

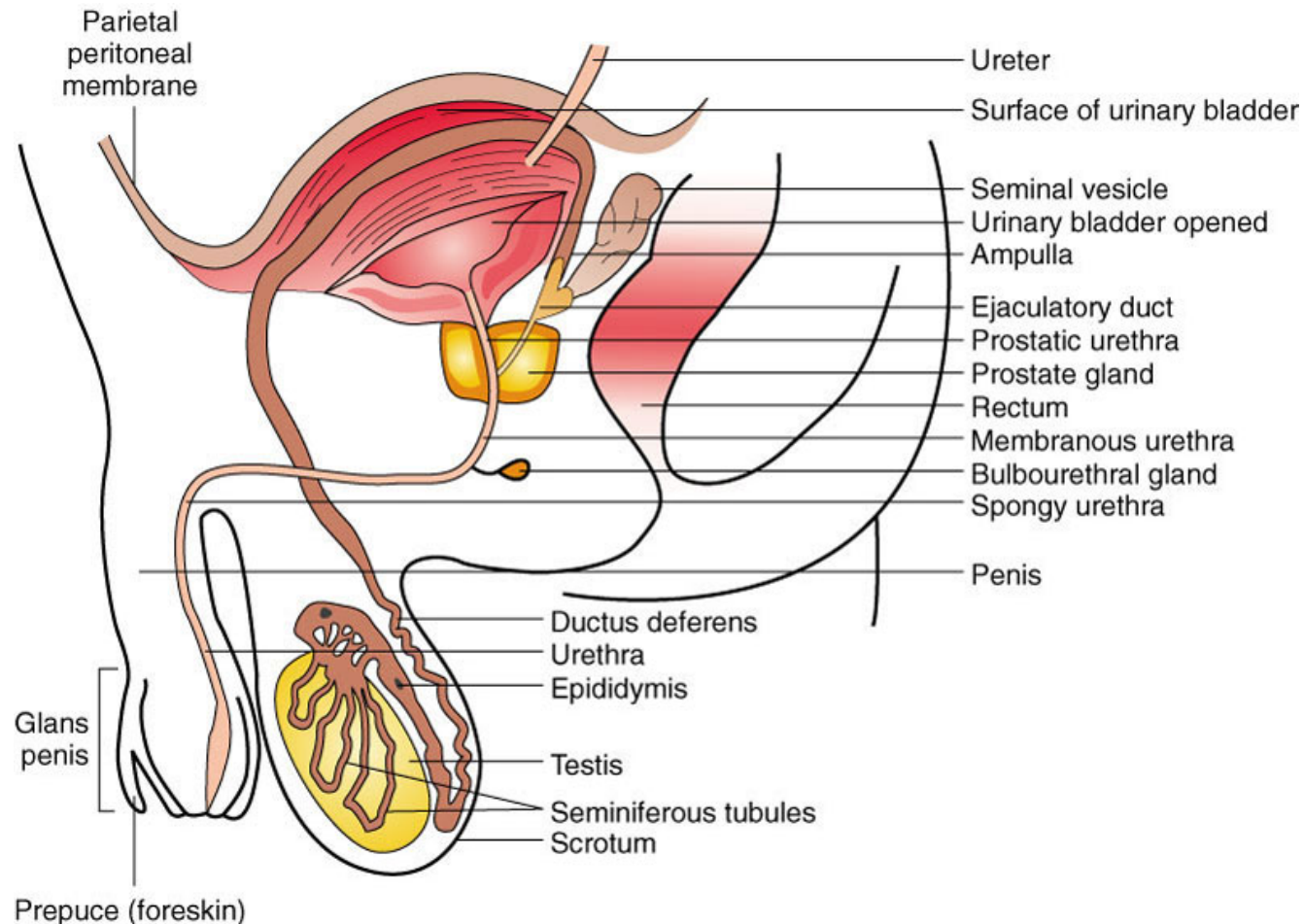
Chapter 19

Reproductive System Disorders

Review of Male Reproductive System

- Testes—spermatogenesis
- Epididymis—maturation of sperm
- Vas deferens—transport of sperm to urethra
- Seminal vesicles—secretion to nourish sperm
- Prostate gland—secretions to balance pH
- Cowper glands (bulbourethral)—secretes alkaline mucus
- Penis—ejaculation of semen

Anatomy of the Male Reproductive System



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Review of Male Reproductive System (Cont.)

- Male hormones
 - Follicle-stimulating hormone (FSH)—initiates spermatogenesis
 - Luteinizing hormone (LH)—stimulates testosterone production
 - Testosterone—maturation of sperm, sex characteristics, protein metabolism, muscle development

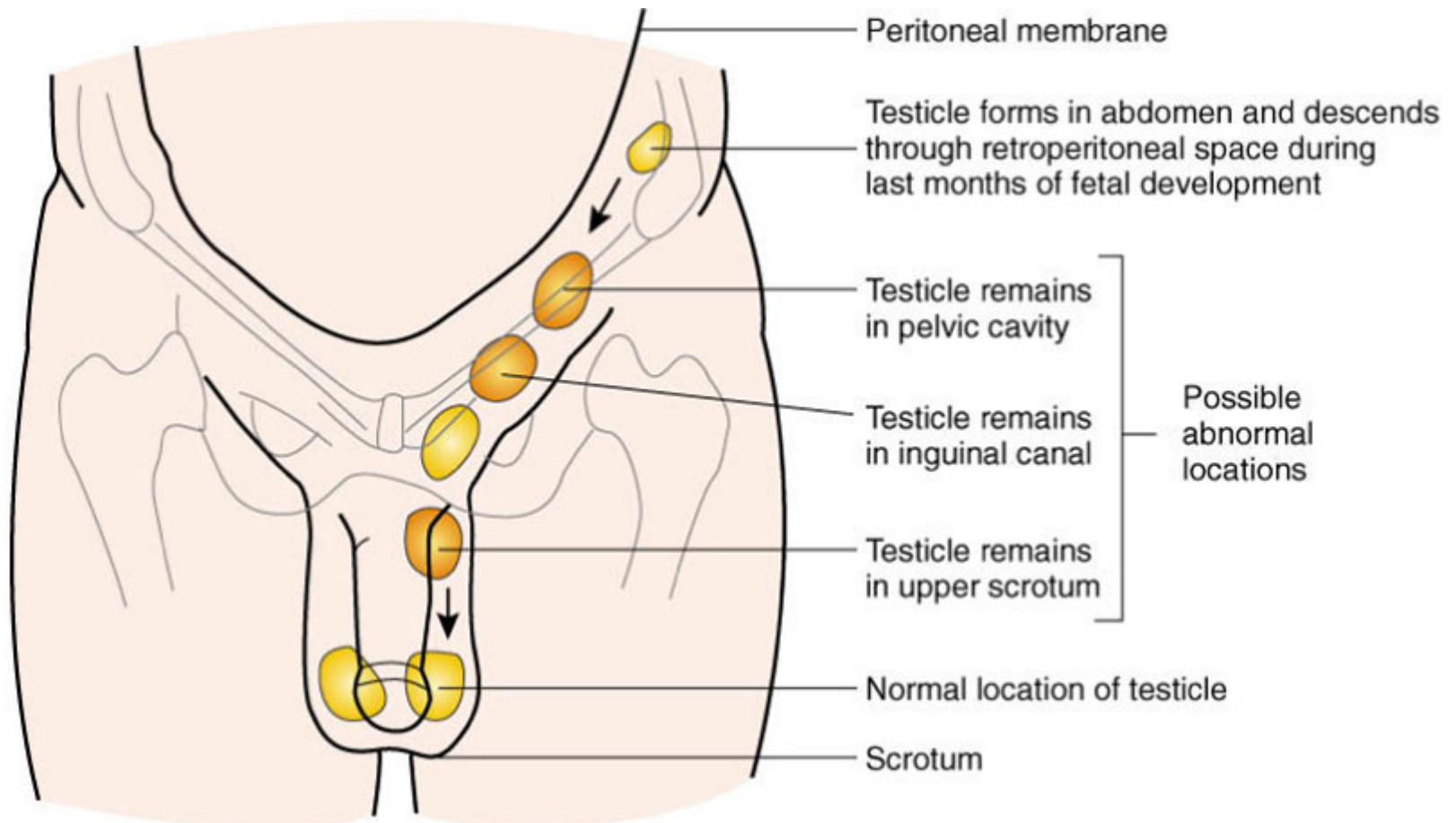
Congenital Abnormalities of the Penis

- Epispadias—urethral opening on ventral or upper surface of the penis
- Hypospadias—urethral opening on dorsal surface (underside) of the penis
 - Either condition may result in incontinence or infection.
- Treatment—surgical reconstruction

Disorders of the Testes and Scrotum

- Cryptorchidism—testis fails to descend into scrotum properly
- Ectopic testis—testis positioned outside of scrotum
 - Can cause degeneration of seminiferous tubules and spermatogenesis is impaired
 - Risk of testicular cancer increased significantly if treatment not done by age 5 years

Cryptorchidism



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Disorders of the Testes and Scrotum (Cont.)

- Hydrocele—occurs when excessive fluid collects in space between layers of the tunica vaginalis of the scrotum
 - May occur as congenital defect in newborn
 - May be acquired as result of injury, infection, tumor
 - May compromise blood supply or lymph drainage in testes

Disorders of the Testes and Scrotum (Cont.)

