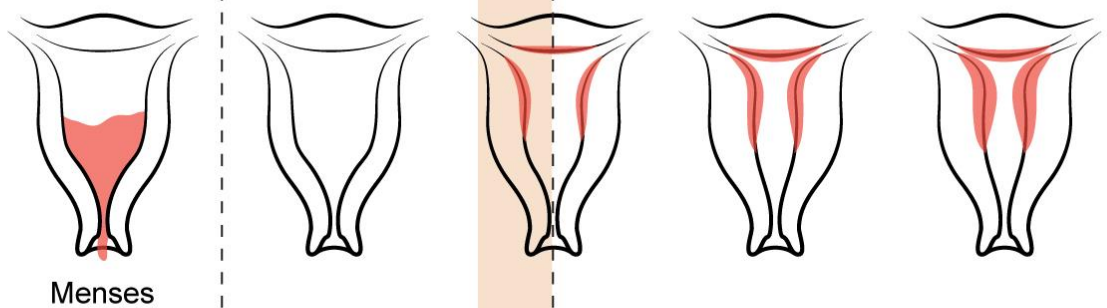
Ovarian histology



Pituitary hormones



Uterus



Cycle



Day 0

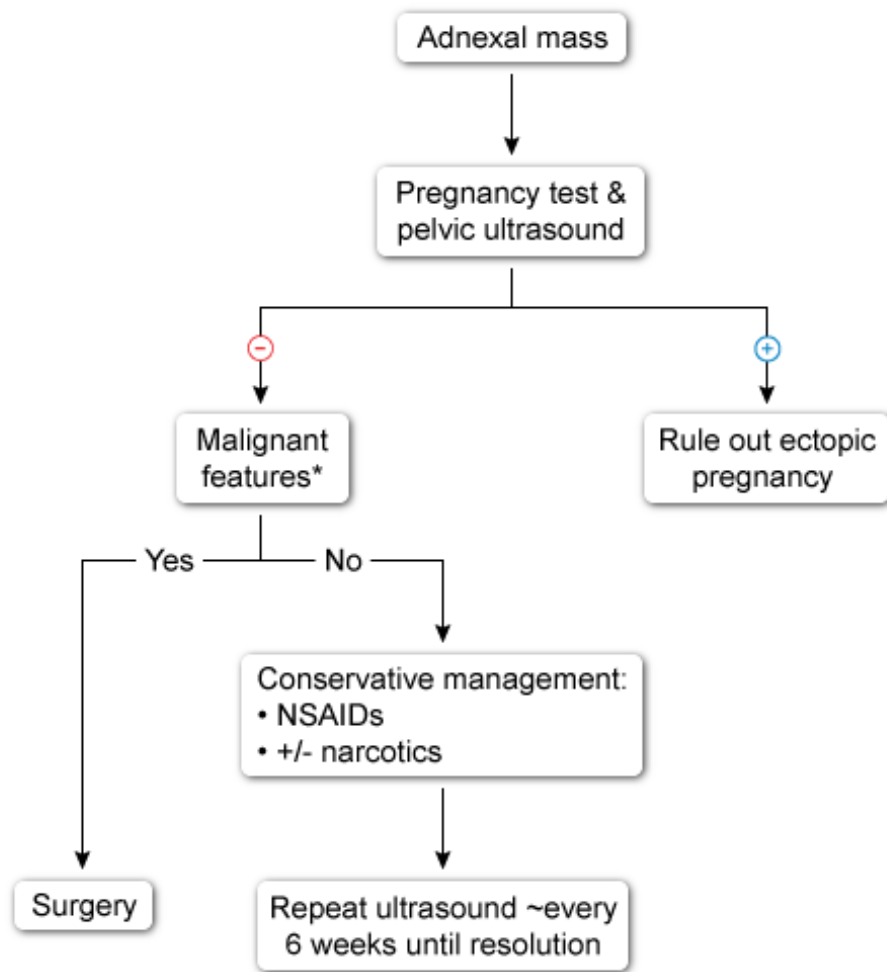
Day 14

Day 28

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Physiology of the fertile window

Premenopausal adnexal mass evaluation



*Complex, solid components, septations, calcifications, increased vascularity. ©UWorld

Premenopausal adnexal mass evaluation

Acute abdominal/pelvic pain in women

Diagnosis	Clinical presentation	Ultrasound findings
Mittelschmerz	<ul style="list-style-type: none"> Recurrent mild & unilateral mid-cycle pain prior to ovulation Pain lasts hours to days 	Not indicated
Ectopic pregnancy	<ul style="list-style-type: none"> Amenorrhea, abdominal/pelvic pain & vaginal bleeding Positive β-hCG 	No intrauterine pregnancy
Ovarian torsion	<ul style="list-style-type: none"> Sudden-onset, severe, unilateral lower abdominal pain; nausea & vomiting Unilateral, tender adnexal mass on examination 	Enlarged ovary with decreased or absent blood flow
Ruptured ovarian cyst	<ul style="list-style-type: none"> Sudden-onset, severe, unilateral lower abdominal pain immediately following strenuous or sexual activity 	Pelvic free fluid
Pelvic inflammatory disease	<ul style="list-style-type: none"> Fever/chills, vaginal discharge, lower abdominal pain & cervical motion tenderness 	\pm Tuboovarian abscess

POLYCYSTIC OVARY DISEASE

Polycystic ovary syndrome

Clinical features	<ul style="list-style-type: none"> Androgen excess (eg, acne, male pattern baldness, hirsutism) Oligoovulation or anovulation (eg, menstrual irregularities) Obesity Polycystic ovaries on ultrasound
Pathophysiology	<ul style="list-style-type: none"> \uparrow Testosterone levels \uparrow Estrogen levels LH/FSH imbalance
Comorbidities	<ul style="list-style-type: none"> Metabolic syndrome (eg, diabetes, hypertension) Obstructive sleep apnea Nonalcoholic steatohepatitis Endometrial hyperplasia/cancer
Treatment options	<ul style="list-style-type: none"> Weight loss (first-line) Oral contraceptives for menstrual regulation Letrozole for ovulation induction

Hyperandrogenism

Clinical features	<ul style="list-style-type: none">• Hirsutism• Nodulocystic acne• Androgenic alopecia• ↑ Serum testosterone
Differential diagnosis	<ul style="list-style-type: none">• Polycystic ovary syndrome• Androgen-secreting tumor• Cushing syndrome• Nonclassical CAH

CAH = congenital adrenal hyperplasia.

UTERINE FIBROIDS

Causes of heavy menstrual bleeding

Diagnosis	Clinical features
Adenomyosis	<ul style="list-style-type: none">• Heavy, regular menses• Dysmenorrhea, pelvic pain• Uniformly enlarged (globular), tender uterus
Endometrial cancer/hyperplasia	<ul style="list-style-type: none">• Irregular, intermenstrual, heavy, or postmenopausal bleeding• History of unopposed estrogen (eg, obesity, nulliparity, chronic anovulation)• Nontender uterus (± enlarged)
Endometriosis	<ul style="list-style-type: none">• Uncommon cause of heavy menses• Dysmenorrhea, pelvic pain, dyspareunia• Fixed uterus, adnexal mass (endometrioma), rectovaginal nodularity
Uterine leiomyomas (fibroids)	<ul style="list-style-type: none">• Heavy, regular menses• Bulk symptoms (eg, pelvic pressure/pain, constipation)• Irregularly enlarged uterus with uneven contour
Coagulopathy (eg, von Willebrand disease)	<ul style="list-style-type: none">• Heavy, regular menses• Bruising, mucocutaneous bleeding (eg, gums)• Normal uterus

Uterine leiomyomas (fibroids)

Clinical features	<ul style="list-style-type: none">• Heavy, prolonged menses• Pressure symptoms<ul style="list-style-type: none">– Pelvic pain– Constipation– Urinary frequency• Obstetric complications<ul style="list-style-type: none">– Impaired fertility– Pregnancy loss– Preterm labor• Enlarged, irregular uterus
Workup	<ul style="list-style-type: none">• Ultrasound
Treatment	<ul style="list-style-type: none">• Asymptomatic: observation• Symptomatic: hormonal contraception, surgery

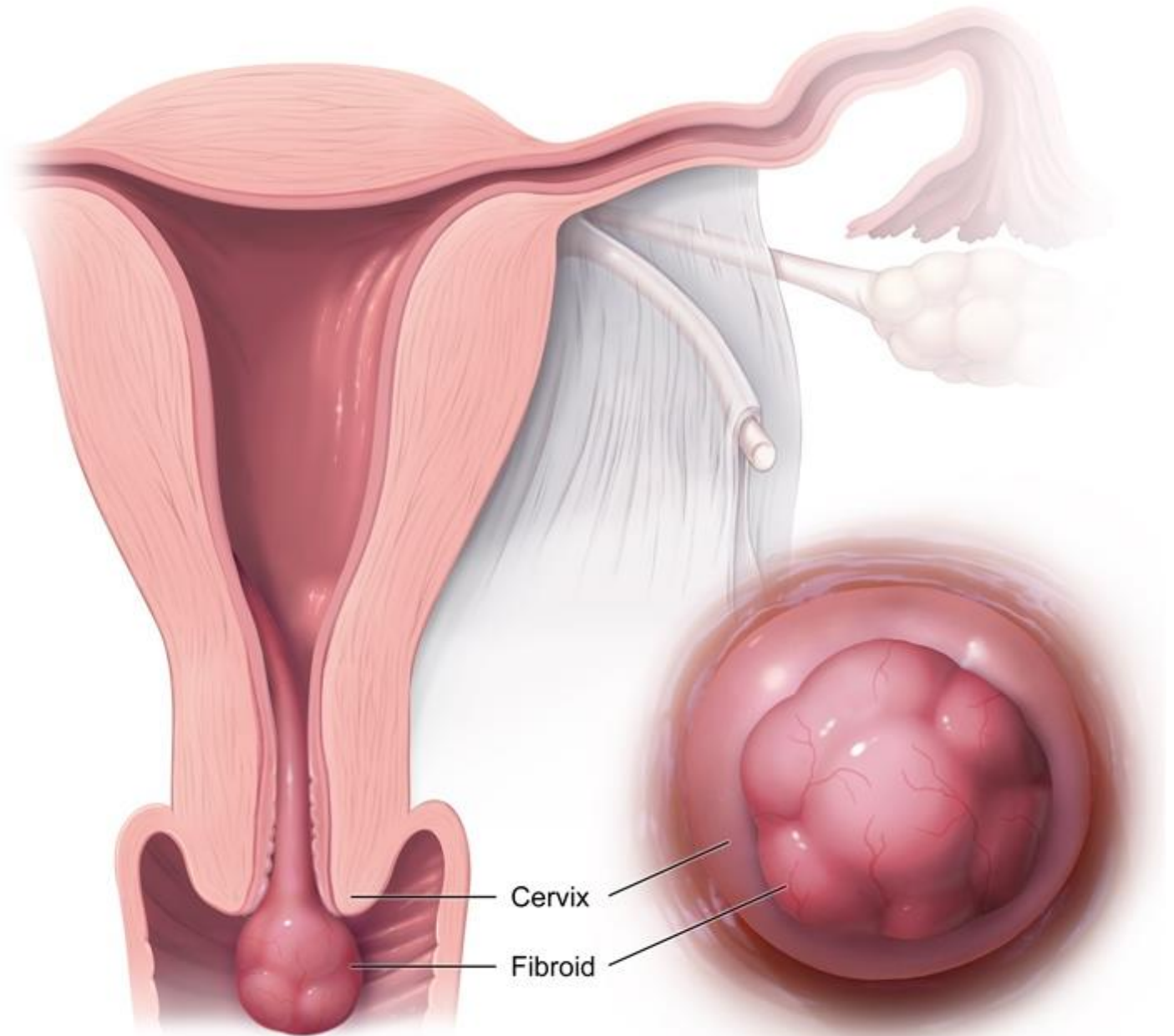
Differential diagnosis of urinary incontinence

	Etiology	Symptoms
Stress	<ul style="list-style-type: none">• ↓ Urethral sphincter tone• Urethral hypermobility	<ul style="list-style-type: none">• Leakage with coughing, sneezing, lifting
Urge	<ul style="list-style-type: none">• Detrusor overactivity	<ul style="list-style-type: none">• Sudden, overwhelming urge to urinate
Overflow	<ul style="list-style-type: none">• Impaired detrusor contractility• Bladder outlet obstruction	<ul style="list-style-type: none">• Incomplete emptying & persistent involuntary dribbling

Uterine sarcoma

Risk factors	<ul style="list-style-type: none">• Pelvic radiation• Tamoxifen use• Postmenopausal patients
Presentation	<ul style="list-style-type: none">• Abnormal/postmenopausal bleeding• Pelvic pain or pressure• Uterine mass
Diagnosis	<ul style="list-style-type: none">• Ultrasound ± additional imaging• Endometrial biopsy• Histopathology of surgical specimen
Treatment	<ul style="list-style-type: none">• Hysterectomy• ± Adjuvant chemotherapy, radiation therapy

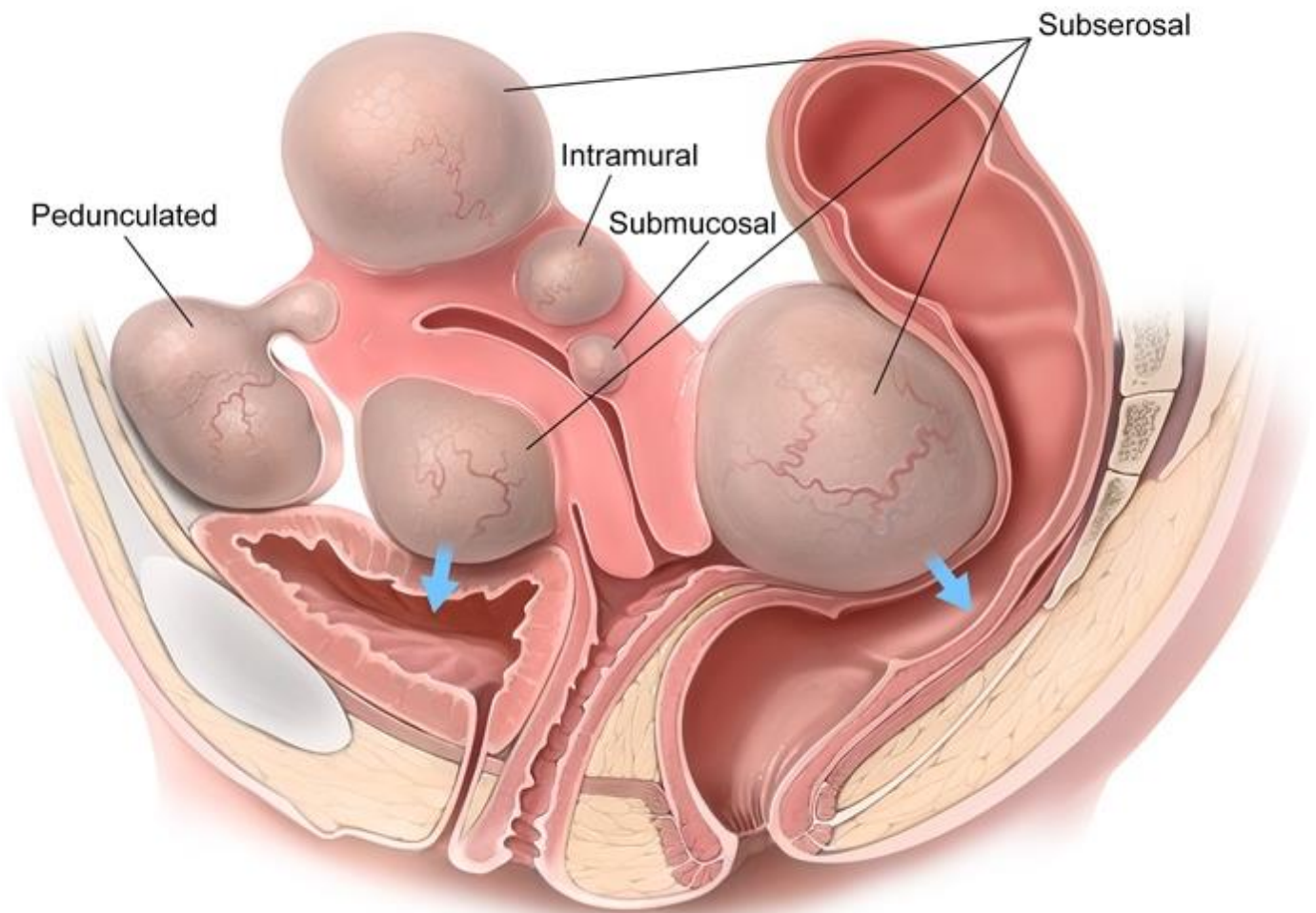
Prolapsing uterine fibroid



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Prolapsing uterine fibroid

Uterine fibroids



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Uterine fibroids

VAGINAL CANCER

Vaginal cancer

Risk factors	<ul style="list-style-type: none"> • Age >60 • Human papillomavirus infection • Tobacco use • In utero DES exposure (clear cell adenocarcinoma only)
Clinical features	<ul style="list-style-type: none"> • Vaginal bleeding • Malodorous vaginal discharge • Irregular vaginal lesion
Diagnosis	<ul style="list-style-type: none"> • Vaginal biopsy
Management	<ul style="list-style-type: none"> • Surgery ± chemoradiation

DES = diethylstilbestrol.

Vulvar lichen planus

Clinical features	<ul style="list-style-type: none"> • Women age 50-60 • Vulvar pain or pruritus • Dyspareunia • Erosive variant (most common): <ul style="list-style-type: none"> – Erosive, glazed lesions with white border – Vaginal involvement \pm stenosis – Associated oral ulcers • Papulosquamous variant: <ul style="list-style-type: none"> – Small pruritic papules with purple hue
Diagnosis	Vulvar biopsy
Treatment	High-potency topical corticosteroids

Vulvar cancer

Etiology	<ul style="list-style-type: none"> • Persistent HPV infection • Chronic inflammation
Risk factors	<ul style="list-style-type: none"> • Tobacco use • Vulvar lichen sclerosus • Immunodeficiency • Prior cervical cancer • Vulvar/cervical intraepithelial neoplasia
Clinical features	<ul style="list-style-type: none"> • Vulvar pruritus • Vulvar plaque/ulcer • Abnormal bleeding
Diagnosis	<ul style="list-style-type: none"> • Biopsy

HPV = human papillomavirus.

