Ulcerative Infections

- Syphilis (primary)
- Herpes genitalis
- Chancroid
- Lymphogranuloma venereum
- Granuloma inguinale (donovanosis)
- Molluscum contagiosum
- Genital warts
- Pediculosis
- Scabies
- Pyoderma
- Trauma
- Excoriations
- Bechet's disease
- Fixed drug eruption
- Yeast infection

Famous People in History Diagnosed with Syphilis

Just to Name a Few!

- Columbus
- Henry VIII
- Charles VIII
- Merriweather Lewis
- Lenin
- Hitler
- Idi Amin
- Ivan the Terrible
- Benito Mussolini
- Ben Franklin
- Abraham and Mary Todd Lincoln
- Robert Schumann
- Al Capone
- Beethoven
- Toulouse-Lautrec
- Vincent Van Gogh
- James Joyce
- Baudelaire
- Paul Gauguin
- Scott Joplin
- Edouard Manet
- Franz Schubert
- Tolstoy
- Nietzsche
- Karen Blixen
- Howard Hughes

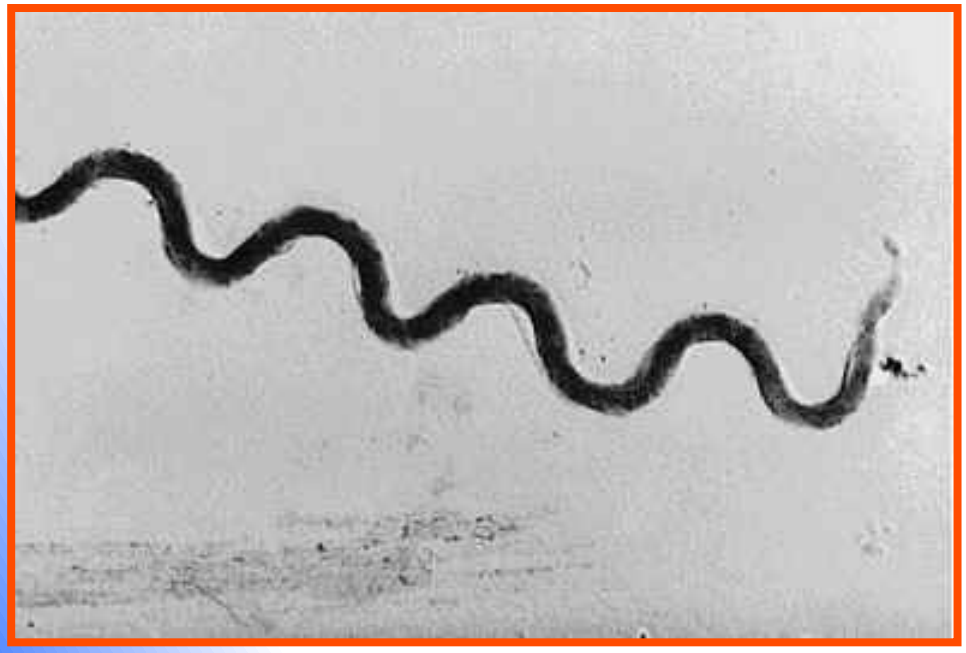
Syphilis
"The Great Imitator"

- Treponema pallidum (spirochete)
- 1º Syphilis – genital ulcers (chancre)
  - Painless, indurated, sharply demarcated, red smooth base
  - Heals spontaneously in 4-8 weeks
  - Incubation period – 9-90 days (2–4 weeks average)
  - Dark field microscopy is 80% sensitive (operator dependent)
  - The VDRL and RPR tests detect nonspecific treponemal antibodies

Serology (VDRL / RPR) is Often Negative In Early Primary Syphilis

Primary Syphilis (1)

Chancre (Painless)



Primary Syphilis (2)

Chancre (Painless)

Syphilis (2)

- 2º: Onset 2-10 weeks after the chancre, rash (maculopapular rash that often includes palms and soles), fever, arthralgias, condyloma lata, painless lymphadenopathy
- Latent
- 3º: 3-25 years after infection (immunocompetent)
  - Neurosyphilis
    - Meningitis, dementia, neuropathy
  - Cardiovascular syphilis
    - Thoracic aortic aneurysm, aortic insufficiency
  - Skin lesions (gummas)
  - Bone and joint disease (Charcot's joint)

Secondary Syphilis (1)

Secondary Syphilis (2)

Secondary Syphilis (3)

Secondary Syphilis (4)

Condyloma Lata

- Secondary syphilis
- Smooth, moist, flat warts
- Genital, perianal
- Fluid positive for spirochetes (dark field)

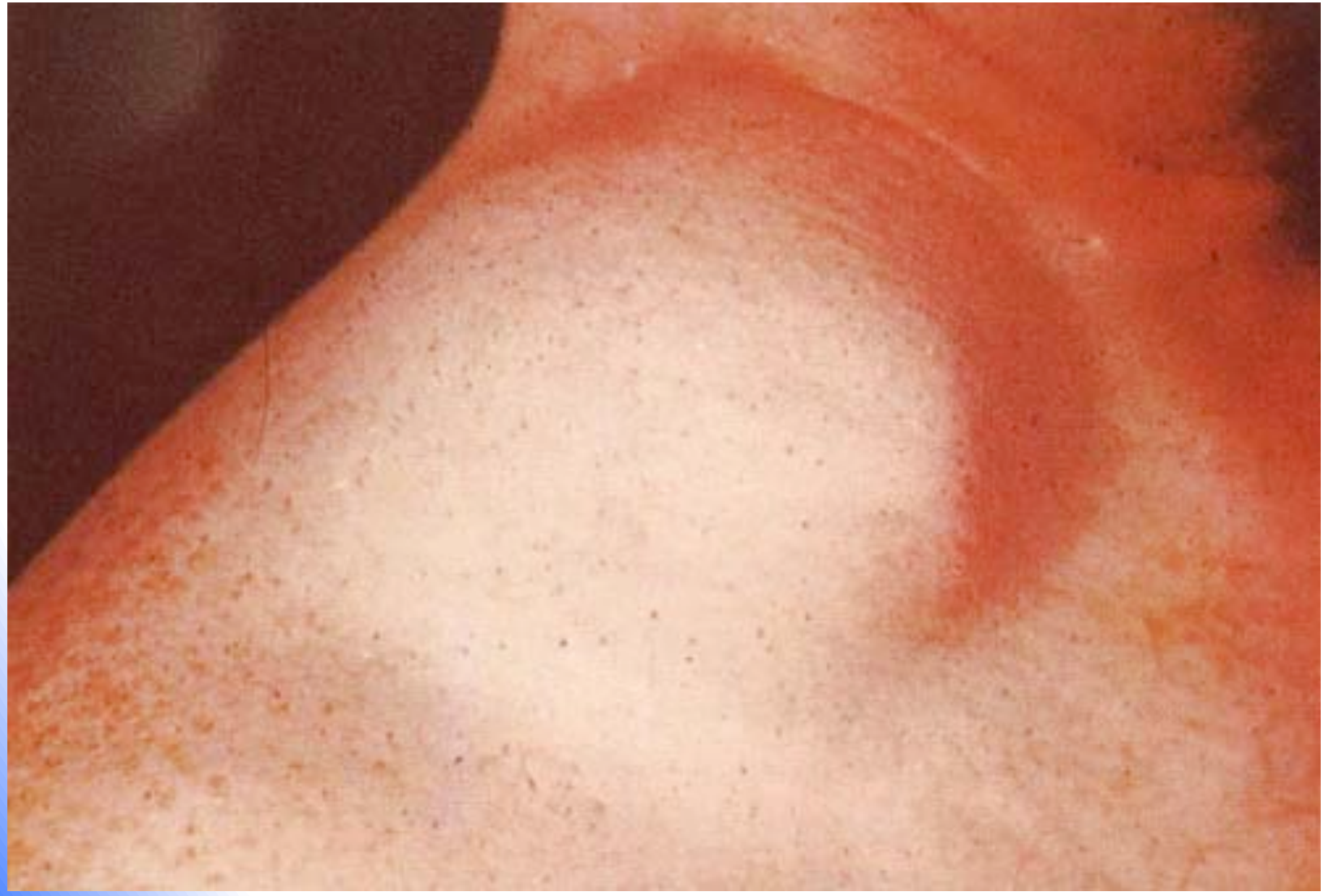
Syphilis (4)

- Positive darkfield microscopy for primary and secondary lesions
- Non-treponemal tests
  - RPR, VDRL (not specific for syphilis)
  - Positive 14 days after chancre in most
  - Occasional false positives
  - Follow titers to assure cure
- Treponemal (MHA-TP and FTA-ABS)
  - Best sensitivity / specificity
  - Expensive and difficult to perform
  - Titers not predictive of cure

Tertiary Syphilis (Charcot's Joint)

Tertiary Syphilis (Gummas)

Tertiary Syphilis (Gummas)



Syphilis (5)

- Test for HIV
- **Jarisch-Herxheimer reaction**: release of endotoxin from spirochete death (fever, arthralgias, headache, myalgias; several hours after antibiotics)
  - 50% in primary; 90% in secondary
  - Also seen treating in Lyme disease (14%)
- Treatment: Benzathine PCN 2.4 million units
  - Penicillin *strongly* preferred first line agent
    - Desensitization recommended
  - Doxycycline, tetracycline, ceftriaxone, azithromycin *possible* alternatives

Genital Herpes Simplex

Genital Herpes Simplex (1)

- HSV-2 (more common in U.S.) or HSV-1
- Prodrome: Burning, itching, paresthesias
- Fever, malaise, headache, myalgias, adenopathy
  - Common in first episode
- Primary lesion at 2-7 days after contact (shallow, painful vesicles clustered on erythematous base, then ulcerations, may coalesce)
- Local symptoms peak 8 to 10 days, 2 to 4 weeks to heal

Genital Herpes Simplex (2)

- Symptomatic recurrences are the rule (60% to 90%)
- Can shed virus during recurrences as well as during asymptomatic periods
- 1 in 5 sexually active adults infected
- HSV lesions increase acquisition and transmission of HIV

Genital Herpes Simplex (3)

- Diagnosis
  - Usually clinical
  - Viral tissue culture (3-10 days, false negatives common but still gold standard), antigen testing, serologic testing (may take 6 weeks)
  - Tzanck smear (nucleated giant cells) no longer recommended due to low sensitivity

Genital Herpes

Genital Herpes Simplex (4)

- Complications: meningitis (10% if primary), encephalitis, hepatitis, transverse myelitis, erythema multiforme, urinary retention (sacral root ganglia)
- Treatment: Acyclovir / valacyclovir / famciclovir
- Controls symptoms, decreases relapses, shortens course
- C-section if active genital herpes
- Neonatal herpes
  - Acquired at birth
  - High mortality

Perianal Herpes

Chancroid (1)

Chancroid (2)

- Haemophilus ducreyi (Gram negative bacillus)
- More common in developing countries, rare in USA
- Incubation period is 3-6 days
- Vesiculopustular lesion, then painful genital ulcer or ulcers
- Tender **unilateral adenopathy, bubo formation** with spontaneous rupture
- Diagnosis: Clinical; r/o HSV, syphilis
- Treatment: Ceftriaxone, azithromycin, ciprofloxacin, erythromycin

Distinguish from non-painful lesion of primary syphilis

Chancroid (3)

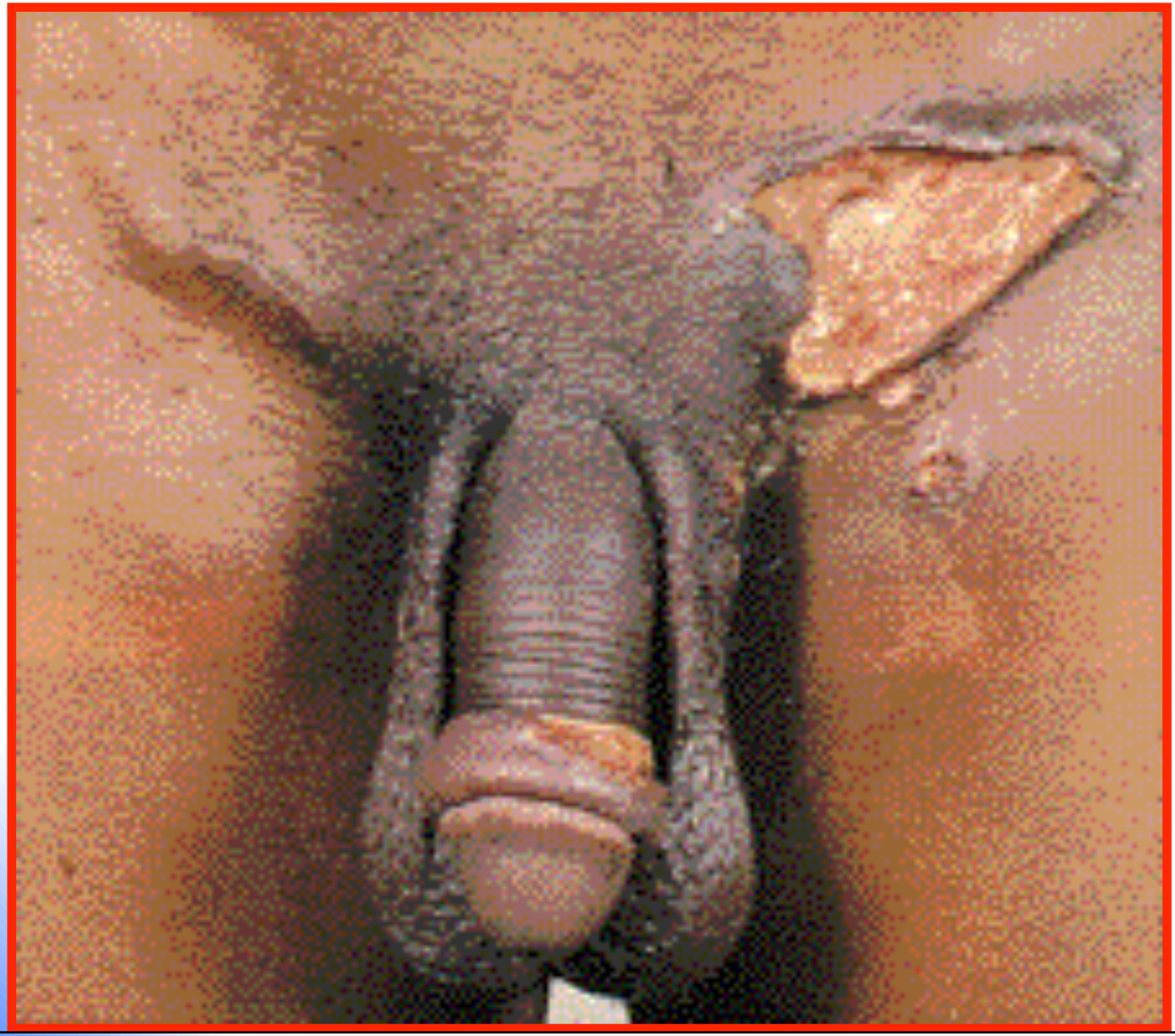
"Kissing lesion"
Autoinnoculation

Lymphogranuloma Venereum

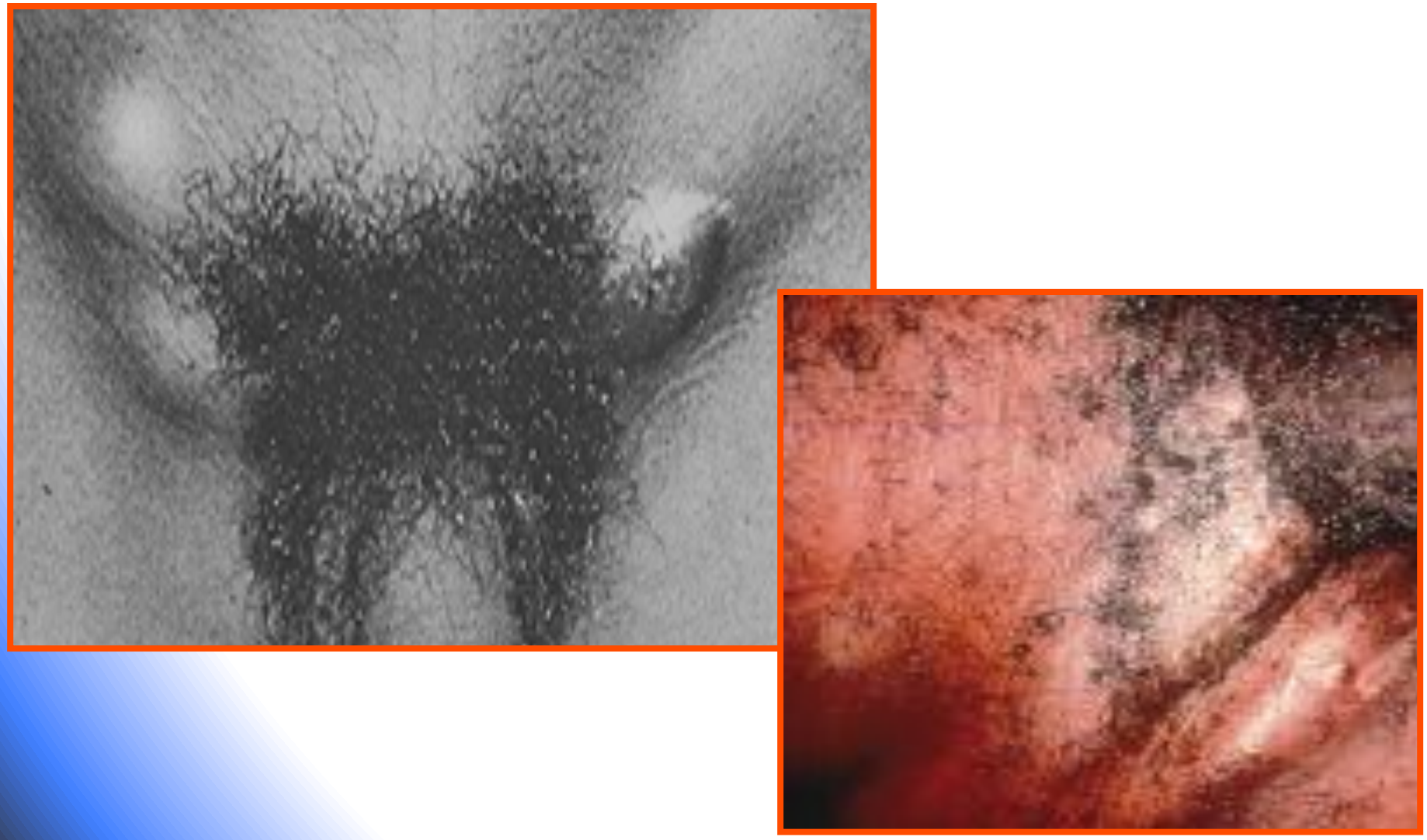
Lymphogranuloma Venereum (LGV)