- Spermatocoele—cyst containing fluid and sperm that develops between the testis and the epididymis
 - May be related to developmental abnormality
 - Surgical removal

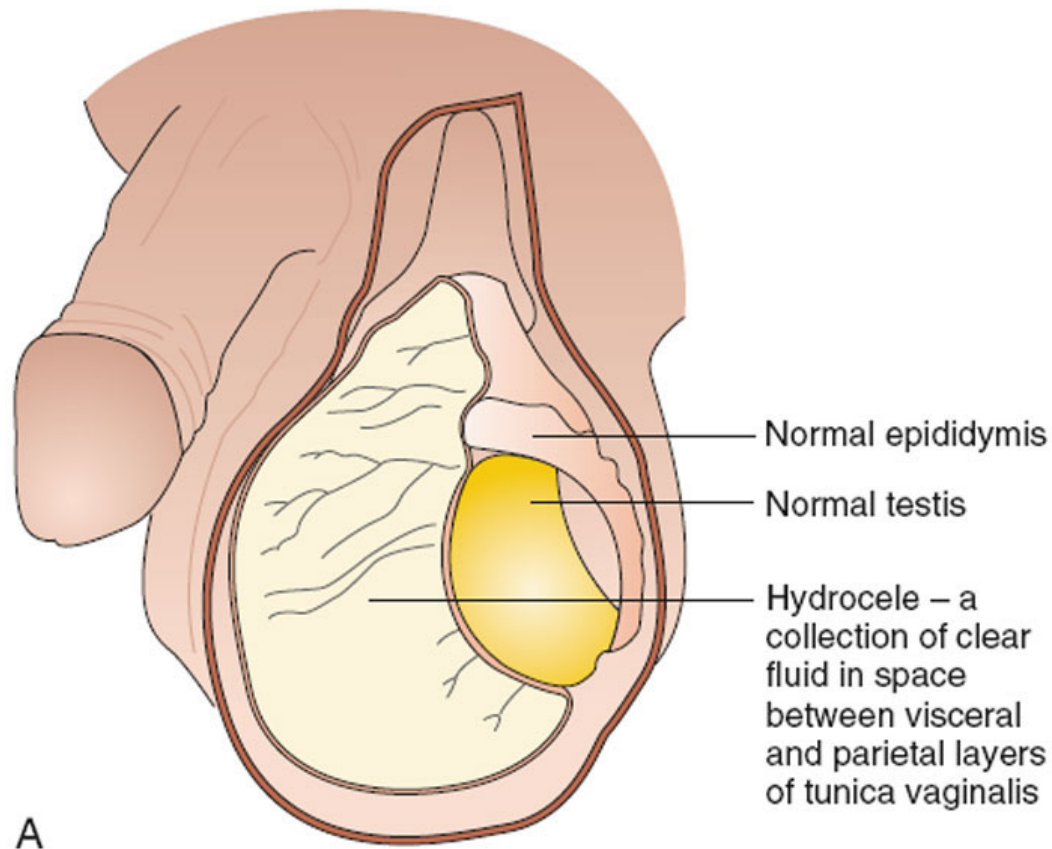
Disorders of the Testes and Scrotum (Cont.)

- Varicocele—a dilated vein in the spermatic cord
 - Lack of valves allows backflow in veins; leads to increased pressure and dilation
 - Causes impaired blood flow to testes and decreased spermatogenesis
 - Requires surgery

Disorders of the Testes and Scrotum (Cont.)

- Torsion of the testes—testes rotate on spermatic cord, compressing arteries and veins
 - Ischemia develops, scrotum swells
 - Testis may be infarcted if torsion is not reduced
 - Can occur spontaneously or following trauma
 - Treated manually and surgically

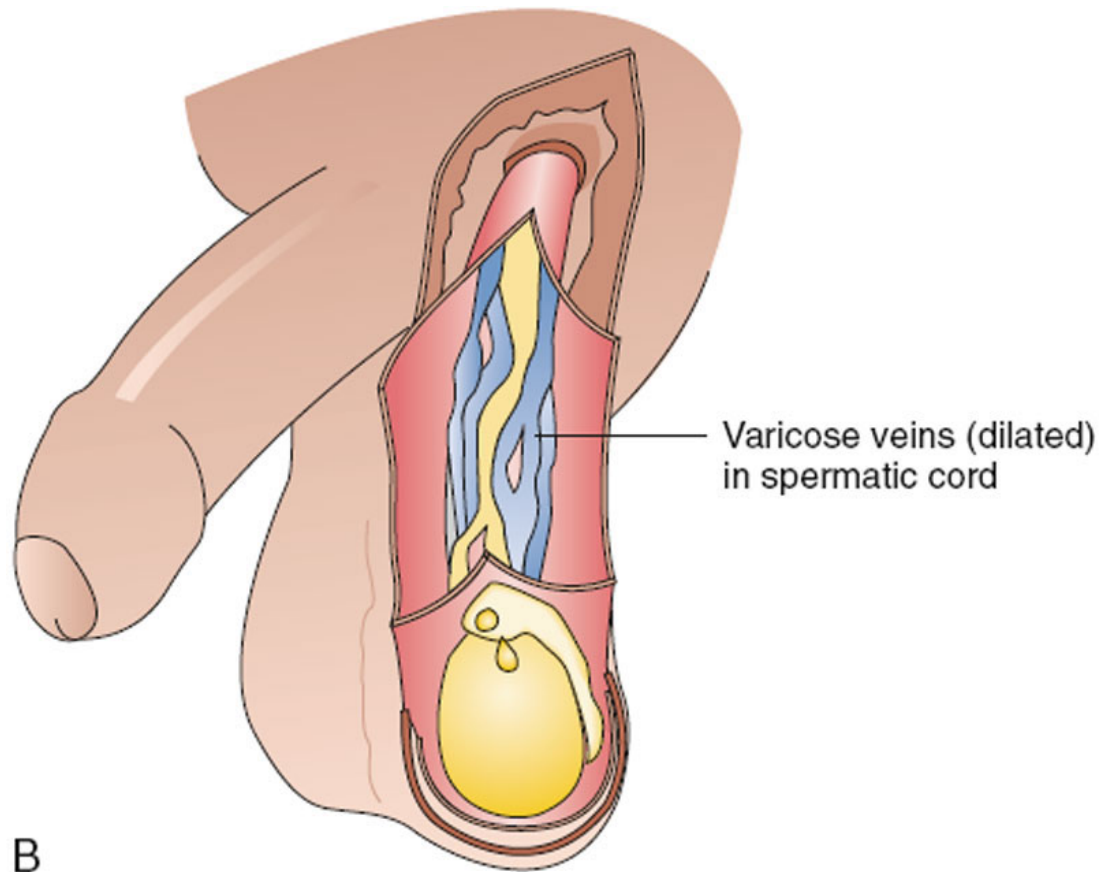
Abnormalities of the Scrotum



Hydrocele

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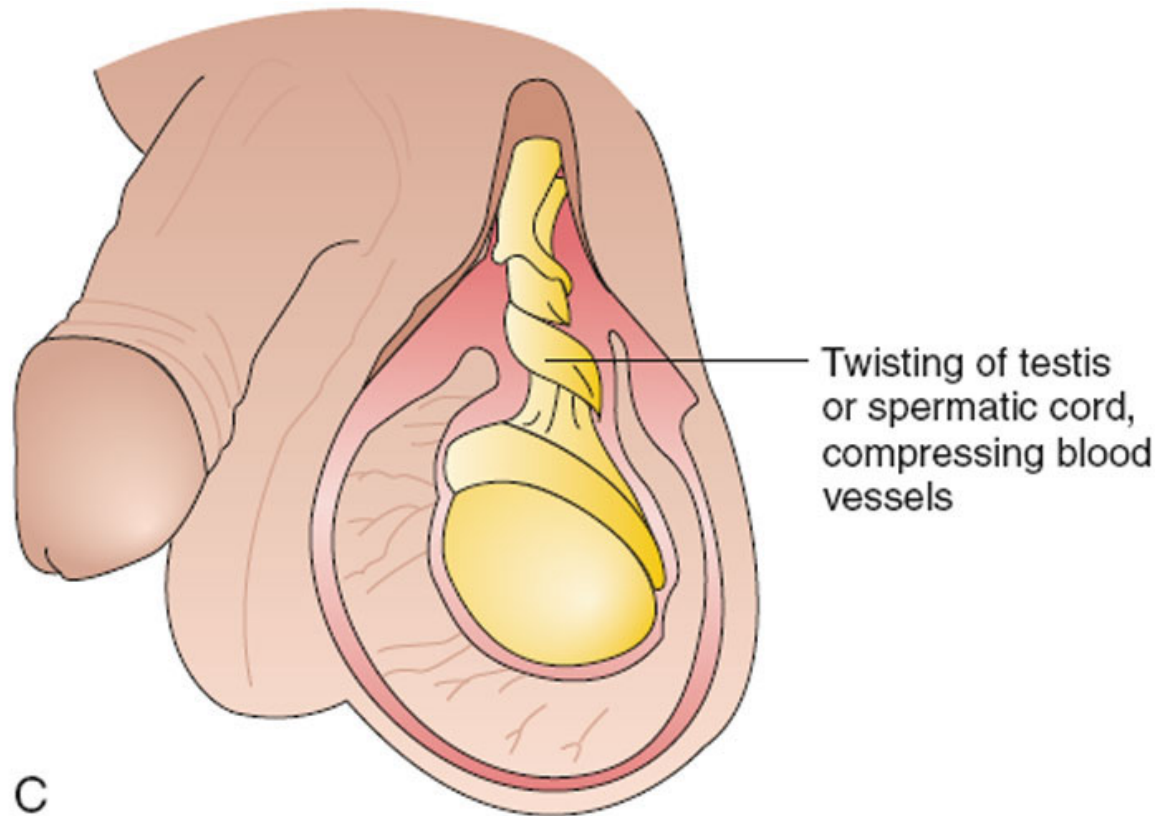
Abnormalities of the Scrotum (Cont.)



Varicocele

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Abnormalities of the Scrotum (Cont.)



Torsion of testis

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Inflammations and Infections

- Prostatitis—infection or inflammation of the prostate gland
- Four recognized categories
 1. Acute bacterial
 2. Chronic bacterial
 3. Nonbacterial
 4. Asymptomatic inflammatory

Prostatitis

- Acute bacterial—gland is tender and swollen, urine and secretions contain bacteria
- Nonbacterial—urine and secretions contain large numbers of leukocytes
- Chronic bacterial—gland only slightly enlarged, dysuria, frequency, urgency

Prostatitis (Cont.)

- Acute bacterial infection is caused primarily by *Escherichia coli* and sometimes by *Pseudomonas*, *Proteus*, or *Streptococcus faecalis*.
- Chronic bacterial infection is related to repeated infection by *E. coli*.
- These are opportunistic bacteria from the normal flora of the gut.

Prostatitis (Cont.)

- Occurs in:
 - Young men with UTIs
 - Older men with prostatic hypertrophy
 - In association with STDs
 - With instrumentation such as catheterization
 - Through bacteremia

Prostatitis (Cont.)

- Signs and symptoms
 - Both acute and chronic forms manifested by dysuria, urinary frequency, and urgency
 - Decreased urinary stream
 - Acute form includes fever and chills
 - Lower back pain
 - Leukocytosis
 - Abdominal discomfort
 - Systemic signs include fever, malaise,
 - Anorexia
 - Muscle aches

Prostatitis (Cont.)