Vulvar lichen sclerosus

Epidemiology	<ul style="list-style-type: none"> • Prepubertal girls & perimenopausal or postmenopausal women
Clinical features	<ul style="list-style-type: none"> • Thin, white, wrinkled skin over the labia majora/minora; atrophic changes that may extend over the perineum & around the anus • Excoriations, erosions, fissures from severe pruritus • Dysuria, dyspareunia, painful defecation
Workup	<ul style="list-style-type: none"> • Punch biopsy of adult-onset lesions to exclude malignancy
Treatment	<ul style="list-style-type: none"> • Superpotent corticosteroid ointment

Lichen sclerosus



Normal



Lichen sclerosus

Pale thin tissue & perianal thickening with fissures

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Lichen sclerosus

Genitourinary tract infections

HSV INFECTION

Infectious genital ulcers

Painful	Herpes simplex virus	<ul style="list-style-type: none">• Pustules, vesicles, or small ulcers on erythematous base• Tender lymphadenopathy• Systemic symptoms common
	<i>Haemophilus ducreyi</i> (chancroid)	<ul style="list-style-type: none">• Larger, deep ulcers with gray/yellow exudate• Well-demarcated borders & soft, friable base• Severe lymphadenopathy that may suppurate
Painless	<i>Treponema pallidum</i> (syphilis)	<ul style="list-style-type: none">• Usually single ulcer (chancre)• Indurated borders & hard, nonpurulent base
	<i>Chlamydia trachomatis</i> serovars L1-L3 (lymphogranuloma venereum)	<ul style="list-style-type: none">• Initial small, shallow ulcers (often missed)• Then painful & fluctuant adenitis (buboes)

PELVIC INFLAMMATORY DISEASE

Pelvic inflammatory disease

Symptoms	<ul style="list-style-type: none">• Lower abdominal pain• Abnormal bleeding
Risk factors	<ul style="list-style-type: none">• Multiple sexual partners• Age 15-25• Previous pelvic inflammatory disease• Inconsistent barrier contraception use• Partner with sexually transmitted infection
Physical examination	<ul style="list-style-type: none">• Fever >38.3 C (>100.9 F)• Cervical motion, uterine, or adnexal tenderness• Mucopurulent cervical discharge
Treatment	<ul style="list-style-type: none">• Inpatient: IV broad-spectrum antibiotics• Outpatient: PO broad-spectrum antibiotics
Complications	<ul style="list-style-type: none">• Tuboovarian abscess• Infertility• Ectopic pregnancy• Perihepatitis

Acute cervicitis

Etiology	<ul style="list-style-type: none">• Infectious: <i>Chlamydia trachomatis</i>, <i>Neisseria gonorrhoeae</i>• Noninfectious: foreign object, latex, douching
Clinical presentation	<ul style="list-style-type: none">• Asymptomatic• Mucopurulent discharge• Postcoital/intermenstrual bleeding• Friable cervix
Evaluation	<ul style="list-style-type: none">• Nucleic acid amplification testing• Wet mount microscopy
Management	<ul style="list-style-type: none">• Empiric treatment: ceftriaxone + doxycycline*

*Ceftriaxone + azithromycin in pregnancy.

Chlamydia & gonorrhea in women

Risk factors	<ul style="list-style-type: none">• Age <25• High-risk sexual behavior
Manifestations	<ul style="list-style-type: none">• Asymptomatic (most common)• Cervicitis• Urethritis• Perihepatitis (Fitz-Hugh–Curtis syndrome)
Diagnosis	<ul style="list-style-type: none">• Nucleic acid amplification testing
Treatment	<ul style="list-style-type: none">• Empiric: ceftriaxone + doxycycline*• Confirmed chlamydia: doxycycline*• Confirmed gonorrhea: ceftriaxone
Complications	<ul style="list-style-type: none">• Pelvic inflammatory disease• Ectopic pregnancy• Infertility• Pharyngitis

*Azithromycin in pregnancy.

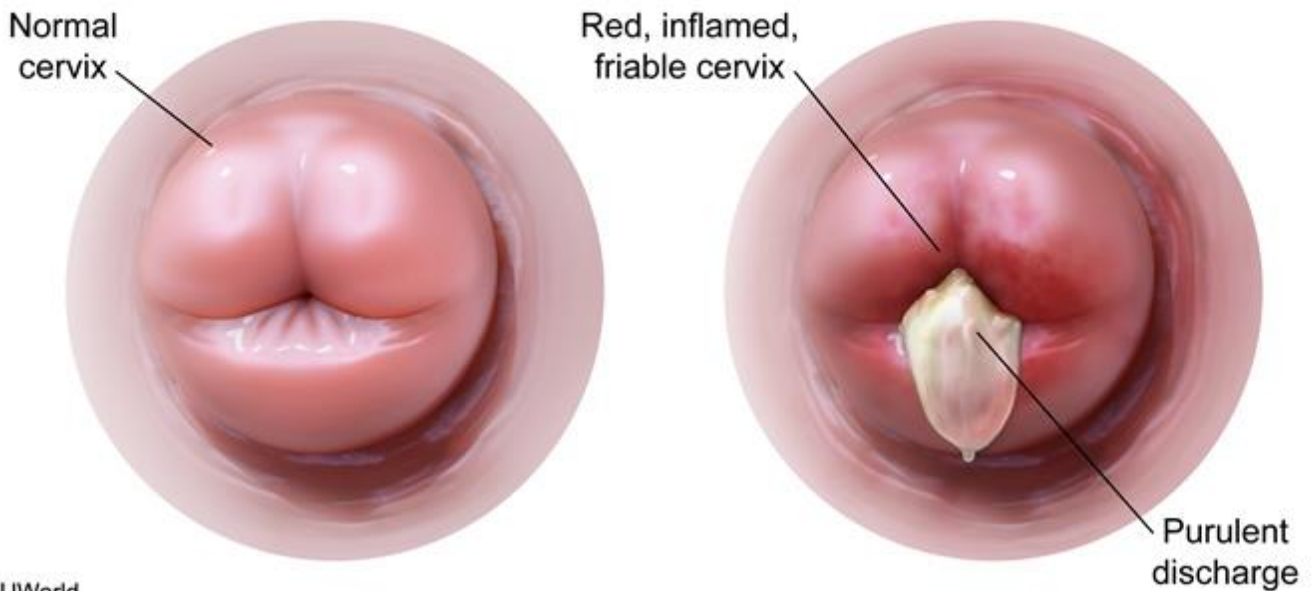
Indications for hospitalization for pelvic inflammatory disease

- Pregnancy
- Failed outpatient treatment
- Inability to tolerate oral medications
- Noncompliant with therapy
- Severe presentation (eg, high fever, vomiting)
- Complications (eg, tuboovarian abscess, perihepatitis)

Exceptions to informed consent by parent/guardian in minors

Emergency care	<ul style="list-style-type: none">• Condition in which delay of treatment is life threatening
Emancipated minor (adolescents)	<ul style="list-style-type: none">• Parent• Married• Military service• Financially independent• High school graduate• Homeless
Specific medical care (adolescents)	<ul style="list-style-type: none">• Sexually transmitted infection• Substance abuse (most states)• Pregnancy care (most states)• Contraception

Cervicitis



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Cervicitis

Characteristics of ulcerative sexually transmitted diseases

Disease	Causative agent	Features of primary lesion	Initial lesion painful?
Chancroid	<i>Haemophilus ducreyi</i>	<ul style="list-style-type: none"> Multiple & deep ulcers Base may have gray to yellow exudate Organisms often clump in long parallel strands ("school of fish") 	Yes
Genital herpes	Herpes simplex virus 1 & 2	<ul style="list-style-type: none"> Multiple, small, grouped ulcers Shallow with erythematous base Multinucleated giant cells & intranuclear inclusions (Cowdry type A) 	Yes
Granuloma inguinale (donovanosis)	<i>Klebsiella granulomatis</i>	<ul style="list-style-type: none"> Extensive & progressive ulcerative lesions without lymphadenopathy Base may have granulation-like tissue Deeply staining gram-negative intracytoplasmic cysts (Donovan bodies) 	No
Syphilis	<i>Treponema pallidum</i>	<ul style="list-style-type: none"> Single, indurated, well-circumscribed ulcer Nonexudative base Painless inguinal lymphadenopathy Thin, delicate, corkscrew-shaped organisms on dark-field microscopy 	No
Lymphogranuloma venereum	<i>Chlamydia trachomatis</i>	<ul style="list-style-type: none"> Small & shallow ulcers Large, painful, coalesced inguinal lymph nodes ("buboes") Intracytoplasmic chlamydial inclusion 	No

Syphilis: diagnostic serology

Nontreponemal (RPR, VDRL)	<ul style="list-style-type: none"> • Antibody to cardiolipin-cholesterol-lecithin antigen • Quantitative (titers) • Possible negative result in early infection • Decrease in titers confirms treatment
Treponemal (FTA-ABS, TP-EIA)	<ul style="list-style-type: none"> • Antibody to treponemal antigens • Qualitative (reactive/nonreactive) • Greater sensitivity in early infection • Positive even after treatment

FTA-ABS = fluorescent treponemal antibody absorption; **RPR** = rapid plasma reagin;

TP-EIA = *Treponema pallidum* enzyme immunoassay.

TOXIC SHOCK SYNDROME

Staphylococcal toxic shock syndrome

Risks	<ul style="list-style-type: none"> • Tampon use • Nasal packing • Surgical/postpartum wound infection
Pathogenesis	<ul style="list-style-type: none"> • <i>Staphylococcus aureus</i> • Exotoxin release acting as superantigens
Clinical features	<ul style="list-style-type: none"> • Fever >38.9 C (102 F) • Hypotension • Diffuse macular rash involving palms & soles • Desquamation 1-3 weeks after disease onset • Vomiting, diarrhea • Altered mentation without focal neurological signs
Treatment	<ul style="list-style-type: none"> • Supportive therapy (fluid replacement) • Removal of foreign body (eg, tampon) • Antibiotic therapy (eg, clindamycin plus vancomycin)

URINARY INCONTINENCE

Causes of urinary incontinence in the elderly

Genitourinary	<ul style="list-style-type: none">• ↓ Detrusor contractility, detrusor overactivity• Bladder or urethral obstruction (eg, tumor, BPH)• Urethral sphincter or pelvic floor weakness• Urogenital fistula
Neurologic	<ul style="list-style-type: none">• Multiple sclerosis• Dementia (eg, Parkinson, Alzheimer, normal pressure hydrocephalus)• Spinal cord injury, disc herniation
Potentially reversible	<ul style="list-style-type: none">• Delirium• Infection (eg, UTI)• Atrophic urethritis/vaginitis• Pharmaceuticals (eg, alpha blockers, diuretics)• Psychological (eg, depression)• Excessive urine output (eg, diabetes mellitus, CHF)• Restricted mobility (eg, postsurgery)• Stool impaction

BPH = benign prostatic hyperplasia; **CHF** = congestive heart failure; **UTI** = urinary tract infection.

URINARY TRACT INFECTION

Urinary tract infection

Pathogenesis	<ul style="list-style-type: none">• <i>Escherichia coli</i> (most common)• Ascending infection
Clinical features	<ul style="list-style-type: none">• Dysuria• Urinary urgency & frequency• Hematuria• Suprapubic/flank pain
Diagnosis	<ul style="list-style-type: none">• Pyuria• Bacteriuria on urine culture
Treatment	<ul style="list-style-type: none">• Antibiotics



Recurrent cystitis in women

Definition	<ul style="list-style-type: none">• ≥ 2 infections in 6 months• ≥ 3 infections in a year
Risk factors	<ul style="list-style-type: none">• Sexually active• Postmenopausal• First UTI at age <15• Spermicide use
Prevention	<ul style="list-style-type: none">• Daily antibiotic prophylaxis• Postcoital prophylaxis

UTI = urinary tract infection.

Recurrent urinary tract infection

Definition	<ul style="list-style-type: none">• ≥ 2 infections in 6 months• ≥ 3 infections in 1 year
Risk factors	<ul style="list-style-type: none">• History of cystitis at ≤ 15 years• Spermicide use• New sexual partner• Postmenopausal status
Evaluation	<ul style="list-style-type: none">• Urinalysis• Urine culture
Prevention	<ul style="list-style-type: none">• Behavior modification• Postcoital or daily antibiotic prophylaxis• Topical vaginal estrogen for postmenopausal patients

Vulvovaginal candidiasis	
Risk factors	<ul style="list-style-type: none"> • Diabetes mellitus • Immunosuppression • Pregnancy • Oral contraceptive pills • Antibiotic use
Examination	 <ul style="list-style-type: none"> • Thick, cottage cheese discharge • Vaginal inflammation
Laboratory findings	 <ul style="list-style-type: none"> • Normal pH (3.8-4.5) • Pseudohyphae
Treatment	<ul style="list-style-type: none"> • Fluconazole

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Vulvovaginal candidiasis







Candida intertrigo



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Candida intertrigo

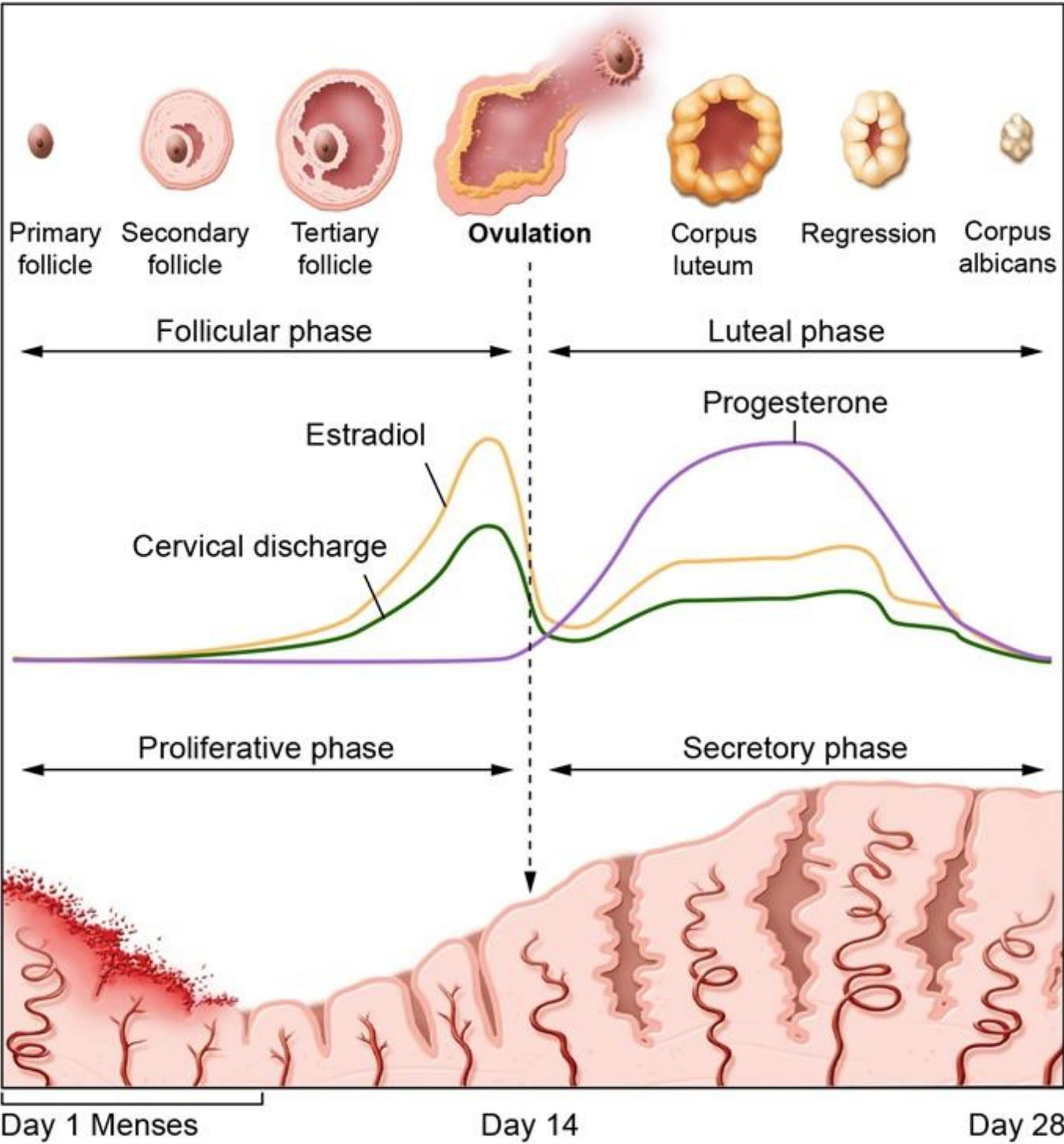
Differential diagnosis of vaginitis

Bacterial vaginosis <i>(Gardnerella vaginalis)</i>	Trichomoniasis <i>(Trichomonas vaginalis)</i>	Candida vaginitis <i>(Candida albicans)</i>
 <ul style="list-style-type: none"> • Thin, off-white discharge with fishy odor • No inflammation 	 <ul style="list-style-type: none"> • Thin, yellow-green, malodorous, frothy discharge • Vaginal inflammation 	 <ul style="list-style-type: none"> • Thick, cottage cheese discharge • Vaginal inflammation
 <ul style="list-style-type: none"> • pH >4.5 • Clue cells • Positive whiff test (amine odor with KOH) 	 <ul style="list-style-type: none"> • pH >4.5 • Motile trichomonads 	 <ul style="list-style-type: none"> • Normal pH (3.8-4.5) • Pseudohyphae
<p>Metronidazole or clindamycin</p>	<p>Metronidazole; treat sexual partner</p>	<p>Fluconazole</p>

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Differential diagnosis of vaginitis

Menstrual cycle



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Menstrual cycle

Genital warts (condylomata acuminata)