- Chlamydia trachomatis (only certain serotypes)
- Endemic in some regions, seen only sporadically in USA
- Incubation 1-3 weeks
- Shallow, painless, genital vesicles and papules heal in 2-3 days
- Painful inguinal nodes (“buboes”) weeks to months later, “groove sign”
- Fever, chills, arthralgias, E. nodosum
- Diagnosis: Complement fixation titer, culture of aspirate
- Treatment: Doxycycline or erythromycin x 3 weeks

Lymphogranuloma Venereum



Lymphogranuloma Venereum
"Groove Sign"



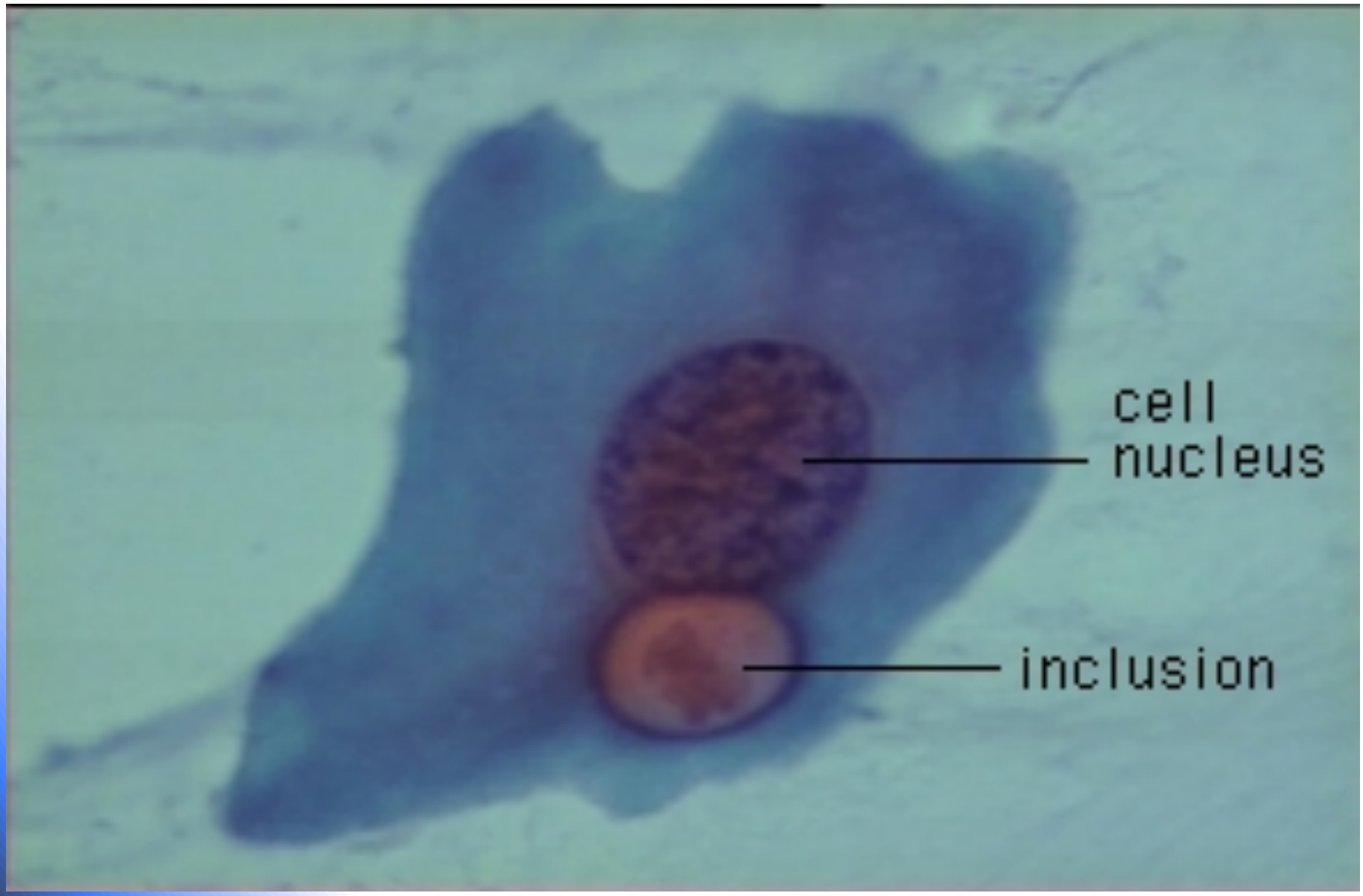
Ulcerative Lesions

STD	Ulcer	Adenopathy	Systemic Symptoms
Syphilis (primary)	Single Painless Starts as papule	Minimal	None
Syphilis (secondary)	None	Generalized Nontender Nonfluctuant	Generalized rash Mucous patches Condyloma lata
Herpes	Multiple Shallow Painful Starts as vesicle	Shotty Bilateral Minimally tender	Flu-like Precedes lesions
Chancroid	Single or multiple Painful Purulent base	Unilateral Fluctuant	None
LGV	Evanescent Multiple Painless Starts as vesicle	Groove sign	Sometimes

Nonulcerative Infections

- Chlamydia
- Gonorrhea
- Nongonococcal urethritis
- Pelvic inflammatory disease
- Secondary/tertiary syphilis
- Candidal vaginitis
- Trichomonas
- Bacterial vaginosis
- Endometriosis

Chlamydia



Chlamydia Trachomatis

- **Number one STD**
- Major cause of female infertility/PID
- Co-infection common
- Symptoms of local disease
  - Penile or vaginal discharge
  - Dysuria
  - Females: Cervicitis, urethritis, PID
  - Males: Epididymitis, urethritis, proctitis
  - Abnormal vaginal bleeding
  - Abdominal, pelvic pain, testicular pain

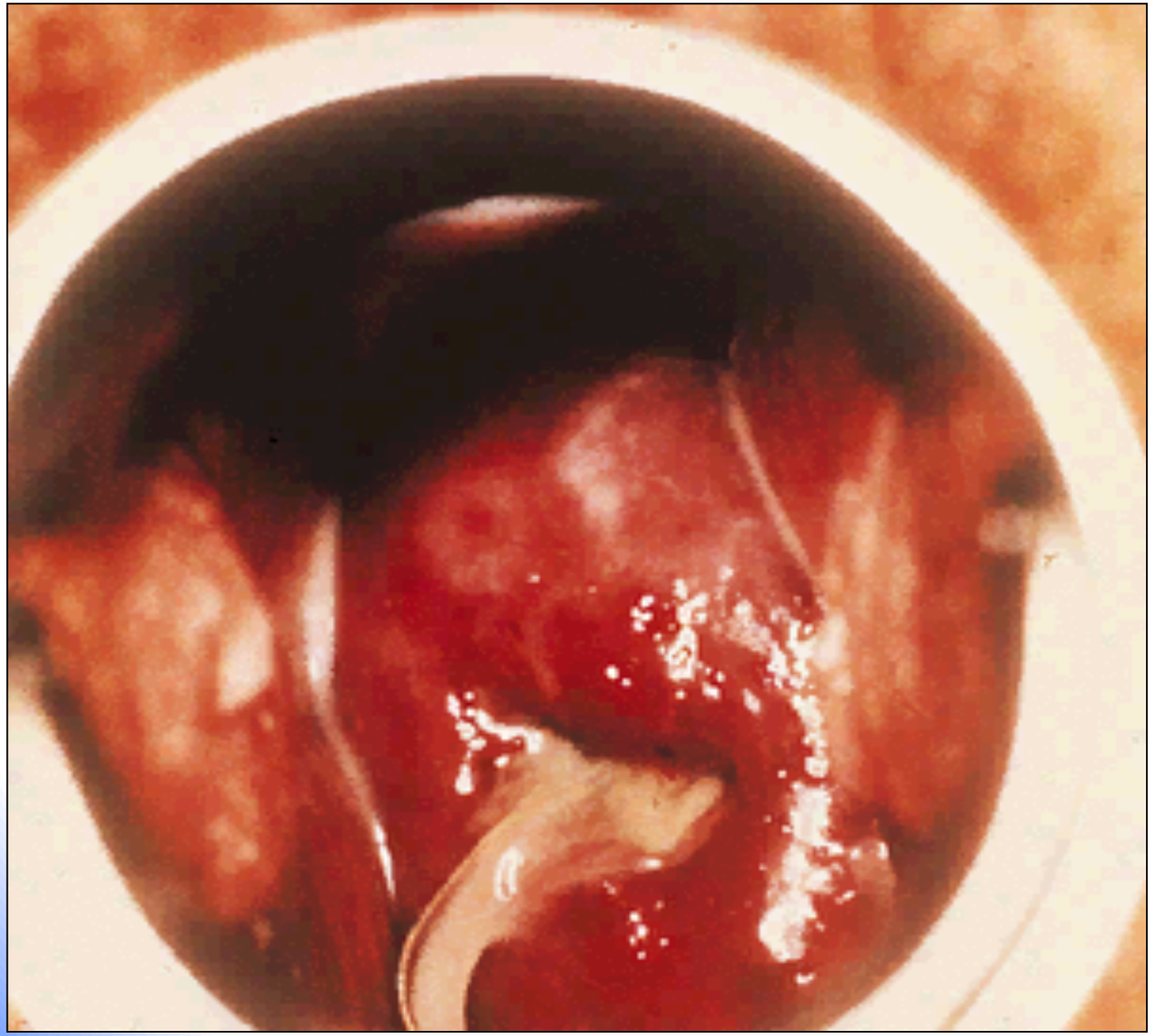
Chlamydia Trachomatis

- 1-3 week incubation period
- Often asymptomatic
- Highest rate in sexually active adolescent females
- Consider with **sterile pyuria**
- Diagnosis: Cultures low yield, indirect methods (DNA probes or nucleic acid amplification tests)
- Treatment: Azithromycin or doxycycline

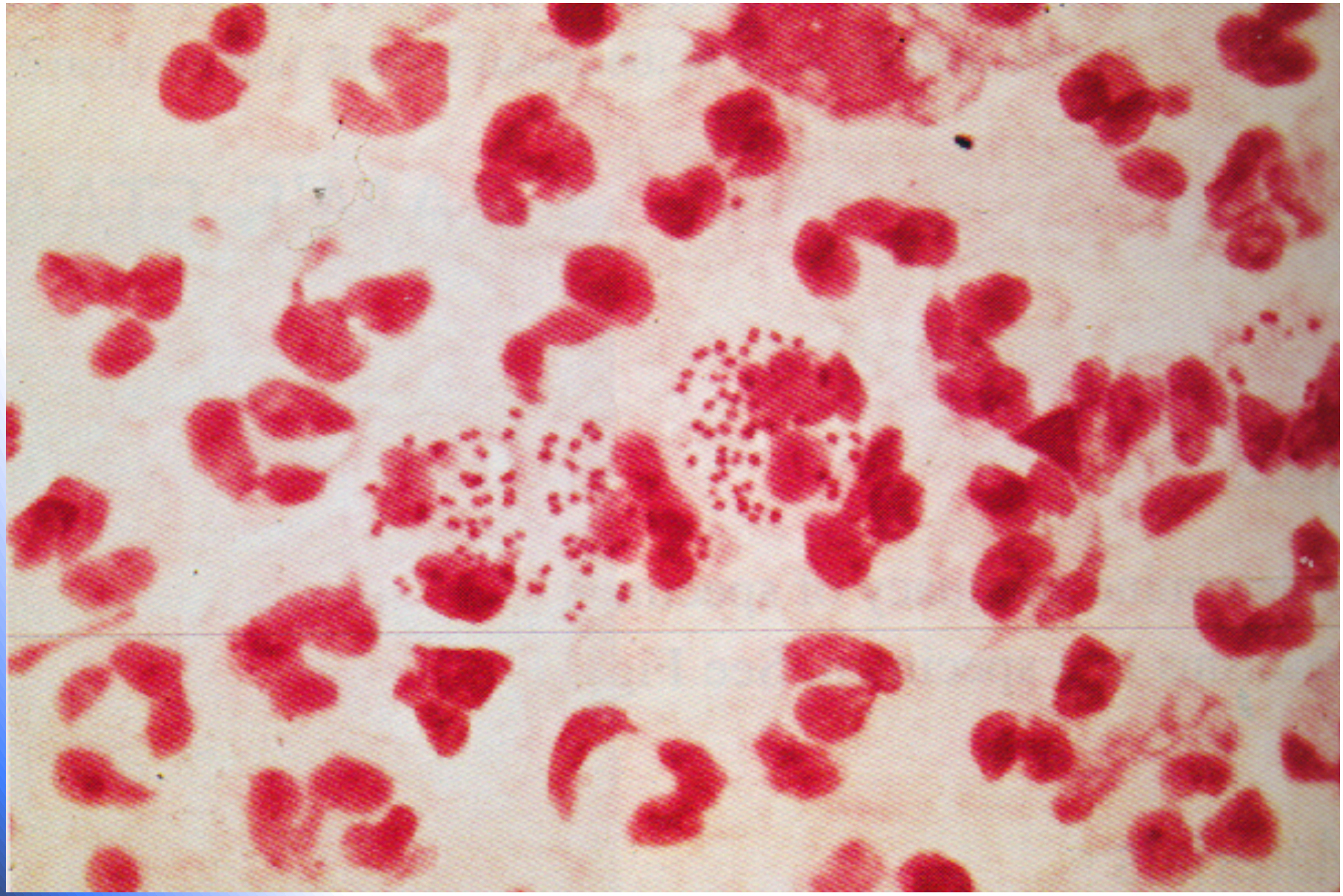
Gonorrhea

- Incubation of 1 to 14 days
- 20% of women with untreated gonorrhea develop PID
- Symptoms of localized disease
  - Penile or vaginal discharge
  - Dysuria
  - Females: Cervicitis, urethritis, proctitis, PID
  - Males: Epididymitis, urethritis, proctitis, prostatitis
  - Abdominal and pelvic pain
  - Asymptomatic (most frequent in women)

Gonorrhea



Gram Negative Diplococci



Gonorrhea

- Diagnosis: Gram stain, culture or nucleic acid amplification test
- Treatment: Single dose therapy
  - Ceftriaxone 250 mg IM PLUS azithromycin 1 gm PO once (treats resistant gonorrhea in addition to Chlamydia coinfection)
  - Cefixime PO no longer an alternative (no longer a treatment option per the CDC)

Gonorrhea
Non-Genital GC

- Rectal GC: Proctitis with purulent discharge
- GC conjunctivitis (purulent discharge)
- Pharyngitis
- Pelvic inflammatory disease (PID)
- Disseminated gonococcal disease
  - Skin lesions
  - Arthritis, tenosynovitis
  - Endocarditis
  - Meningitis

**** Most common cause of septic arthritis in pts. <50 y.o.****

Gonococcemia

- Fever, polyarthritis or monarthritis (knees, ankles), tenosynovitis (wrists, ankles); often seen weeks after initial exposure
- Necrotic pustules on an erythematous base; may be hemorrhagic (<20 lesions total)
- Joint fluid and blood often negative for organism
- Genital and pharynx cultures
- Rule out syphilis, Chlamydia
- Treatment: Ceftriaxone, cefotaxime, cefoxitin with probenecid

