

1

Disorders of the Male Reproductive System

This chapter provides information necessary to recognize, diagnose, and manage common physical conditions that adversely affect the male reproductive system and to effectively interpret clients' signs and symptoms and physical examination findings. Specifically, the chapter describes the male reproductive system, the sexual response cycle in men, common men's sexual and reproductive health disorders, sexual dysfunction in men, male fertility and infertility, and common **sexually transmitted infections (STIs)**.

The Male Reproductive System

Men have questions and concerns about their body, how it works, and the normalcy of their body throughout life's various stages, as well as about their sexuality. Therefore, service providers can play an important role as resources for helping men understand the structure of the male reproductive system and how it works. For an overview of the male reproductive system, see Figures 1-1 and 1-2. For a detailed review of the male reproductive system, see Appendix A.

The Sexual Response Cycle in Men

The human body's physiological response to sexual stimulation begins with sexual arousal and may continue just after orgasm. The pattern of response to sexual stimulation is the **sexual response cycle**. This cycle consists of five main phases: desire (also called *libido*), excitement (also called *arousal*), plateau, orgasm, and resolution. Each

Figure 1-1. External Male Genitals

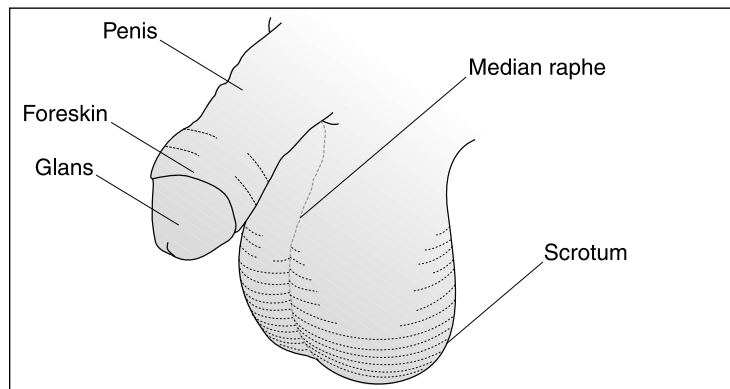
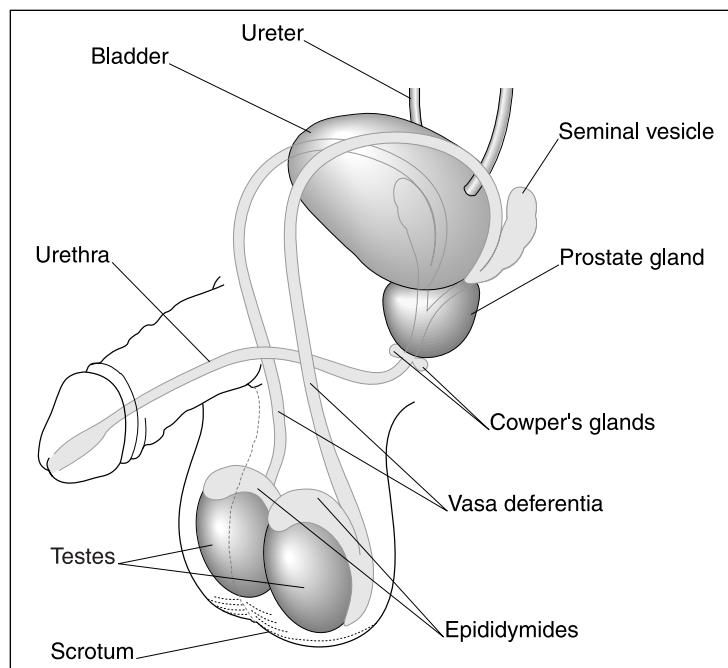


Figure 1-2. Internal Male Genitals



time an individual has a sexual experience, some or all of the phases may be reached. However, it is not necessary to complete the cycle for sexual fulfillment. The chart below provides a brief description of each phase in the sexual response cycle in men.

The Sexual Response Cycle in Men

Phase	Brief Description	Body Changes
Desire	<ul style="list-style-type: none"> Men’s minds and bodies can respond sexually to a variety of stimuli—including sight, sound, smell, touch, taste, movement, fantasy, and memory. These stimuli can create sexual desire. Desire is scientifically difficult to describe because it occurs in the mind rather than the body and is subject to conditions within the brain (e.g., hormone levels). Hormonal (and chemical) imbalances can lead to sexual dysfunction. The desire phase may last anywhere from a moment to many years. 	<ul style="list-style-type: none"> No change
Excitement	<ul style="list-style-type: none"> Excitement is the body’s physical response to desire. (A man who manifests the physical indications of excitement is termed to be “aroused” or “excited.”) The progression from desire to excitement depends on a wide variety of factors—it may be brought on by sensory stimulation, thoughts, fantasy, or even the suggestion that desire may be reciprocated. Excitement may lead to intimacy and sexual activity, but this is not inevitable: Initial physical excitement may be lost and regained many times without progression to the next phase. It is important to note that it is not necessary for a man to be sexually intimate in this phase. The excitement phase may last anywhere from a few minutes to several hours. 	<ul style="list-style-type: none"> The penis becomes erect; the scrotum thickens; the testes rise closer to the body; breathing, heart rate, and blood pressure increase; sexual flush (reddening of the skin) occurs; the nipples become erect; the genital and pelvic blood vessels become engorged; involuntary and voluntary muscles contract; and a sense of restlessness occurs. Erection of the penis is the key indicator of sexual excitement (see “Overview: Erection” on page 1.4).
Plateau	<ul style="list-style-type: none"> If physical or mental stimulation (especially stroking and rubbing of an erogenous zone or sexual intercourse) continues during full arousal, the plateau phase may be achieved. The plateau phase may last anywhere from 30 seconds to 3 minutes. 	<ul style="list-style-type: none"> The ridge of the glans penis becomes more prominent; the Cowper’s glands secrete pre-ejaculatory fluid; the testes rise closer to the body; breathing, heart rate, and blood pressure further increase; sexual flush deepens; and muscle tension increases. There is a sense of impending orgasm.