- Treatment for acute or chronic bacterial infection
 - Antibacterial drugs such as ciprofloxacin
- Treatment for nonbacterial infection
 - Anti-inflammatory drugs and prophylactic antibacterial agents

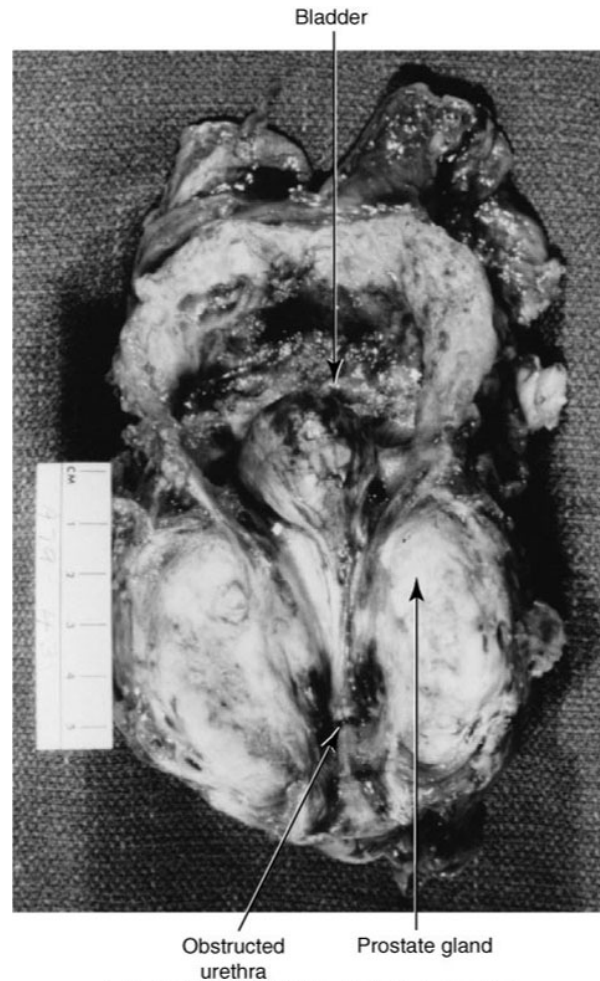
Balanitis

- Fungal infection of the glans penis
 - Sexually transmitted
- Caused by *Candida albicans*
- Vesicles develop into patches
 - Severe burning and itching
- Treatment—topical antifungal medication

Tumors: Benign Prostatic Hypertrophy

- Occurs in up to 50% of men > 65 years
- Hyperplasia of prostatic tissue
- Compression of urethra and urinary obstruction
- Related to estrogen–testosterone imbalance
- Does not predispose to prostatic carcinoma

Tumors: Benign Prostatic Hypertrophy (Cont.)



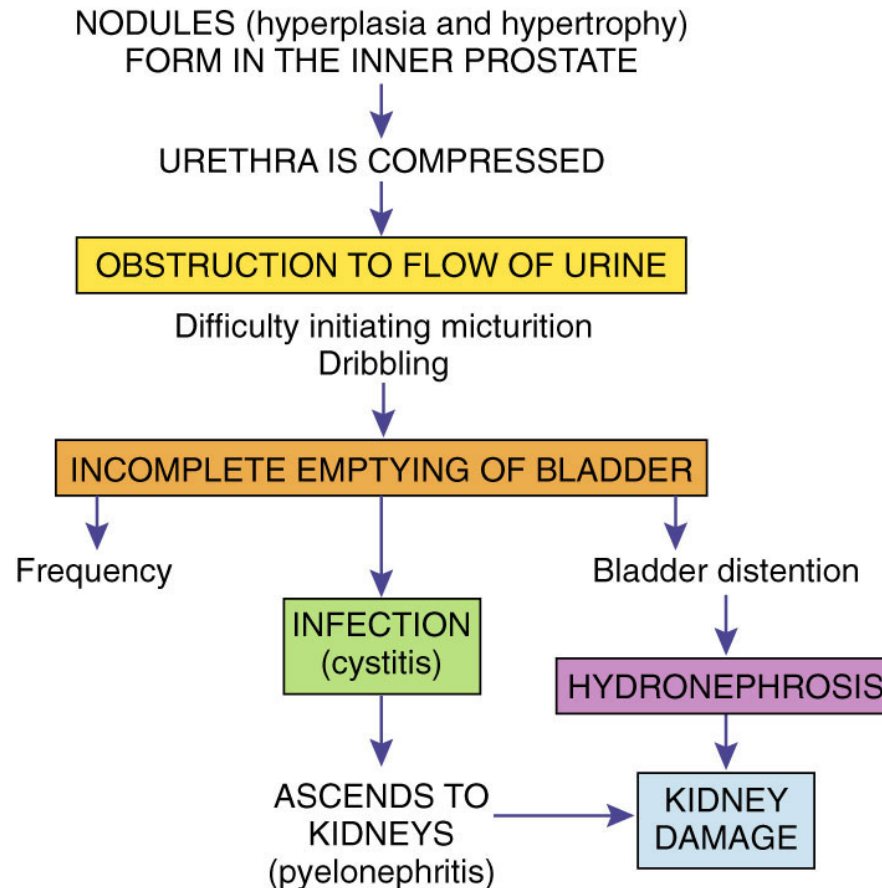
Courtesy of R.W. Shaw, MD, North York General Hospital, Toronto, Ontario, Canada.

Tumors: Benign Prostatic Hypertrophy (Cont.)

- Enlarged gland palpated on digital rectal examination
- Leads to frequent infections
- Continued obstruction causes distended bladder, dilated ureters, hydronephrosis, and renal failure if untreated.

Complications of Benign Prostatic Hypertrophy

BENIGN PROSTATIC HYPERTROPHY (BPH)



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Tumors: Benign Prostatic Hypertrophy

- Signs and symptoms
 - Obstructed urinary flow
 - Hesitancy in starting flow
 - Dribbling
 - Decreased flow strength
 - Increased frequency and urgency
 - Nocturia
 - Dysuria occurs if infection is present.

Tumors: Benign Prostatic Hypertrophy (Cont.)

- Treatment

- Drugs such as dutasteride (Avodart) to slow enlargement
- Smooth muscle relaxers such as tamsulosin (Flomax)
- Combination of finasteride (Proscar) and doxazosin (Cardura) reduces progression of hypertrophy
- Surgery

Tumors: Cancer of the Prostate

- Most common cancer in men > 50 years
- Third leading cause of cancer death in men
- One in six men affected
- Most are adenocarcinomas arising near surface of gland
- The more undifferentiated the tumor, the more aggressive
- Many tumors are androgen-dependent.

Tumors: Cancer of the Prostate (Cont.)

- Both invasive and metastatic
- Some forms are highly aggressive but others are not.
- 5% to 10% caused by inherited mutations
- Other causes—high androgen levels, increased insulin-like growth factor, history of recurrent prostatitis

Tumors: Cancer of the Prostate (Cont.)

- Signs and symptoms
 - Hard nodule felt on periphery of gland
 - Hesitancy in urination
 - Decreased urine stream
 - Frequent urination
 - Recurrent UTI

Tumors: Cancer of the Prostate (Cont.)

- Diagnosis
 - Serum markers
 - Prostate-specific antigen (PSA)
 - Prostatic acid phosphatase
 - Ultrasonography
 - Biopsy
 - Bone scans to detect metastases

Tumors: Cancer of the Prostate (Cont.)

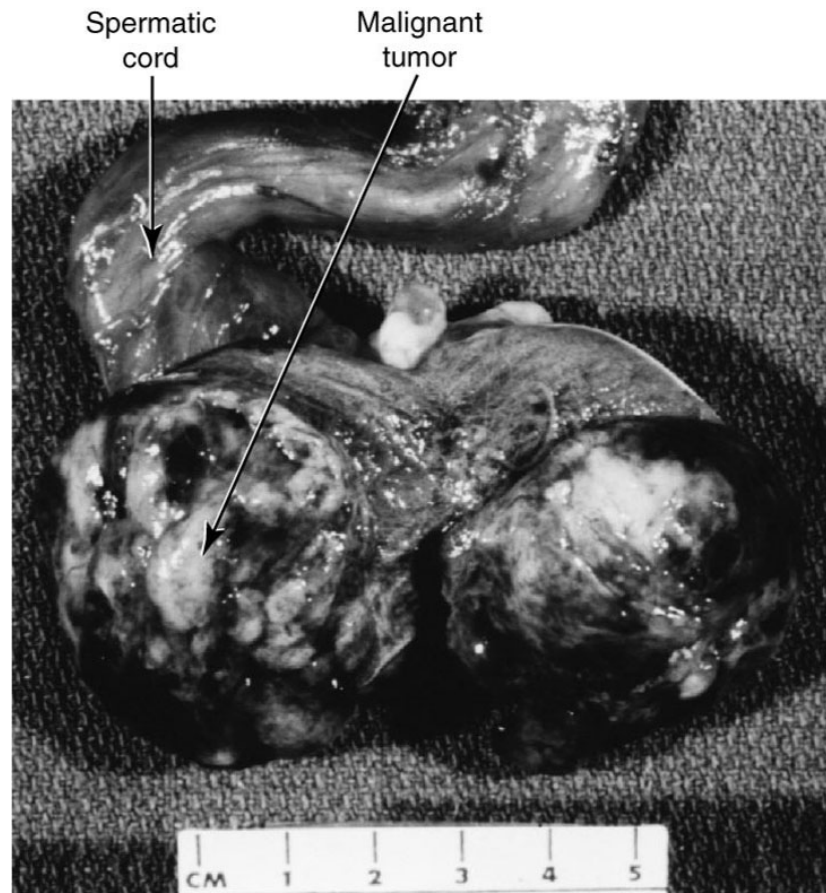
- Treatment

- Surgery (radical prostatectomy)
- Radiation: external or implanted pellets
- If androgen-sensitive, then orchiectomy is effective, as well as antitestosterone drugs.
- New chemotherapies are in clinical trials.

Cancer of the Testes

- Most testicular tumors are malignant.
- 1 in 300 affected
- Most common solid tumor cancer in young men
- Number of cases increasing
- Testicular self-examination is essential for early detection.

Cancer of the Testes (Cont.)



Courtesy of R.W. Shaw, MD, North York General Hospital, Toronto, Ontario, Canada.

Cancer of the Testes (Cont.)

- May originate from one type of cell or mixed cells from various sources
- Teratoma—tumor consisting of mixture of different germ cells
- Some malignant tumors secrete hCG or AFP, which serve as useful markers for diagnosis.

Cancer of the Testes (Cont.)

- Typical spreading pattern
 - Appear in common iliac and para-aortic lymph nodes
 - Then to the mediastinal and supraclavicular lymph nodes
 - Then through the blood to the lungs, liver, bone, and brain

Cancer of the Testes (Cont.)

- Causes

- Heredity (change in chromosome 12)
- Predisposing factor—cryptorchidism
- Exposure to herbicides and other environmental agents may be predisposing factors.

Cancer of the Testes (Cont.)