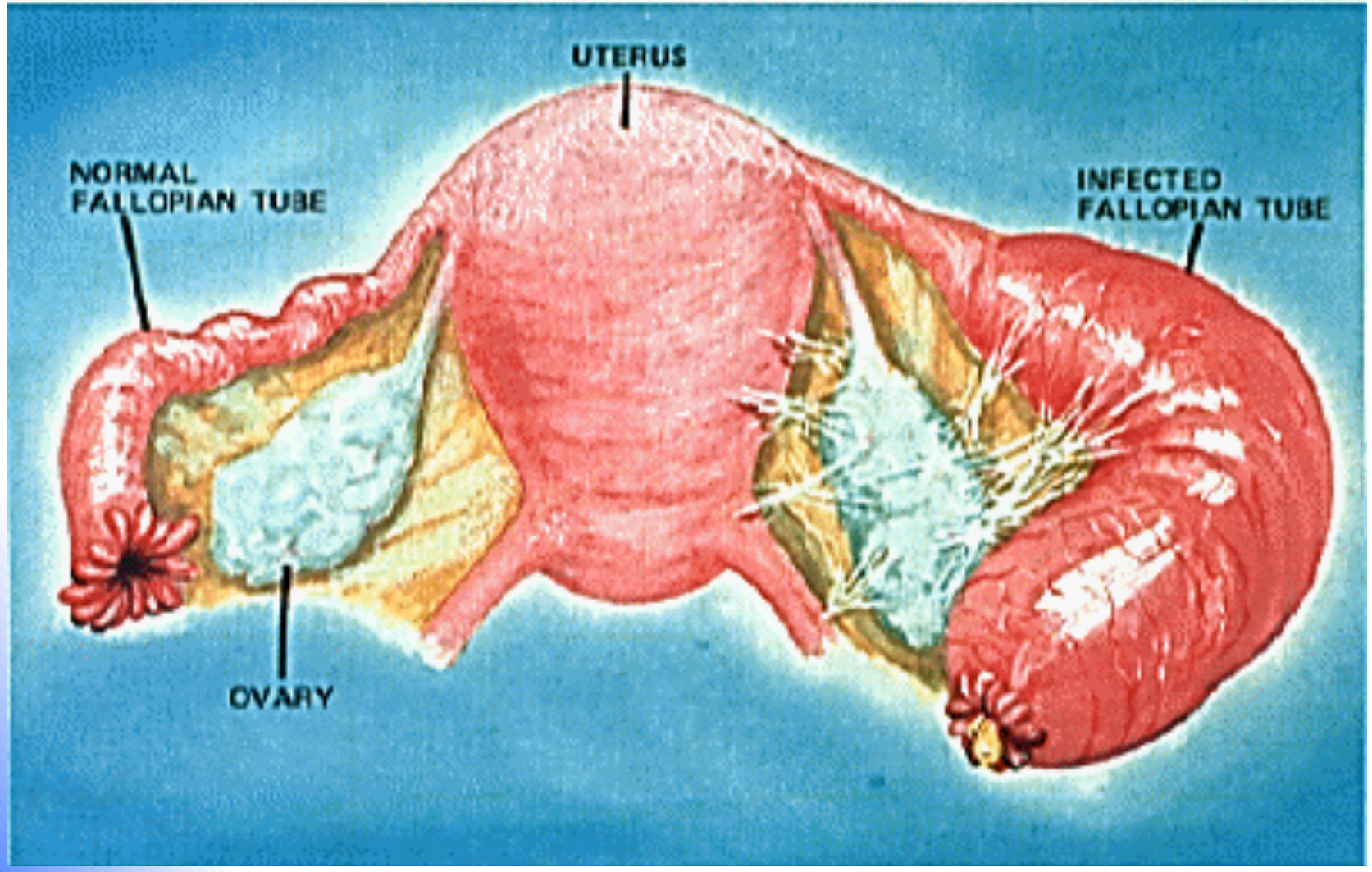
Gonococcemia

Gonococcemia

Gonococcemia

GC Conjunctivitis

Pelvic Inflammatory Disease



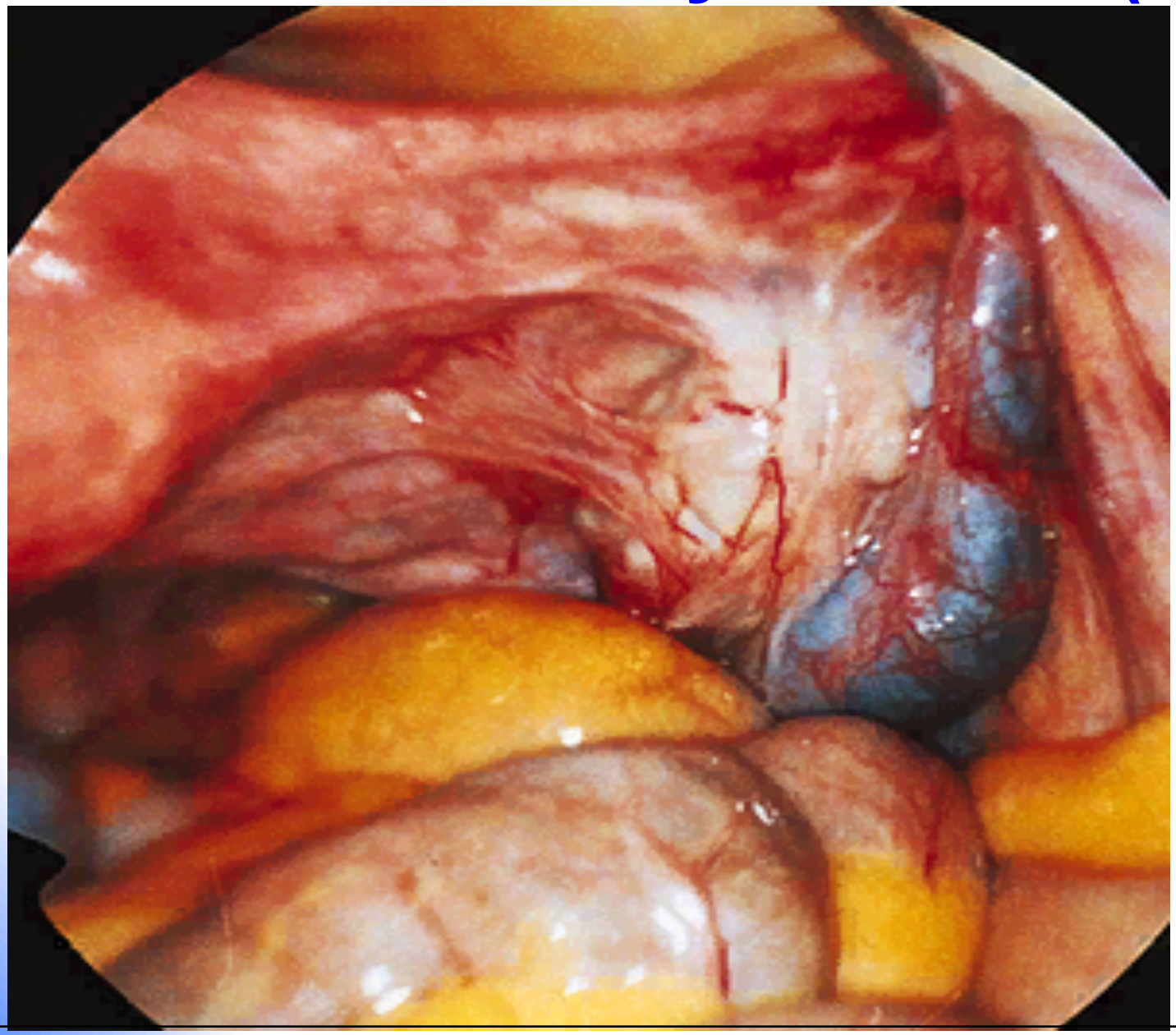
Pelvic Inflammatory Disease (1)

- Neisseria gonorrhoeae, Chlamydia trachomatis (most common)
- Polymicrobial infections (including anaerobes) are also common 30-40%
- Risk factors: Prior STD/PID, IUD in 1st month of insertion, young age, multiple partners
- Decreased risk of PID
  - Pregnancy
  - Barrier contraceptives

Pelvic Inflammatory Disease (2)

- Diagnostic tests: US, CT scan, laparoscopy
- CDC - empiric treatment if no other etiology to explain these findings:
  - Uterine tenderness or adnexal tenderness
  - Cervical motion tenderness
- Additional criteria improve specificity
  - Temp >101 (38.3)
  - Abnormal cervical or vaginal mucopurulent discharge
  - Elevated ESR/CRP
  - Lab confirmation of gonorrhea or chlamydia

Pelvic Inflammatory Disease (3)



Pelvic Inflammatory Disease (4)

- Admission criteria
  - Toxic (e.g. intractable nausea / vomiting, fever)
  - Pregnancy
  - Surgical emergency not ruled out
  - Outpatient compliance issues
  - Failed outpatient therapy
  - TOA (tubo-ovarian abscess)
  - Consider in nulliparous females

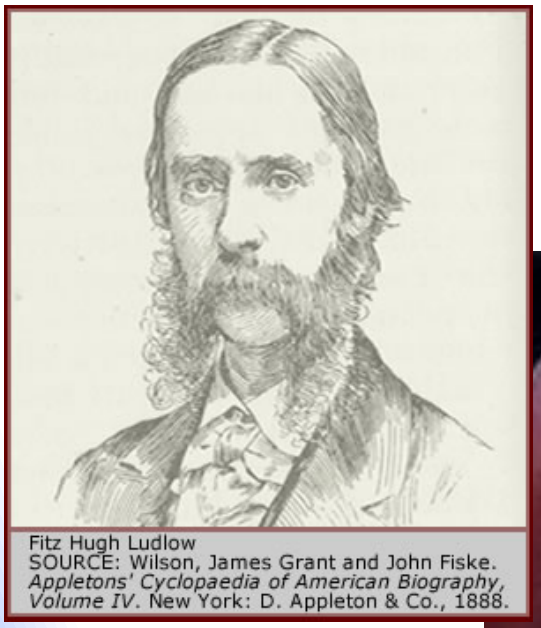
Pelvic Inflammatory Disease (5)

- Inpatient treatment – 2 regimens
  - Cefotetan or cefoxitin; plus doxycycline
  - Clindamycin plus gentamicin
  - Alternative: Ampicillin/sulbactim PLUS doxycycline
- Outpatient treatment: 3 regimens
  - Ceftriaxone plus doxycycline + /- metronidazole
  - Cefoxitin and probenecid plus doxycycline +/- metronidazole
  - Other parenteral third generation cephalosporin (ceftizoxime or cefotaxime) plus doxycycline +/- metronidazole

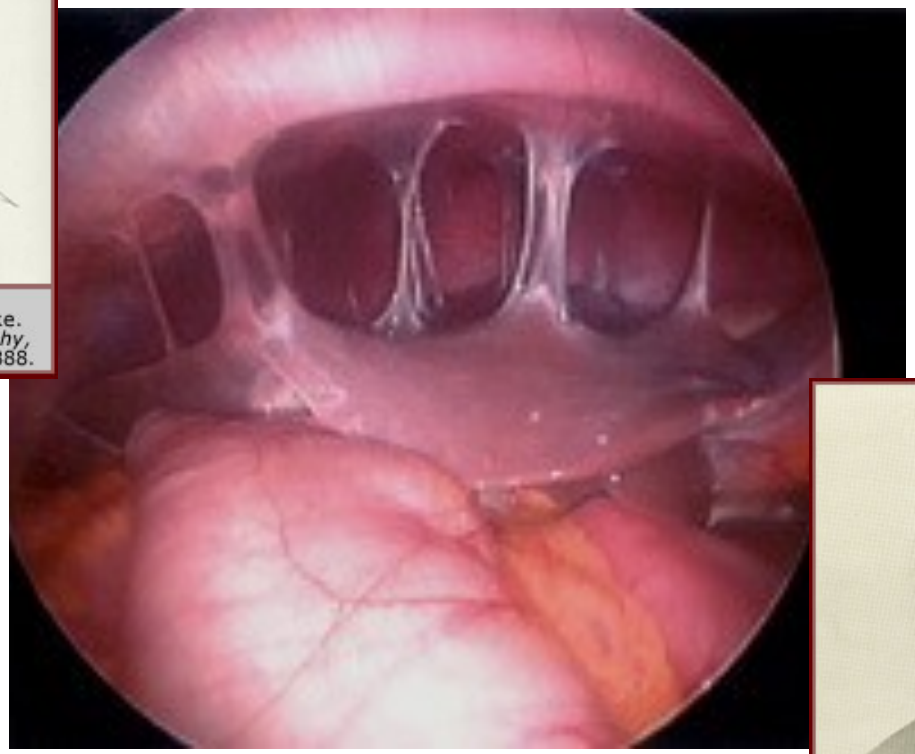
Pelvic Inflammatory Disease (6)

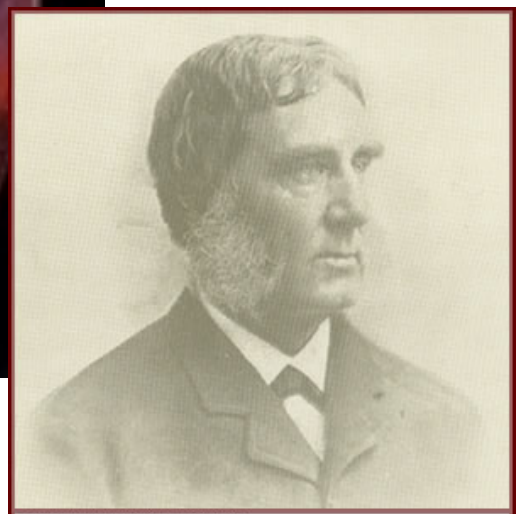
- Remove IUD if in place
- Treat partner
- Complications
  - Ectopic
  - Infertility
  - Adhesions
  - Tubo-ovarian abscess (1/3 of hospitalized patients)
  - Chronic pelvic pain
  - Dyspareunia

Fitz-Hugh-Curtis Syndrome



Fitz Hugh Ludlow
SOURCE: Wilson, James Grant and John Fiske. *Appletons' Cyclopaedia of American Biography, Volume IV*. New York: D. Appleton & Co., 1888.

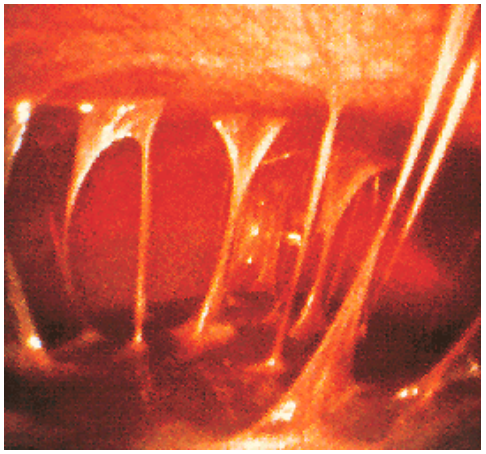




George William Curtis
SOURCE: Winter, William. *Old Friends: Being Literary Recollections of Other Days*. New York: Moffat, Yard and Company, 1909.

Pelvic Inflammatory Disease (6)

- Fitz-Hugh-Curtis syndrome
  - Purulent material spills from tubes into abdomen
  - Direct or lymphatic spread
  - Bacterial perihepatitis
  - **LFTs usually normal**
  - Right upper quadrant and shoulder pain
  - "Violin string" adhesions around the liver



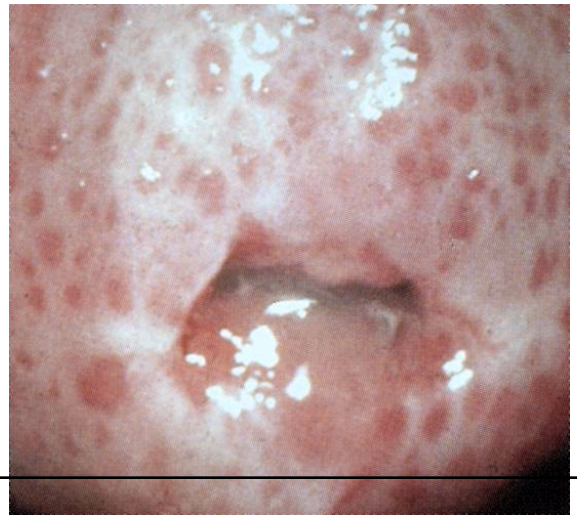
Vulvovaginitis

- Inflammation of vulva and vaginal tissues
- Vaginal discharge / itching / irritation
- Causes: Infection, irritant or allergic contact, vaginal FB, atrophic vaginitis
- Most common gynecological complaint in prepubertal girls
- Normal vaginal pH 4.0-4.5

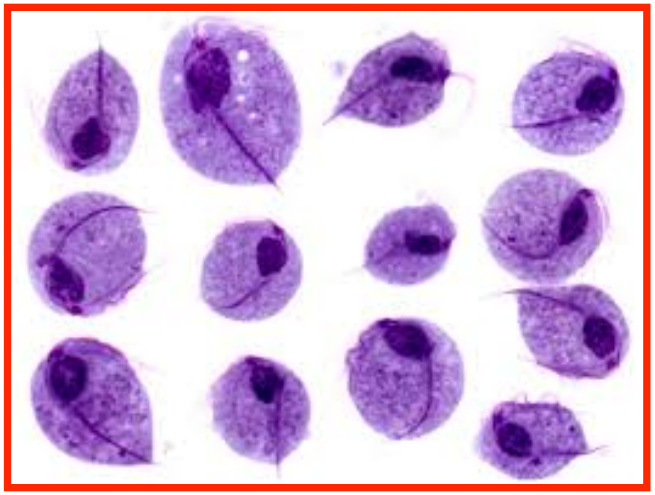
Trichomoniasis (1)

Trichomoniasis (2)

- Vaginitis
  - Flagellated protozoan
  - Yellow-green, frothy, malodorous discharge; pruritus, irritation, abdominal pain
  - "Strawberry" cervix on exam (punctate submucosal hemorrhages) – seen in 2% to 10%
  - Typically asymptomatic especially males
  - Increases risk of HIV, HSV



Trichomoniasis (3)



- Diagnosis: Wet mount (motile trichomonads), spun urine, cultures
- Treatment: Metronidazole or tinidazole (single dose), topical not recommended
  - **Disulfiram-like reaction with alcohol**
- Transmitted sexually - treat partner
- Associated with PROM, preterm delivery, low birth weight

Bacterial Vaginosis (1)

- **Most common cause of vaginal discharge**
- Normal vaginal flora (lactobacilli) replaced by Gardnerella and anaerobes
- 3 of 4 criteria per CDC:
  - Copious thin white homogenous discharge
  - Clue cells (vaginal epithelial cells with adherent bacteria) on wet prep
  - pH > 4.5
  - A **fishy odor** with potassium hydroxide (KOH) whiff test

Clue Cells

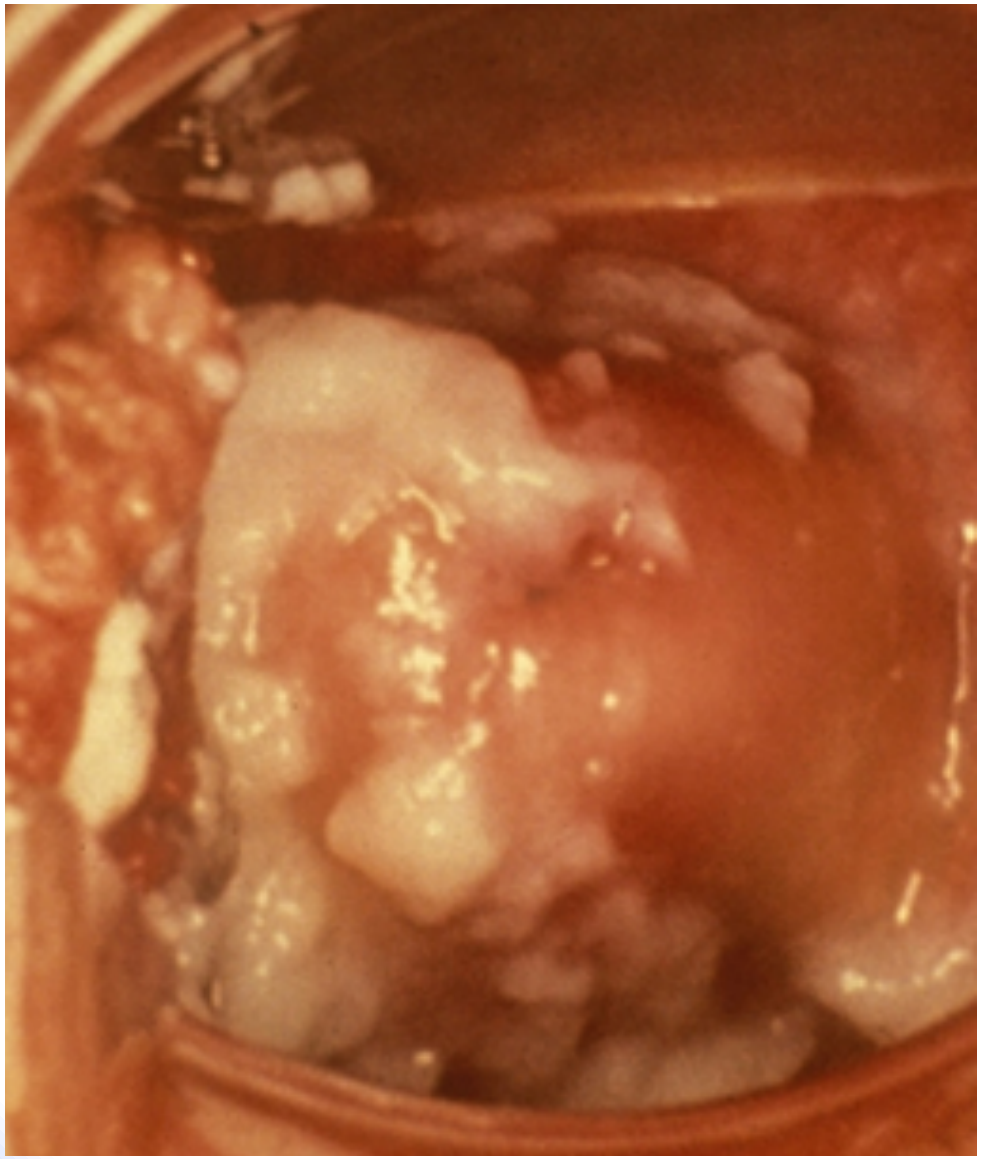
Bacterial Vaginosis (2)