(continued)

The Sexual Response Cycle in Men (*continued*)

Phase	Brief Description	Body Changes
Orgasm	<ul style="list-style-type: none"> • Orgasm occurs at the peak of the plateau phase. At the moment of orgasm, the sexual tension that has been building throughout the body is released, and the body releases chemicals called <i>endorphins</i>, which cause a sense of well-being. Orgasm can be achieved through mental stimulation and fantasy alone, but more commonly is a result of direct physical stimulation or sexual intercourse. • Men must pass through the resolution phase before another orgasm can be achieved. • The orgasm phase may last less than 1 minute. 	<ul style="list-style-type: none"> • Ejaculation occurs; the urethra, anus, and muscles of the pelvic floor contract three to six times at 0.8-second intervals; breathing, heart rate, and blood pressure reach their highest peak; sexual flush spreads over the body; and spasms occur.
Resolution	<ul style="list-style-type: none"> • Resolution is the period following orgasm, during which muscles relax and the body begins to return to its pre-excitement state. Immediately following orgasm, men experience a refractory period, during which erection cannot be achieved. • The resolution phase varies greatly in duration. 	<ul style="list-style-type: none"> • Nipples lose their erection; the penis becomes softer and smaller; the scrotum relaxes; the testes drop farther away from the body; heart rate and blood pressure dip below normal, returning to normal soon afterward; the whole body, including the palms of the hands and the soles of the feet, sweats; and there is a loss of muscle tension, increased relaxation, and drowsiness. • Depending on a number of factors, the refractory period in men may last anywhere from five minutes to 24 hours or more.

Source: Adapted from Monlia & Knowles, 1997.

Notes:

- Penetration is not necessary for sexual gratification to occur. Sexual stimulation and orgasm can take place without penetration.
- Completing the five phases of the sexual response cycle is not necessary for sexual fulfillment.
- Orgasm may vary in intensity from one man to another and from one sexual encounter to another. For some men, it may involve intense spasm and loss of awareness; for others, it may be signaled by as little as a sigh or subtle relaxation.

Overview: Erection

Erection is the process by which the penis fills with blood and becomes firm and erect. It occurs through a complex interaction of mental and/or physical stimulation. Sexual thoughts or feelings may trigger erections, as may either direct stimulation on or near the penis or other types of physical touch on the body. Erection can also occur for reasons other than sexual arousal. Erection occurs naturally during sleep and has even been observed on male fetuses in utero.

Male Sexual Response and Aging

Men have the capacity for sexual desire and sexual activity throughout their lives—there is no reason why they cannot express their sexuality well beyond the “reproductive years” (the ages during which men are fertile). In fact, men who have been sexually active throughout their adult lives seem to be more sexually responsive in old age than those who have not. The key to maintaining sexual function in later years is to continue a pattern of regular sexual activity over a lifetime.

Many cultures have strong biases against sexual activity among middle-aged and elderly men, and expressions of sexual attraction among elderly men are sometimes treated with disdain. In much of the world, “sexy” is synonymous with “young”—media images of young, sexually vibrant men abound, while images of healthy sexuality among those middle aged and beyond are nearly nonexistent.

These attitudes can keep middle-aged and elderly men from receiving adequate health care. For example, health care providers often neglect to address issues related to sexually transmitted infections (STIs) when they are treating older clients because they mistakenly assume that older clients are not engaging in risk-taking sexual behaviors. Similarly, providers who do not consider the effects of chronic medical conditions and medications on sexual response when dealing with older clients may not anticipate these clients’ dissatisfaction with services and discontinuation of treatment if side effects occur.

Normal Changes in Response with Age

Although sexual activity can continue well into a man’s 90s and beyond, the aging process *does* have an effect on male sexual response and function. Generally, the sexual response cycle in men slows down: The phase of response take longer to achieve, the intensity of sensation may be reduced, and the genital organs become somewhat less sensitive. Sexual excitement and orgasm are diminished, yet pleasurable. Erectile dysfunction is more common with aging due to changes in penile blood flow. The incidence of **benign prostatic hyperplasia (BPH)** and prostate cancer increases with age. The presence and/or treatment of these disorders can result directly or indirectly in urinary, erectile, or libido problems. The chart on the next page shows the range of typical age-related changes in male sexual response.