- Signs and symptoms
 - Tumors are hard, painless, usually unilateral
 - Testes may be enlarged or feel heavy.
 - Dull aching scrotum and pelvis
 - Hydrocele or epididymitis may develop.
 - Gynecomastia occurs if the tumor is hormone-secreting.

Cancer of the Testes (Cont.)

- Diagnostic tests
 - Biopsy is *not* usually done.
 - Tumor markers (hCG and AFP)
 - Ultrasound
 - Computed tomography
 - Lymphangiography

Cancer of the Testis

- Treatment

- Combination of:

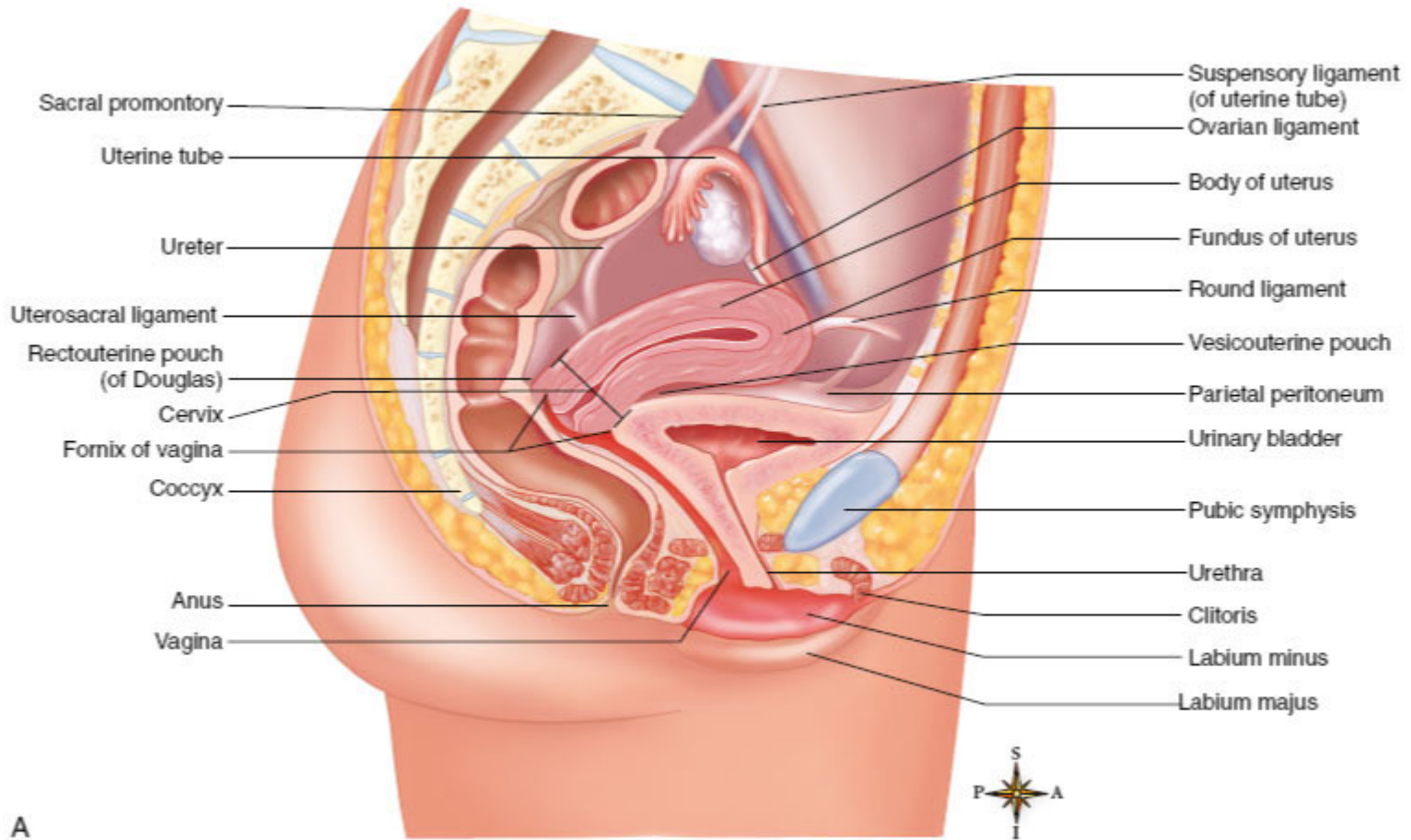
- Surgery (orchiectomy)
 - Radiation therapy
 - Chemotherapy

- **NOTE:** the client may wish to donate sperm prior to treatment to ensure future fertility.

Review of the Female Reproductive System

- Vulva
 - Mons pubis—adipose tissue and hair covering the symphysis pubis
 - Labia majora and minora—outer and inner thin folds of skin extending back and down from the mons pubis
- Clitoris—erectile tissue anterior to urethra
- Vagina—muscular, distensible canal extending upward from the vulva to the cervix

Review of the Female Reproductive System (Cont.)



A, From Patton KT, Thibodeau GA: *Anatomy & Physiology*, ed 8, St. Louis, 2013, Mosby. B, Courtesy of R.W. Shaw, MD, North York General Hospital, Toronto, Ontario, Canada.

Review of the Female Reproductive System (Cont.)

- Uterus—muscular organ within which fertilized ovum may implant and develop
- Cervix—opening into uterus and neck of the uterus
 - External os
 - Opening from vagina filled with thick mucus
 - Prevents vaginal flora from ascending into the uterus
 - Internal os
- Fallopian tubes (oviducts)—tubes from ovaries to uterus

Review of the Female Reproductive System (Cont.)

- Ovaries—produce ova and estrogen and progesterone hormones
- Breasts
 - Glands produce colostrum and milk for newborn
 - Adipose tissue

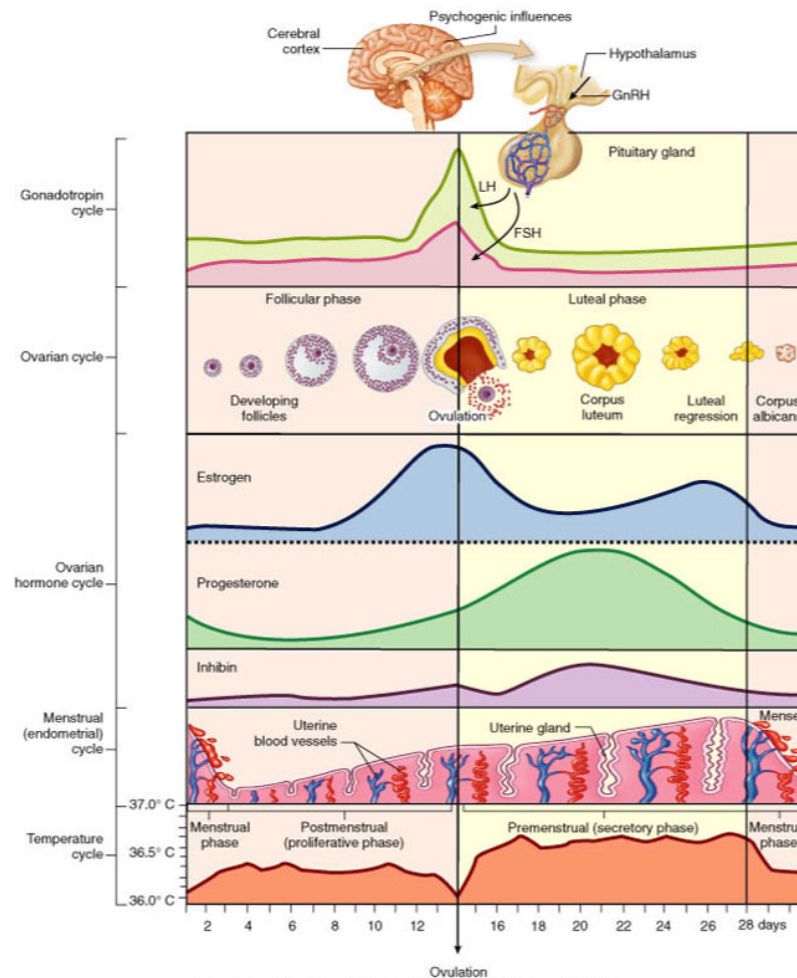
Review of the Female Reproductive System (Cont.)

- Hormones and the menstrual cycle
 - Cycle may be from 21 to 45 days
 - Cycle consists of:
 - Menstruation (days 1 to 5)
 - Endometrial proliferation and production of estrogen (days vary)
 - Maturation of ovarian follicle
 - Release of LH, causing ovulation

The Menstrual Cycle

- Follicle becomes the corpus luteum, produces progesterone
- Vascularization of endometrium in preparation for implantation (12 to 14 days prior to onset of next menstruation)
- If implantation does not occur:
 - Corpus luteum atrophies
 - Uterine muscle contracts → ischemia
 - Endometrium degenerates

The Menstrual Cycle (Cont.)

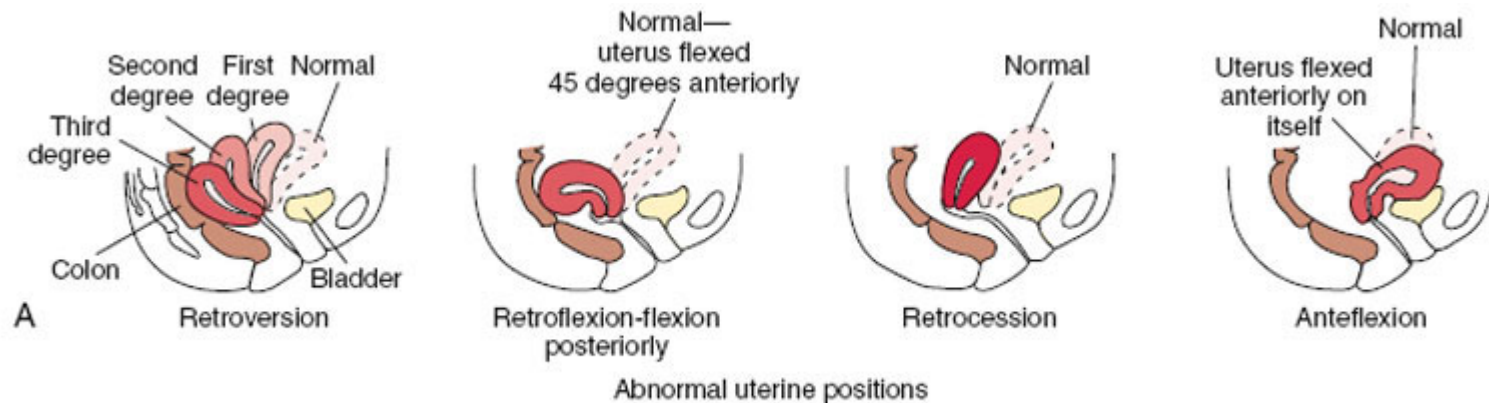


From Patton KT, Thibodeau GA: Anatomy & Physiology, ed 8. St. Louis, 2013. Mosby.