- Treatment: Metronidazole PO or gel, clindamycin cream
- Risk of preterm labor, PROM, preterm birth, postpartum endometritis
- All symptomatic women need treatment
- All pregnant patients should be treated

Candidal Vaginitis (1)

- Candida albicans 85-92%
- Part of normal flora
- Risk factors: Diabetes, oral contraceptives, antibiotics, pregnancy
- Symptoms: Vulvar pruritis (most common), vaginal discharge, dyspareunia, and dysuria
- Exam: Vulvar erythema, edema or excoriation
- Cottage cheese non-odorous discharge

Candidal Vaginitis (2)



Candidal Vaginitis (3)

- Diagnosis
  - KOH wet mount: pseudohyphae, budding yeast
  - Normal pH
- Treatment: Fluconazole 150mg po once; Multiple OTC and prescription topical agents
- Topical imidazoles more effective than nystatin
- Pregnancy: Topical imidazoles only x 7d

Hyphae

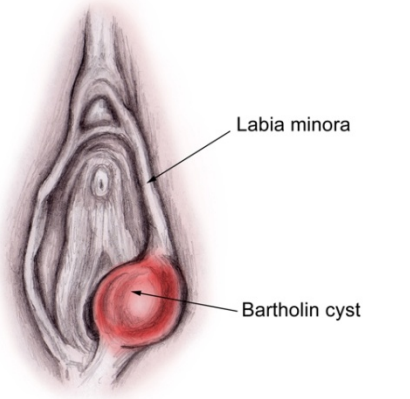
Vulvovaginitis
Clinical Findings

Diagnostic Testing	BV	Trich	Candida
pH > 4.5	Yes	Yes	No
WBCs	++	+++	No
Clue cells	Yes	No	No
Trichomonads	No	Yes	No
Yeast forms	No	No	Yes
Sexually transmitted?	No	Yes	No
Treat sexual partners?	No	Yes	No

Bartholin Gland Abscess

Bartholin Cyst/Abscess

- Cyst: Painless, I&D, Word catheter
- Abscess
  - Painful



  - Anaerobic/aerobic bacteria – Bacteroides, E.coli, also N.gonorrhea, Chlamydia
  - I&D – Iodoform, Word catheter
  - Recurrent - Marsupialization

Condyloma Accuminata (1)

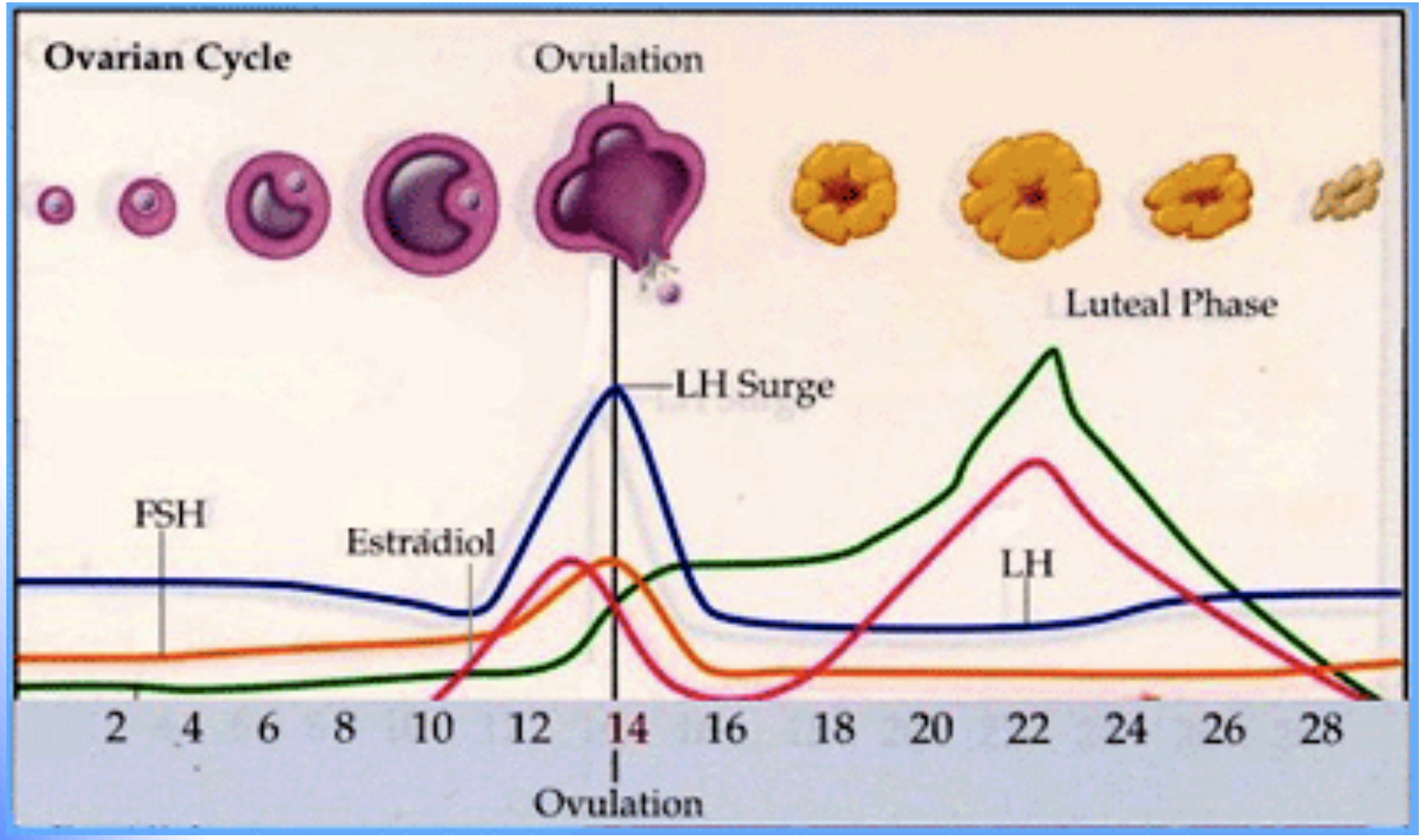
Condyloma Accuminata (2)

- Human papilloma virus (DNA virus), also called venereal warts
- Incubation period 1-3 months
- Rule out other STDs. Increased risk of cervical carcinoma
- Rectal, penile and perineal (most common); occur in soft, vegetating clusters
- Direct contact
- Painless (location and size may cause discomfort)
- Treatment
  - Condylox (podofilox topical)
  - Aldara (imiquimod topical)
  - Cryotherapy

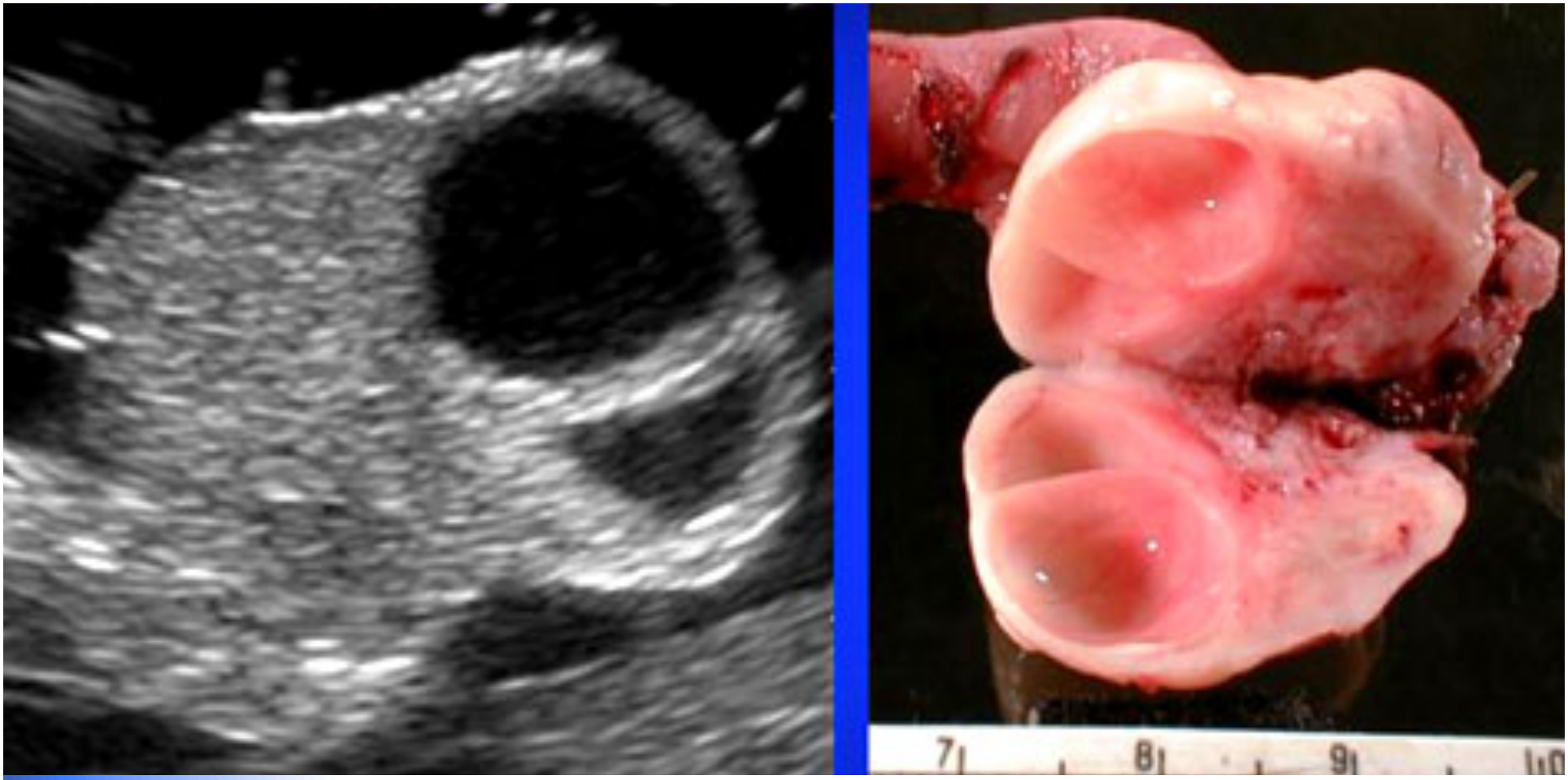
Condyloma Accuminata (3)

Ovarian Cyst

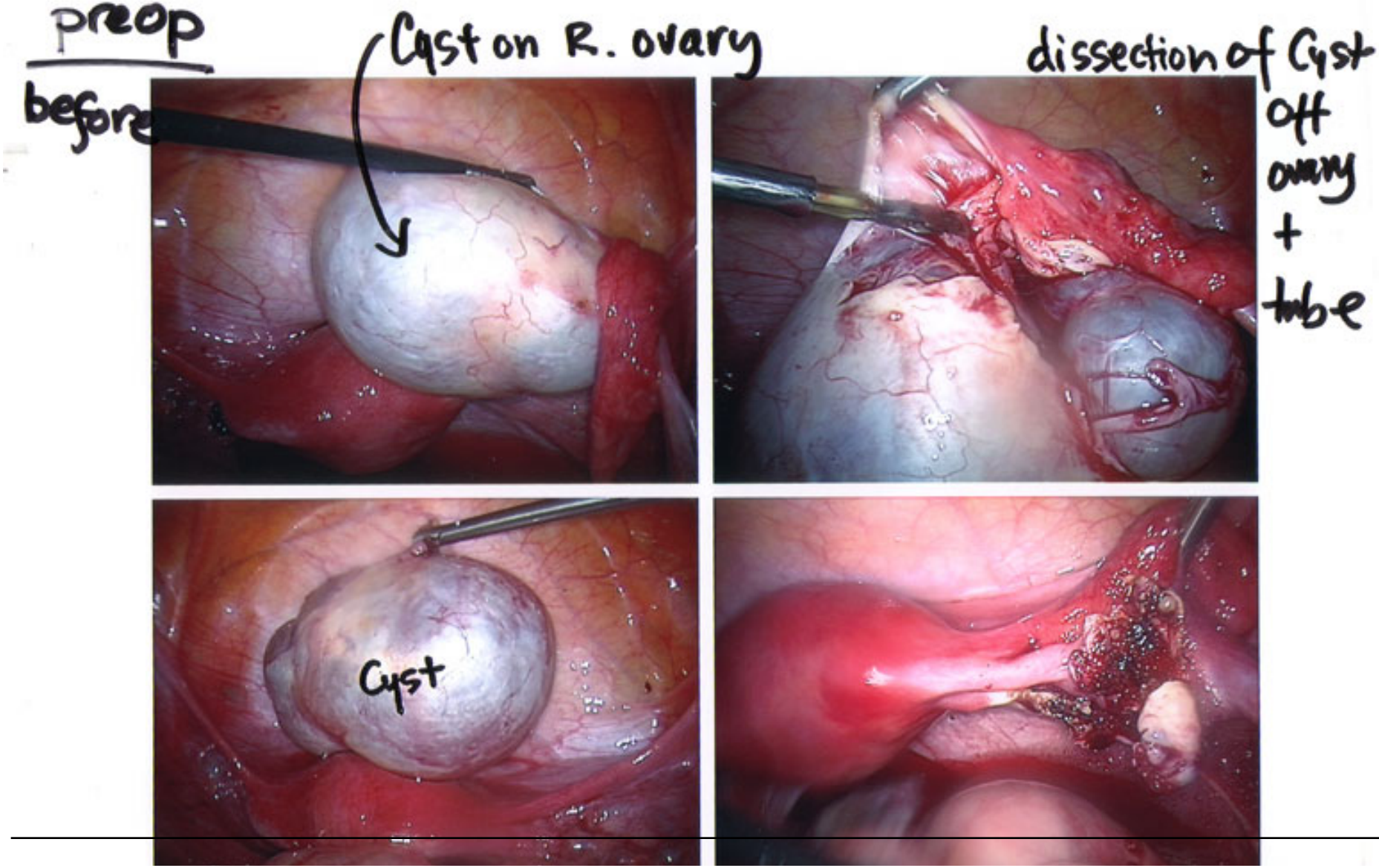
- Symptomatic cysts >3 cm
- Follicular cyst occurs first 2 weeks of menstrual cycle
- Mittelschmerz: Transient ovulatory mid-cycle pain, unilateral, last <1day
- Corpus luteal cyst occurs during last 2 weeks
- Abdominal pain, bleeding, vomiting
  - Tender adnexal mass, cervical motion tenderness
  - Fluid in the cul-de-sac
  - Hemorrhage can occasionally cause shock and require emergent surgery
- Diagnosis: Ultrasound, CT, laparoscopy



Ovarian Follicular Cyst



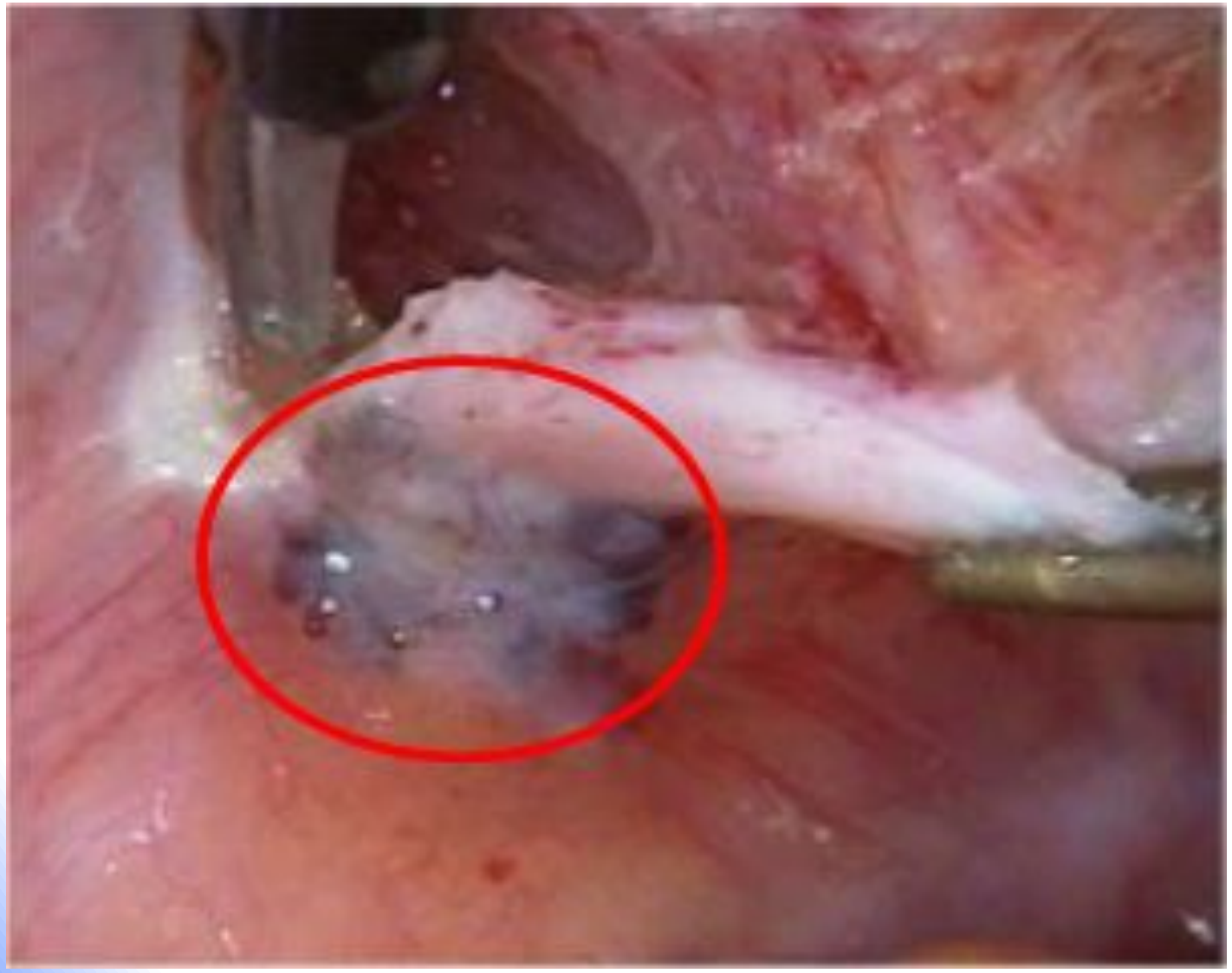
Ovarian Cyst



Ovarian or Adnexal Torsion

- Ovary twists on pedicle
- Most associated with benign tumors or cysts
- Dermoid cyst most common
- Malignant tumors usually fixed, torsion rare
- Severe abdominal pain, constant, unilateral
- Nausea, vomiting, usually afebrile
- Vaginal bleeding is uncommon
- Exam: Unilateral tenderness, rebound or mass
- Diagnosis: Ultrasound, laparoscopy
- Rule out ectopic, appendicitis, PID