Typical Age-Related Changes in Male Sexual Response

Phase	Body Changes
Desire Excitement	<ul style="list-style-type: none"> • Possible decrease in libido • Delayed and less-firm erection • Delayed nipple erection, but nipple erection lasts longer after orgasm • Longer excitement phase • Decreased pre-ejaculatory emissions • Longer interval from excitement to ejaculation • More direct stimulation required to achieve and maintain erection • Reduced muscle tension • Diminished lifting of scrotum and testes with more rapid return to prearousal state • Shorter phase of impending orgasm
Plateau Orgasm	<ul style="list-style-type: none"> • No change • Shorter ejaculation time • Reduced volume of ejaculate • Fewer ejaculatory contractions • Shortened phase of expulsion of semen
Resolution	<ul style="list-style-type: none"> • More rapid loss of erection • Significantly longer refractory period, though with a more rapid return to pre-excitement state • Nipple erection lasts longer after orgasm

Common Sexual and Reproductive Health Disorders in Men

This section provides information on the signs and symptoms, physical examination findings, differential diagnosis, and management of the common men's sexual and reproductive health disorders listed in the chart below. General comments are also provided.

Service providers and health care facilities are strongly encouraged to supplement this material with appropriate medical reference books that present information about these and other conditions in greater depth. (See Appendix J for a list of recommended texts that contain information about men's health topics.)

Common Sexual and Reproductive Health Disorders in Men

Disorders of the Anus, Rectum, and Colon <ul style="list-style-type: none"> • Anal fissure (page 1.6) • Colon cancer (page 1.7) • Gastrointestinal (GI) tract bleeding (page 1.7) • Hemorrhoids (page 1.9) • Rectal trauma or foreign body in the rectum (page 1.9) • Viral warts (page 1.10) 	<ul style="list-style-type: none"> • Penile cancer (page 1.13) • Penile constriction by a foreign body, such as an elastic band (page 1.14) • Penile injury or penile trauma (page 1.14) • Peyronie's disease (page 1.15) • Phimosis (page 1.15) • Priapism (page 1.16)
Disorders of the Breast <ul style="list-style-type: none"> • Breast cancer (page 1.10) 	Disorders of the Prostate Gland <ul style="list-style-type: none"> • Benign prostatic hyperplasia (BPH) (page 1.17) • Hematospermia (page 1.18) • Prostate cancer (page 1.18) • Prostatitis (page 1.20)
Disorders of the Penis <ul style="list-style-type: none"> • Balanitis or balanoposthitis (page 1.11) • Paraphimosis (page 1.12) 	

(continued)

Common Sexual and Reproductive Health Disorders in Men (*continued*)

Disorders of the Scrotum and Groin

- Hematocele (page 1.21)
- Hydrocele (page 1.21)
- Inguinal hernia (page 1.22)
- Scrotal edema (page 1.23)
- Scrotal elephantiasis (page 1.23)
- Spermatocele (page 1.24)
- Varicocele (page 1.24)

Disorders of the Skin of the Genitals

- Genital dermatitis (page 1.25)
- Genital herpes (page 1.25)
- Psoriasis (page 1.26)
- Pubic lice (page 1.27)
- Scabies (page 1.27)
- Tinea of the groin (jock itch) (page 1.28)

Disorders of the Testes

- Cryptorchidism (page 1.28)
- Epididymitis (page 1.29)

- Fournier's gangrene (page 1.31)
- Incarcerated hernia (page 1.31)
- Orchitis (page 1.32)
- Scrotal injury (page 1.33)
- Testicular cancer (page 1.33)
- Testicular torsion (page 1.34)

Disorders of the Urethra

- Epispadias (page 1.35)
- Hypospadias (page 1.36)
- Urethral carcinoma (page 1.36)
- Urethral stricture (page 1.37)
- Urethral trauma (page 1.38)
- Urethritis (bacterial) (page 1.38)
- Urethritis (chlamydial) (page 1.39)
- Urethritis (gonococcal) (page 1.40)
- Urethritis (nonchlamydial or nongonococcal [nonspecific]) (NGU) (page 1.40)
- Urinary extravasation (page 1.41)

Disorders of the Anus, Rectum, and Colon

§ *Signs and Symptoms*

- Anal pain
- Severe pain during defecation, with or without bleeding

Physical Examination Findings

During rectal examination, a visible crack or **fissure** (tear) in the anus

Differential Diagnosis

Anal fissure

Comments

- This condition is caused by constipation, straining during defecation, or anal probing.
- In some cases, the pain is so severe that the client is afraid to defecate and becomes constipated, which makes the stool harder and the condition even more painful.
- More than 90% of anal fissures are located in the **posterior midline position**. An anal fissure located off the midline may indicate **Crohn's disease** or an STI.
- Acute anal fissures usually heal spontaneously. Chronic anal fissures may require simple surgical treatment to reduce the pressure in the anal canal and allow the fissures to heal.
- The long-term cure rate is greater than 95%.

Management

- Give the client stool softeners.

Disorders of the Anus, Rectum, and Colon (*continued*)

- Tell the client to take warm sitz baths.
- Apply a topical cream.
- Topical application of nitroglycerin and injections of **botox** are new and experimental types of therapy.

§ *Signs and Symptoms*

- Bleeding during defecation
- Black **bowel movements**
- Change in bowel movements (either constipation or diarrhea) or in the shape of the stool

Physical Examination Findings

- In clients with anemia, obvious or occult blood in the stool
- Vague pain in the abdomen or intestinal obstruction

Differential Diagnosis

Colon cancer

Comments

- Colon cancer is one of the most common malignancies in the world, occurring especially in correlation with economic status, geographic location, and dietary exposure. For example, the consumption of refined carbohydrates and animal fats and proteins is much higher in the United States and Europe than in Africa and Asia. Generally, colon cancer is a disease of older individuals who have had little vegetable fiber in their diets or have **familial polyposis** or **chronic ulcerative colitis**.
- Most clients with colon cancer are asymptomatic.
- Clients may confuse the bleeding during defecation with bleeding from hemorrhoids.
- Clients at **special risk** (because they have either blood in the stool or **polyps**) can be followed up with **rectosigmoidoscopy** because early diagnosis increases their survival.
- Tests for colon cancer include a barium enema, a **rigid** or **flexible endoscopy** with biopsy, and **CEA** and **CAT scans**.