Structural Abnormalities

- Normal position of uterus
 - Slightly anteverted and anteflexed
 - Cervix downward and posterior
- Retroflexion of uterus
 - Uterus tipped posteriorly
 - May be excessively curved or bent
 - Marked retroversion may cause back pain, dysmenorrhea, dyspareunia
 - In some cases, infertility may occur.

Structural Abnormalities (Cont.)

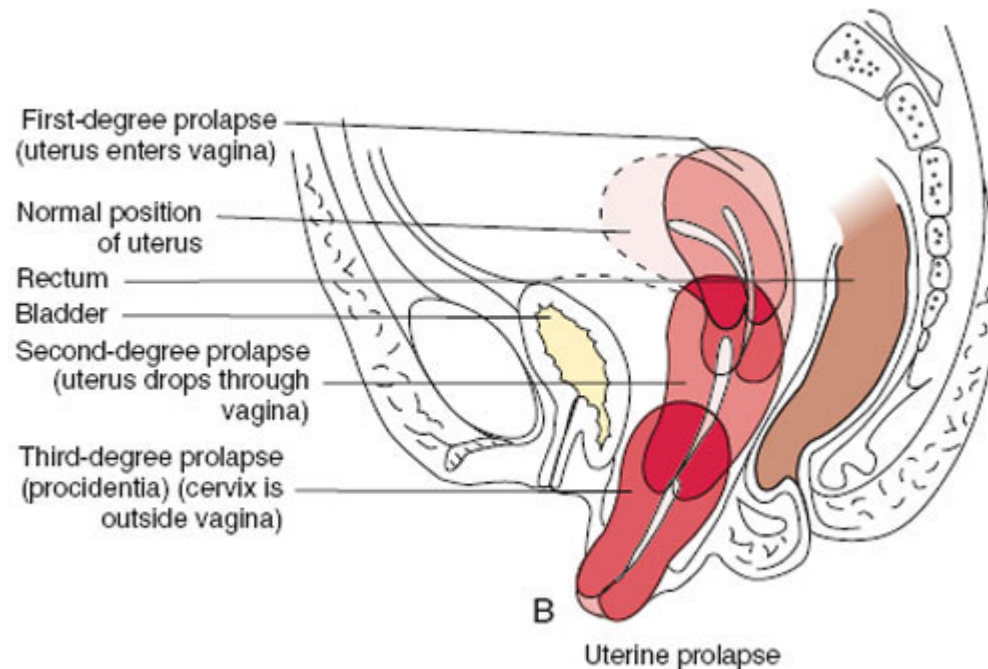


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Structural Abnormalities (Cont.)

- Uterine displacement or prolapse
 - First-degree prolapse if cervix drops into the vagina
 - Second-degree prolapse if cervix lies at opening to the vagina
 - Body of uterus is in the vagina
 - Third-degree prolapse if uterus and cervix protrude through the vaginal orifice
 - Early stages of prolapse may be asymptomatic.
 - Advanced stages cause discomfort, infection, and decreased mobility.

Structural Abnormalities (Cont.)

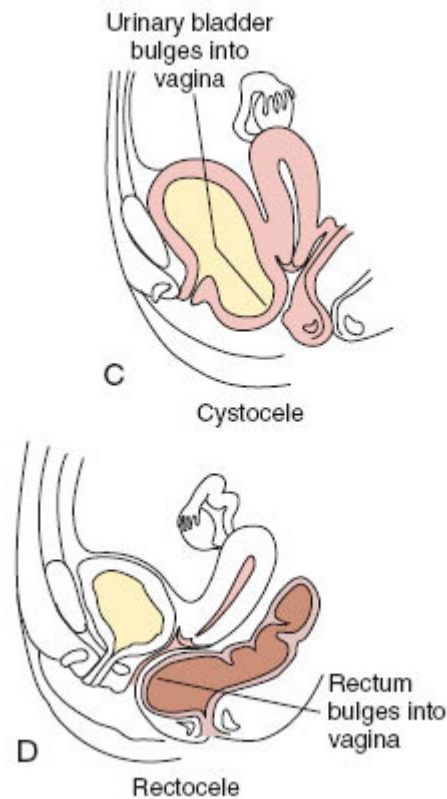


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Structural Abnormalities (Cont.)

- Rectocele
 - Protrusion of the rectum into the posterior vagina
 - May cause constipation and pain
- Cystocele
 - Protrusion of bladder into the anterior vagina
 - May cause UTIs
- If severe, conditions are treated surgically to increase the support of the pelvic ligaments.

Structural Abnormalities (Cont.)



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Menstrual Disorders

- Menstrual abnormalities
 - Amenorrhea (absence of menstruation)
 - May be primary or secondary
 - Primary form may be genetic.
 - Secondary form usually hormonal imbalance
 - Dysmenorrhea
 - Painful menstruation caused by excessive release of prostaglandins as a result of endometrial ischemia
 - Usually begins a few days prior to menses and lasts a few days after onset
 - NSAIDs offer relief.

Menstrual Disorders (Cont.)

- Menstrual abnormalities (Cont.)

- Premenstrual syndrome

- Begins approximately 1 week before onset of menses
 - Pathophysiology not completely known; may be several forms
 - Breast tenderness, weight gain, abdominal distension or bloating, irritability, emotional lability, sleep disturbances, depression, headache, fatigue
 - Treatment is individualized and may include exercise, limiting salt intake, use of oral contraceptives, diuretics, or antidepressant drugs.

Abnormal Menstrual Bleeding

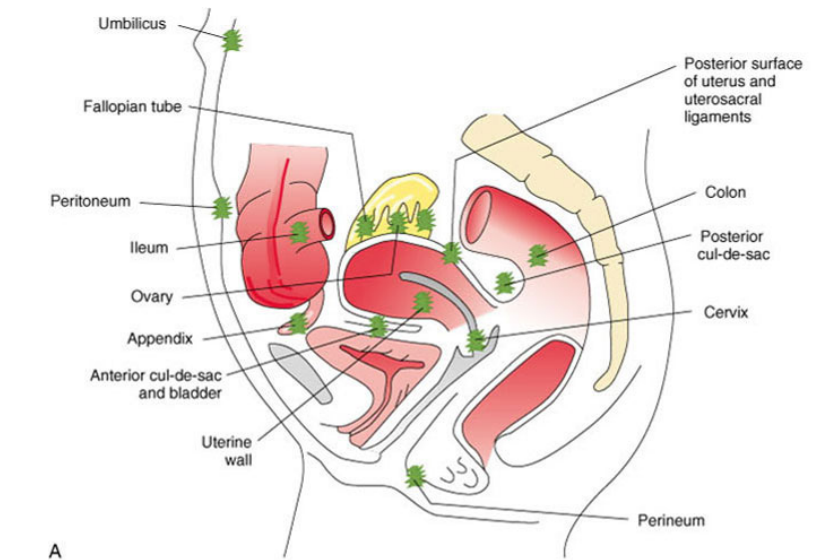
- Usual cause is lack of ovulation, but a hormonal imbalance in the pituitary-ovarian axis may be a factor.
 - Menorrhagia
 - Increased amount and duration of flow
 - Metrorrhagia
 - Bleeding between cycles
 - Polymenorrhea
 - Short cycles of less than 3 weeks
 - Oligomenorrhea
 - Long cycles of more than 6 weeks

Menstrual Disorders (Cont.)

- Endometriosis

- Endometrial tissue occurs outside the uterus.
- Ectopic endometrium responds to cyclical hormone changes.
- Bleeding leads to inflammation and pain.
- Fibrous tissue may cause adhesions and obstructions of the involved structures.
- Cause has not been established but thought to be congenital in some cases
- Treatment
 - Hormonal suppression
 - Surgical removal of ectopic tissue

Endometriosis: Possible Ectopic Sites



B. Courtesy of R.W. Shaw, MD, North York General Hospital, Toronto, Ontario, Canada.

Infections: Candidiasis

- Form of vaginitis that is not sexually transmitted
- Caused by the fungus *Candida albicans*
- Opportunistic infection by normal flora of vagina
 - Antibiotic therapy
 - Pregnancy
 - Diabetes
 - Reduced host resistance

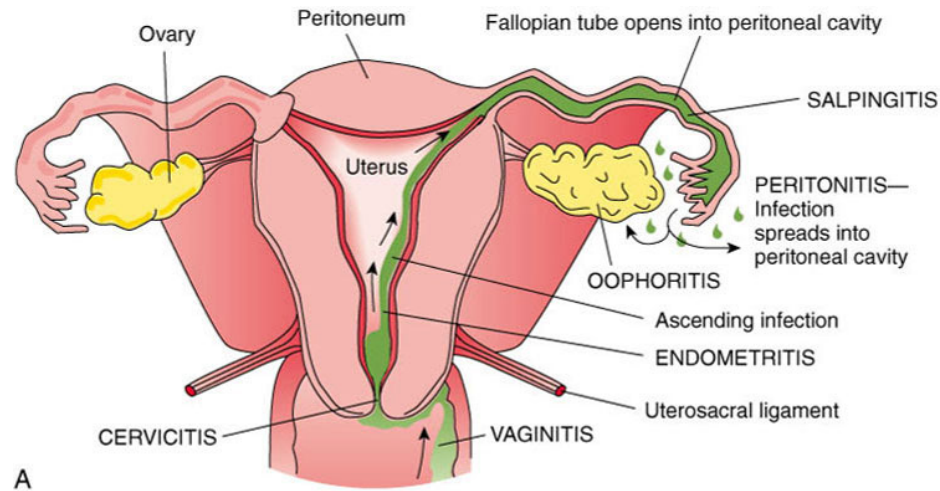
Infections: Candidiasis (Cont.)

- Candidiasis causes red and swollen, intensely pruritic mucous membranes and a thick, white, curdlike discharge.
- May extend to vulvar tissues
- Antifungal treatment

Infections: Pelvic Inflammatory Disease

- Infection of uterus, fallopian tubes, and/or ovaries
- May be acute or chronic
- Infection usually originates as an ascending infection from lower reproductive tract.
- May occur because of bacteremia
- Most infections arise from sexually transmitted diseases, nonsterile abortions, or childbirth.

Infections: Pelvic Inflammatory Disease (Cont.)



B. Courtesy of R.W. Shaw, MD, North York General Hospital, Toronto, Ontario, Canada.

Infections: Pelvic Inflammatory Disease (Cont.)