Endometriosis (1)

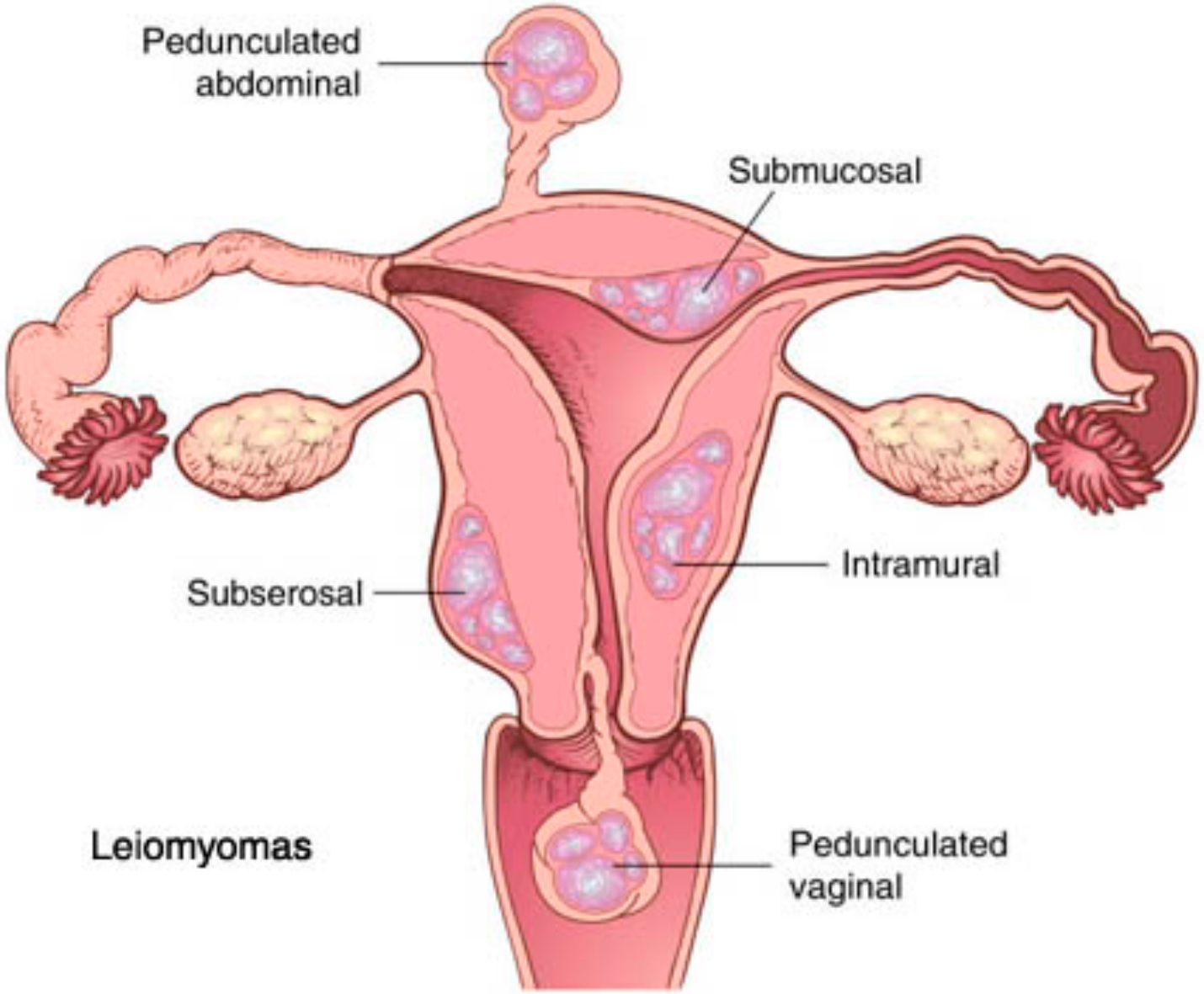


Endometriosis (2)

- Endometrium outside of the uterus
- Ovaries, fallopian tubes, bladder, abdominal cavity, lung (catamenial pneumothorax)
- Constant pelvic pain associated with menses
- Dyspareunia, hypermenorrhea, infertility
- Exam: Adherent uterus, ovarian mass (chocolate cyst), pelvic tenderness and nodularity
- Diagnosis: Laparoscopy
- Treatment: Analgesics, hormones, surgery

Endometriosis most commonly involves the ovaries

Leiomyomas (Fibroids) (1)



Leiomyomas (Fibroids) (2)

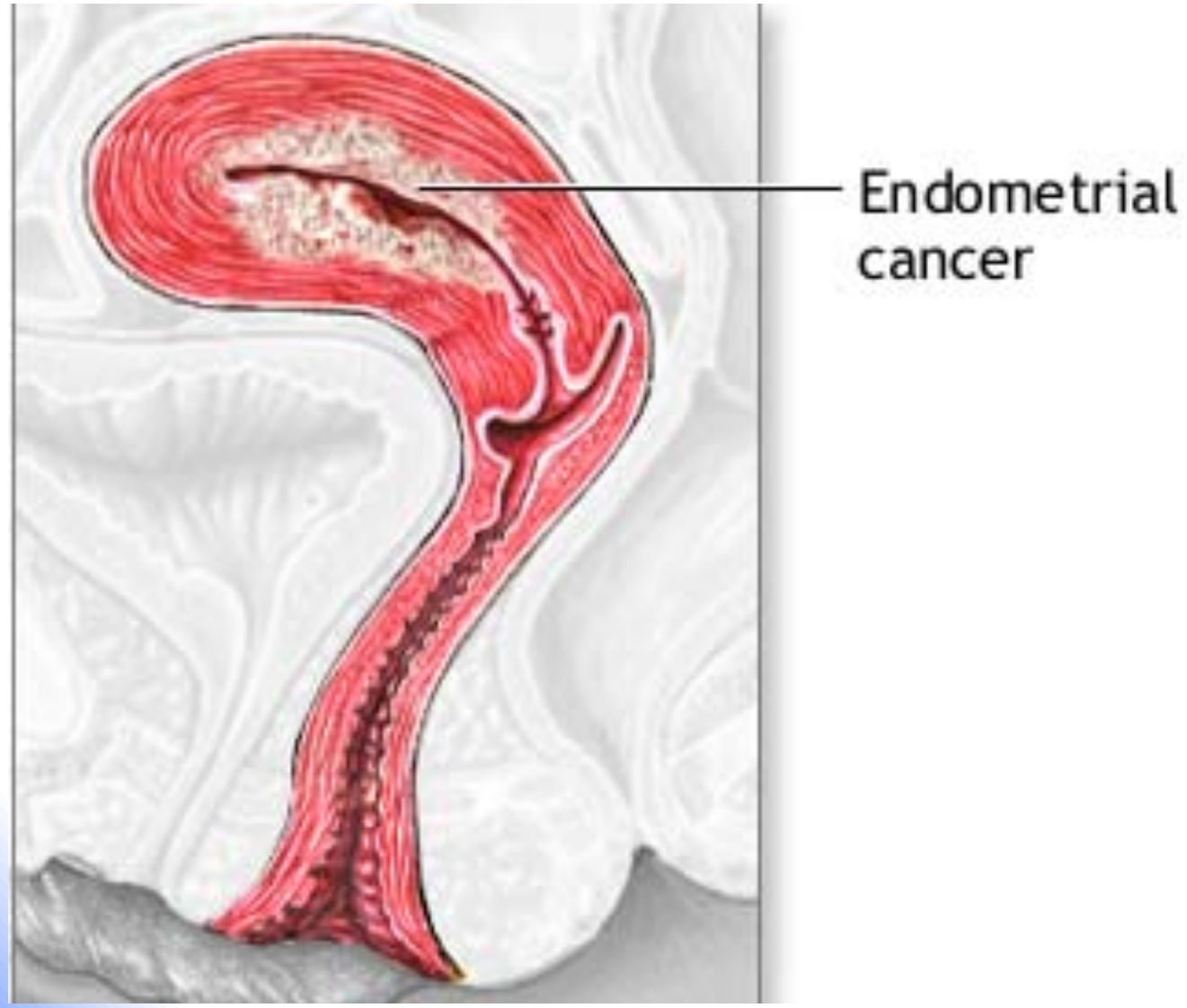
- Benign tumors of uterine muscle
- Most common pelvic tumor; most common in African American women
- Pelvic pain, abnormal bleeding
- Pregnancy can result in rapid growth and loss of blood supply (degeneration)
- Diagnosis: Ultrasound
- Treatment: NSAIDs, hormonal therapy, surgery

Uterine Cancer

- Most common gynecologic cancer
  - Adenocarcinoma most common type
  - Sarcoma (aggressive, worst prognosis)
- Average age 58
- Risk: Continuous estrogen, obesity, diabetes, hypertension, nulliparity, early menses, late menopause
- Abnormal bleeding, painless uterine enlargement
- Diagnosis: D&C or uterine biopsy

Postmenopausal women with bleeding

Uterine Cancer



Ovarian Cancer

- Peak incidence age 55-65
- Risk factors: Infertility, low parity, high fat diet, history of breast or colon cancer, family history
- Advanced stage at diagnosis common
- Abdominal pain, bloating, weight loss, pleural effusion
- Exam: Fixed unilateral mass
- Diagnosis: CT scan, pelvic ultrasound

Ascites in females is a gynecologic neoplasm until proven otherwise (e.g., ovarian cancer)

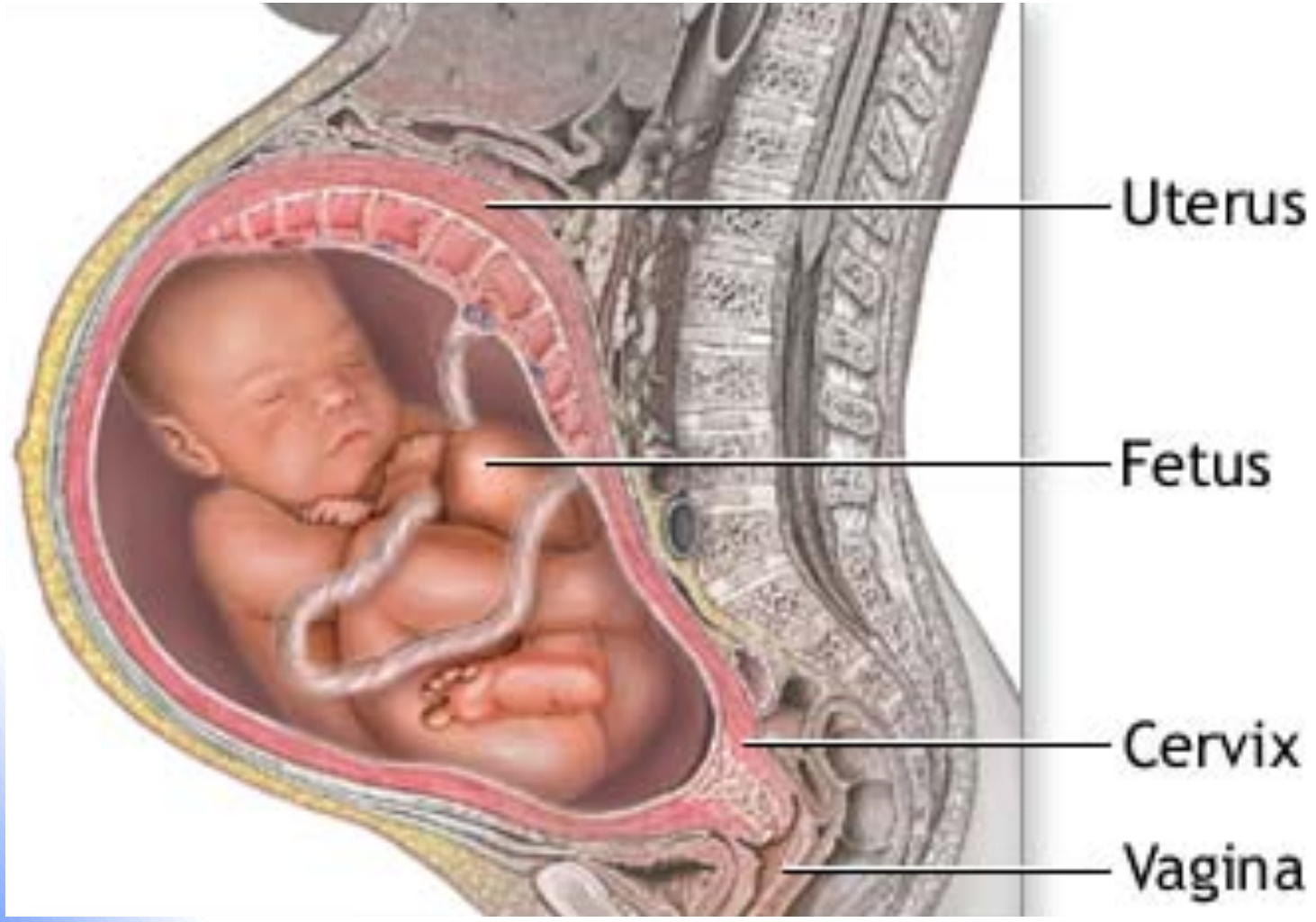
Cervical Cancer

- Average age at diagnosis 54
- Risk factors: Early coitus, multiple partners, smoking, HPV, high-risk male partners
- In HIV patients is an AIDS-defining illness
- Squamous type ~ 90%
- Symptoms: Postmenopausal bleeding, abnormal vaginal bleeding, postcoital bleeding, vaginal discharge, pain
- Diagnosis: Cervical biopsy
- Human papilloma virus vaccine – protects against 4 types of virus (2 types cause 70% of cervical cancers and 2 types cause 90% of genital warts
- Licensed for males and females aged 9 - 26

Abnormal Vaginal Bleeding (Non-Pregnant)

- Non-uterine: Cervix, vagina, urinary, GI, coagulation disorders
- Ovulatory: Menorrhagia (heavy bleeding), metrorrhagia (outside cycle); polyps, tumors, cancer, infection, fibroids, endometriosis, dyscrasias
- Anovulatory (DUB): Prolonged amenorrhea with intermittent menorrhagia; endocrine disorders, OCPs, liver/renal diseases, polycystic ovary, extremes of reproductive age, eating disorders. Treatment: OCP, NSAIDs or D&C
- Peri- & postmenopausal: Cancer should be considered

Obstetrics



What is the age of the oldest woman to give birth?

67 years / In vitro / Twin Boys

Normal Pregnancy

- Breast tenderness, “morning sickness”
- Fundus at umbilicus: 20 weeks
- Chadwick’s sign (blue, soft cervix)
- Increased blood volume, coagulation factors, cardiac output

Human Chorionic Gonadotropic Hormone (HCG)

- **Doubles every 2-3 days for first 7-8 weeks**
- May be positive 8-9 days after ovulation
- Routinely positive after 1st missed period
- Detectable up to 2-3 weeks post AB or delivery

Weight of Largest Viable Baby Born?

- 22.8 pounds !!

Abortions (1)

- Threatened
  - Bleeding, pain
  - Closed os
  - <20 weeks
  - Vaginal rest, normal activities
- Inevitable
  - Bleeding
  - Open os
  - <20 weeks
  - D&C
- Incomplete
  - Bleeding
  - Tissue at os
  - Products of conception
  - D&C
  - Includes 1st or 2nd trimester fetal demise or anembryonic gestation

Abortions (2)

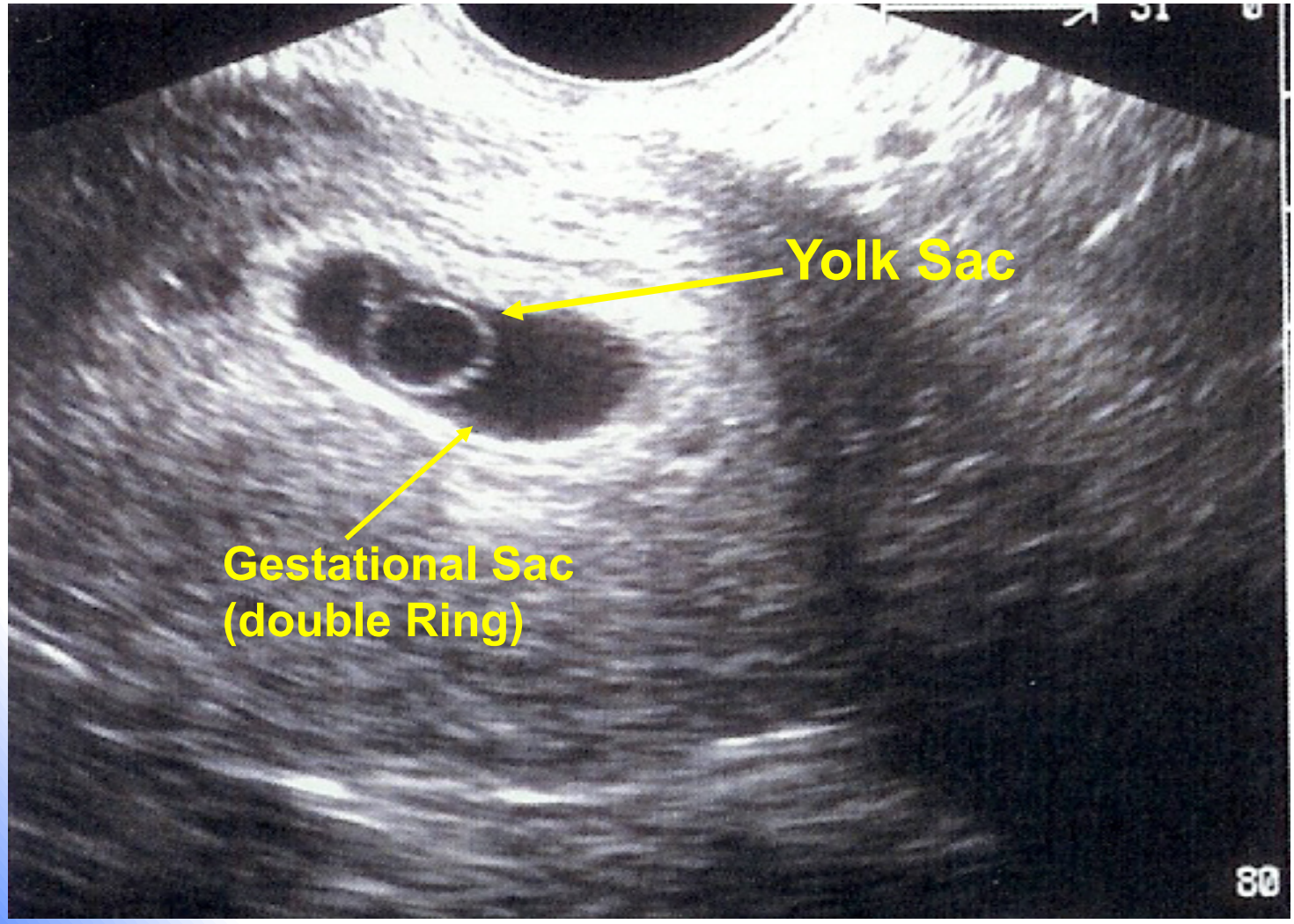
- Complete
  - Passed all tissue with ↓ pain, bleeding
  - Closed os
  - Ultrasound
  - May need D&C
- Septic
  - Polymicrobial
  - Endometritis, peritonitis, sepsis
  - IV antibiotics
  - D&C