Management

- Refer the client to a surgeon.
- Treat the client with chemotherapy, radiation, and **immunotherapy**.

§ *Signs and Symptoms*

- Bleeding during defecation
- Black, liquid, tarry, and smelly bowel movements
- Lightheadedness, dizziness, and syncope

Physical Examination Findings

With chronic bleeding, visible pallor, **dyspnea**, and **exertional weakness** (from iron-deficiency anemia)

Differential Diagnosis

Gastrointestinal (GI) tract bleeding

Disorders of the Anus, Rectum, and Colon (*continued*)

Comments

- **THIS IS A MEDICAL EMERGENCY.** This condition can be life threatening. The overall mortality for GI tract bleeding is high.
- GI tract bleeding is one of the most common reasons for admission to a hospital. Although the specific bleeding lesions may vary considerably, the initial therapeutic and diagnostic approach to a client remains largely the same. The condition usually produces dramatic clinical signs and symptoms that bring a client to a service provider's urgent attention.
- **Hematemesis** is vomiting of obvious (and usually extensive) blood or bloody material, indicating bleeding from the upper GI tract. But blood entering the GI tract from some high lesion, such as a lesion on the esophagus, stomach, or duodenum, and occasionally even from the gingiva and pulmonary structures, may not be obvious. Hematemesis is caused by **peptic ulcer, gastritis, esophageal varices** or lesions, stomach cancer, benign tumors, traumatic postoperative bleeding, and swallowed blood from lesions in the nose, mouth, or throat. Diagnosis of hematemesis is usually made from the client's history and the physical examination findings; an endoscopic or ear, nose, and throat examination may be required to confirm the diagnosis.
- **Meletemesis** is closely related to hematemesis; it has the same causes and is diagnosed the same way. Meletemesis is vomiting of material with gastric juice for at least two hours, which changes the bright red blood present with hematemesis to a brownish color. Clients who present with vomit that looks like "coffee grounds" are usually bleeding at a slower rate than those who have obviously bloody **emesis**. But the same cause may present as either type of bleeding.
- **Melena** is darkening of the stool by blood pigments, and indicates **proximal** bleeding from the GI tract, usually from the **distal** small bowel or slow bleeding from the proximal colon, or even bleeding from the upper GI tract. Unlike hematemesis, melena is not characterized by obvious, extensive blood. However, melena is diagnosed the same way.
- **Hematochezia** is obvious loss of blood through the anus. Hematochezia indicates bleeding from the lower GI tract, usually from the distal small bowel or a **superficial** lesion in the **sigmoid colon** or **anorectal junction**. Some clients with **hemodynamically significant** hematochezia have **active bleeding** from the upper GI tract and have an **accelerated transit time**. Hematochezia is caused by colon cancer or polyps, **ulcerative colitis, diverticulitis**, large hemorrhoids, anal tears, and Crohn's disease. Diagnosis of hematochezia requires a digital rectal exam, **proctoscopy, endoscopy**, and barium enema, or a CAT scan.

Management

- Management varies depending on the cause of bleeding and the amount and rate and amount of blood loss. If the amount and rate of blood loss cause hemodynamic instability, resuscitative measures, including intravenous line and volume replacement, will be required.

§ *Signs and Symptoms*

Bleeding during defecation, with or without pain

Physical Examination Findings

- Dilated veins at the **anal verge**
- Normal perineal and rectal examination

Disorders of the Anus, Rectum, and Colon (*continued*)

Differential Diagnosis

Hemorrhoids

Comments

- **THIS IS A MEDICAL EMERGENCY** when a painful, bluish-colored mass is present at the anal verge. **Thrombosis** of external hemorrhoids (see below) is usually seen in young men and is often related to strenuous exercise. This type of exercise results in a temporary increase in intra-abdominal pressure, as well as more pressure on the dilated hemorrhoid veins, which makes them larger, with more stasis. As a result, more blood is likely to clot or thrombose in them. If the pain does not subside within 48 hours, the **thrombosed hemorrhoid** should be **excised** under local anesthesia.
- This condition is caused by constipation, straining during defecation, prolonged sitting, **cirrhosis**, or **anal probing**.
- Hemorrhoids located deep in the anus, above the **dentate line**, are called *internal hemorrhoids*; hemorrhoids located below this line are called *external hemorrhoids*. External hemorrhoids rarely cause symptoms by themselves, but they may eventually be associated with pain, itch, and bleeding. External hemorrhoids increase in size when prolapsing internal hemorrhoids are present because of increased pressure from the internal hemorrhoids. In addition, the anal sphincter contracts and reduces blood flow back into the general circulation, which confines it to the hemorrhoids.
- Hemorrhoids are usually painless unless they are accompanied by an anal fissure or anal abscess.
- Acute **prolapse** and thrombosis of internal hemorrhoids are extremely painful and cause **edema** and inflammation. The entire circumference of the anus appears to protrude.