- Scarring of tubes increases risk of infertility and ectopic pregnancy.
- Potential acute complications
 - Peritonitis
 - Pelvic abscesses
 - Septic shock

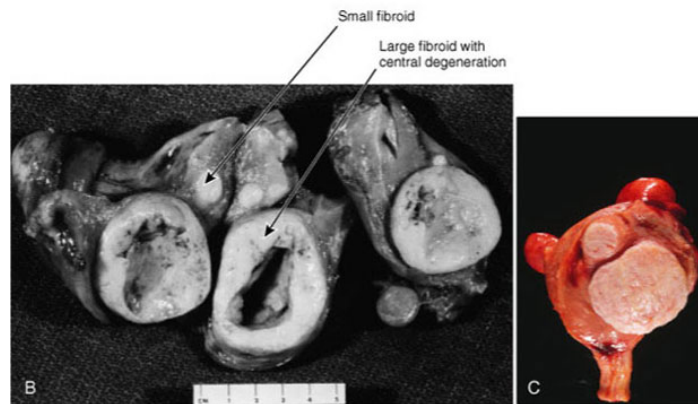
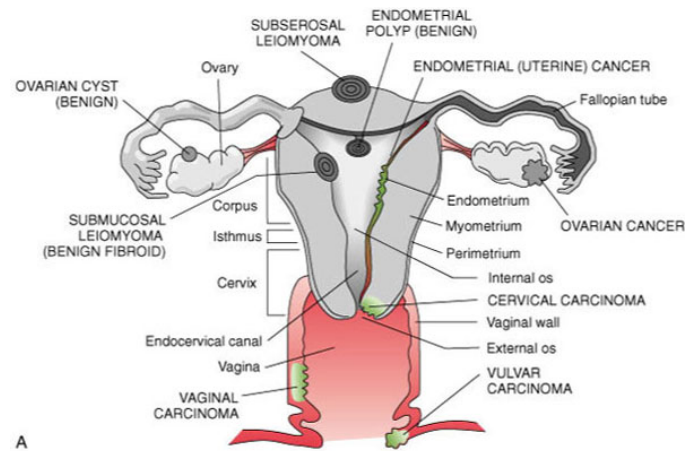
Infections: Pelvic Inflammatory Disease (Cont.)

- Pelvic pain is usually first sign
 - Increased temperature
 - Guarding
 - Nausea and vomiting
 - Leukocytosis
 - Purulent discharge may be present.
- Treatment usually requires aggressive antibiotic therapy in hospital.

Benign Tumors

- Leiomyoma (fibroids)
 - Benign tumor of the myometrium
 - Common during the reproductive years
 - Classified by location
 - Usually multiple, well-defined, unencapsulated masses
 - Abnormal bleeding may occur.
 - May interfere with implantation
 - Often asymptomatic until large growth
 - Hormonal therapy or surgery

Types of Benign Uterine Fibroids



B. Courtesy of R.W. Shaw, MD, North York General Hospital, Toronto, Ontario, Canada. C. From Kumar V, Abbas AK, Fausto M. Robbins and Cotran Pathologic Basis of Disease, ed 7, Philadelphia, 2005, Saunders.

Benign Tumors (Cont.)

- Ovarian cysts
 - Variety of types occur
 - Physiological type lasts about 8 to 12 weeks and disappear without complications
 - Usually multiple, small, fluid-filled sacs
 - If bleeding occurs, more serious inflammation occurs.
 - Requires surgical intervention
 - Ultrasound or laparoscopy for identification

Benign Tumors (Cont.)

- Polycystic ovarian disease
 - Fibrous capsule thickens around follicles of ovary
 - May be hereditary
 - Absence of ovulation and infertility
 - Hormonal imbalance
 - Amenorrhea
 - Hirsutism
 - Treatment may be surgical wedge resection or pharmacology.

Ovarian Cyst



Courtesy of R.W. Shaw, MD, North York General Hospital, Toronto, Ontario, Canada.

Benign Tumors (Cont.)

- Fibrocystic breast disease
 - Includes a broad range of breast changes and increased density of breast tissue
 - Cyclic occurrence of nodules or masses in breast tissue
 - Increased risk of breast cancer if atypical cells are present.
 - Increased density makes breast self-examination difficult
 - Increased cystic masses with caffeine intake

Malignant Tumors

- Carcinoma of the breast
 - Incidence increases after age 20 years
 - Most cases in women between ages 50 and 69 years
 - Most tumors are unilateral
 - Earlier onset associated with more aggressive growth
 - Different types
 - Most arise from ductal epithelial cells
 - Metastasis occurs via lymph nodes early in the course of the disease.
 - Presence of estrogen or progesterone receptors on tumor cells influences treatment

Carcinoma of the Breast

- Predisposing factors

- First-degree relative with the disease
- Strong genetic predisposition (*BRCA1* and *BRCA2*)
- Longer and higher exposure to estrogen
- Nulliparous or late first pregnancy
- Lack of exercise
- Smoking
- High-fat diet
- Radiation therapy to the chest
- Cancer of the uterus, ovaries, or pancreas

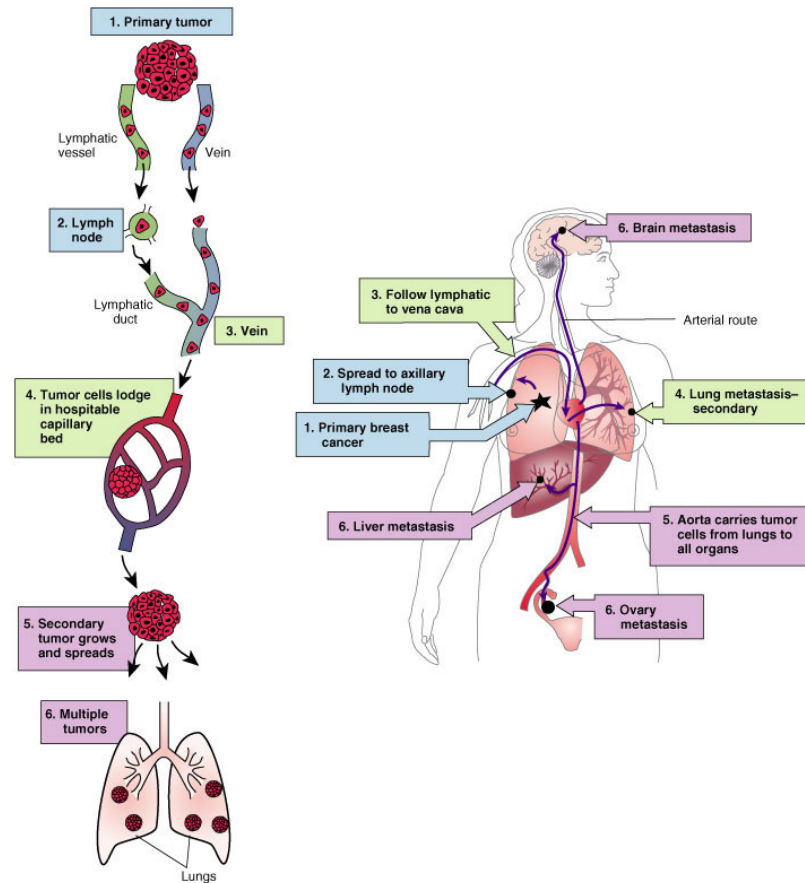
Carcinoma of the Breast (Cont.)

- Signs and symptoms
 - Change on mammogram
 - Initial sign—single, small, hard, painless nodule
 - Later—distortion of breast tissue, dimpled skin, discharge from nipple
 - Ultrasound or needle biopsy confirms diagnosis.

Carcinoma of the Breast (Cont.)

- Course of breast cancer
 - Metastasis occurs by the time the tumor is 1 to 2 cm in diameter.
 - Axillary lymph node involvement
 - Secondary tumors in:
 - Bone
 - Lung
 - Brain
 - Liver

Metastatic Breast Cancer



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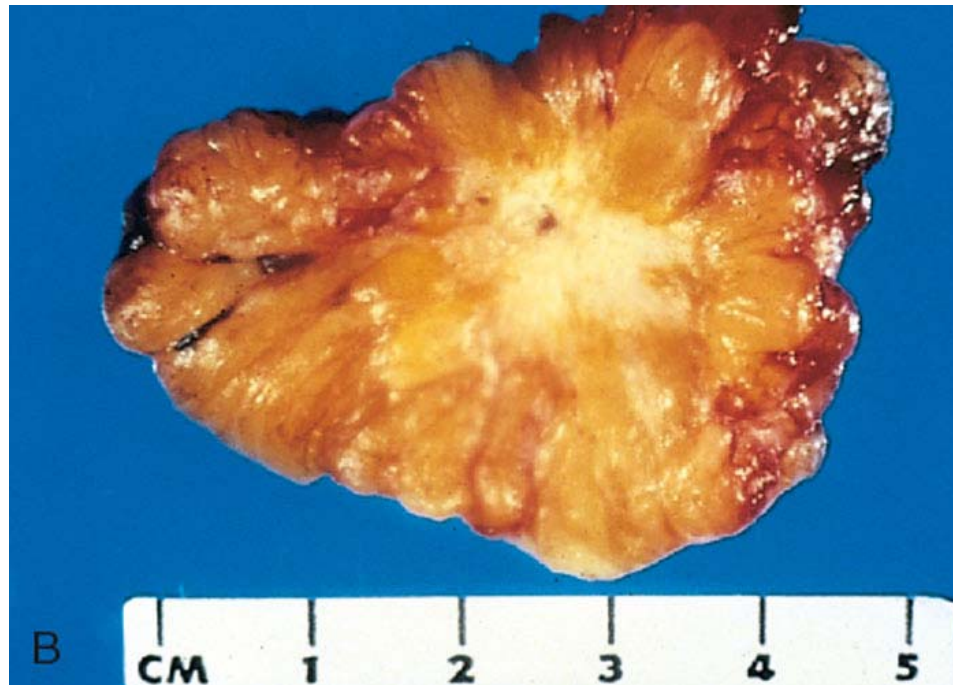
Carcinoma of the Breast (Cont.)

- Treatment

- Surgery may be a lumpectomy or removal of the breast.
- Lymph nodes may be removed, depending on the stage of the disease.
- Tissue biopsy will determine the presence of specific growth factors to design drug treatment and chemotherapy.
- Radiation therapy may be done before or after surgery.

Carcinoma of the Breast (Cont.)