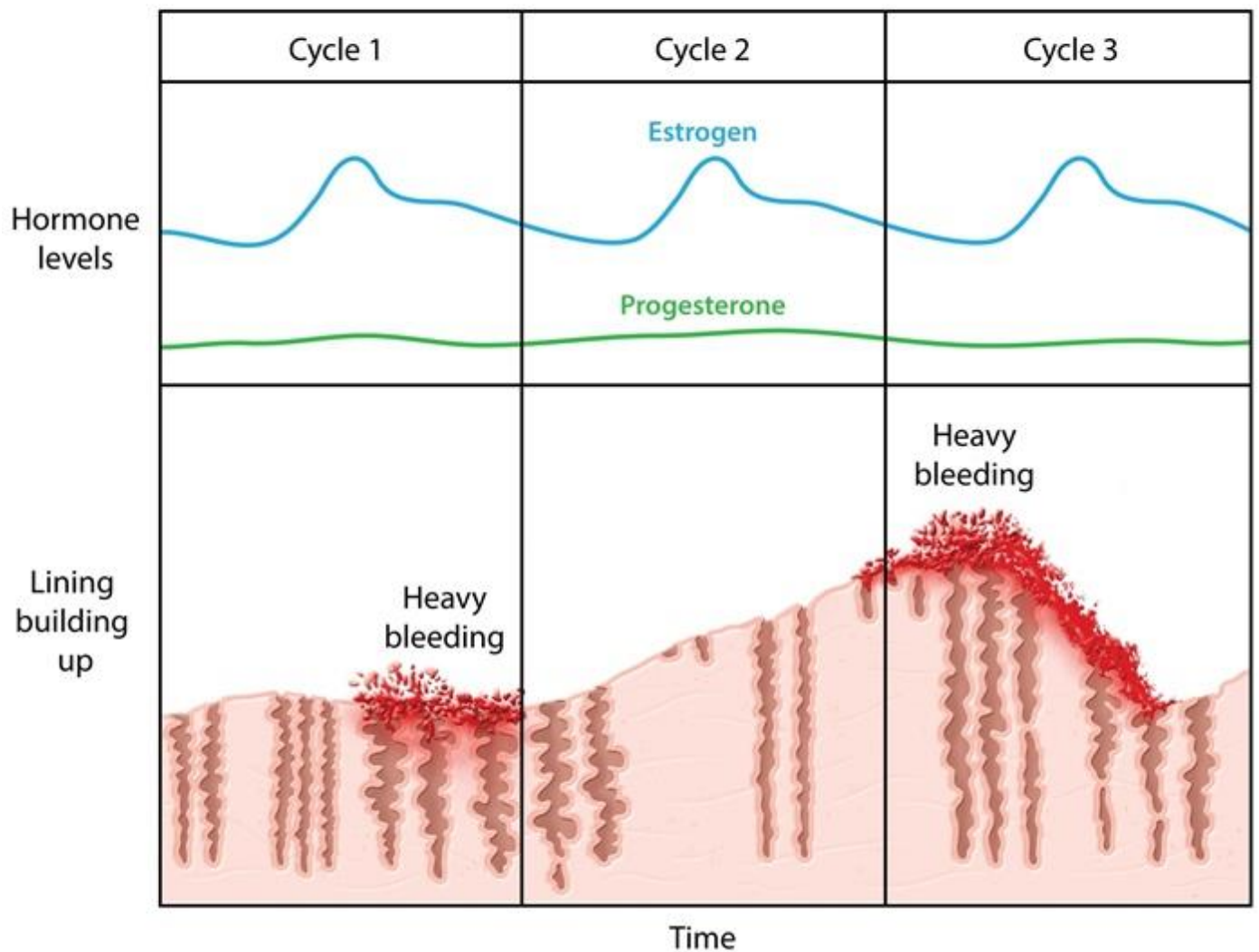
Etiology	<ul style="list-style-type: none"> • HPV 6 & 11
Clinical features	<ul style="list-style-type: none"> • Multiple pink or skin-colored lesions • Lesions ranging from smooth, flattened papules to exophytic/cauliflower-like growths
Treatment	<ul style="list-style-type: none"> • Chemical: Podophyllin resin, trichloroacetic acid • Immunologic: Imiquimod • Surgical: Cryotherapy, laser therapy, excision
Prevention	<ul style="list-style-type: none"> • Vaccination • Barrier contraception

HPV = human papillomavirus.

Anogenital warts (condyloma acuminata) in children

Etiology	<ul style="list-style-type: none"> • Human papillomavirus infection
Transmission	<ul style="list-style-type: none"> • Sexual abuse • Autoinoculation from other sites • Prenatal or perinatal
Clinical features	<ul style="list-style-type: none"> • Pink/flesh-colored, verrucous papules & plaques • Asymptomatic (most common) • Pruritic, friable lesions
Management	<ul style="list-style-type: none"> • Sexual abuse assessment, especially age ≥ 4

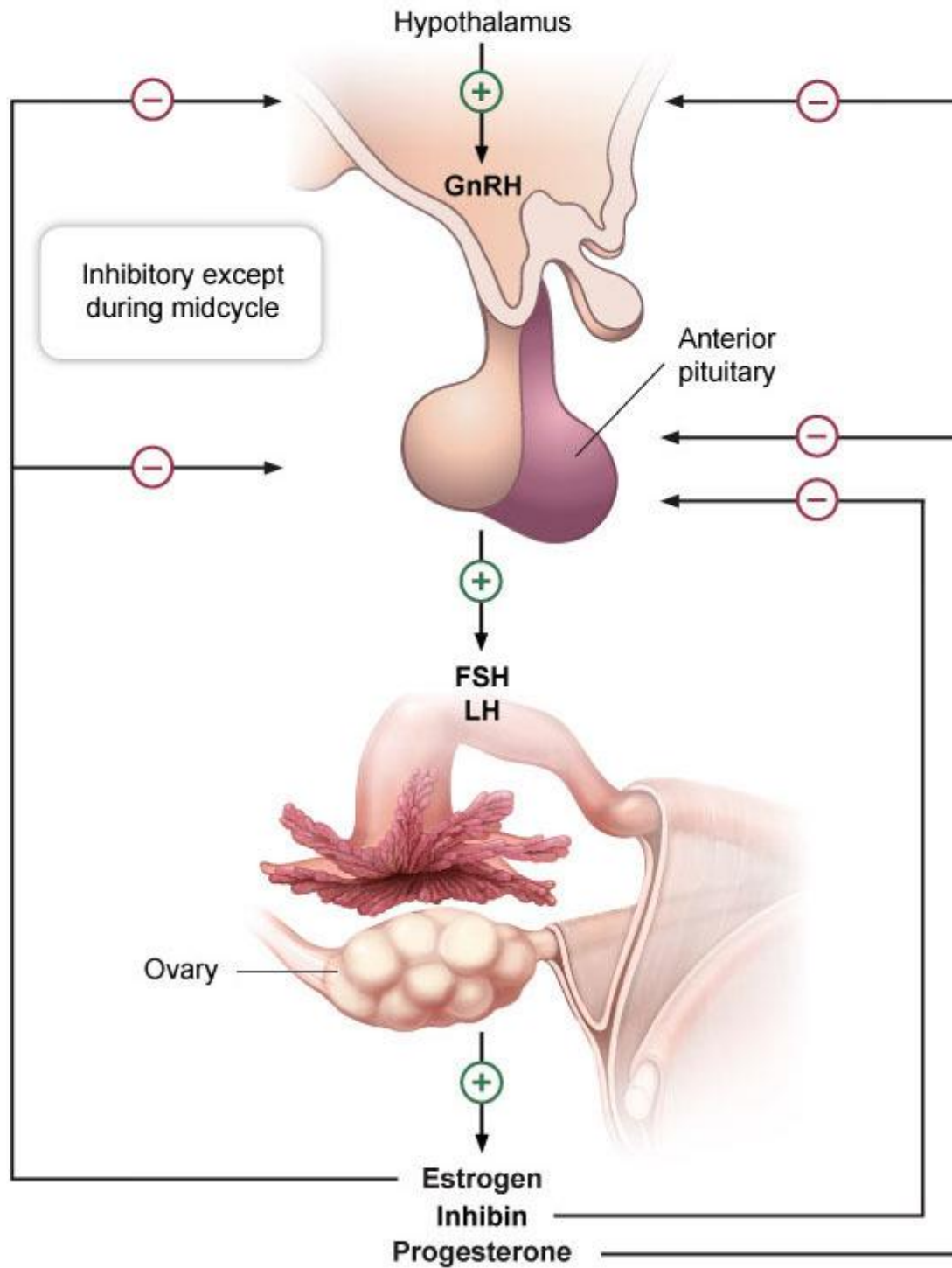
Effects of anovulatory cycles on the endometrium



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Effects of anovulatory cycles on the endometrium

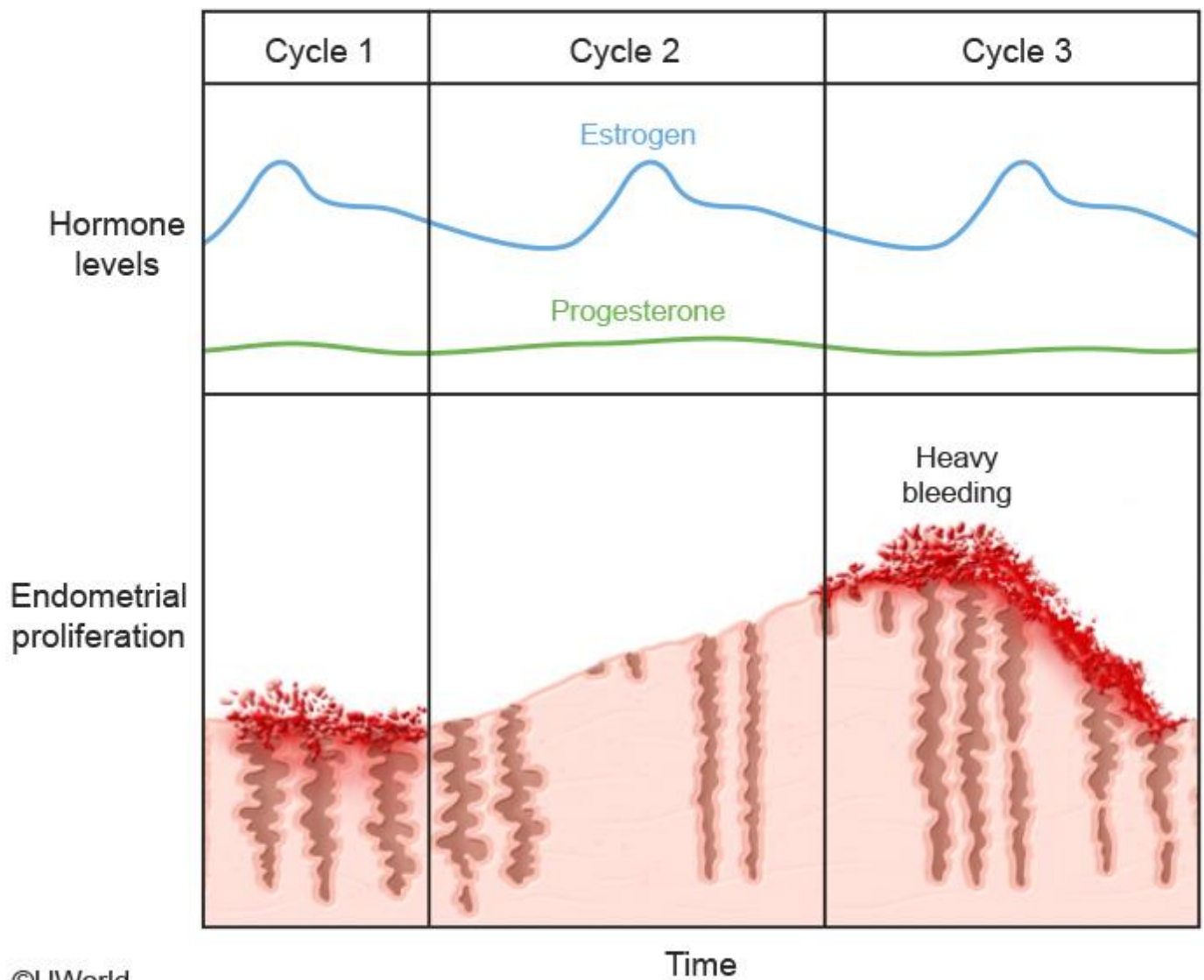
Hypothalamic-pituitary-ovarian axis



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Hypothalamic-pituitary-ovarian axis

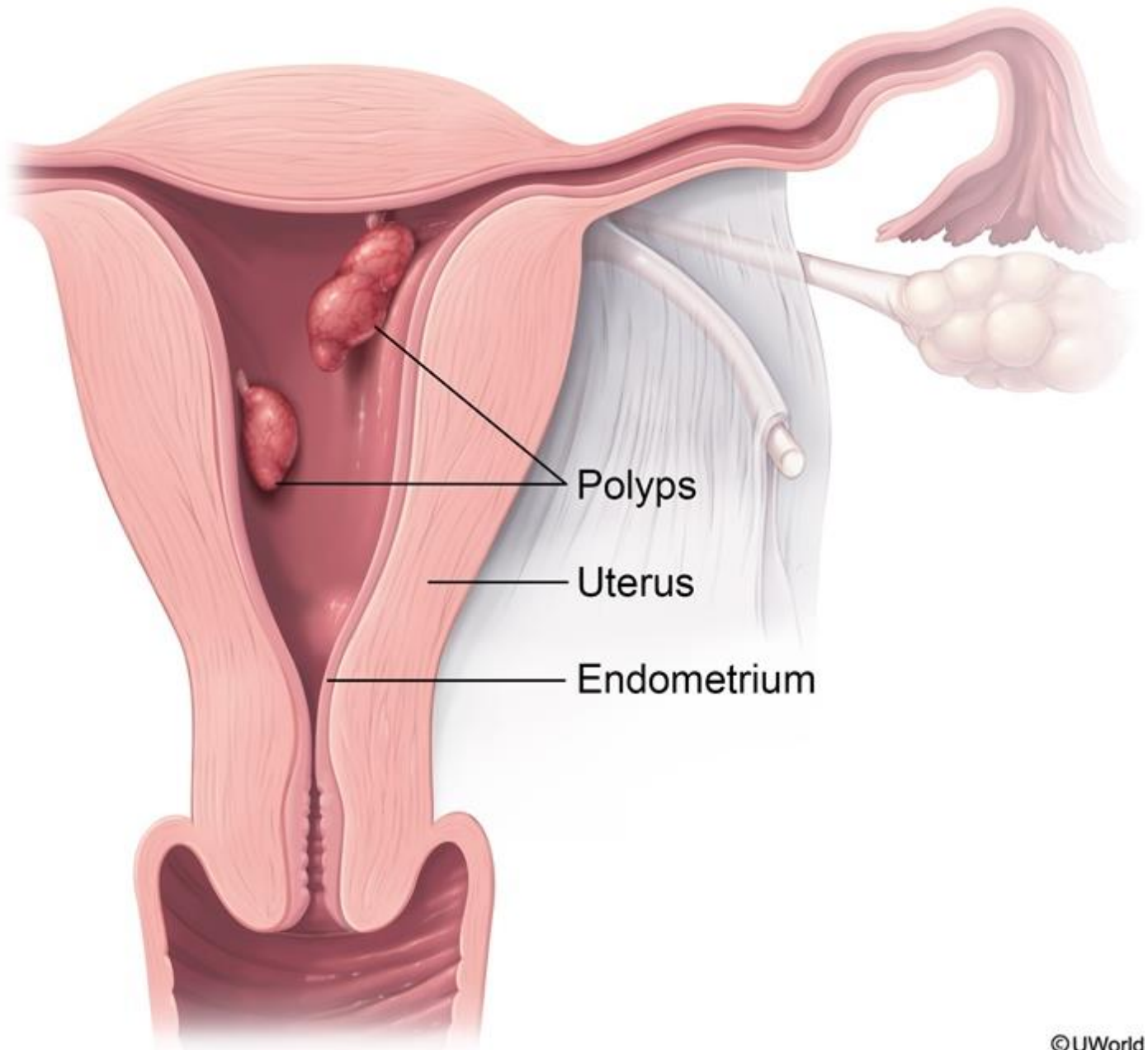
Effect of anovulatory cycles on the endometrium



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Effect of anovulatory cycles on the endometrium

Endometrial polyps



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Endometrial polyps

AMENORRHEA

Imperforate hymen

Pathogenesis	<ul style="list-style-type: none"> • Incomplete degeneration of hymen
Clinical features	<ul style="list-style-type: none"> • Cyclic lower abdominal pain • Bulk symptoms (defecatory & urinary dysfunction) • Primary amenorrhea • Suprapubic mass (uterus) • Blue-tinged vaginal mass
Management	<ul style="list-style-type: none"> • Hymenal incision & drainage

Exercise-induced hypothalamic amenorrhea

Clinical presentation	<ul style="list-style-type: none">• Strenuous exercise• Relative caloric deficiency• Stress fractures• Amenorrhea• Infertility
Hormone levels	<ul style="list-style-type: none">• ↓ GnRH• ↓ LH/FSH• ↓ Estrogen
Long-term consequences	<ul style="list-style-type: none">• ↓ Bone mineral density• ↑ Total cholesterol• ↑ Triglycerides
Treatment	<ul style="list-style-type: none">• Increased caloric intake• Estrogen• Calcium & vitamin D

Intrauterine adhesions

Risk factors	<ul style="list-style-type: none">• Infection (eg, septic abortion, endometritis)• Intrauterine surgery (eg, curettage, myomectomy)
Clinical features	<ul style="list-style-type: none">• Abnormal uterine bleeding• Amenorrhea• Infertility• Cyclic pelvic pain• Recurrent pregnancy loss
Evaluation	<ul style="list-style-type: none">• Hysteroscopy

	GnRH	FSH	Estrogen
Hypothalamic hypogonadism	↓	↓	↓
Primary ovarian insufficiency	↑	↑	↓
Polycystic ovary syndrome	↑	Normal	↑
Normal ovulation	Normal	Normal	Normal
Exogenous estrogen use	↓	↓	↑

Primary ovarian insufficiency

Clinical features	<ul style="list-style-type: none">• Amenorrhea at age <40• Hypoestrogenic symptoms (eg, hot flashes)• ↑ FSH• ↓ Estrogen
Major causes	<ul style="list-style-type: none">• Turner syndrome (45,XO)• Fragile X syndrome (<i>FMR1</i> premutation)• Autoimmune oophoritis• Anticancer drugs• Pelvic radiation• Galactosemia
Management	<ul style="list-style-type: none">• Estrogen therapy (with progestin if intact uterus)

FMR1 = fragile X mental retardation 1.