Management

- Give the client stool softeners.
- Tell the client to take warm sitz baths.
- Apply a topical cream.
- If bleeding continues, refer the client to a surgeon.

§ *Signs and Symptoms*

Systemic symptoms, including nausea, vomiting, and fever

Physical Examination Findings

- Bleeding during defecation
- **Abdominal mass**
- Pelvic abscess
- **Frank peritonitis**

Differential Diagnosis

Rectal trauma or foreign body in the rectum

Comments

- **THIS IS A MEDICAL EMERGENCY** when the rectal wall is perforated. If the condition is not treated promptly, it can lead to bleeding, pelvic abscess, **peritonitis**, and death. Mortality rises dramatically if the injury is penetrative, especially above the **levator ani**, and causes infection.

Disorders of the Anus, Rectum, and Colon (*continued*)

- This condition is caused by anal rape or foreign objects placed in the rectum for sexual pleasure, such as an enema tip, a thermometer, condoms, and dildos.

Management

- Refer the client to a surgeon.
 - Treatment usually requires surgery (a **colostomy** or **exteriorization**).
-

§ *Signs and Symptoms*

- **Anal pruritis**
- Bleeding

Physical Examination Findings

Small, discrete **excrescences** on the perianal skin or just inside the anal canal

Differential Diagnosis

Viral warts

Comments

- This condition is caused by **human papillomavirus (HPV)**.
- Women who have anal sex and men who have sex with other men have a high incidence of rectal infection and are at high risk for developing viral warts.

Management

- Apply 25% **podophyllin** solution in compound benzoin tincture, *or*
 - Refer the client to a surgeon for **fulguration** with **electrocautery** or surgical excision.
-

Disorders of the Breast

§ *Signs and Symptoms*

Firm mass (either painless or painful) in the breast area

Physical Examination Findings

- Distortion of the shape of the breast and/or nipple
- Change in the appearance of the skin, which may make it look like the skin of an orange

Differential Diagnosis

Breast cancer

Comments

- This condition is rare in men, but it does exist.
- Breast cancer has a higher fatality rate in men than in women because:
 - Breast cancer tends to be diagnosed at a later stage in men than in women
 - The **malignant cells** travel a shorter distance in men than in women before reaching the chest wall and **lymphatics**
- Breast cancer in men may be difficult to distinguish from **gynecomastia** (benign glandular enlargement of the breast, which is usually **bilateral**), **lipoma**, or a **cyst**.

Management

Refer the client to a surgeon for biopsy and possible removal of the mass.

Disorders of the Penis

§ *Signs and Symptoms*

- Pain during urination
- Swollen, red, and painful glans (the head of the penis) and **foreskin**

Physical Examination Findings

- In severe cases, yellow **pustules** on the **glans** and foreskin that leave red, **eroded** areas when they break
- **Satellite pustules** on the shaft of the penis

Differential Diagnosis

Balanitis or balanoposthitis

Comments

- Balanitis is a condition in which the glans is inflamed and infected (see Photograph 1 in Appendix H on page H.3); balanoposthitis is a condition in which the foreskin is inflamed and infected.
- These conditions are more common in uncircumcised men with poor hygiene, but they may also appear in uncircumcised young boys.
- In severe cases, the client may present with phimosis (see page 1.15) and **urinary retention**.
- These conditions are usually caused by infections, but they can also be due to noninfectious causes.
 - Infections include:
 - Bacteria
 - Fungus
 - Herpes simplex
 - Protozoa
 - Syphilis
 - Viral warts
 - Noninfectious causes include:
 - Diabetes
 - Latex allergy (see Photograph 2 in Appendix H on page H.3)
 - Lichen planus**
 - Psoriasis
 - Trauma to the glans

Management

- Retracting the foreskin and cleaning the genital area are the most important parts of treatment.
- In fungal infections, apply an antifungal cream, such as nystatin, miconazole, or clotrimazole, to the penis.
- Apply a low-potency hydrocortisone cream, such as hydrocortisone 1%, in addition to **specific antimicrobial therapy**.
- In severe cases, wrap the glans in gauze and soak the penis in warm water for 10 to 15 minutes.

Disorders of the Penis (*continued*)

- Inspect the **urethral meatus** for **stricture**.
- Retract the foreskin to ensure that narrowing of the foreskin does not occur as a result of the infection.
- Recurrent balanoposthitis may require circumcision.
- When clients present with urinary retention, also consider rectal mass, incontinence, **neurogenic bladder**, **bladder neoplasm**, bladder stone, use of **sympathomimetic drugs**, use of **anticholinergic drugs**, bladder cancer, **metastatic disease**, cystitis, urethritis (see page 1.38), acute prostatitis (see page 1.20), and chronic prostatitis (see page 1.20).