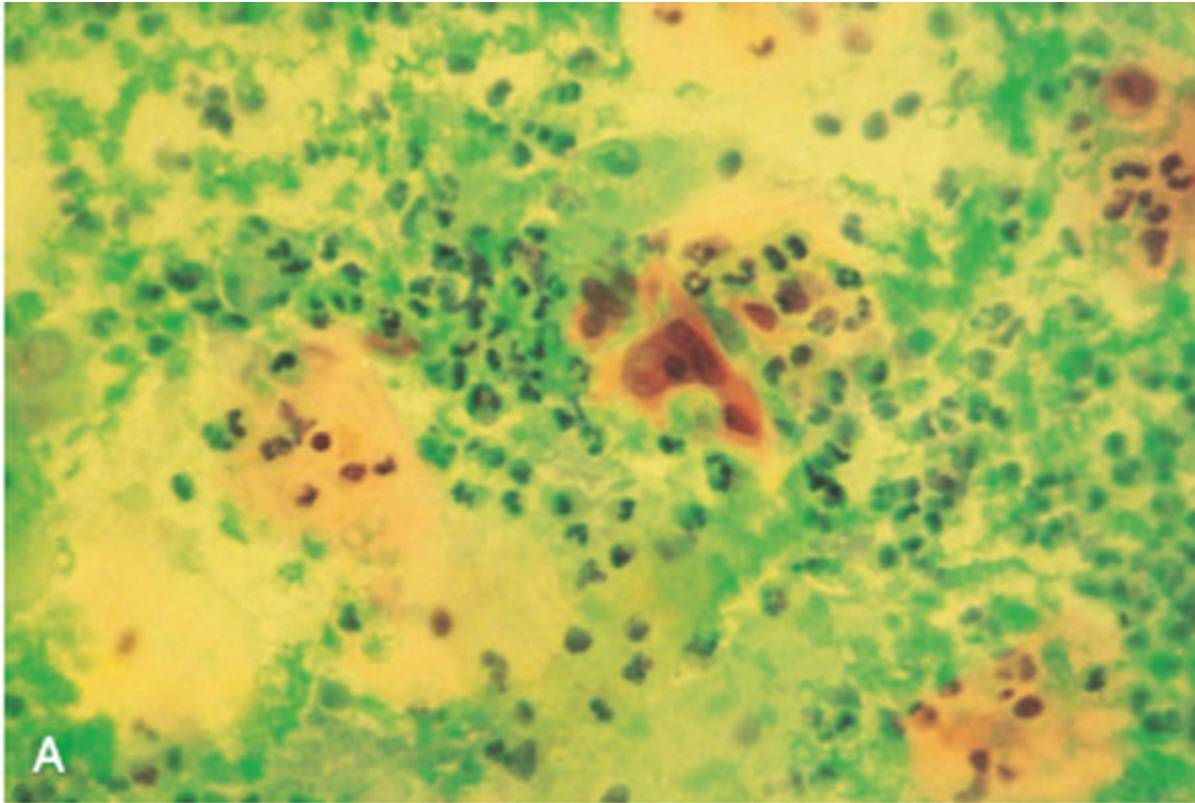
- Staging is based on the TMN system and the presence of receptors for specific growth accelerators in the tumor.



Carcinoma of the Cervix

- Most cases of cervical cancer are caused by human papillomavirus (HPV) infection, a sexually transmitted virus.
- Vaccines now exist against the causative strains of HPV.
- Routine Pap smears of cervical cells are important in identifying early, treatable stages of the disease:
 - By age 20 years or in the year that sexual intercourse begins
 - At intervals, as advised by health care worker

Positive Pap Smear

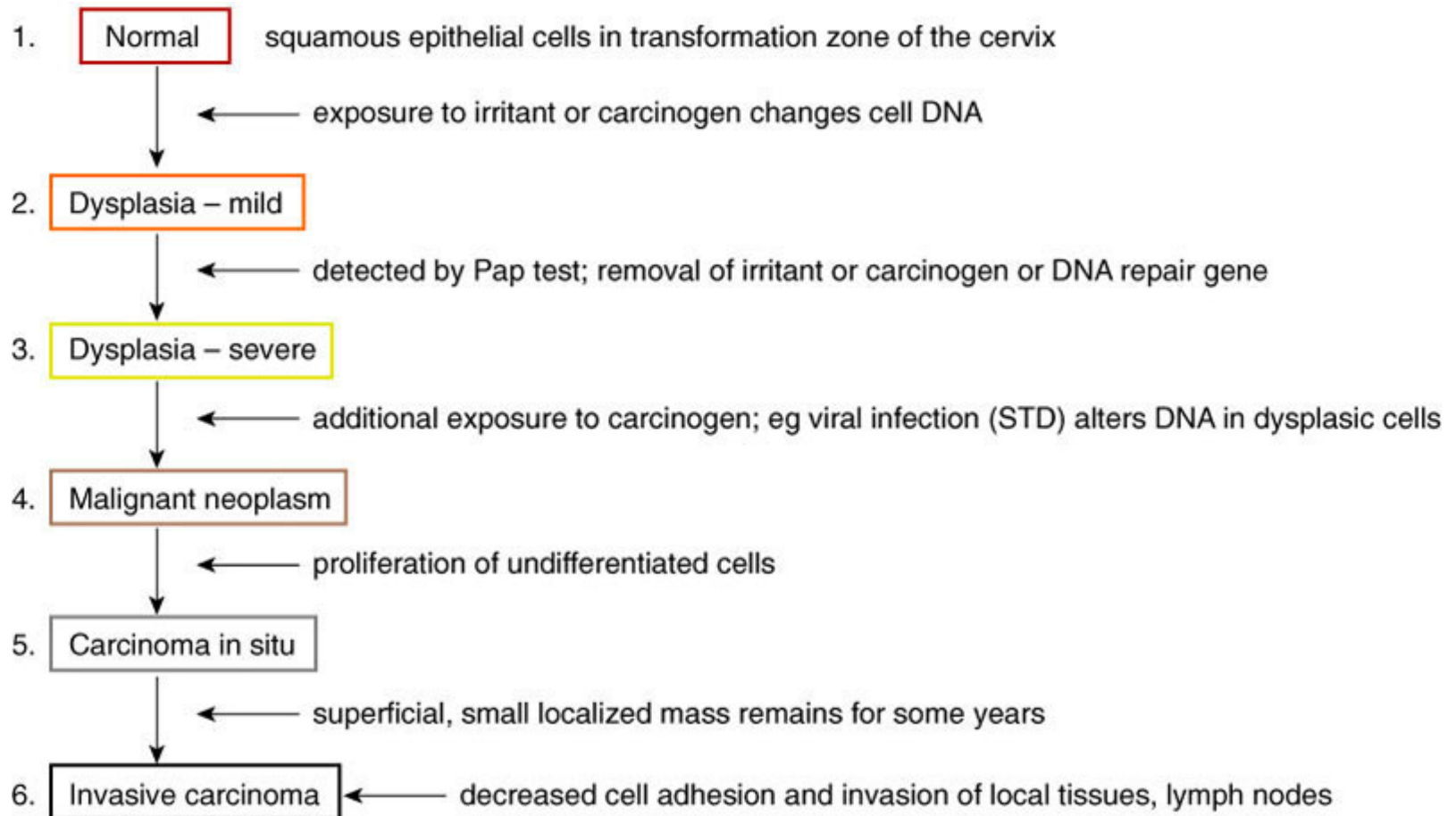


A. From Christiansen JL, Grzybowski JM: *Biology of Aging*. St. Louis, 1993, Mosby. B and C From Kumar V, Abbas AK, Fausto M: *Robbins and Cotran Pathologic Basis of Disease*, ed 7, Philadelphia, 2005, Saunders.

Carcinoma of the Cervix (Cont.)

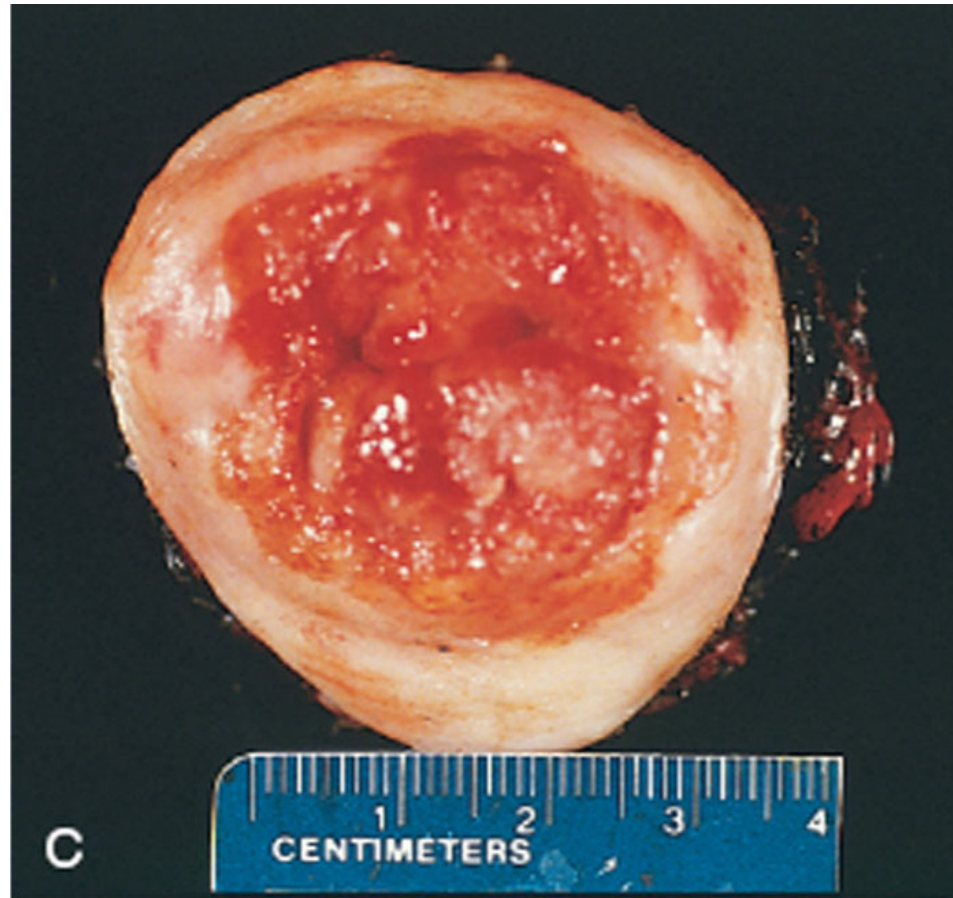
- Course of disease
 - Early dysplasia of cells; abnormal cells showing less differentiation
 - In situ tumor is located on the mucosal surface.
 - Invasion to submucosa
 - Invasion and spread to adjacent organs
 - Late metastasis

Development of Carcinoma of the Cervix



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Carcinoma of the Cervix (Cont.)



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Carcinoma of the Cervix (Cont.)