Diagnostic findings of amenorrhea

	FSH	LH	Prolactin	TSH
Ovarian failure	↑	↑	Normal	Normal
Functional hypothalamic amenorrhea	↓	↓	Normal	Normal
Asherman syndrome	Normal	Normal	Normal	Normal
Prolactinoma	↓	↓	↑	Normal
Hypothyroidism	↓	↓	↑	↑

5-alpha-reductase deficiency

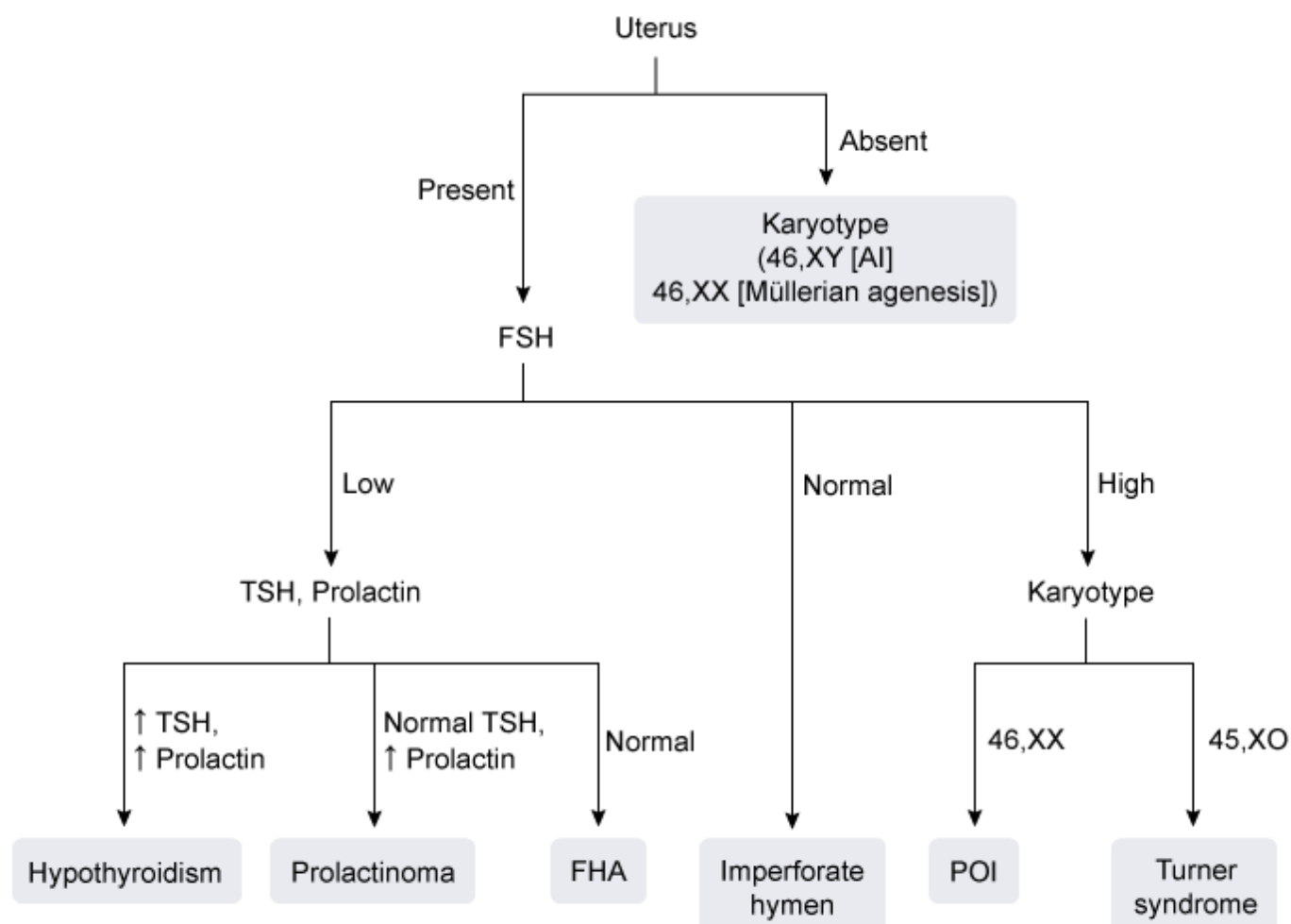
Pathogenesis	<ul style="list-style-type: none">• 46,XY genotype• Impaired testosterone to DHT conversion• Impaired virilization during embryogenesis• Normal male testosterone & estrogen levels
Clinical features	<ul style="list-style-type: none">• Male internal genitalia (eg, testes, vas deferens)• Female external genitalia (eg, blind-ending vagina)• Phenotypically female at birth• Virilization at puberty (↑ testosterone)<ul style="list-style-type: none">– Clitoromegaly– Increased muscle mass– Male-pattern hair development– Nodulocystic acne

DHT = dihydrotestosterone.

Müllerian agenesis

Pathogenesis	<ul style="list-style-type: none"> • Müllerian duct system defect • Abnormal development of uterus, cervix & upper third of vagina
Clinical features	<ul style="list-style-type: none"> • Primary amenorrhea • Normal female external genitalia • Blind vaginal pouch • Absent or rudimentary uterus • Bilateral functioning ovaries (normal FSH)
Management	<ul style="list-style-type: none"> • Evaluate for renal tract abnormalities (eg, renal ultrasound) • Vaginal dilation (surgical or nonsurgical)

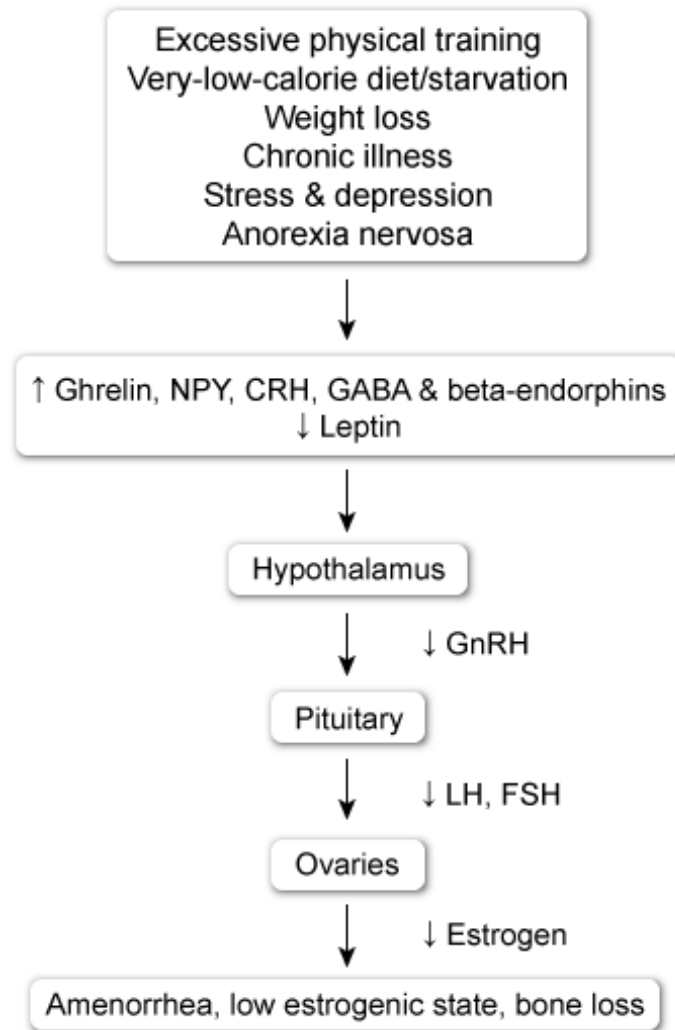
Primary amenorrhea evaluation



AI = androgen insensitivity; FHA = functional hypothalamic amenorrhea; POI = primary ovarian insufficiency.

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Pathophysiology of functional hypothalamic amenorrhea

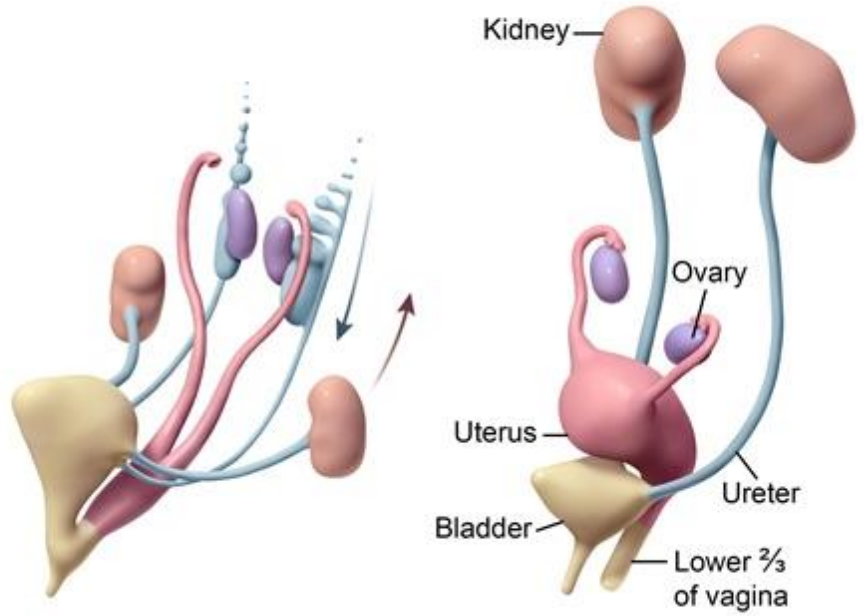
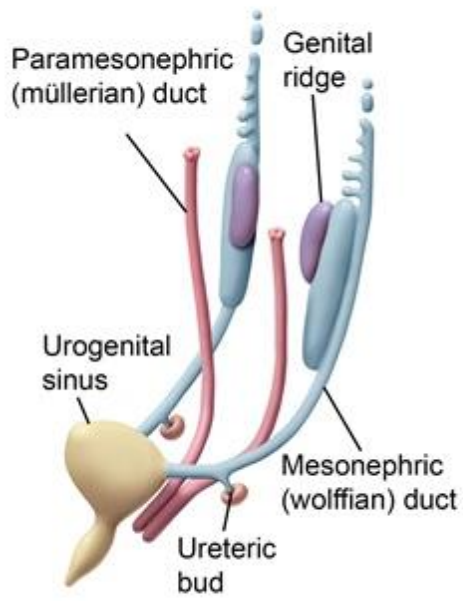


CRH = corticotropin-releasing hormone; **GnRH** = gonadotropin-releasing hormone; **NPY** = neuropeptide Y.

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Pathophysiology of functional hypothalamic amenorrhea

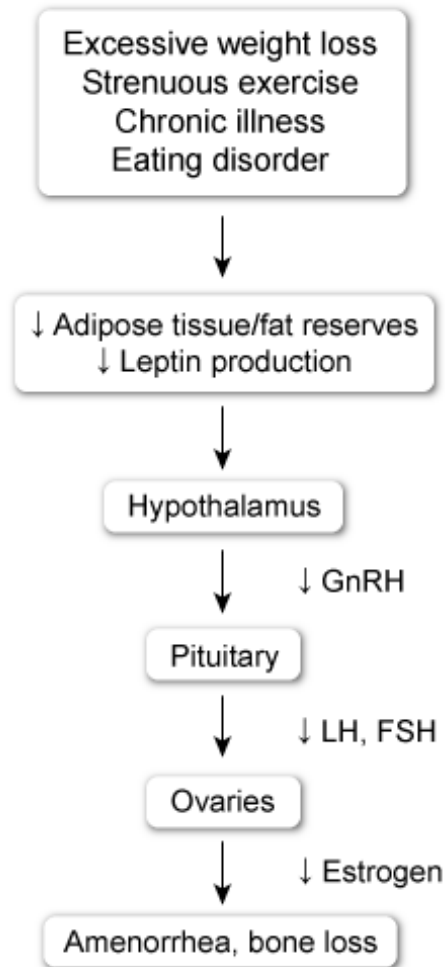
Urogenital development



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Urogenital development

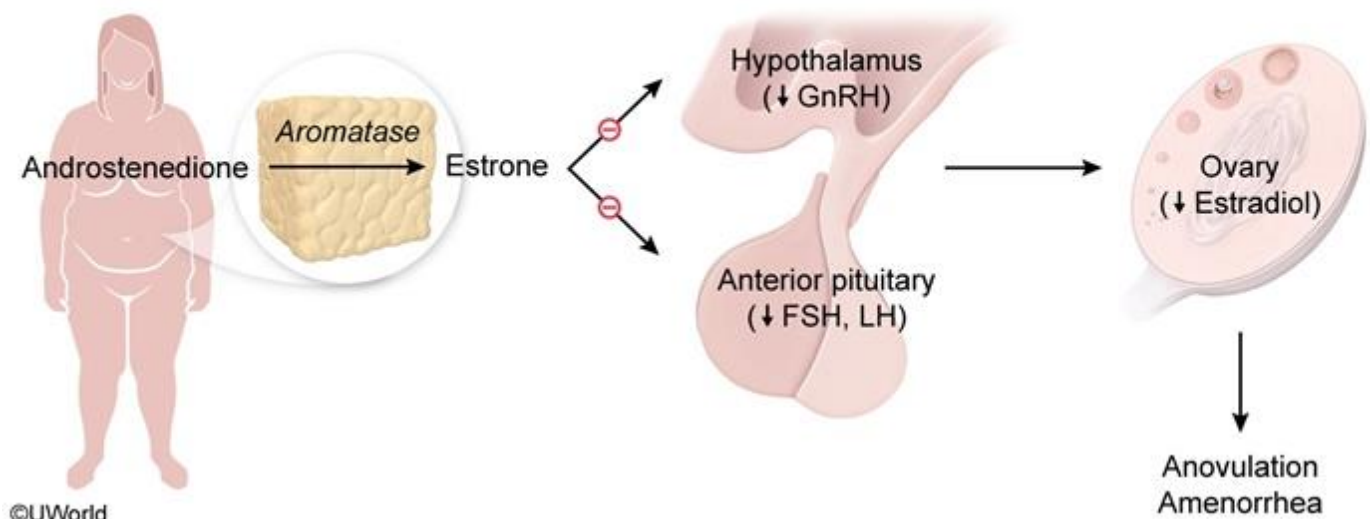
Functional hypothalamic amenorrhea



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Functional hypothalamic amenorrhea

Obesity & anovulation



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Obesity & anovulation

Contraindications to IUD placement

Copper IUD & progestin IUD	<ul style="list-style-type: none"> • Pregnancy • Endometrial or cervical cancer • Unexplained vaginal bleeding • Gestational trophoblastic disease • Severe uterine cavity distortion • Active pelvic infection (eg, PID, cervicitis)
Progestin IUD	<ul style="list-style-type: none"> • Active liver disease • Current breast cancer
Copper IUD	<ul style="list-style-type: none"> • Wilson disease

IUD = intrauterine device; PID = pelvic inflammatory disease.

Absolute contraindications to combined hormonal contraceptive pills

- Active breast cancer
- Migraines with aura
- Uncontrolled hypertension
- Active hepatitis, severe cirrhosis, liver cancer
- Age ≥ 35 & ≥ 15 cigarettes/day
- Ischemic heart disease, stroke
- < 3 weeks postpartum
- Prolonged immobilization
- Thrombophilia (eg, factor V Leiden, antiphospholipid antibody syndrome)
- Venous thromboembolism

Contraindications to combined estrogen/progestin contraceptive pills

↑ Venous thromboembolism risk	<ul style="list-style-type: none"> • Tobacco use • Prolonged immobilization • Prior venous thromboembolism • Thrombophilia (eg, antiphospholipid antibody syndrome) • < 3 weeks postpartum
↑ Cardiovascular disease & stroke	<ul style="list-style-type: none"> • Migraines with aura • Uncontrolled hypertension • Ischemic heart disease • Prior stroke
Medical conditions negatively affected by ↑ estrogen	<ul style="list-style-type: none"> • Active breast cancer • Active liver disease (eg, acute hepatitis, liver cancer)

Contraindications for the use of combined hormonal contraceptives

Absolute	Relative
<ul style="list-style-type: none">• Migraines with aura• Severe hypertension• Ischemic heart disease, stroke• Age ≥ 35 & smoking ≥ 15 cigarettes/day• < 3 weeks postpartum• Thromboembolism• Thrombophilia (eg, factor V Leiden, antiphospholipid-antibody syndrome)• Active breast cancer• Active or severe liver disease	<ul style="list-style-type: none">• Mild or medication-controlled hypertension• Age ≥ 35 & smoking < 15 cigarettes/day• Certain medications (eg, lamotrigine, rifampin)• Inherited thrombophilia carrier (& family member with thrombophilia plus thromboembolism)

Combined estrogen/progestin oral contraceptive pills

Adverse effects (most due to estrogen component)	<ul style="list-style-type: none">• Irregular, unscheduled bleeding• Breast tenderness, nausea, bloating• Amenorrhea• Hypertension• Venous thromboembolic disease• Liver disorders (eg, hepatic adenoma)• \uparrow Serum triglycerides
Benefits	<ul style="list-style-type: none">• Pregnancy prevention• Menstrual cycle regulation• \downarrow Dysmenorrhea• \downarrow Hyperandrogenism (eg, acne, hirsutism)
Risk augmentation	<ul style="list-style-type: none">• \downarrow Risk of ovarian & endometrial cancer (if ever used)• \uparrow Risk of cervical cancer (only if currently or recently used)