§ *Signs and Symptoms*

Swollen, painful penis

Physical Examination Findings

- Foreskin that is trapped behind the glans
- Glans that is engorged and purple because of constriction by the foreskin, preventing **venous return**
- Asymmetric swelling of the foreskin behind the glans that may look like **penile skin edema**

Differential Diagnosis

Paraphimosis (see Photograph 3 in Appendix H on page H.3)

Comments

- **THIS IS A MEDICAL EMERGENCY.** If the condition is not treated promptly, it can lead to **ischemia** of the penis and then to **gangrene** or **necrosis** of the glans and foreskin.
- The rapid formation of edema within a few hours may prevent manual correction of this condition.
- Paraphimosis is the entrapment of the glans by a **phimotic foreskin**, a band of the foreskin behind the glans. It usually occurs after cleansing of the glans (which requires prior foreskin retraction, after which the foreskin fails to go back to its usual position and act as a hood for the glans) or catheter insertion (which also requires prior foreskin retraction). After foreskin retraction, the constricting **phimotic ring** causes progressive edema, impairs venous return, and threatens the **viability** of the glans.
- The client may have a history of foreskin retraction.
- A **debilitated** and uncircumcised client may not have a history of foreskin retraction.
- Service providers must remember to return the foreskin to its normal anatomic position after retraction for catheter insertion.

Management

- After providing adequate local anesthesia to the penis, attempt **manual reduction**: Apply gentle, steady pressure on the glans with the thumbs, while placing the other fingers of both hands behind the phimotic ring and foreskin. Push the glans down, back, and inside the ring of the constricting foreskin.
 - Refer the client to a surgeon for circumcision (or an emergency **dorsal-slit** procedure) if the foreskin cannot be returned to its normal position.
-

Disorders of the Penis (*continued*)

§ *Signs and Symptoms*

- One or more lesions on the penis
- Inguinal node enlargement

Physical Examination Findings

- Red, **plaque**-like lesions on the glans or the shaft of the penis
- Precancerous dermatological lesions on the penis

Differential Diagnosis

Penile cancer

Comments

- This condition, which is also known as **squamous cell carcinoma of the penis** (see Photograph 6 in Appendix H on page H.4), while rare, is seen mostly in older uncircumcised men and is associated with poor hygiene.
- Most penile cancers originate near the corona of the glans.
- Penile cancer extends locally, is prevented from deep invasion by the fascia layers of the penis, and is late to **metastasize**. Metastasis occurs through the penile lymphatic nodes to the inguinal nodes.
- Penile cancer has a low mortality rate if it is diagnosed quickly and has a high mortality rate if it is not.
- The appearance of penile cancer is quite variable. It often has a wart-like appearance.
- Lesions that are persistent or resistant to treatment should be suspected to be cancerous, particularly those that are ulcerated.
- **Carcinoma in situ (Bowen's disease, erythroplasia of Queyrat)** presents as a red, plaque-like lesion on the glans or the shaft of the penis.
- Precancerous dermatological lesions of the penis include leukoplakia, atrophy of the glans and foreskin, and a lesion associated with HPV.
- A correlation between HPV and the development of penile (or rectal) cancer may exist.

Management

- **Biopsy** any lesion that does not resolve in the expected period of time.
- Refer the client to a specialist for further management.
- Treatment may require surgery (a **penectomy**) and/or chemotherapy. Most components of sexual function will be preserved if diagnosis is made early.
- Talk with the client about what to expect, inform the client's partner(s) that the client will likely be able to continue to function sexually, and discuss ways that they can achieve sexual stimulation and pleasure.
- Ongoing follow-up medical care will be necessary.
- During follow-up visits, assess how the client and his partner(s) are adjusting after surgery. Assess the client for signs of depression.

§ *Signs and Symptoms*

- Prolonged, painful erections, usually in the absence of sexual arousal
- Sustained, painful erections, even after ejaculation

Disorders of the Penis (*continued*)

Physical Examination Findings

- Congested blood in the corpora cavernosa (as in normal erections)
- Flaccid corpus spongiosum and glans (in contrast with normal erections)

Differential Diagnosis

Penile constriction by a foreign body, such as an elastic band

Comments

This condition is seen mostly in boys and adults with below-average intelligence.

Management

Remove the foreign body from the penis.

§ *Signs and Symptoms*

- Swollen, painful penis
- Swelling and bruising of the penile area
- Blood in the urine

Physical Examination Findings

Black-and-blue, very swollen penis

Differential Diagnosis

Penile injury or penile trauma

Comments

- Penile injuries include penile amputation, penile fracture, blunt injuries, and crush injuries; penile trauma can result from various means, including a constricting rubber band, vigorous sexual intercourse, and direct trauma.
- Penile fracture can result from sexual intercourse and involves the rupture of the tunica albuginea.
- This condition may be caused by entrapment of the penis in a zipper, which most often occurs in young boys.

Management

- Most clients require a retrograde urethrogram to rule out urethral injury.
 - Management of the condition depends on the specific type of injury or trauma.
 - Refer the client to a surgeon if penile swelling is significant and seems to indicate extensive tissue damage.
 - If the penis is entrapped in a zipper, the zipper can be unzipped after providing adequate anesthesia to the penis.
-

§ *Signs and Symptoms*

- Prolonged, painful, curved erections that make sexual intercourse difficult or impossible
- No pain when the penis is not erect

Physical Examination Findings

Palpable, dense, fibrous plaques on the lower part of the shaft of the penis

Disorders of the Penis (*continued*)

Differential Diagnosis

Peyronie's disease

Comments

- This condition is a fibrous thickening of the tunica albuginea.
- It may occur in conjunction with other fibrosing disorders, including Dupuytren's contracture of the flexor tendons of the hand (in the palm), aponeurotic plantar fibrosis (in the foot), and knuckle pads on the extensor surface of finger joints.
- It is most common in white men of Celtic origin.
- Spontaneous remission of symptoms occurs in about 50% of cases. Usually the pain resolves, but the curvature persists.