Ectopic Pregnancy

Ectopic Pregnancy (1)

- **Risk factors**
  - Previous ectopic
  - PID / IUD
  - Tubal ligation, pelvic surgery
  - Infertility treatment
  - **Half have NO risk factor**
- **Characteristics**
  - 5-8 weeks after LNMP, pain, abnormal bleeding
  - Relative bradycardia may be associated with occult blood loss
- **Location**
  - Distal fallopian tube most common
- **Indicates IUP on US**
  - Double gestational sac
  - Yolk sac or fetal pole
  - Fetal heart activity
- **HCG**
  - Slower than normal increase in HCG
  - Level correlated with US results improves predictive value

ED Ultrasound: 1st Trimester Pregnancy



Ectopic Pregnancy (2)

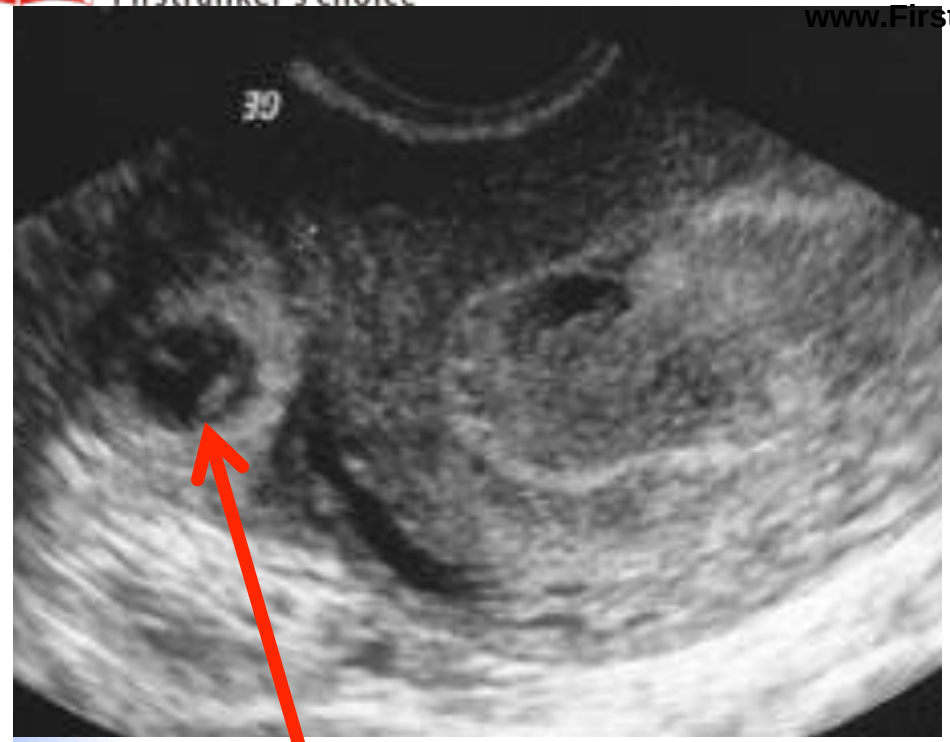
- Transvaginal US: Most sensitive, diagnostic in 80% of stable patients
- Sonographic discriminatory zone: The level of HCG at which a developing IUP should be seen
  - Transvaginal 1500-3000 mIU/ml; should see a gestational sac
  - Transabdominal 6000mIU/ml; should see a fetal pole
  - An US should be ordered if patient at risk for ectopic despite low HCG levels

Consider a heterotopic pregnancy (IUP & ectopic) in fertility assisted patients

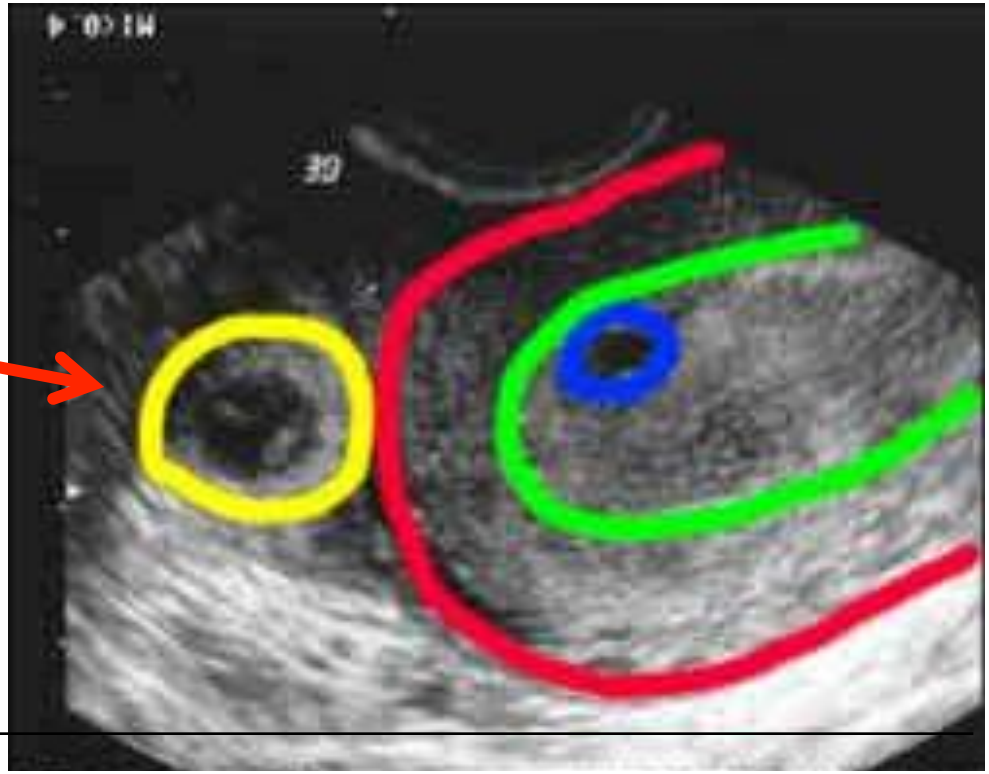
Ectopic Pregnancy (3)

Ectopic Pregnancy (4)

- Diagnosis
  - IUP on US: High probability no ectopic
  - Diagnostic for ectopic
    - Empty uterus, embryonic cardiac activity outside the uterus
    - **Empty uterus, β-hCG > 1500 mIU/ml**
  - High probability of ectopic
    - Adnexal mass, free pelvic fluid with no IUP
  - Indeterminate: No definitive IUP or ectopic
    - Consultation, admit or close follow up
    - Ectopic precautions
    - Serial HCG & ultrasound



Ectopic Pregnancy

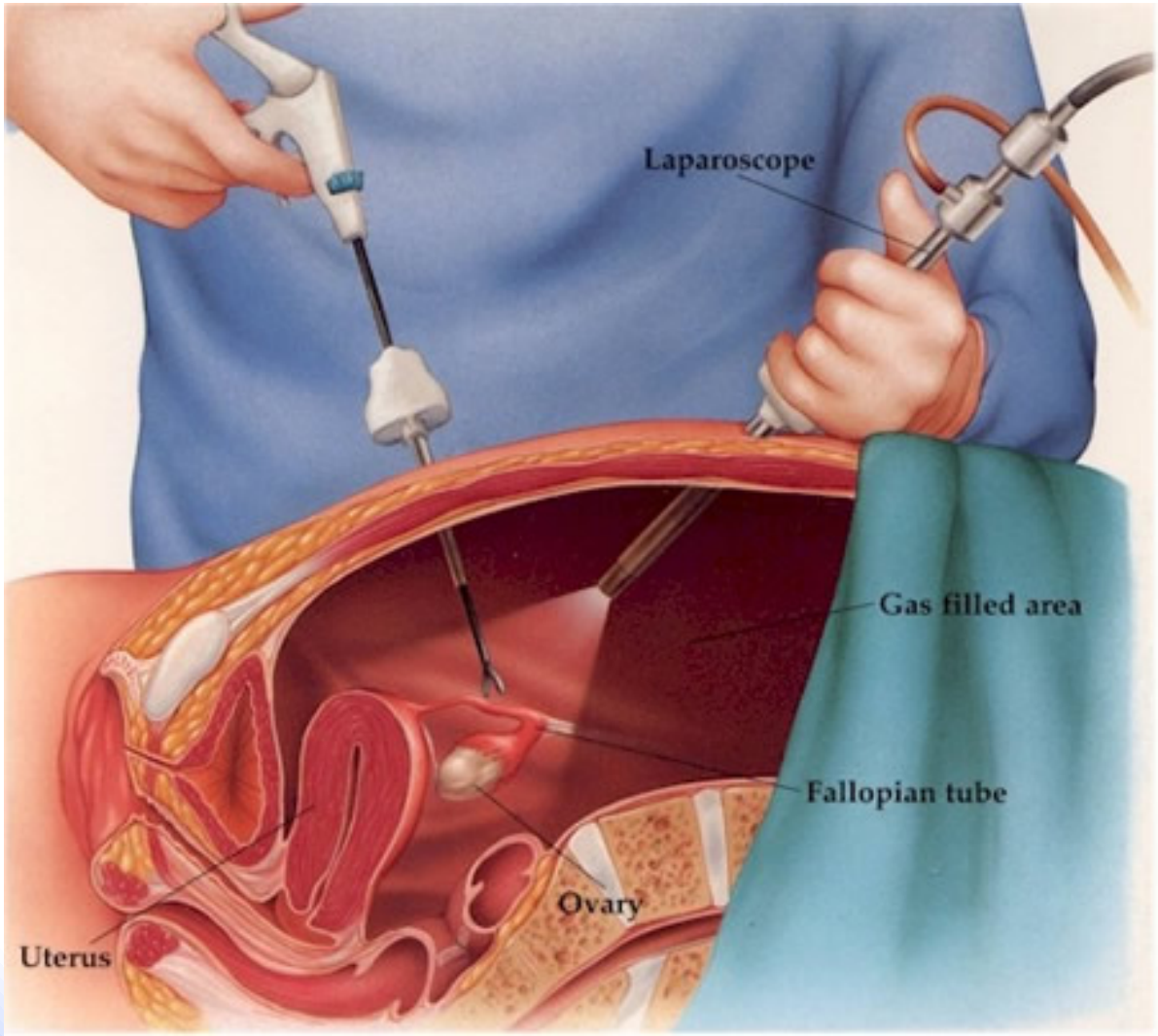


Ectopic Pregnancy (4)

Treatment

- Surgical
  - Laparoscopic salpingostomy if unruptured
  - Laparotomy if hemodynamically unstable, ruptured
- Medical: Methotrexate
  - Inhibits cell division in rapidly dividing fetal cells
  - Tubal mass < 4 cm and no fetal cardiac activity
  - Abdominal pain most common side effect
    - Presume ruptured ectopic as opposed to treatment side effect
  - Significant failure rate (up to 36%)

Laparoscopy

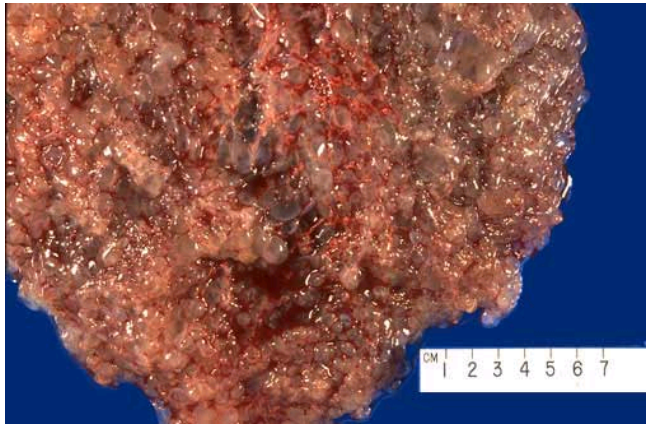


RhoGAM

- RhoGAM = IgG anti-D antibodies
- Destroy Rh+ fetal red cells in the maternal circulation
- If RhoGAM not given, mother develops antibodies to Rh+ fetal blood which cross the placenta and cause a hemolytic anemia in the fetus, splenomegaly, erythroblastosis, death
- Indications: Rh- and abortion (any type), abruption, ectopic, antepartum hemorrhage, **trauma (even relatively minor)**
- Dose: 50 mcg if <12 weeks, 300 mcg if >12 weeks

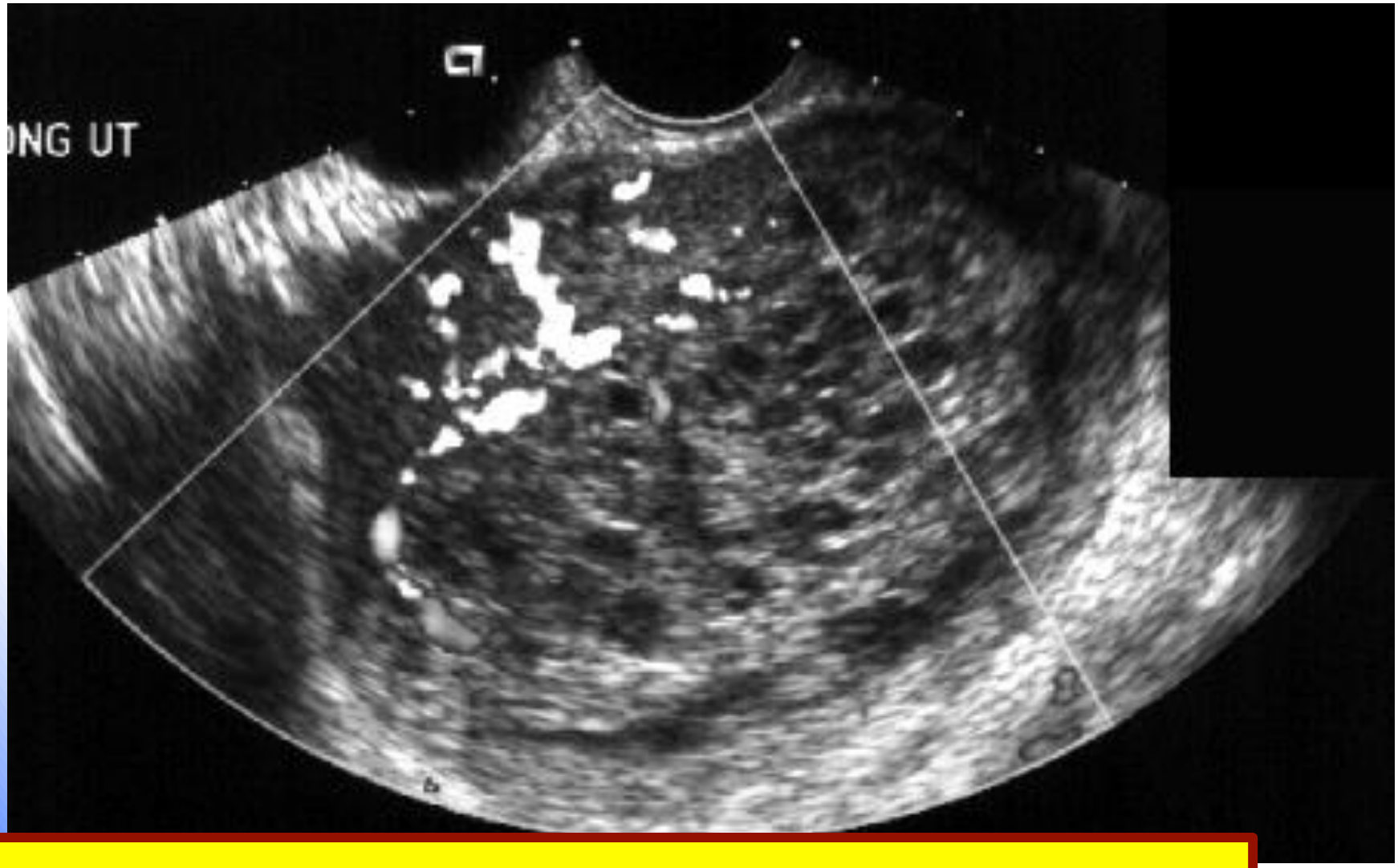
Molar Pregnancy (1)
Gestational Trophoblastic Disease

- Proliferation of chorionic villi; no fetus = Complete hydatidiform mole, if fetal tissue incomplete
- 1st and 2nd trimester bleeding, hyperemesis gravidarum, no fetal heart tones



- Passage of "grape-like clusters"
- **Uterine size > gestational age**
- **HCG level greater than expected**
- Complications: Neoplasm, preeclampsia, PE

Molar Pregnancy (2)