Emergency contraception

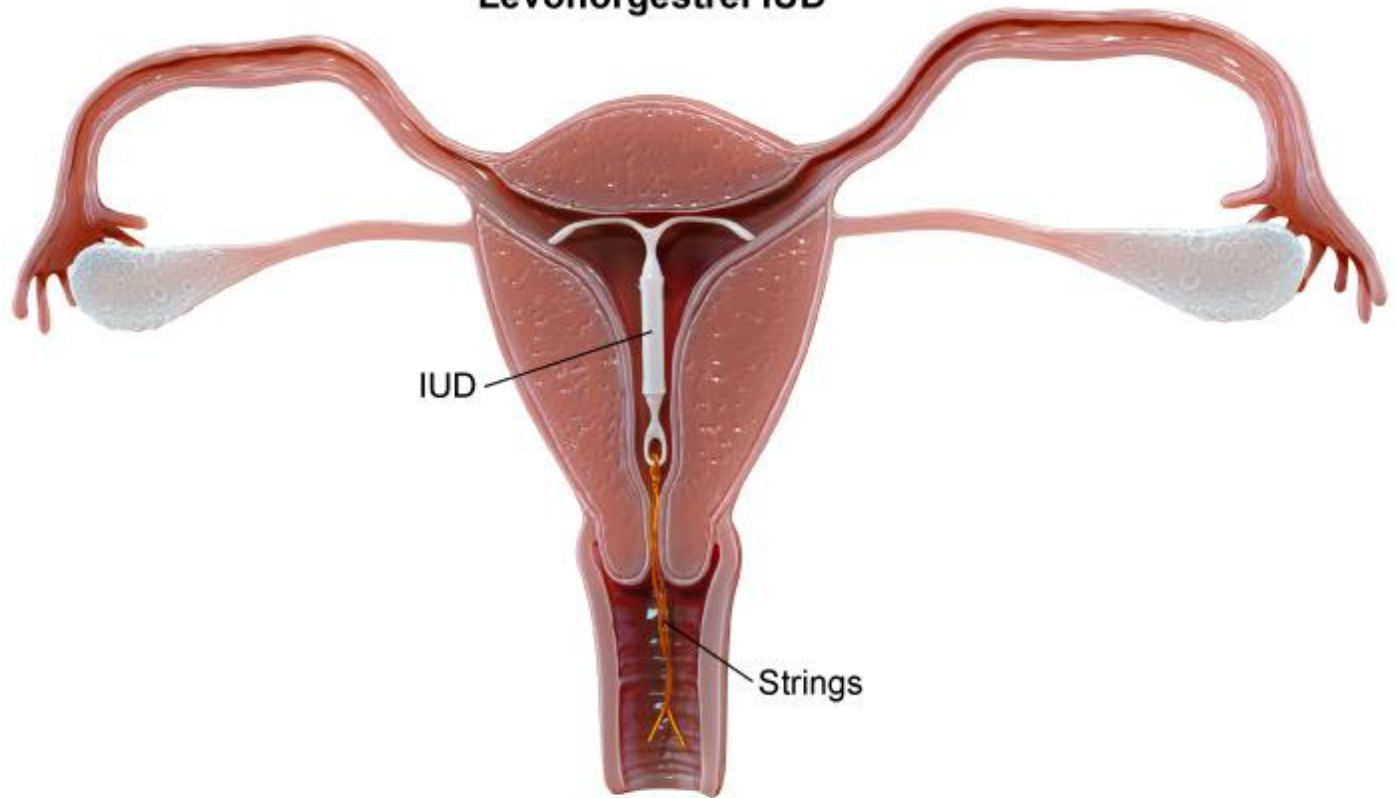
Method	Timing after intercourse	Efficacy	Contraindications
Copper-containing intrauterine device	0-120 hr	>99%	<ul style="list-style-type: none">• Wilson disease• Active pelvic infection• Severe uterine cavity distortion
Progestin-releasing intrauterine device	0-120 hr	>99%	<ul style="list-style-type: none">• Breast cancer• Active pelvic infection• Severe uterine cavity distortion
Ulipristal	0-120 hr	98%-99%	<ul style="list-style-type: none">• None
Oral levonorgestrel	0-72 hr	92%-98%	<ul style="list-style-type: none">• None
Oral contraceptives*	0-72 hr	75%-89%	<ul style="list-style-type: none">• None

*Combined estrogen/progestin oral contraceptive pills containing levonorgestrel or norgestrel.

Absolute contraindications to combined hormonal contraceptives

- Migraine with aura
- ≥ 15 cigarettes/day PLUS age ≥ 35
- Hypertension $\geq 160/100$ mm Hg
- Heart disease
- Diabetes mellitus with end-organ damage
- History of thromboembolic disease
- Antiphospholipid-antibody syndrome
- History of stroke
- Breast cancer
- Cirrhosis & liver cancer
- Major surgery with prolonged immobilization
- Use <3 weeks postpartum

Levonorgestrel IUD

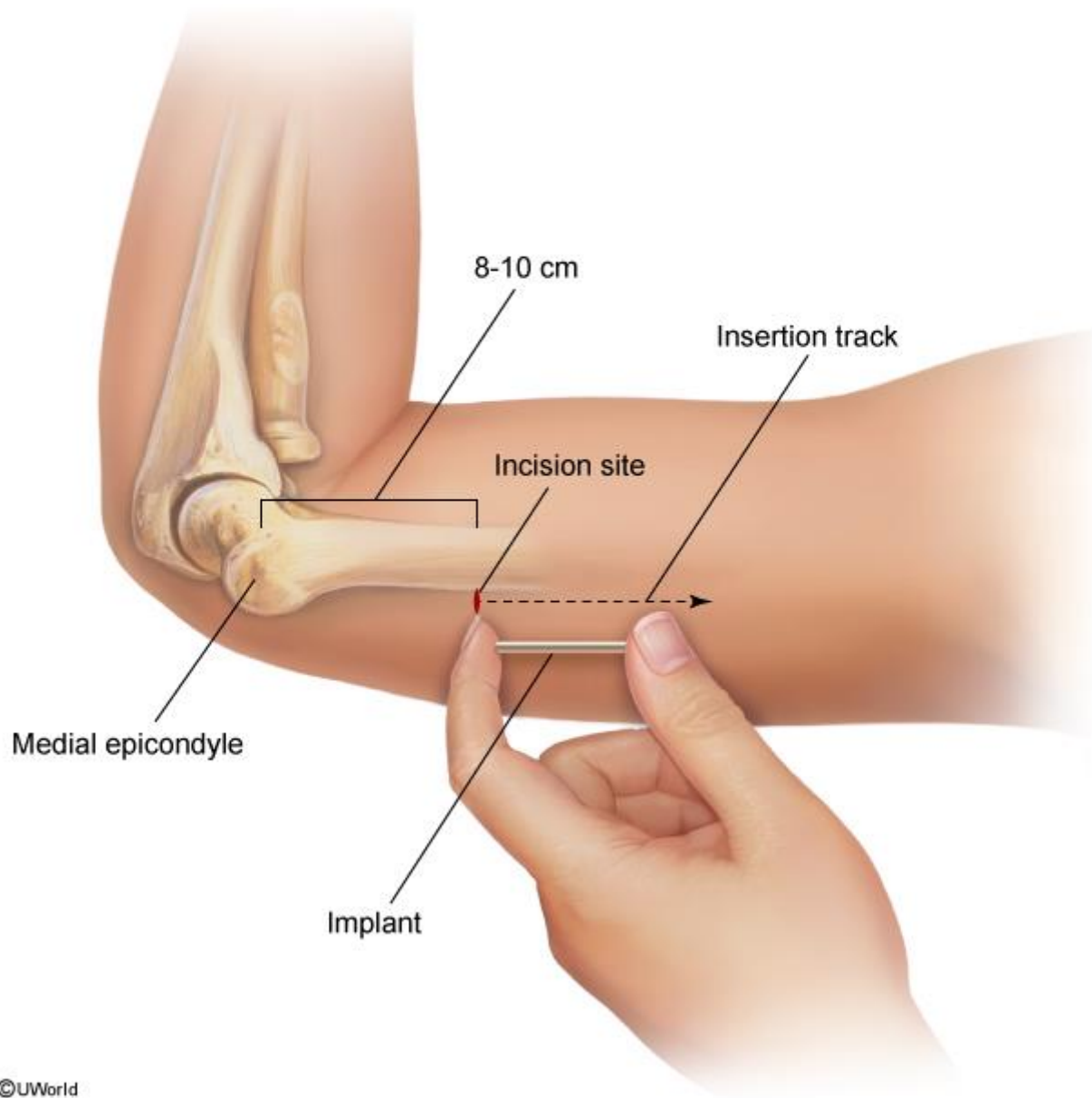


Thickens cervical mucus (blocks sperm entry)
Thins uterine lining (decreases menstrual bleeding)

IUD = intrauterine device.
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Levonorgestrel IUD

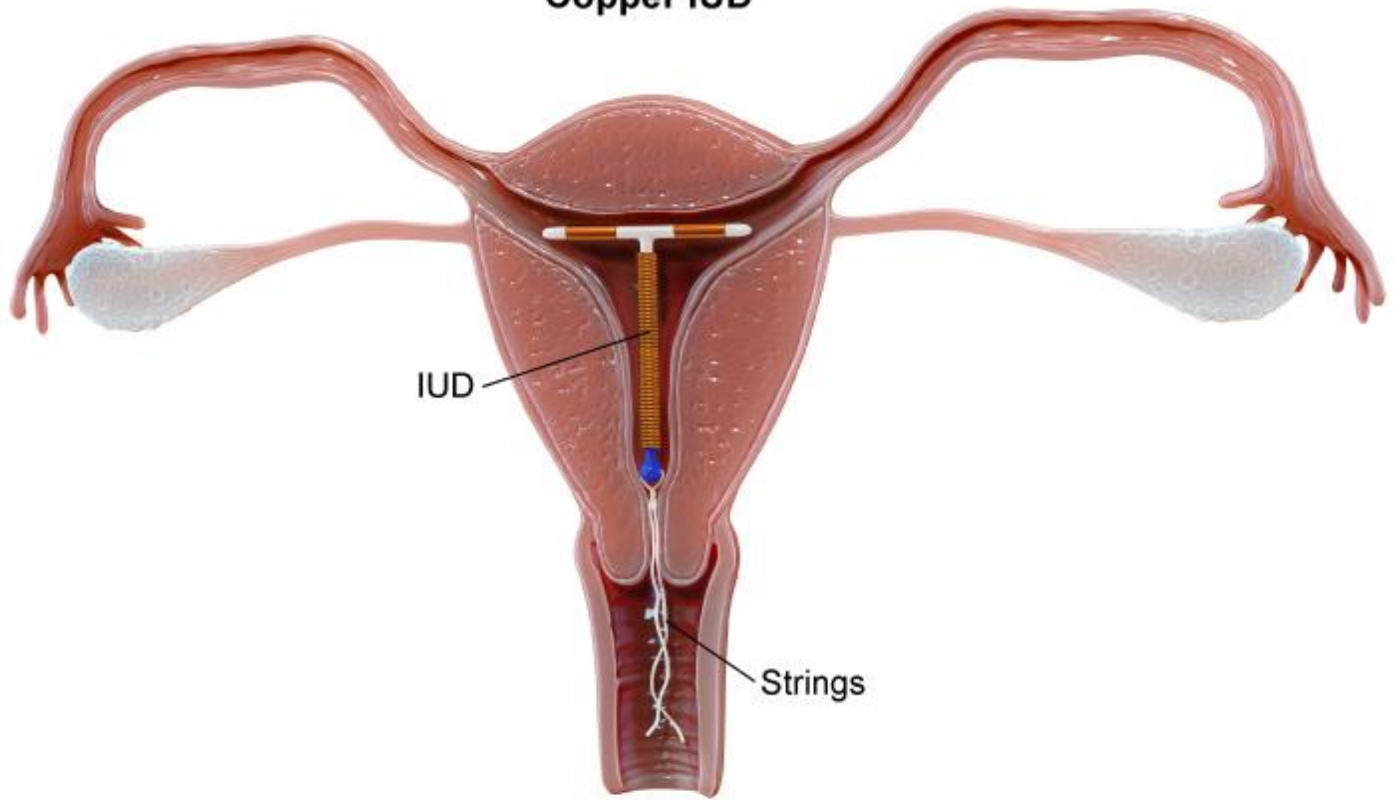
Subdermal progestin implant



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Subdermal progestin implant

Copper IUD



IUD = intrauterine device.

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Copper IUD

DYSMENORRHEA

Primary dysmenorrhea

Etiology	<ul style="list-style-type: none"> Excessive prostaglandin production
Risk factors	<ul style="list-style-type: none"> Age <30 BMI <20 kg/m² Tobacco use Menarche at age <12 Heavy/long menstrual periods Sexual abuse
Clinical features	<ul style="list-style-type: none"> Pain first 2-3 days of menses Nausea, vomiting, diarrhea Normal pelvic examination
Management	<ul style="list-style-type: none"> Nonsteroidal anti-inflammatory drugs Combination oral contraceptives

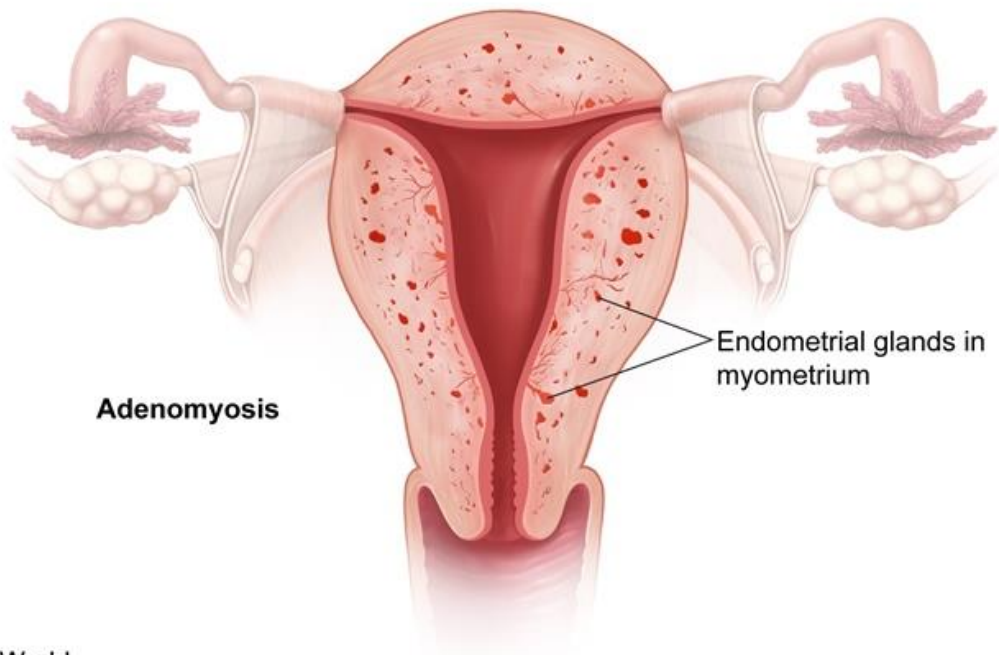
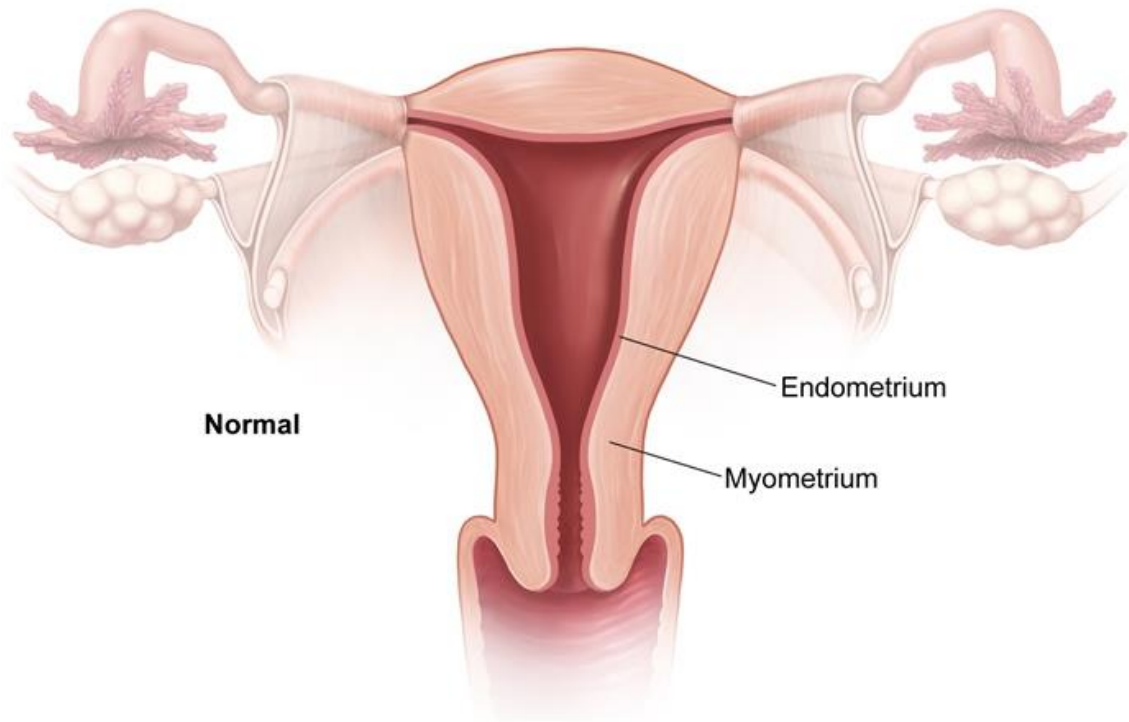
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Etiology	<ul style="list-style-type: none">• Excessive prostaglandin production
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Clinical features	<ul style="list-style-type: none">• Pain first 2-3 days of menses• Nausea, vomiting, diarrhea• Normal pelvic examination
Management	<ul style="list-style-type: none">• Nonsteroidal anti-inflammatory drugs• Combination oral contraceptives

Adenomyosis

Pathogenesis	<ul style="list-style-type: none">• Abnormal endometrial tissue within the uterine myometrium
Risk factors	<ul style="list-style-type: none">• Age >40• Multiparity• Prior uterine surgery (eg, myomectomy)
Clinical features	<ul style="list-style-type: none">• Dysmenorrhea• Heavy menstrual bleeding• Chronic pelvic pain• Diffuse uterine enlargement (eg, globular uterus)• ± Uterine tenderness
Diagnosis	<ul style="list-style-type: none">• Clinical presentation• MRI & ultrasound: Thickened myometrium• Confirmation via pathology
Treatment	<ul style="list-style-type: none">• Hysterectomy