Management

- If the client is asymptomatic, fibrous-tissue formation does not require treatment.
- Treatment may require surgery to remove the fibrous tissue and graft a patch onto the affected area, but this may result in further scarring and worsen the condition.
- Refer the client to a urologist if necessary.

§ *Signs and Symptoms*

- Inability to retract the foreskin
- Narrow or narrowing of the opening of the foreskin
- Penile discharge
- Urinary difficulties, including urine filling the foreskin during urination

Physical Examination Findings

- Difficulty retracting or inability to retract the foreskin to reveal the glans because of the narrowed foreskin
- Urine trapped under the foreskin, resulting in swelling and inflammation of the foreskin
- Evidence of poor hygiene

Differential Diagnosis

Phimosis

Comments

- **THIS CAN BE A MEDICAL EMERGENCY** in some cases. If the condition needs to be treated and is not managed promptly, it can lead to kidney damage, urinary tract obstruction, and death.
- This condition is a narrowing of the opening of the foreskin, which prevents the foreskin from being retracted.
- **Physiologic phimosis** is present until normal adhesions between the foreskin and the glans separate. As normal secretions accumulate and there is sloughing of the skin, **smegma** (see Photograph 5 in Appendix H on page H.4) accumulates. This discharge may be confused with infectious penile discharge.
- **Pathologic phimosis** occurs when the foreskin cannot be retracted after puberty or when the foreskin could previously be retracted. In severe cases, the opening of the foreskin may be completely closed, inhibiting urination and leading to urinary tract obstruction.

Disorders of the Penis (*continued*)

(In Africa, this is sometimes also caused by a milky fluid from the leaves of certain shrubs. School-age boys sprinkle some of this fluid under the foreskin to make their penises bigger, which stay enlarged for a couple of days because of severe inflammation, especially of the foreskin. This practice occasionally results in the boys' acute inability to pass urine and sometimes requires surgery for emergency **urinary diversion**.)

- In boys, the foreskin may not be completely retractable until late adolescence. There is no need for concern if the foreskin is not completely retractable as long as the urethral meatus is visible and nothing is preventing urination.
- Constriction of the opening of the foreskin may result from edema, inflammation, fibrosis, or scarring.
- If there is evidence of infection (edema, **erythema**, or discharge), treat with a topical broad-spectrum antibiotic and warm soaks until the infection resolves.

Management

- Phimosis needs to be treated if it is associated with recurrent inflammation or urinary problems.
- If the client is unable to urinate, gently cleanse the opening or the tip of the foreskin; apply a topical anesthetic gel, such as viscous lidocaine 1–2%; and wait 10 minutes for the anesthetizing effect. Gently dilate the opening of the foreskin with graduated sounds or dilators until the foreskin is sufficiently open and the risk of blockage is resolved. If the client continues to be unable to urinate, he may need to have a catheter inserted through the urethral meatus into the bladder to relieve the obstruction.
- Instruct the client to gently retract the foreskin several times a day to ensure that strictures and narrowing do not occur.
- Instruct the client about the importance of good penile hygiene.
- In severe cases, recurrent inflammation or urinary difficulties require surgery. Refer the client to a surgeon for circumcision (or a dorsal-slit procedure) if necessary.

§ *Signs and Symptoms*

- Prolonged, painful erections, usually in the absence of sexual arousal
- Sustained, painful erections, even after ejaculation

Physical Examination Findings

- Congested blood in the corpora cavernosa (as in normal erections)
- Flaccid corpus spongiosum and glans (in contrast with normal erections)

Differential Diagnosis

Priapism (see Photograph 4 in Appendix H on page H.3)

Comments

- **THIS IS A MEDICAL EMERGENCY.** If the condition is not treated promptly, it can lead to necrosis of the tissue and then to permanent erectile dysfunction.
- Priapism is a persistent erection in the absence of sexual excitement or desire.
- It is usually caused by taking drugs that are used to treat erectile dysfunction. It is also caused by such disorders as leukemia, pelvic tumors, pelvic infection, penile trauma, sickle-cell anemia (the most common cause of priapism in boys), and spinal cord trauma, and by the use of alcohol, antihypertension agents, and cocaine.

Disorders of the Penis (*continued*)

Management

- Refer the client to a urologist immediately.
 - Oral terbutaline may be beneficial.
-

Disorders of the Prostate Gland

§ *Signs and Symptoms*

- Urinary retention or difficulty urinating
- Urinary hesitancy, with decreased force and size of the urinary stream
- **Incontinence**
- **Posturination dribble**
- **Hematuria**
- **Nocturia**

Physical Examination Findings

- During rectal examination, an enlarged, rubbery, nontender prostate gland
- Asymmetric enlargement of the prostate gland
- Distended bladder
- Client discomfort when pressure is applied suprapubically to the bladder

Differential Diagnosis

Benign prostatic hyperplasia (BPH)

Comments

- This condition (also known as benign prostatic hypertrophy) is the enlargement of the prostate gland, which causes urinary difficulties. It is usually seen in men over age 40.
- BPH causes varying degrees of **bladder-outlet obstruction**. Longstanding obstruction can lead to **decompensation of the bladder**, with **bladder diverticula**, **residual urine**, incontinence, urinary tract infection, hematuria, and, ultimately, renal failure.
- The condition is often accompanied by **cystitis**.
- BPH and prostate cancer often occur together.
- The **prostate-specific antigen (PSA)** is moderately elevated in 30% to 50% of men with BPH.