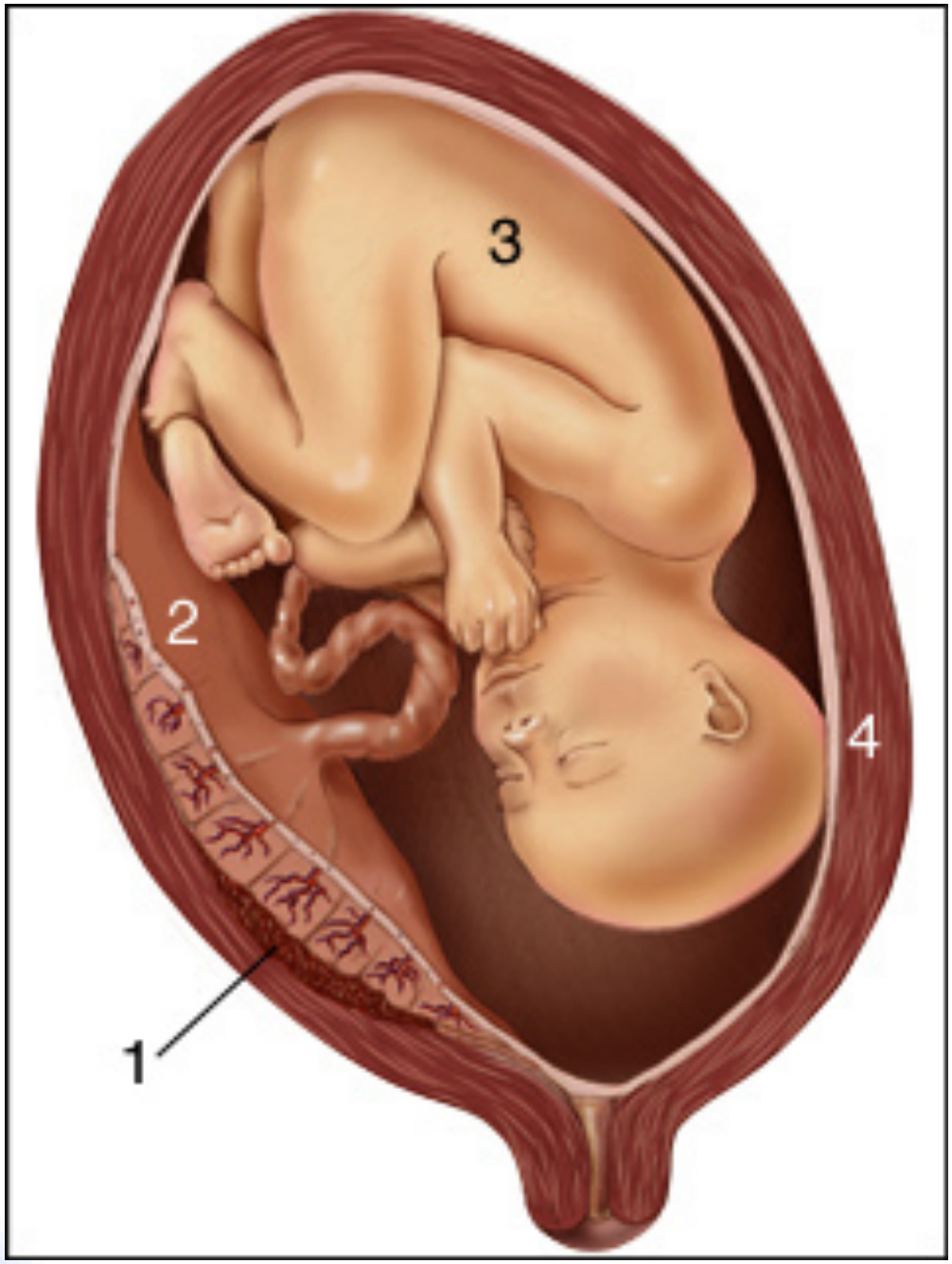


Ultrasound = “snowstorm appearance”

Molar Pregnancy (3)

Abruptio Placentae

- Separation of the placenta from the uterine wall
- Causes: Spontaneous, abdominal trauma
- Risk factors for spontaneous abruption: **Hypertension**, older, ↑parity, smoking, cocaine
- May have bleeding, abdominal pain, contractions, uterine tenderness
- **Ultrasound is not sensitive for diagnosis**
- Fetal monitoring for fetal distress
- Misdiagnosed as preterm labor
  - Complications: Fetal and maternal death, DIC
- May or may not be associated with painful dark red bleeding

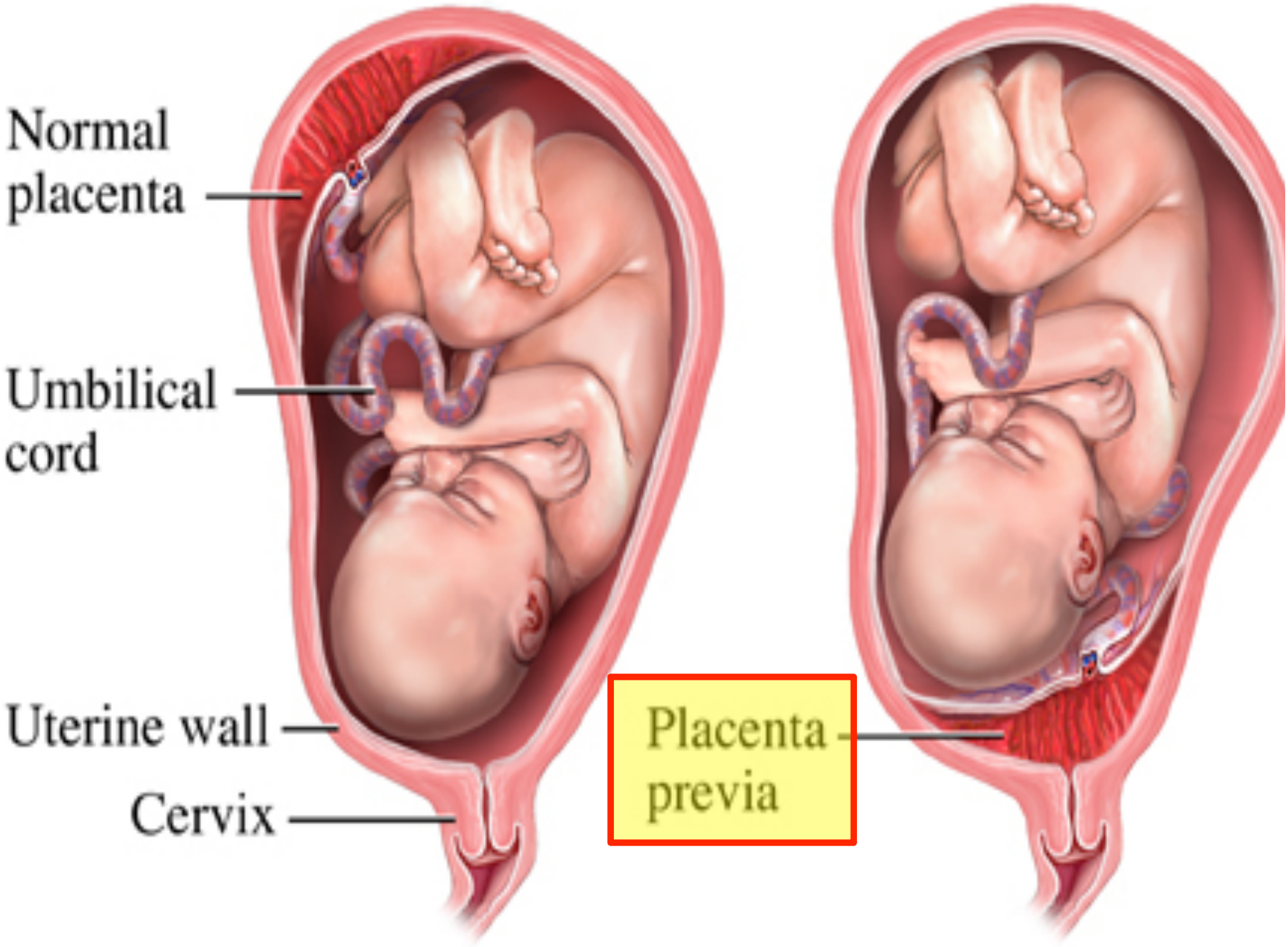


Placenta Previa

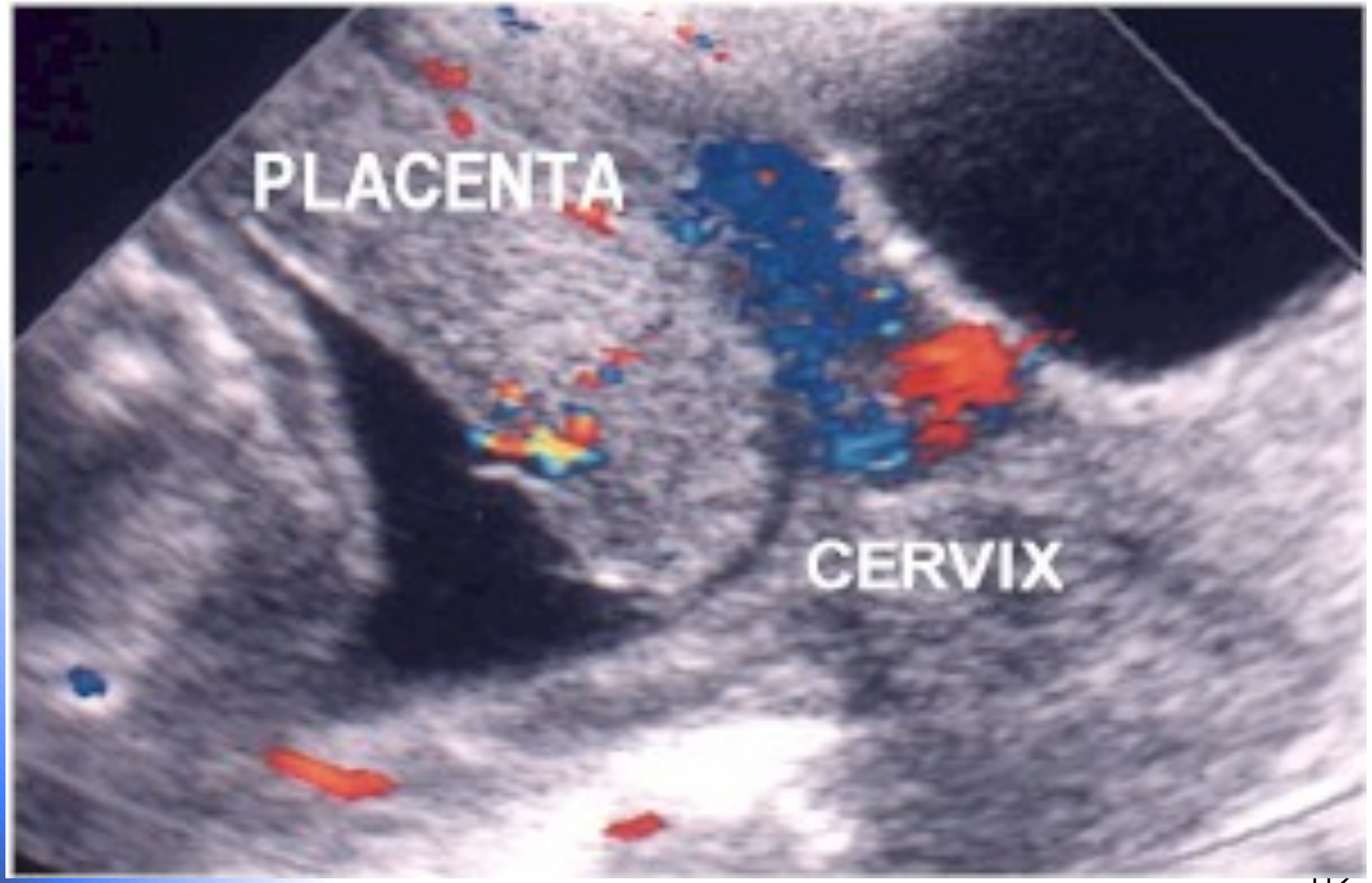
- Implantation of placenta over the cervical os
- Increased incidence: Older, multiparity, smoking, prior c-section
- Diagnosis: Ultrasound highly accurate

Painless third trimester bright red bleeding

Pelvic exam contraindicated

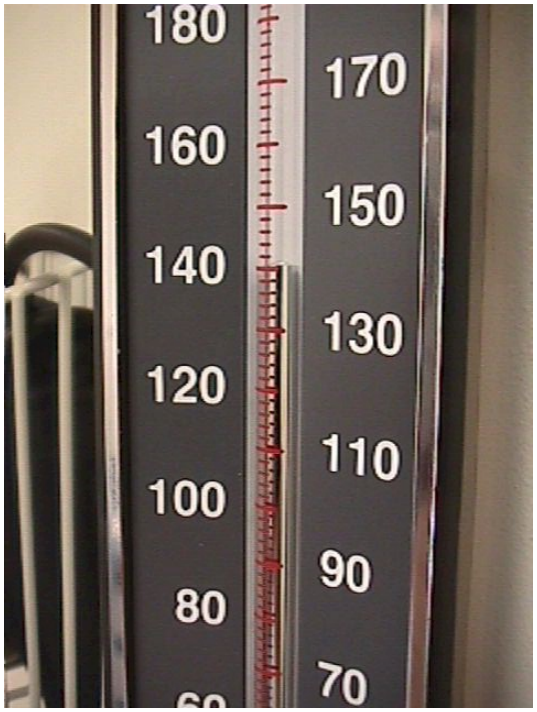


Placenta Previa



Pregnancy-Induced Hypertension

- Classification
  - Chronic hypertension
  - Preeclampsia superimposed on chronic hypertension
  - Transient hypertension
  - Preeclampsia, eclampsia
- Transient hypertension
  - Mid-trimester
  - 140/90 or greater without signs of preeclampsia
  - No compromise to pregnancy
  - Regresses postpartum



Preeclampsia

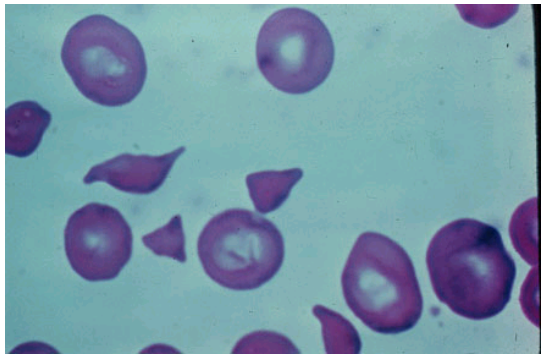
- Hypertension: 140/90,↑SBP >20 or ↑DBP > 10 over baseline, proteinuria, +/- edema after 20 weeks
- If <20 weeks, consider molar pregnancy
- Vasospastic disease with end organ damage, cause unknown
- Symptoms: Headache, vision changes, edema, abdominal pain
- Risk: Primigravidas, DM, HTN, age <20 or >40, multiple gestation, obesity, renal disease, molar pregnancy, family history

Eclampsia

- Preeclampsia + seizure
- Headache, CNS, visual changes, hyperreflexia
- Treatment
  - Hydralazine for DBP >105 (labetalol, nitro, nitroprusside)
  - $MgSO_4$ for seizures
  - Definitive: Delivery
- Monitor for hypermagnesemia
  - ↓ reflexes, ↓ respiration
  - Treatment: Calcium gluconate
- Complications: Liver or splenic hemorrhage, end organ failure, intracranial bleed, abruption

Eclampsia possible up to 4-8 weeks postpartum

HELLP Syndrome



- Clinical variant of preeclampsia
- Multigravida
- Diagnosed by lab tests
- **H**emolysis, **E**levated **L**iver enzymes, **L**ow **P**latelets (<100,000)
- Common complaint: Epigastric or right upper quadrant pain
- Hemolysis: Schistocytes (fragmented red cells) on peripheral smear
- Treatment: Same as preeclampsia
  - Bedrest, delivery of fetus, magnesium, control BP if DBP >105
  - No diuretics or ACE inhibitors

Appendicitis

- Most common surgical emergency in pregnancy
- Incidence in pregnancy is the same
- Diagnosis is often delayed, ↑ rate of perforation results in:
  - ↑ fetal mortality and maternal morbidity
- Symptoms and WBC count are unreliable
- Appendix may be pushed upward (RUQ) in the third trimester
- Diagnosis: Ultrasound helpful; MRI; CT scan

Pyelonephritis is a common misdiagnosis in missed appendicitis in pregnancy

Urinary Tract Infections

- Asymptomatic pyuria or bacteruria should be treated aggressively
- Increased incidence during pregnancy
- Obtain urine culture
- Consider inpatient treatment for pyelonephritis
- Increased risk of bacteremia, septic shock
- Can precipitate preterm labor
- Treatment: Cephalosporin, amoxicillin, nitrofurantoin x 7-10 days

Drugs in Pregnancy

- FDA safety category
  - A: safe
  - B: presumed safe
  - C: possible adverse effects (animal studies), use if benefit outweighs risk
  - D: use only in life-threatening emergencies with no alternative
  - X: do not use
- Teratogenic risk is greatest at 4-12 weeks
- Use drugs only when medically necessary
- Health of the mother takes precedence

Safe Drugs for Pregnancy (1)

- Antibiotics
  - Penicillins
  - Cephalosporins
  - Nitrofurantoin
  - Clindamycin
  - Erythromycin (except esteolate)
  - Anti-TB drugs
  - Sulfonamides (except 3rd trimester)/bilirubin
  - Trimethoprim (except 1st trimester)/neural tube and cardiac defects
- Antiemetics
  - Promethazine (Phenergan)
  - Prochlorperazine (Compazine)
  - Metoclopramide (Reglan)
  - Ondansetron (Zofran)
- Vaccines
  - Td
  - Influenza
  - Hep B
  - Rabies

Safe Drugs for Pregnancy (2)

- Asthma
  - Corticosteroids
  - Albuterol
  - Terbutaline
  - Theophylline
- Hypertension
  - Methyldopa
  - Hydralazine
  - Beta blockers
  - Calcium channel blockers
- Anticoagulants
  - Heparin
  - Enoxaparin
- Antivirals
  - Acyclovir
  - Zidovudine (AZT)
- Miscellaneous
  - Diphenhydramine (Benadryl)
  - Amitriptyline (Elavil)
  - Fluoxetine (Prozac)
  - Famotidine (Pepcid)
  - Ranitidine (Zantac)

Contraindicated Drugs in Pregnancy

- ASA
- NSAIDs (3rd trimester)
- Tetracycline
- ACE inhibitors
- Aminoglycosides
- Warfarin (Coumadin)
- Isotretinoin (Accutane)
- Live vaccines (MMR)
- Ergot alkaloids
- Anticonvulsants (Neuro/OB GYN consult)