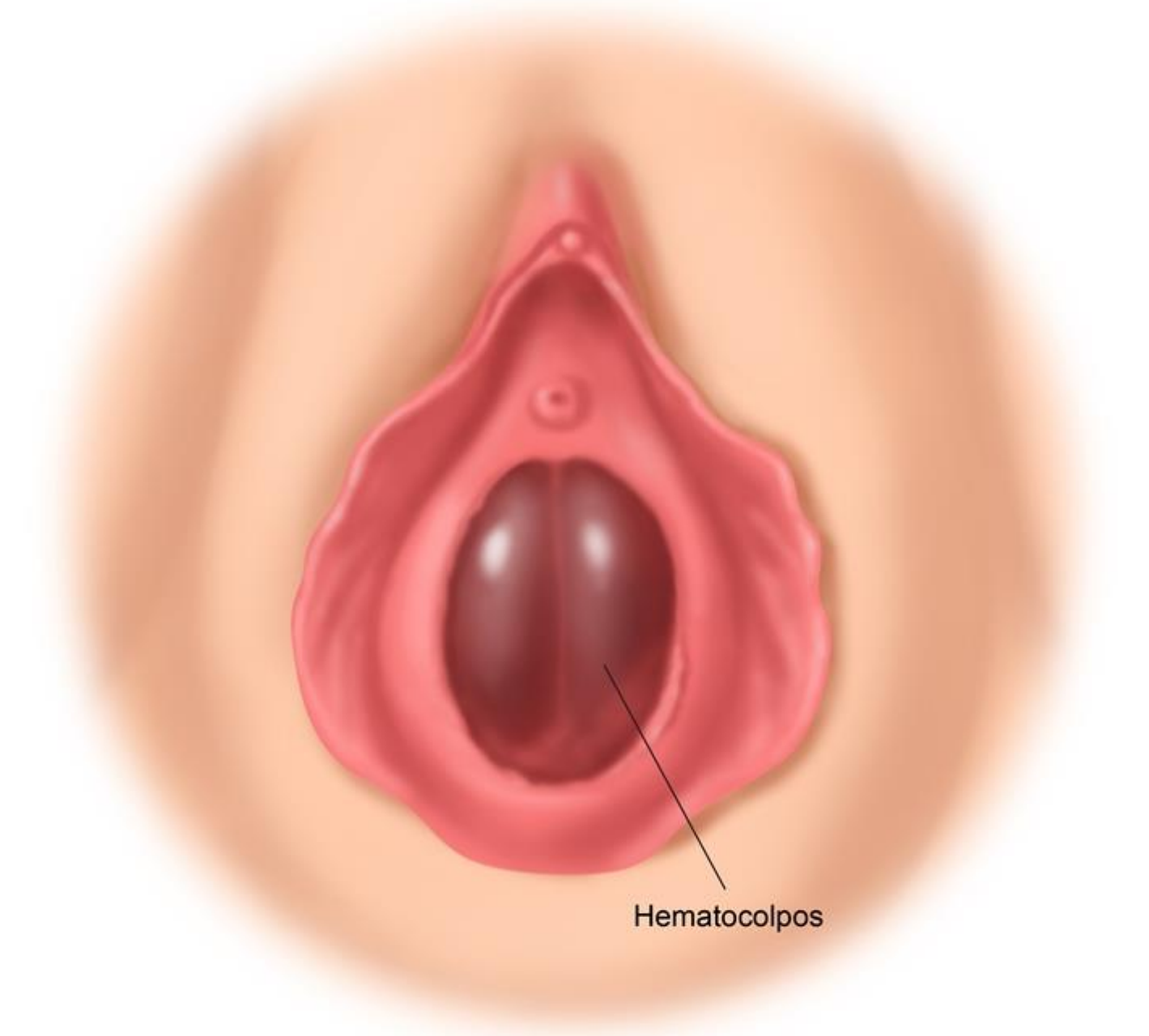
Normal uterus vs adenomyosis



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Normal uterus vs adenomyosis

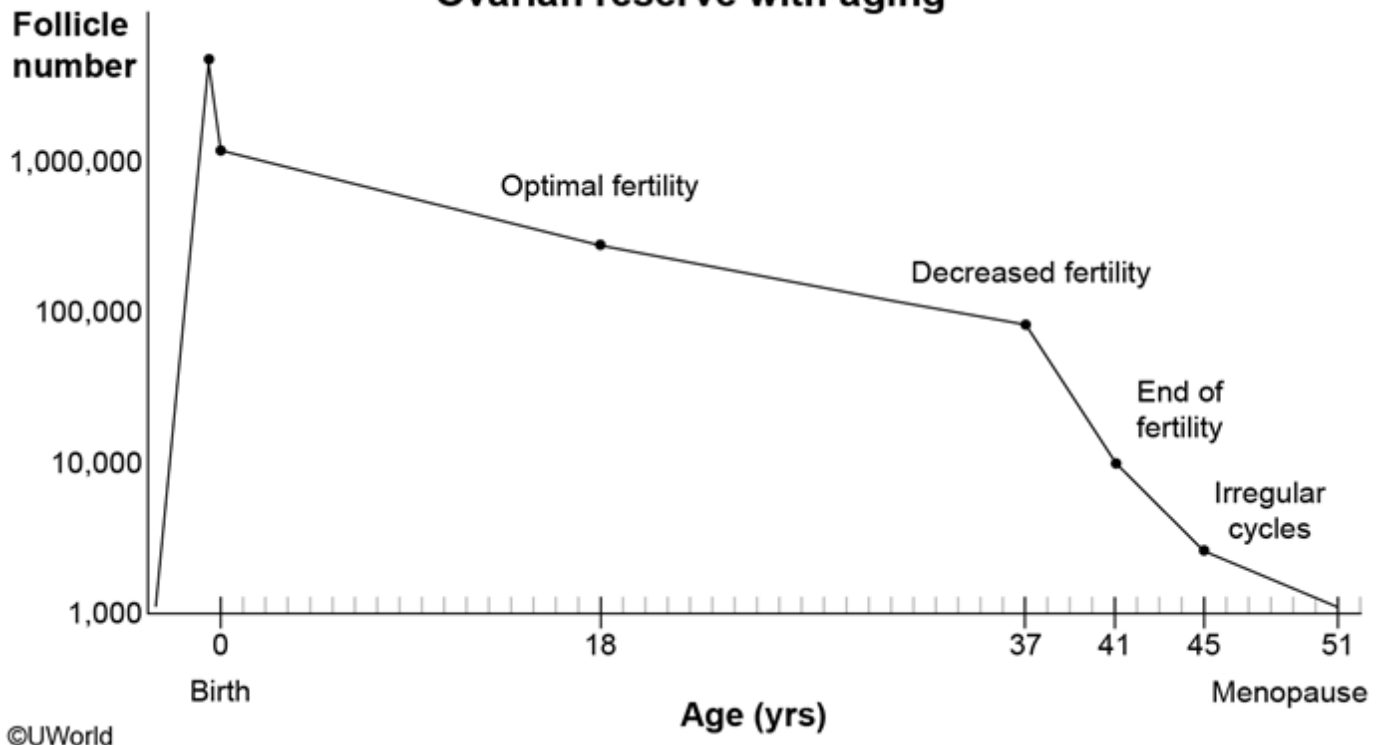
Imperforate hymen



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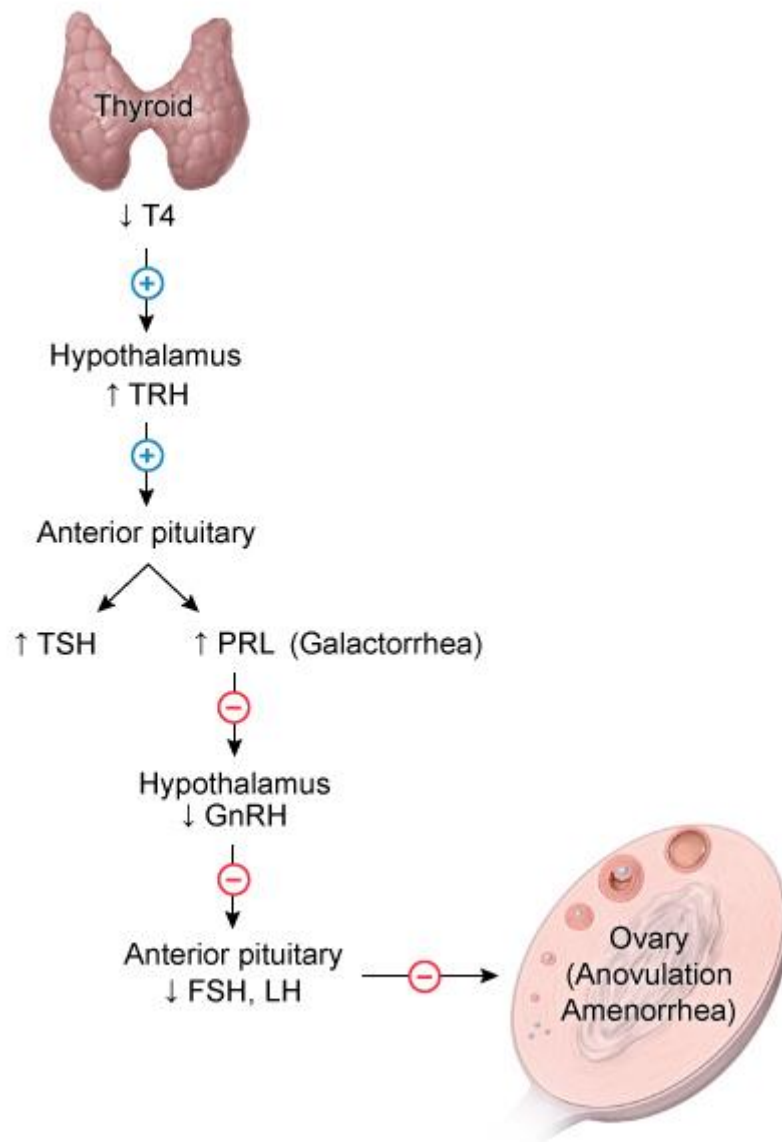
Imperforate hymen

Ovarian reserve with aging



Ovarian reserve with aging

Hypothyroidism & amenorrhea



TRH = thyrotropin-releasing hormone; PRL = prolactin.

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Hypothyroidism & amenorrhea

MENOPAUSE

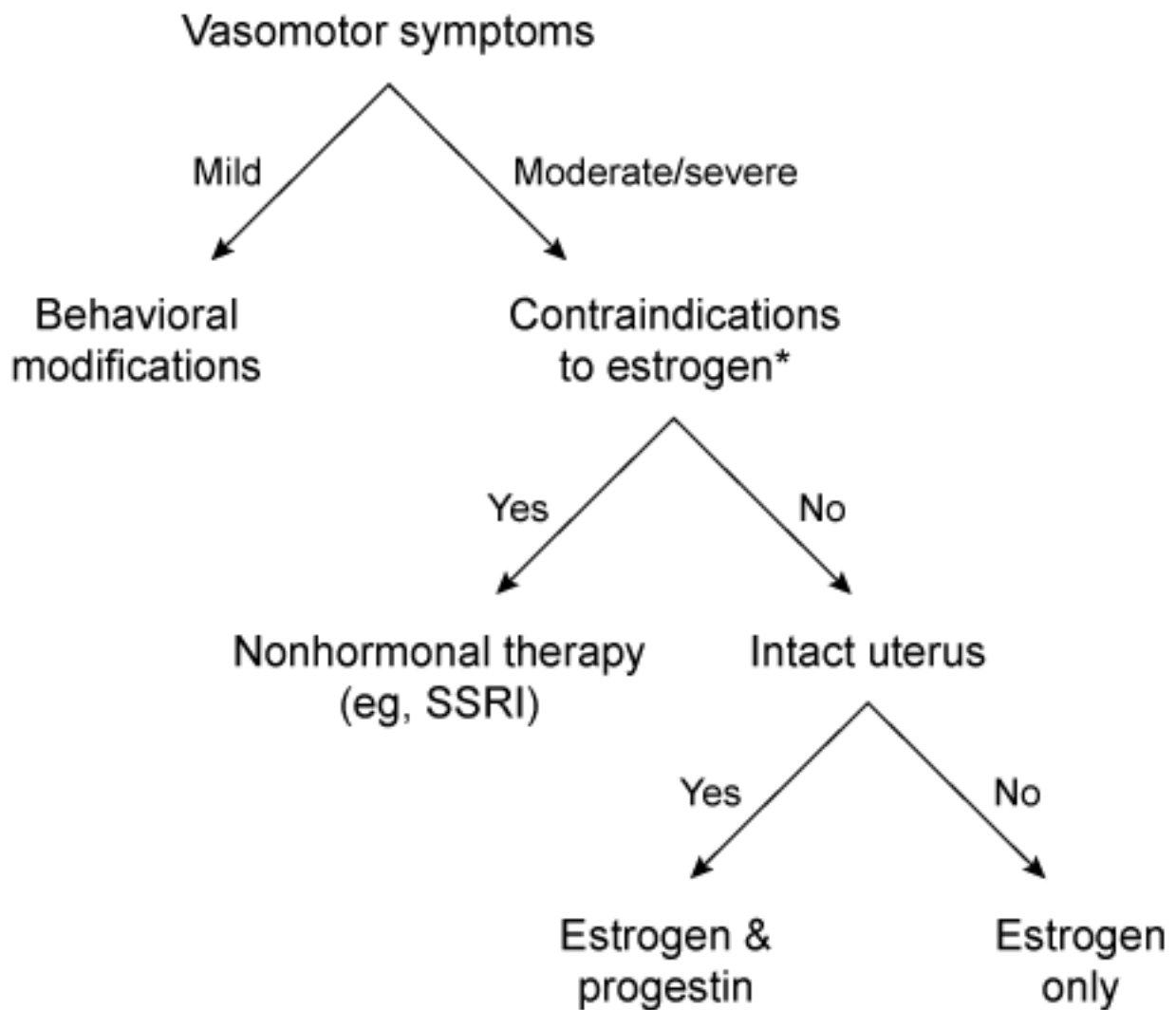
Menopause

Clinical features	<ul style="list-style-type: none"> • Vasomotor symptoms • Oligomenorrhea/amenorrhea • Sleep disturbances • Decreased libido • Depression • Cognitive decline • Vaginal atrophy
Diagnosis	<ul style="list-style-type: none"> • Clinical manifestations • ↑ FSH
Treatment	<ul style="list-style-type: none"> • Topical vaginal estrogen • Systemic hormone replacement therapy

Genitourinary syndrome of menopause

Symptoms	<ul style="list-style-type: none">• Vulvovaginal dryness, irritation, pruritus• Dyspareunia• Vaginal bleeding• Urinary incontinence, recurrent urinary tract infection• Pelvic pressure
Physical examination	<ul style="list-style-type: none">• Narrowed introitus• Pale mucosa, ↓ elasticity, ↓ rugae• Petechiae, fissures• Loss of labial volume
Treatment	<ul style="list-style-type: none">• Vaginal moisturizer & lubricant• Topical vaginal estrogen

Treatment of menopause



*Contraindications to estrogen: Breast cancer, coronary heart disease, endometrial cancer, liver disease, thromboembolism.

SSRI = selective serotonin reuptake inhibitor.

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Treatment of menopause

PREMENSTRUAL SYNDROME

Premenstrual syndrome and premenstrual dysphoric disorder

Clinical features	<ul style="list-style-type: none">• Symptoms occur during luteal phase• Physical: bloating, fatigue, headaches, hot flashes, breast tenderness• Affective: anxiety, irritability, mood swings, decreased interest; more severe in premenstrual dysphoric disorder
Evaluation	<ul style="list-style-type: none">• Symptom/menstrual diary
Treatment	<ul style="list-style-type: none">• Selective serotonin reuptake inhibitor

Miscellaneous

ABNORMAL UTERINE BLEEDING

Prepubertal vaginal bleeding

Cause	Key features
Withdrawal of estrogen	<ul style="list-style-type: none">• Presents in neonatal period• Lasts <1 week• Examination otherwise normal
Trauma	<ul style="list-style-type: none">• Usually unintentional from fall• Can be sign of sexual abuse• Genital examination may show laceration/abrasion
Malignancy (eg, rhabdomyosarcoma)	<ul style="list-style-type: none">• Rare• Presents age <3• May visualize protruding vaginal nodules

DYSPAREUNIA

Genitopelvic pain/penetration disorder

Risk factors	<ul style="list-style-type: none">• Sexual trauma• Lack of sexual knowledge• History of abuse
Clinical features	<ul style="list-style-type: none">• Pain with vaginal penetration• Distress/anxiety over symptoms• No other medical cause
Treatment	<ul style="list-style-type: none">• Desensitization therapy• Kegel exercises