- Risk factors
 - Age < 40 years
 - Strongly linked to HPV viral infection (STD)
 - Multiple partners
 - Sexual intercourse beginning in early teenage years
 - Smoking
 - History of prior STDs

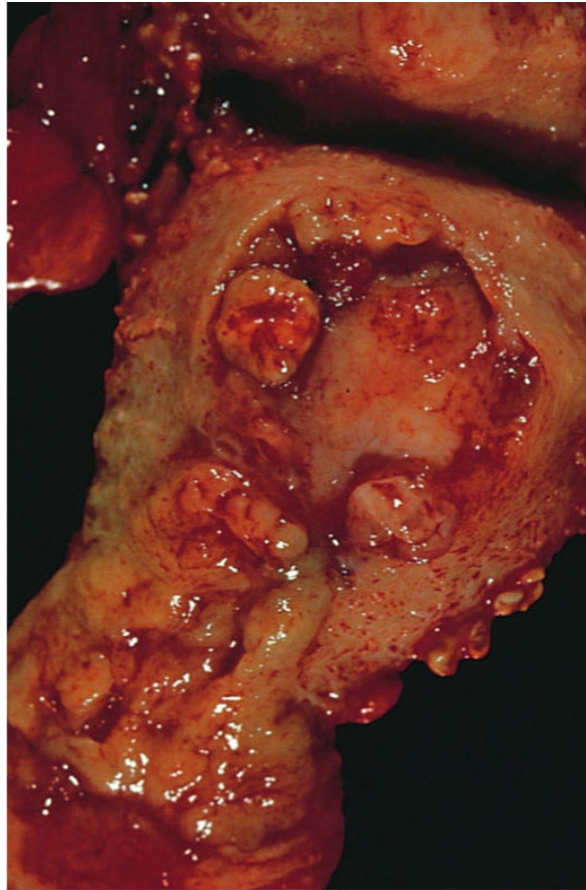
Carcinoma of the Uterus

- Most common in postmenopausal women
- Early indicator is painless vaginal bleeding or spotting
- Risk factors
 - Age > 50 years
 - High-dose estrogen hormone treatment without progesterone
 - Obesity
 - Diabetes

Carcinoma of the Uterus (Cont.)

- Pap smear does *not* detect this cancer
- Usually arises from glandular epithelium
- Relatively slow-growing but is invasive
- Staging of cancer based on degree of localization
- Treatment—surgery and radiation are commonly used.

Carcinoma of the Uterus (Cont.)



From Kumar V, Abbas AK, Fausto M: Robbins and Cotran Pathologic Basis of Disease, ed 7, Philadelphia, 2005, Saunders.

Ovarian Cancer

- Ovarian cancer
 - No reliable screening available
 - Large mass detected by pelvic examination
 - Transvaginal ultrasound
 - Considered a silent tumor
 - Few diagnosed in the early stage
 - Research is ongoing to identify markers for serum diagnosis.
 - Different types—vary in aggressiveness

Ovarian Cancer (Cont.)

- Risk factors
 - Obesity
 - *BRCA1* gene
 - Early menarche
 - Nulliparous or late first pregnancy
 - Use of fertility drugs
- Oral contraceptives containing progesterone are somewhat protective.
- Surgery and chemotherapy are usual treatments.

Infertility

- Cause may be a female condition, male condition, or a combination of both
 - Associated with hormonal imbalances
 - Age of parents
 - Structural abnormalities
 - Infections
 - Chemotherapy
 - Workplace toxins
 - Other environmental factors
 - Idiopathic

Sexually Transmitted Diseases (STDs): Bacterial

- Chlamydial infections
 - Considered one of the most common STDs
 - Caused by *Chlamydia trachomatis*
 - Males—urethritis and epididymitis
 - Symptoms include dysuria, itching, white discharge from penis (urethritis symptoms)
 - Painful, swollen scrotum, usually unilateral, fever (epididymitis); inguinal lymph nodes swollen
 - Females
 - Often asymptomatic until PID or infertility develops
 - Newborns may be infected during birth.

Sexually Transmitted Diseases (STDs): Bacterial (Cont.)

- Gonorrhea

- Caused by *Neisseria gonorrhoeae*

- Many strains have become resistant to penicillin and tetracycline.

- Males

- Most common site is urethra, which is inflamed
- Some males are asymptomatic.

- Females

- Frequently asymptomatic
- PID and infertility are serious complications.

Sexually Transmitted Diseases (STDs): Bacterial (Cont.)

- Gonorrhea
 - May infect the eyes of the newborn, causing irreversible damage and blindness
 - May spread systemically to cause septic arthritis

TABLE 19-1 Sexually Transmitted Diseases

Infection	Cause	Signs	Complications	Treatment/Cure
Chlamydia	Chlamydia <i>C. trachomatis</i>	Mild dysuria and discharge or asymptomatic	Arthritis Females—PID and infertility Neonates—conjunctivitis and pneumonia	Antimicrobial therapy, e.g., azithromycin Retest for eradication
Gonorrhea	Bacterium <i>N. gonorrhoeae</i>	Dysuria and discharge Mild or asymptomatic in women	Arthritis Male—prostatitis and epididymitis Female—PID and infertility Neonates—conjunctivitis	Antibacterial drugs (penicillin or ceftriaxone + doxycycline) Some drug-resistant strains Retest for eradication
Syphilis	Bacterium <i>T. pallidum</i>	Primary Syphilis—Painless ulcer or chancre at site of entry Secondary Syphilis—Rash, fever, headache	Tertiary Syphilis—Gumma, neurosyphilis, or cardiovascular system damage Congenital syphilis in child	Penicillin G—long-acting Retest for eradication
Genital Herpes	Virus Herpes simplex 2 (HSV-2)	Vesicles and ulcers	Recurs Meningitis Fetus/neonate damage	No cure Antiviral drug, e.g., oral acyclovir, reduces activity and shedding
Genital Warts	Virus Human papillomavirus (HPV)	Soft gray mass or polyp	None	Can be removed, but rarely cured
Trichomoniasis	Protozoa <i>T. vaginalis</i>	Asymptomatic, or women may have discharge and dysuria	None	Antimicrobial drugs, e.g., metronidazole

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Acute Epididymitis Caused by Gonococcal Infection

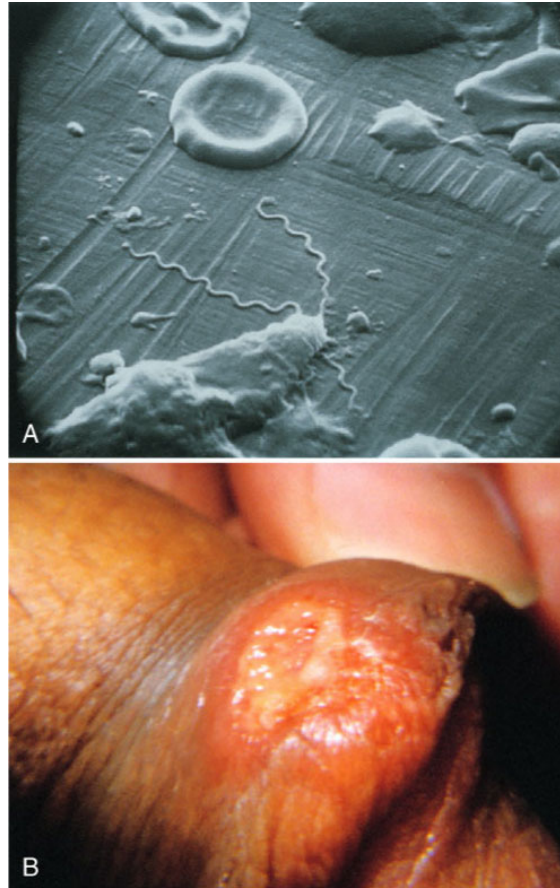


From Kumar V, Abbas AK, Fausto M: Robbins and Cotran Pathologic Basis of Disease, ed 7, Philadelphia, 2005, Saunders.

STDs: Syphilis

- Caused by *Treponema pallidum*, a spirochete
- Primary stage
 - Presence of chancre at site of infection
 - Genital region
 - Anus
 - Oral cavity
 - Painless, firm, ulcerated nodule
 - Occurs about 3 weeks after exposure
 - Lesion heals spontaneously but client is still contagious

STDs: Syphilis (Cont.)



From Mahon CR, Manualis G: Textbook of Diagnostic Microbiology, ed 2, Philadelphia, 2000, Saunders.

STDs: Syphilis (Cont.)

- Secondary stage
 - If untreated, a flulike illness occurs, with a widespread symmetrical rash—self-limited but client remains contagious
- Latent stage
 - May persist for years
 - Transmission may occur.
- Tertiary syphilis—irreversible changes
 - Gummas in organs and major blood vessels
 - Dementia, blindness, motor disabilities

STDs: Syphilis (Cont.)

- Organism can be transmitted to fetus in utero
- Baby born with tertiary syphilis changes that are not reversible
- Treatment is usually antimicrobial drugs.
- Increase in antibiotic resistant strains causing an increase in prevalence

STDs: Viral Infections

- Genital herpes—herpes simplex
 - Caused by HSV-2 or HSV-1
 - HSV-1 possible with oral sex
 - Lesions similar to HSV-1
 - Recurrent outbreaks of blister-like vesicles on the genitalia
 - Preceded by tingling or itching sensation
 - Lesions are extremely painful.
 - After acute stage, virus migrates back to dorsal root ganglion
 - Infectivity greater when symptoms are present

STDs: Genital Herpes



A. From de la Maza LM, Pezzlo MT, Baron EJ: Color Atlas of Diagnostic Microbiology. St. Louis, 1997, Mosby. B. From Behrman RE, Kliegman RM, Arvin AM: Slide Set, Nelson Textbook of Pediatrics, ed 15, Philadelphia, 1996, Saunders.

STDs: Genital Herpes (Cont.)

- Reactivation is common and may be associated with:
 - Stress
 - Illness
 - Menstruation
- Antiviral drugs are used for treatment and prevention of transmission.
- Infection is considered lifelong.

STDs: Viral Infections (Cont.)

- Condylomata acuminata—genital warts
 - Caused by HPV
 - Incubation period may be up to 6 months
 - Disease may be asymptomatic
 - Warts vary in appearance.
 - Warts can appear wherever contact with virus has occurred.
 - Warts can be removed by different methods.
 - May predispose to cervical or vulvar cancer

STDs: Viral Infections (Cont.)

- Trichomoniasis

- Caused by *Trichomonas vaginalis*, a protozoan parasite
- Localized infection
- Men
 - Usually asymptomatic
- Women
 - May be subclinical
 - Flares up when microbial balance in vagina shifts
 - Causes intense itching
- Systemic treatment necessary for both partners