APGAR Score

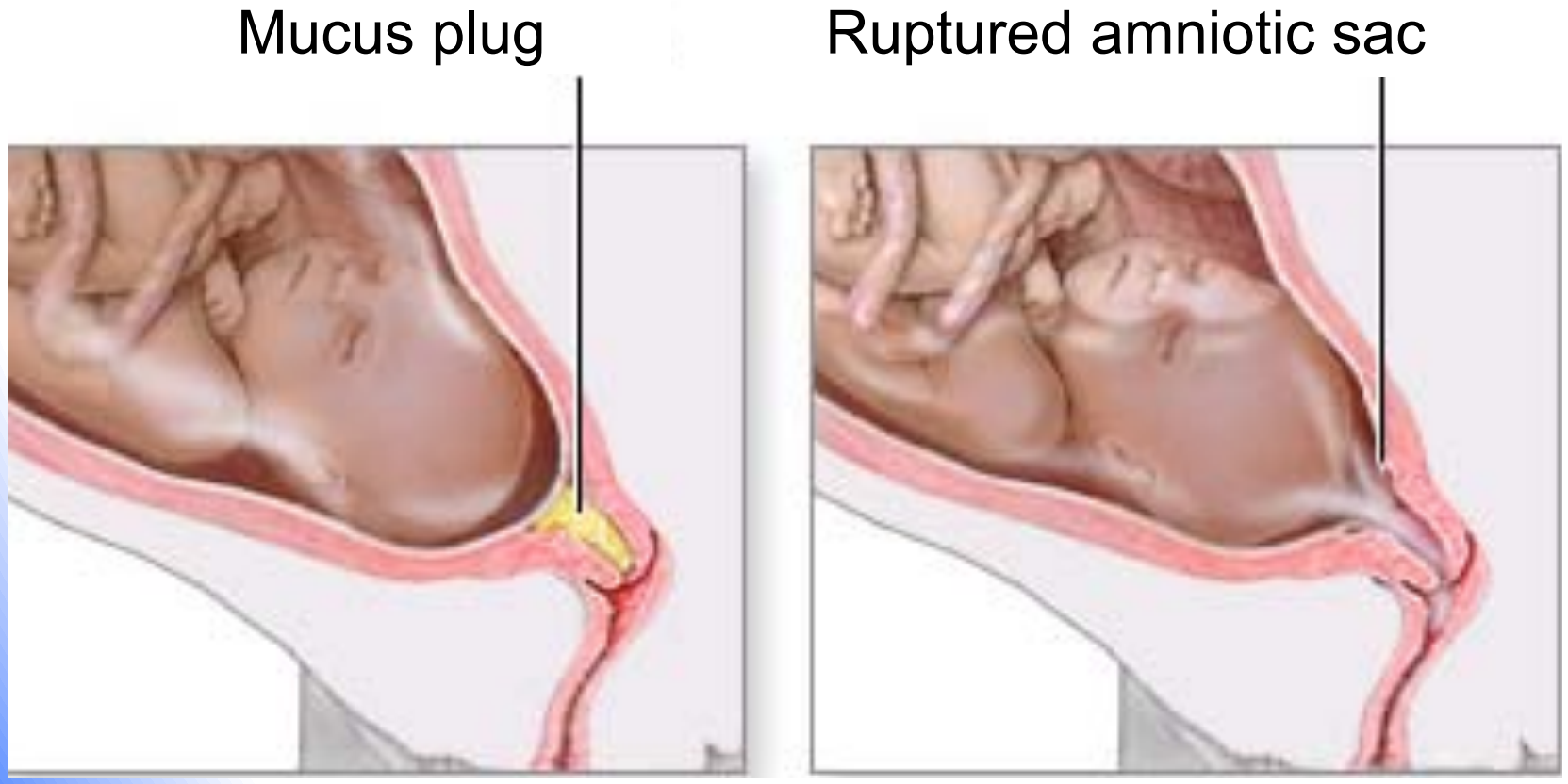
- Indicator of neonatal depression
- Measured at 1 and 5 minutes
- Appearance (color), Pulse, Grimace (reflex), Activity (tone), Respiratory effort
- Score 0-2 each

	0	1	2
Color	Pale or blue	Pink body, blue extremities	Pink body and extremities
Heart Rate	Absent	< 100 bpm	> 100 bpm
Respiration	Absent	Slow and irregular	Good, with crying
Reflex Response	Absent	Grimace or noticeable facial movement	Coughs, sneezes or pulls away
Muscle tone	Absent	Some flexion of the extremities	Active, spontaneous limb movement

Preterm Labor

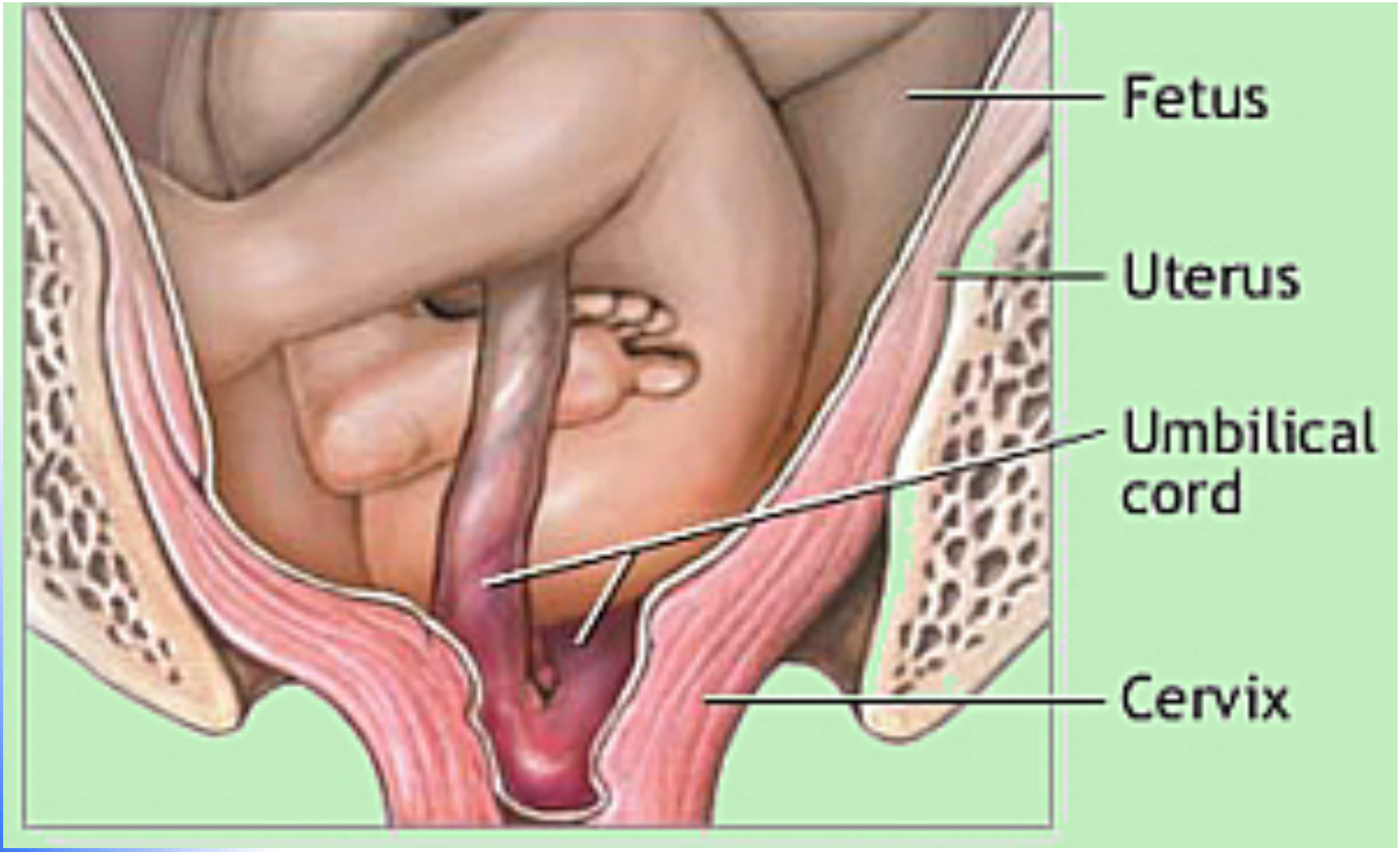
- Labor before 37 weeks
- Sterile speculum and bimanual exam
- Risk factors: PROM, abruption, cocaine, amphetamines, multiple births, infection
- Admit, bed rest, tocolytics (terbutaline)

Premature Rupture of Membrane (PROM)



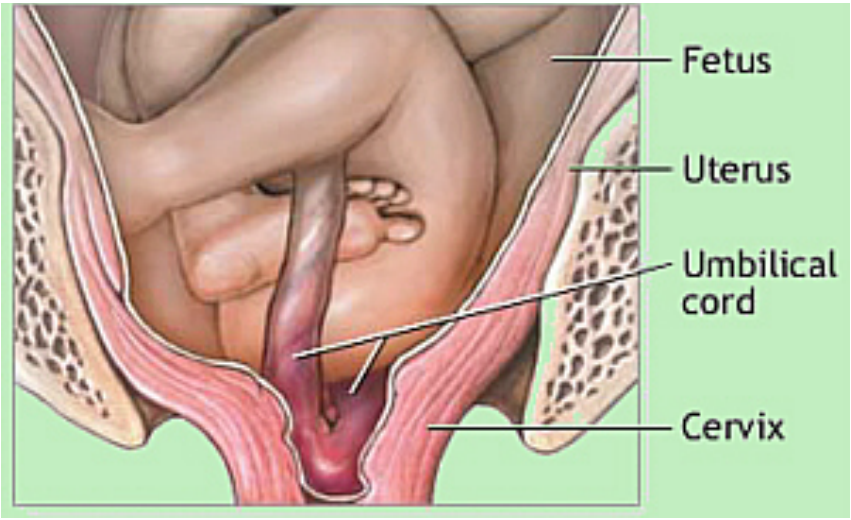
Premature Rupture of Membrane (PROM)

- Rupture prior to onset of labor
- Digital pelvic exams associated with increased frequency
- Limit digital exams and use sterile gloves
- Diagnosis: Examine vaginal fluid
  - Nitrazine test: blue (positive) pH > 6.5
  - Sterile speculum exam (ferning), avoid bimanual
- Complications: Premature labor, prolapsed cord, infection (chorioamnionitis)
- Admit



Umbilical Cord Prolapse

- High perinatal mortality
- Knee-to-chest position
- Immediate C-section



Impede delivery and elevate presenting part

Amniotic Fluid Embolism

- 2nd and 3rd trimesters
- Release of amniotic fluid into maternal circulation resulting in an immunologic maternal response, simulating anaphylaxis
- Rare
- Occurs with labor, C-section, abruptio placentae, abortion, amniocentesis, trauma
- Sudden cardiovascular collapse, usually soon after delivery, seizures
- Shock, dyspnea, hypoxemia, ARDS, **DIC**
- High mortality (50% at one hour); supportive care

Postpartum Hemorrhage (1)

- Uterine atony
  - Most common in first 24 hrs
  - Enlarged “doughy” uterus
  - Risks: Prolonged or precipitous labor, multiparity, multiple gestations
  - Treatment: Fundal massage, oxytocin, IV fluids
- Uterine rupture
  - Prior C-section, trauma, cocaine, high doses of oxytocin
  - Shock, bleeding, absent heart tones, tender boggy uterus that expands
  - Fluid resuscitation, immediate C-section

Postpartum Hemorrhage (2)

- Retained products of conception
  - Early or delayed postpartum hemorrhage
  - Sudden, brisk, painless bleeding
  - Globular, firm uterus
  - Oxytocin, D&C, fluid resuscitation
- Laceration of lower genital tract
- Coagulopathy
- Uterine inversion
  - Excessive traction on umbilical cord
  - Vaginal mass, uterus not palpable on exam
  - Obstetrical emergency (IV, O_2, tocolytic drugs)
  - Do not separate placenta
  - Manual reduction or emergent laparotomy

Trauma in Pregnancy

(see also Trauma lecture)

- Initial trauma care same as in non-pregnant
- RhoGAM if Rh negative and abdominal trauma
- No radiologic test should be withheld if needed for maternal evaluation
- Fetal monitoring >20 weeks
  - Minimum of 4 hours
  - Signs of fetal distress
  - >8 contractions/hr suggest abruption
- Kleihauer-Betke test (controversial)
- For hypotension: **Turn on left side** (displace uterus off IVC), fluid bolus

Maternal stabilization is the most important factor in determining fetal survival

Peri-mortem C-Section

- Maternal cardiopulmonary arrest
- Indicators of fetal survival
  - Cause of maternal death
  - Quality of CPR
  - Gestational age (>24 weeks)
  - Arrest to delivery time (survival unlikely after 20 minutes)
- Vertical abdominal and uterine incision

Endometritis

- Risk factors: C-section, PROM, prolonged labor, chorioamnionitis, multiple exams, internal monitoring
- Fever, abdominal pain, foul-smelling lochia
- Usually polymicrobial
- Admit, broad spectrum IV antibiotics

Mastitis/Breast Abscess

- Pain, erythema, fever, edema
- Engorged duct becomes blocked, then infected
- Staphylococcal infection
- Continue breast feeding
- Antibiotics (dicloxacillin, cephalexin) or I&D

OB GYN QUESTIONS

An Rh-negative patient with a spontaneous abortion at 15 weeks should be treated with:

A. 25 ug RhoGAM
B. 50 ug RhoGAM
C. 100 ug RhoGAM
D. 300 ug RhoGAM
E. 250 ug RhoGam

Which of the following is associated with abruptio placenta?

A. Maternal shock without fetal distress
B. Uterine hypotonicity
C. Maternal hypertension
D. Placental coverage of the internal os
E. Painless bleeding

30 y/o female in her third trimester presents with a headache, a BP of 180/110, and pitting pre-tibial edema. Which of the following is characteristic of the most likely cause of these findings?

A. Polycythemia
B. Most often seen in multi-gravidas
C. Is not associated with HELLP syndrome
D. Cannot occur post-delivery
E. Delivery is usually curative

A 36 y/o female who is breast feeding complains of breast pain. Examination reveals the left breast to be erythematous and very tender. Appropriate treatment for this disease includes which of the following?

A. Cephalosporin
B. Immediately stop milk expression / breast feeding
C. Hospitalization
D. Aminoglycosides
E. Surgical debridement

A 36 y/o is 2 hours post-partum. She reports an acute onset of shortness of breath. VS: BP: 90/60; RR: 40; HR: 112; POx is 92%. Which of the following is characteristic of the most likely cause of her clinical condition?

A. Usually occurs in the 1st trimester
B. Frequently experience abdominal pain
C. 50% mortality at 1 hour
D. Associated with hypertension
E. Usually have a swollen, tender calf

A term pregnant female is brought in in spinal precautions after a serious motor vehicle collision. Her blood pressure is 80/60 and her heart rate is 120. What should be done first?

A. Administer one liter normal saline bolus
B. Perform a FAST ultrasound
C. Start 2 large bore IVs
D. Transfuse 2 units O positive blood
E. Turn the patient onto her left side

Pre-eclampsia is characterized by:

A. Hypertension and seizures
B. Elevated platelet count
C. Hypertension, proteinuria and edema
D. Hypertension, proteinuria and seizures
E. Roth spots and Janeway lesions

Which is true about abruptio placentae?

A. Occurrence in the second trimester
B. Abruptions tend to be painless
C. Due to placental insertion over the cervical os
D. May occur without visible bleeding
E. Pelvic examinations are not contraindicated

RhoGAM should be given to which of the following patients?

A. An RH-positive patient with an incomplete abortion at 14 weeks

B. An RH-negative patient with an incomplete abortion at 5 weeks

C. An RH-positive patient with an ectopic pregnancy

D. An RH-negative patient with a GSW to the shoulder

E. An RH-negative patient with non-traumatic pelvic pain

A 19 y/o female presents following a syncopal episode and an onset of abdominal pain. Her UHCG is +. Which risk factor is associated with the most likely diagnosis?

A. Previous intrauterine pregnancy
B. Cholecystectomy
C. Condyloma acuminata
D. Tubal ligation
E. Abdominal trauma

A 28 y/o patient presents with an abrupt onset of severe, right lower quadrant pain, UHCG is negative. She has a history of uterine fibroids. What is the most appropriate next step?

A. CT of the abdomen
B. Surgical consult for emergent appendectomy
C. Pain management and outpatient pelvic ultrasound
D. Pelvic ultrasound
E. Ceftriaxone IM and doxycycline PO

Which drug has been determined safe during pregnancy?

A. Tetracycline
B. Chloramphenicol
C. Heparin
D. Coumadin
E. Ibuprofen in the third trimester

A 22 y/o female presents with a chief complaint of vaginal discharge. Examination reveals a copious, gray, vaginal discharge with a "fishy" odor. Which is consistent with this etiology?

A. "Strawberry" cervix on exam
B. It is an STD
C. The presence of clue cells
D. Treated with Ampicillin
E. Treated with Fluconazole

A 40 y/o female presents with a papulo-squamous rash involving the trunk and palms. The rash is non-pruritic and annular in shape. She reports a labial ulcer 2 months ago. Which of the following is characteristic of the most likely disease?

A. Incubation period is 21 days
B. Both the dark-field microscopy and the serology are negative at this stage
C. The painless ulcer persists in this stage
D. These lesions are typically seen one week after sexual contact
E. The rash is unique and specific for this disease

OBG 14

A 20 y/o ill-appearing female presents with a fever, vaginal discharge, cervical motion and adnexal tenderness. Which of the following is the most appropriate action?

A. Floxin 400 mg PO
B. IV Ceftriaxone and doxycycline PO
C. IV Ceftriaxone, doxycycline, metronidazole and admission
D. IM Benzathine Penicillin G
E. IV Ceftriaxone and IV doxycycline and discharge

A 30 y/o female presents to the ED with a chief complaint of painful urination. Examination reveals verrucous lesions at the labia majora. Which is true regarding the most likely etiology?

A. Cannot be reliably distinguished from secondary syphilis visually
B. Should be treated with excision in the ED
C. Is not associated with cervical cancer
D. Does not freak people out
E. Sensitive to acyclovir

Which of the following is true about chancroid?

A. It is caused by a gram positive bacillus
B. It is caused by the sole pathogen responsible for inguinal bubo formation
C. It may be treated with ceftriaxone or erythromycin
D. It causes painless ulcers
E. It is less common in developing countries

A 37 y/o female reports pain and swelling in her groin. She reports a small ulcer in the same location 3 months ago. She has a tender area in the groin, draining purulent fluid. Which is true regarding this disease?

A. Incubation period following the initial lesion is up to 12 months
B. Etiology is C. *trachomatis*
C. Endemic in the U.S.
D. Treated with Cetriaxone
E. Associated with + VDRL

A 34 y/o G4 P3 patient presents with right upper quadrant pain, bleeding gums and early petechiae on her extremities. Which of the following is consistent with this syndrome?

A. Positive serum ketones
B. Hypobilirubinemia
C. Metabolic acidosis
D. Thrombocytosis
E. Hemolysis

Which of the following is most consistent with ectopic pregnancy?

A. + HCG 2 weeks post-partum with adnexal tenderness on bimanual examination

B. + HCG above discriminatory zone and no IUP on ultrasound

C. - HCG and adnexal mass on bimanual examination

D. + HCG and yolk sac and gestational sac identified on ultrasound

E. + HCG and no fetal heart tones detected by doppler

OB GYN Answer Key

1. D	11. D
2. C	12. C
3. E	13. C
4. A	14. A
5. C	15. C
6. E	16. A
7. C	17. C
8. E	18. B
9. B	19. E
10. D	20. B