Genitourinary syndrome of menopause

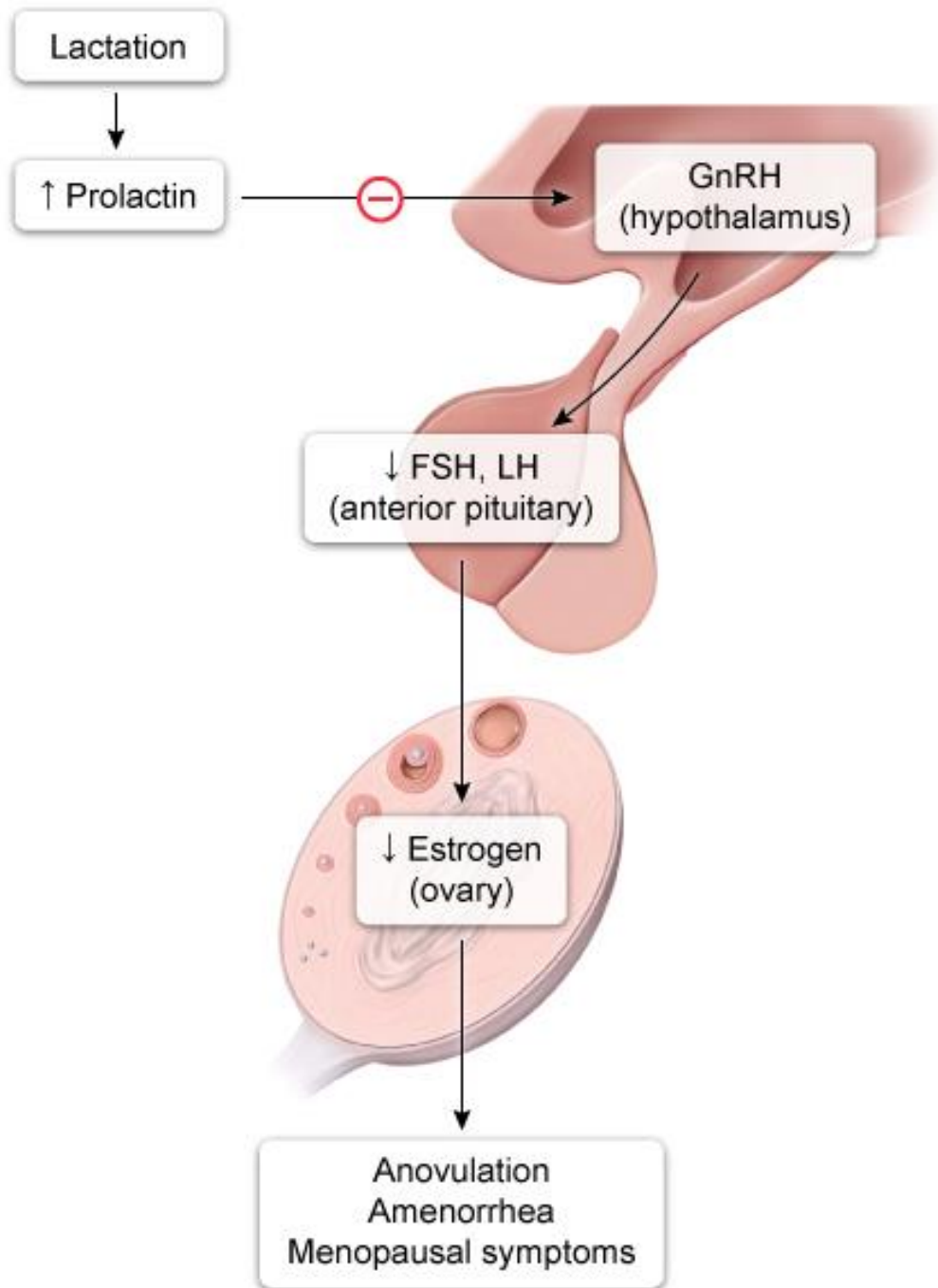
Symptoms	<ul style="list-style-type: none">• Vulvovaginal dryness, irritation, pruritus• Dyspareunia• Vaginal bleeding• Urinary incontinence, recurrent urinary tract infection• Pelvic pressure
Physical examination	<ul style="list-style-type: none">• Narrowed introitus• Pale mucosa, ↓ elasticity, ↓ rugae• Petechiae, fissures• Loss of labial volume
Treatment	<ul style="list-style-type: none">• Vaginal moisturizer & lubricant• Topical vaginal estrogen

Sjögren syndrome

Exocrine features	<ul style="list-style-type: none">• Keratoconjunctivitis sicca• Dry mouth, salivary hypertrophy• Xerosis
Extraglandular features	<ul style="list-style-type: none">• Raynaud phenomenon• Cutaneous vasculitis• Arthralgia/arthritis• Interstitial lung disease• Non-Hodgkin lymphoma
Diagnostic findings	<ul style="list-style-type: none">• Objective signs of decreased lacrimation (eg, Schirmer test)• Positive anti-Ro (SSA) &/or anti-La (SSB)• Salivary gland biopsy with focal lymphocytic sialoadenitis• Classification: primary if no associated CTD, secondary if comorbid CTD (eg, SLE, RA, scleroderma)

CTD = connective tissue disease; **RA** = rheumatoid arthritis; **SLE** = systemic lupus erythematosus; **SSA/SSB** = Sjögren syndrome (antibody) A/B.

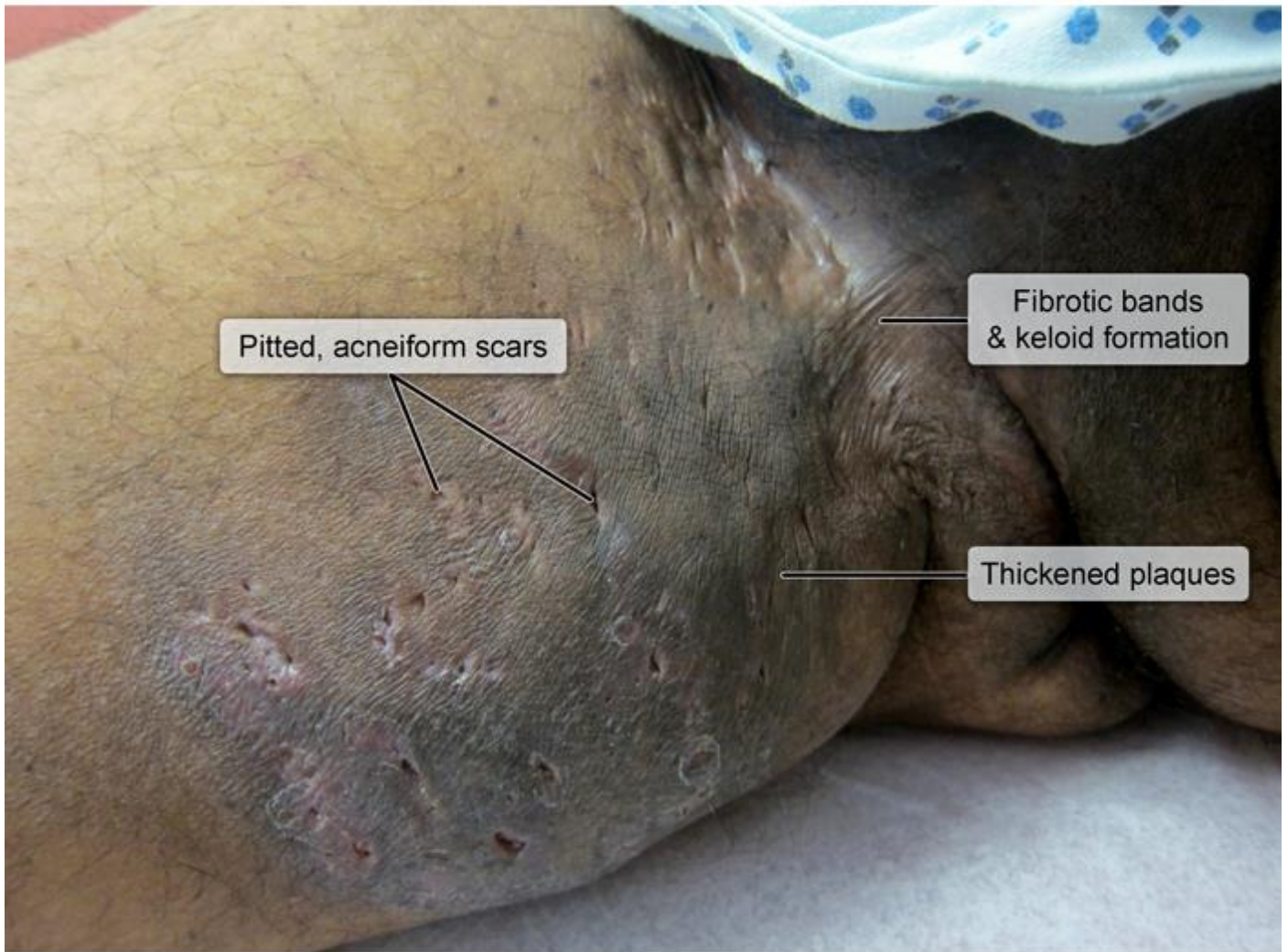
Prolactin & amenorrhea



FSH = follicle-stimulating hormone; **GnRH** = gonadotropin-releasing hormone;
LH = luteinizing hormone.

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Hidradenitis suppurativa



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Hidradenitis suppurativa

Small bowel obstruction

Clinical presentation	<ul style="list-style-type: none"> • Colicky abdominal pain, vomiting • Inability to pass flatus or stool if complete (no obstipation if partial) • Hyperactive → absent bowel sounds • Distended & tympanitic abdomen
Diagnosis	<ul style="list-style-type: none"> • Dilated loops of bowel with air-fluid levels on plain film or CT scan • Partial: air in colon • Complete: transition point (abrupt cutoff), no air in colon
Complications	<ul style="list-style-type: none"> • Ischemia/necrosis (strangulation) • Bowel perforation
Management	<ul style="list-style-type: none"> • Bowel rest, nasogastric tube suction, intravenous fluids • Surgical exploration for signs of complications

Interstitial cystitis (bladder pain syndrome)

Epidemiology	<ul style="list-style-type: none"> • More common in women • Associated with psychiatric & pain disorders (eg, fibromyalgia)
Clinical presentation	<ul style="list-style-type: none"> • Bladder pain with filling, relief with voiding • ↑ Urinary frequency, urgency • Dyspareunia
Diagnosis	<ul style="list-style-type: none"> • Bladder pain with no other cause for ≥6 weeks • Normal urinalysis
Treatment	<ul style="list-style-type: none"> • Not curative, focus is on improving quality of life • Behavioral modification, avoidance of triggers, physical therapy • Amitriptyline, pentosan polysulfate sodium • Analgesics for acute exacerbations

INTIMATE PARTNER VIOLENCE

Intimate partner violence

Evaluation	<ul style="list-style-type: none">• Routine annual examination• Suspicious signs/symptoms (eg, bruising)• Prenatal visits
Consequences	<ul style="list-style-type: none">• Homicide• Mental health disorders (eg, PTSD)• Unintended pregnancy• Pregnancy complications (eg, abruptio placentae)• Sexually transmitted infections
Management	<ul style="list-style-type: none">• Safety planning (eg, local shelter referral)• Psychosocial counseling

PTSD = posttraumatic stress disorder.

PELVIC ORGAN PROLAPSE

Pelvic organ prolapse

Definition	<ul style="list-style-type: none">• Bowel, bladder &/or uterus herniation into vagina
Clinical features	<ul style="list-style-type: none">• Asymptomatic (incidental finding)• Vaginal/pelvic pressure• Stress urinary incontinence, retention• Constipation, incomplete defecation
Management	<ul style="list-style-type: none">• Asymptomatic<ul style="list-style-type: none">– Observation• Symptomatic<ul style="list-style-type: none">– Pelvic floor muscle (Kegel) exercises– Vaginal pessary– Surgical repair

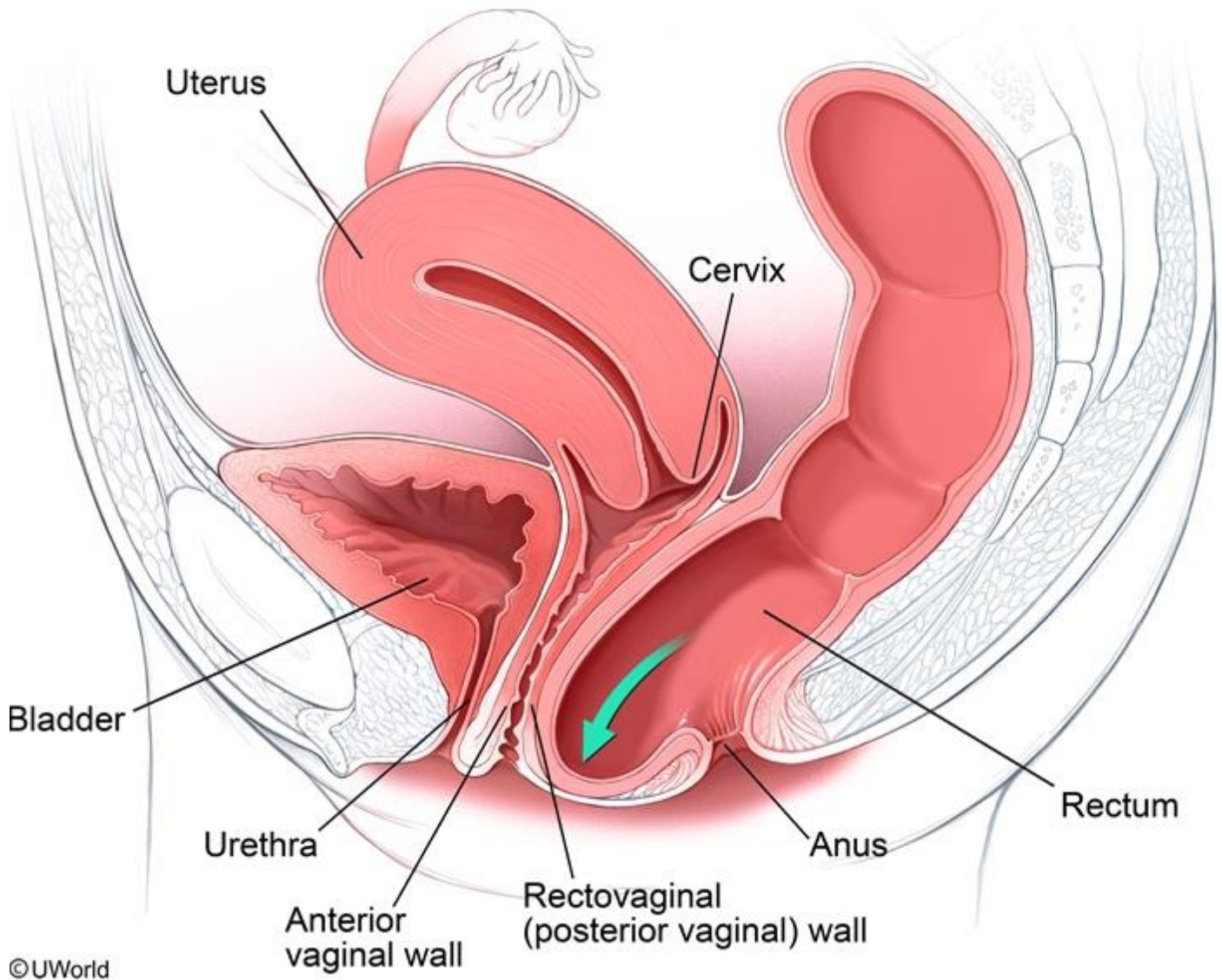
Pelvic organ prolapse

Definitions	<ul style="list-style-type: none">• Anterior prolapse: Bladder (eg, cystocele)• Posterior prolapse: Rectum (eg, rectocele)• Enterocele: Small intestine• Apical prolapse: Uterus, vaginal vault• Procidentia: Complete herniation
Risk factors	<ul style="list-style-type: none">• Obesity• Multiparity• Hysterectomy• Menopause
Clinical presentation	<ul style="list-style-type: none">• Pelvic pressure• Obstructed voiding• Urinary retention• Urinary urgency/incontinence• Constipation• Fecal urgency/incontinence• Sexual dysfunction
Management	<ul style="list-style-type: none">• Weight loss• Pelvic floor muscle training• Pessary• Surgical repair

Pelvic organ prolapse

Definitions	<ul style="list-style-type: none">• Cystocele - bladder• Rectocele - rectum• Enterocele - small intestine• Procidentia• Apical prolapse - uterus, vaginal vault
Risk factors	<ul style="list-style-type: none">• Obesity• Multiparity• Hysterectomy• Postmenopausal age
Clinical presentation	<ul style="list-style-type: none">• Pelvic pressure• Obstructed voiding• Urinary retention• Urinary incontinence• Constipation• Fecal urgency, incontinence• Sexual dysfunction
Management	<ul style="list-style-type: none">• Weight loss• Pelvic floor exercises• Vaginal pessary• Surgical repair

Rectocele, prolapse of posterior vaginal wall



Rectocele, prolapse of posterior vaginal wall

RECTOVAGINAL FISTULA

Rectovaginal fistula

Risk factors	<ul style="list-style-type: none"> • Pelvic radiation • Obstetric trauma • Pelvic surgery • Colon cancer • Diverticulitis • Crohn disease
Clinical features	<ul style="list-style-type: none"> • Uncontrollable passage of gas &/or feces from the vagina
Diagnostic studies	<ul style="list-style-type: none"> • Physical examination • Fistulography • Magnetic resonance imaging • Endosonography

Elder abuse

Risk factors	<ul style="list-style-type: none"> • Advanced age (>80) • Woman • Cognitive impairment (eg, dementia, depression) • Physical impairment (eg, hip fracture, stroke)
Clinical findings	<ul style="list-style-type: none"> • Unexplained injuries/bruising at atypical locations (eg, trunk, thighs) • Nonosteoporotic fractures (eg, spiral fractures of long bones) • Signs of neglect (eg, malnutrition, pressure ulcers) • Signs of sexual abuse (eg, anogenital trauma)
Management	<ul style="list-style-type: none"> • Report to adult protective services immediately

Postexposure prophylaxis for sexual assault

Infection	Medication
Chlamydia	Doxycycline
Gonorrhea	Ceftriaxone
<i>Trichomonas vaginalis</i>	Metronidazole
HIV	Multidrug regimen (eg, tenofovir-emtricitabine with raltegravir)
Hepatitis B	Hepatitis B vaccine ± hepatitis B immunoglobulin

Sexual assault

Evaluation	<ul style="list-style-type: none"> • Physical and forensic examination (eg, hair, semen) • Psychologic assessment
Consequences	<ul style="list-style-type: none"> • Mental health disorders (eg, PTSD) • Unintended pregnancy • Sexually transmitted infections
Management	<ul style="list-style-type: none"> • Postexposure prophylaxis • Emergency contraception • Psychosocial counseling

PTSD = posttraumatic stress disorder.

Urinary incontinence

Type	Symptoms	Treatment
Stress	<ul style="list-style-type: none"> Leaking with Valsalva maneuver (coughing, sneezing, laughing) 	<ul style="list-style-type: none"> Lifestyle modification Pelvic floor exercises Pessary Pelvic floor surgery
Urgency	<ul style="list-style-type: none"> Sudden, overwhelming, or frequent need to void 	<ul style="list-style-type: none"> Lifestyle modification Bladder training Antimuscarinic drugs
Mixed	<ul style="list-style-type: none"> Features of stress & urgency incontinence 	<ul style="list-style-type: none"> Variable treatment depending on predominant symptoms
Overflow	<ul style="list-style-type: none"> Constant involuntary dribbling & incomplete emptying 	<ul style="list-style-type: none"> Identification and correction of underlying cause Cholinergic agonists Intermittent self-catheterization

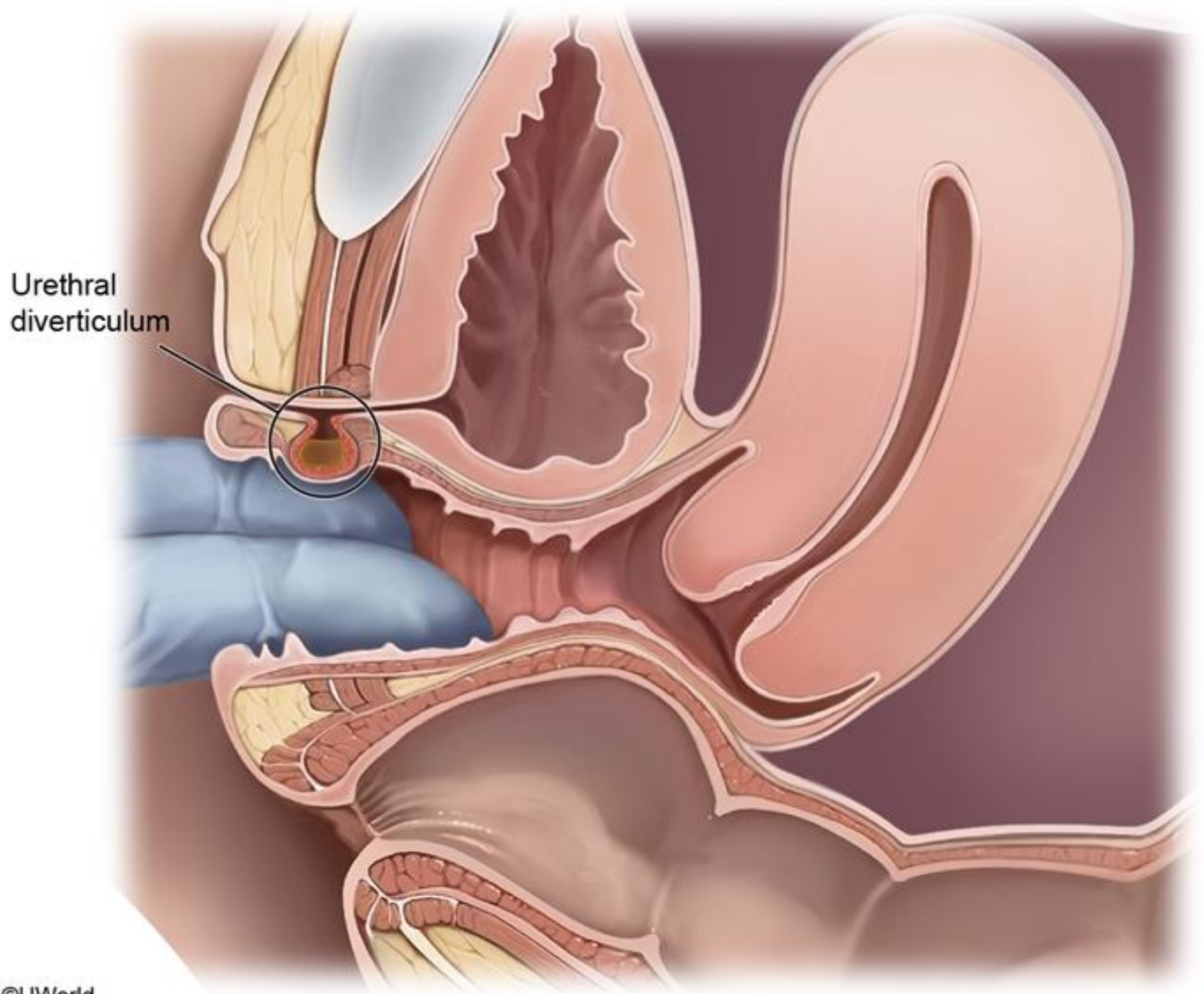
Vesicovaginal fistula

Risk factors	<ul style="list-style-type: none"> Pelvic surgery Pelvic irradiation Prolonged labor/childbirth trauma Genitourinary malignancy
Clinical features	<ul style="list-style-type: none"> Painless, continuous urine leakage from the vagina
Diagnostic studies	<ul style="list-style-type: none"> Physical examination Dye testing Cystourethroscopy

Urethral diverticulum

Definition	<ul style="list-style-type: none"> Urethral mucosa herniated into surrounding tissue
Clinical features	<ul style="list-style-type: none"> Dysuria Postvoid dribbling Dyspareunia Anterior vaginal wall mass
Diagnostic testing	<ul style="list-style-type: none"> Urinalysis Urine culture MRI of the pelvis Transvaginal ultrasound

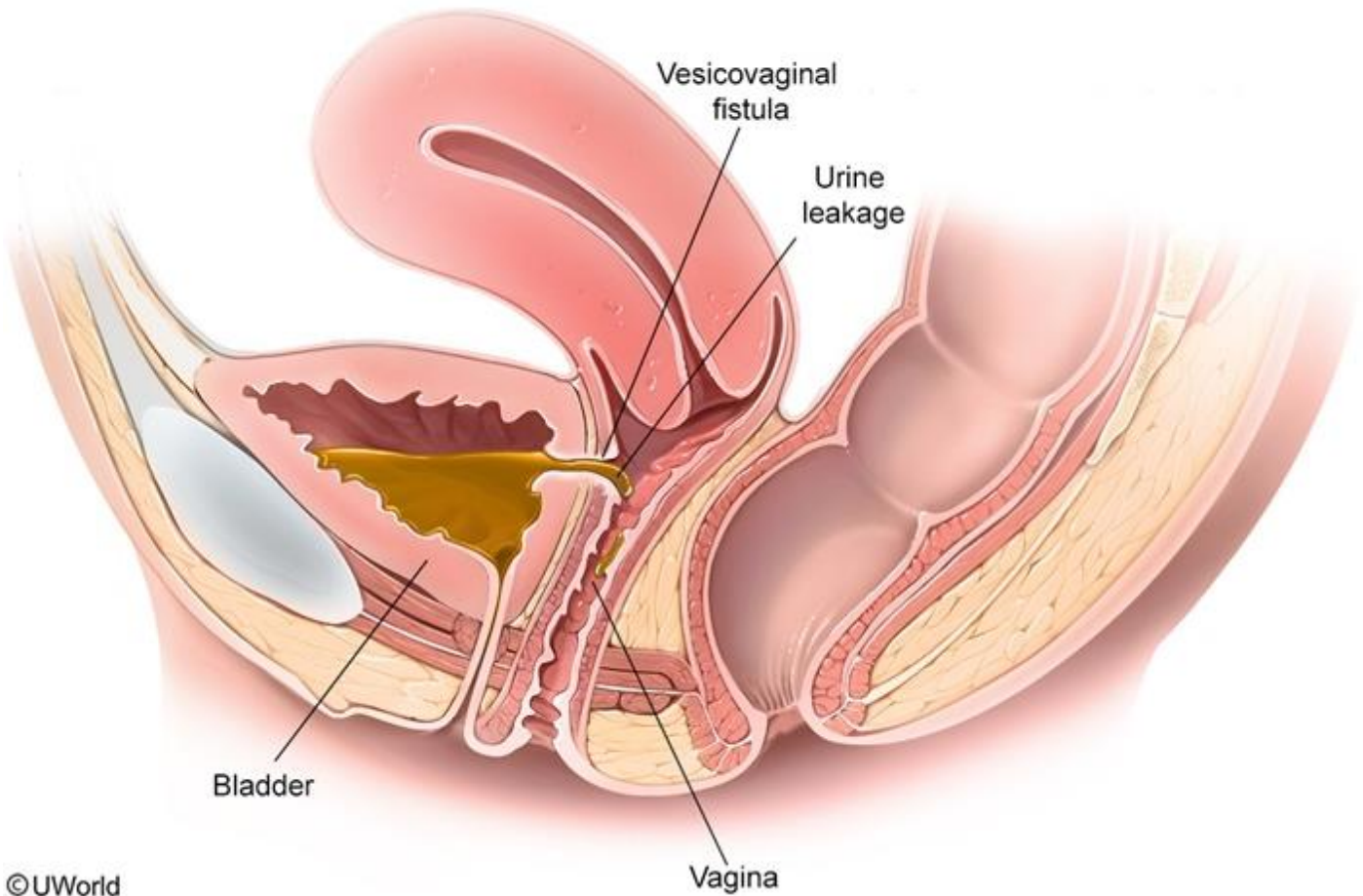
Urethral diverticulum



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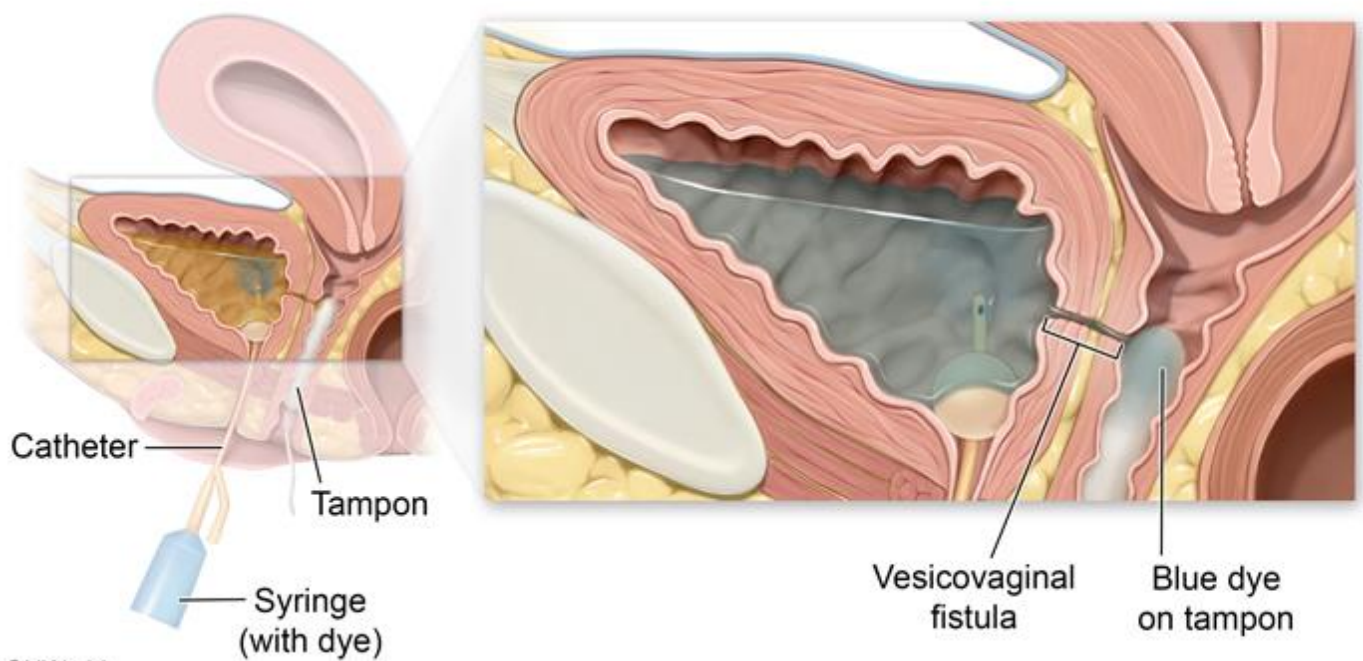
Urinary incontinence

Vesicovaginal fistula



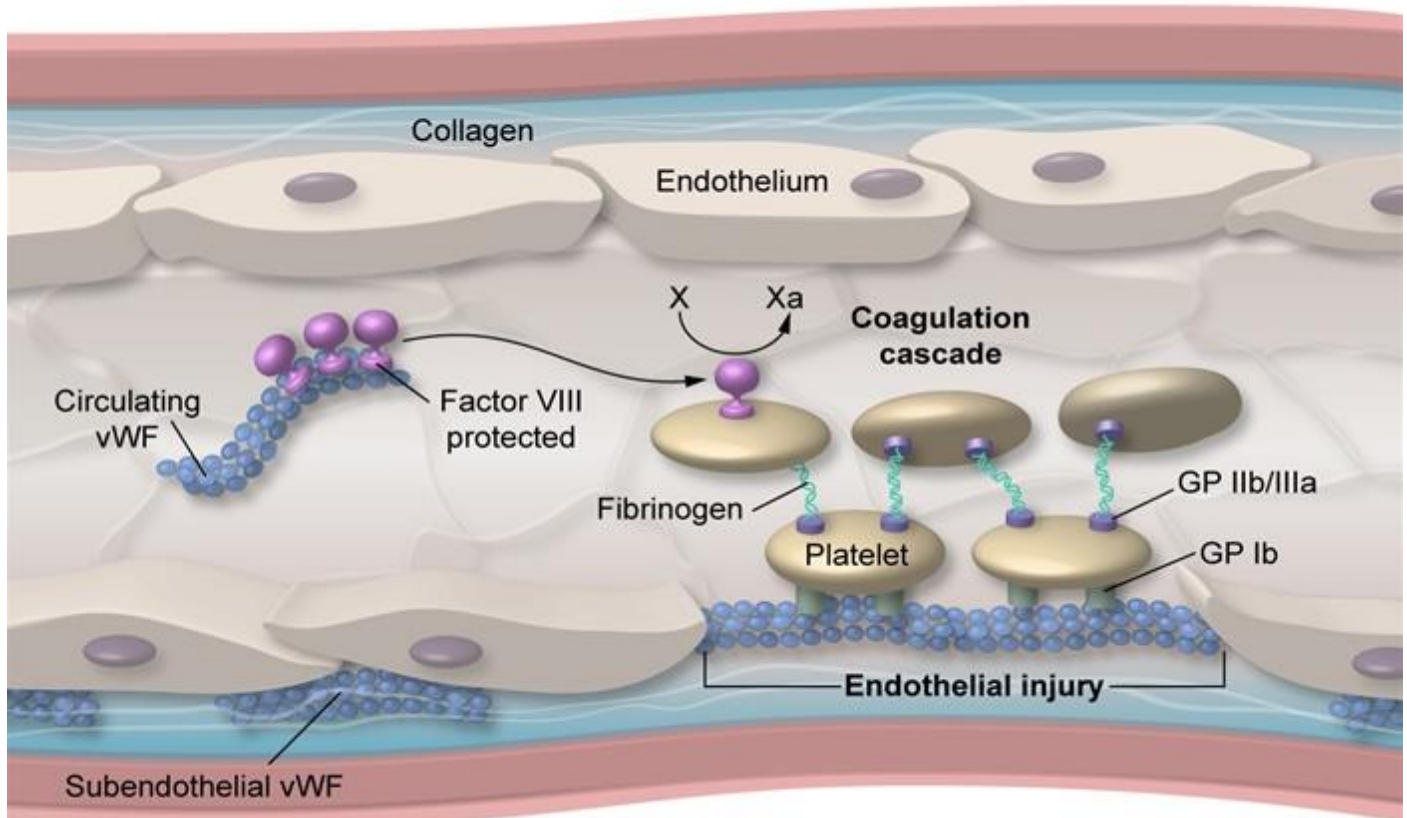
Vesicovaginal fistula

Bladder dye test



Bladder dye test

Platelet adhesion & activation via von Willebrand factor



GP = glycoprotein; vWF = von Willebrand factor.

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Types of urinary incontinence in women

VAGINAL FOREIGN BODY

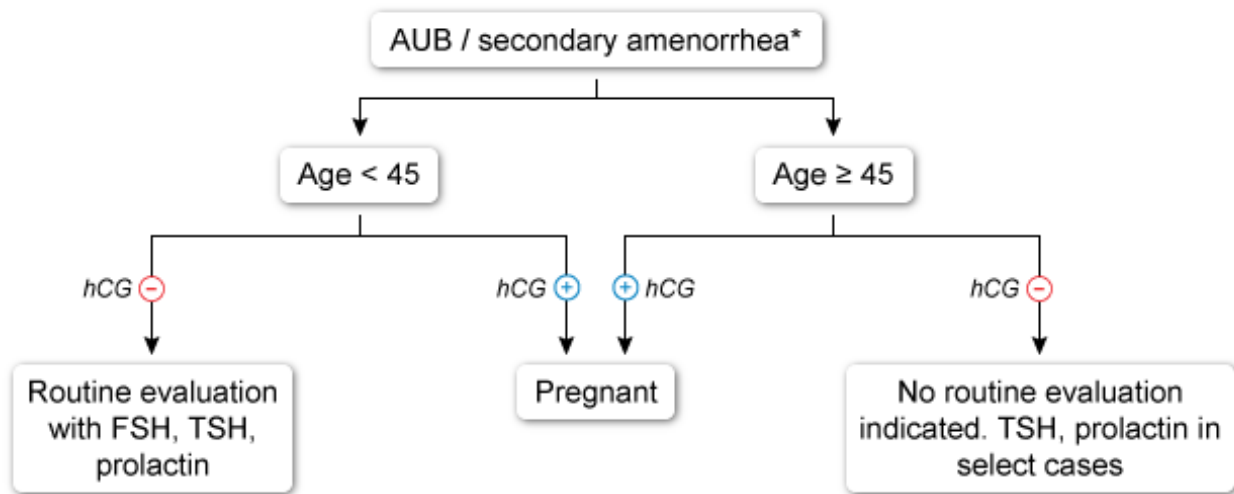
Vaginal foreign bodies

Clinical features	<ul style="list-style-type: none"> • Prepubertal girls • Vaginal spotting • Malodorous vaginal discharge • No signs of trauma (eg, lacerations) • Toilet paper most common object
Management	<ul style="list-style-type: none"> • Warm irrigation • Vaginoscopy under sedation/anesthesia

Platelet adhesion & activation via von Willebrand factor

Normal structure and function of the female reproductive system and breast

AUB & secondary amenorrhea evaluation



AUB = abnormal uterine bleeding.

***Secondary amenorrhea** = no menses >3 months with prior regular menses
OR no menses >6 months with prior irregular menses.

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AUB & secondary amenorrhea evaluation

NEONATAL EVALUATION

Maternal estrogen effects in newborns

- Breast hypertrophy (girls & boys)
- Swollen labia
- Physiologic leukorrhea (whitish vaginal discharge)
- Uterine withdrawal bleeding

Tanner stages

Tanner 1



Tanner 2 (age 10-11.5)



Tanner 3 (age 11.5-13)



Tanner 4 (age 13-15)



Tanner 5 (age >15)



Note: ages represent mean ages of development.

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Tanner stages