Management

- Catheterization will provide immediate relief.
 - Explain to the client that medical and/or surgical management is possible, but that this needs to be provided and supervised by a specialist.
 - Treatment for BPH involves the use of **antiandrogens**, which can reduce sexual drive and cause **erectile dysfunction**.
 - Explain to the client that after surgery, his prognosis for maintaining sexual function is excellent, but that **retrograde ejaculation** is common in a small proportion of men.
 - Refer the client to a urologist for surgery.
-

Disorders of the Prostate Gland (*continued*)

§ *Signs and Symptoms*

- Bloody semen at orgasm, without associated pain
- Red, dark blue, or brown ejaculate

Physical Examination Findings

- Minimal physical findings
- Abnormal ejaculate

Differential Diagnosis

Hemospermia

Comments

- This condition is thought to be caused by a ruptured blood vessel. It usually is not associated with a disease or illness, and is rarely, but sometimes, caused by prostate cancer.

Management

- Reassure the client that with isolated hemospermia, normal **urinalysis**, and a normal digital rectal examination, the risk for prostate cancer is low.
 - If the client has persistent hemospermia (hematuria or abnormal rectal findings), refer the client to a specialist for invasive procedures such as **cystoscopy** or **transurethral ultrasound**.
-

§ *Signs and Symptoms*

- Urinary retention or difficulty urinating
- Incontinence
- Hematuria
- Weight loss, fatigue, and generalized weakness
- Back, leg, and perineal pain

Physical Examination Findings

During rectal examination, a diffuse, hard texture of the prostate gland or hard nodule(s)

Differential Diagnosis

Prostate cancer

Comments

- This condition is an adenocarcinoma of the prostate gland.
- Its incidence rises steadily with age; prostate cancer is rare in men under age 40.
- The causes of prostate cancer are unknown, but they may include genetic predisposition, hormonal influences, dietary and environmental factors, and infectious agents.
- Prostate cancer varies widely in biological behavior and **metastatic potential**; many cancers are unrecognized during the client's lifetime.
- Metastatic spread to the bony pelvis, ribs, and vertebrae may cause backache, bone pain, **pathologic fractures**, **neurological symptoms**, or weakness.
- Most clients with prostate cancer are asymptomatic.
- Some clients may present with spinal-cord compression as the first indication of prostate cancer.

Disorders of the Prostate Gland (*continued*)

- **Prostatitis** (especially with chronic inflammation), **prostatic tuberculosis**, **calculi**, BPH, and **prostatic cysts** should also be considered.
- PSA is elevated in 95% of men with prostate cancer.

Management

- The diagnosis is made with the help of a **needle biopsy** of the prostate gland, a **trans-rectal ultrasound (TRUS)**, and an elevated serum PSA. PSA levels decline after successful treatment and rise again with recurrence.
- Management options are watchful waiting, radical surgical **prostatectomy**, **radiation therapy**, **hormone therapy**, and **chemotherapy**:
 - For men over 70 with slow-growing tumors, other significant illnesses, or fear of the side effects of recommended therapies, watchful waiting is the management option of choice.
 - Radical surgical prostatectomy involves removal of the prostate and some of the tissue around the gland, which can result in **impotence** and incontinence.
 - With radiation therapy, impotence and urinary incontinence occur slightly less often than with surgery; however, damage to the rectum is a potential complication. Cryosurgery is less invasive.
 - Hormone therapy slows or prevents the growth of cancer cells by reducing testosterone, which stimulates their growth; this can be achieved by administering female hormones (estrogen) or removing the testes, both of which may involve the risk of impotence and loss of sexual desire.
 - Most prostate cancers are hormone-dependent, and nearly 75% of men with metastatic prostate cancer respond to various forms of **androgen** deprivation. This may require the use of estrogens, LHRH agonists, ketoconazole, aminoglutethamide, glucocorticoids (e.g., prednisone), or antiandrogens, as well as **orchiectomy**.
 - Men who are impotent have normal sensations, can have a normal sex drive, and can achieve a normal orgasm.
- Sexual function may be assisted to return to normal, with newer technologies (where available).
- Refer the client to a urologist if necessary.

§ *Signs and Symptoms*

- Pain in the pelvic area
- Urinary retention or difficulty urinating
- **Dysuria**, frequent urination, or urgent urination
- Pain during defecation
- Pain during and after ejaculation
- Acute illness, with fever, chills, weakness, and malaise
- Pain in the lower back, rectal area, or perianal area
- “Sitting on a hot coal” sensation in the perineum

Physical Examination Findings

- During rectal examination, an inflamed, swollen, tender, warm, and firm prostate gland
- Many **leukocytes** found through **urinalysis**, especially after the rectal examination
- In chronic prostatitis, a normal, less tender, **boggy**, or **focally indurate** prostate gland

Disorders of the Prostate Gland (*continued*)

Differential Diagnosis

Prostatitis

Comments

- This condition is an inflammation of the prostate gland.
- It is caused by an **ascending infection** from the urethra, by cystitis, or by **hematogenous spread**. Prostatitis is usually caused by **coliform bacteria**, but can also be caused by **gonococci, enterococci, and trichomonas**.
- Micro-abscesses may form early; gross abscesses are a late complication.
- **Bacterial prostatitis** may be acute or chronic. Acute bacterial prostatitis is usually accompanied by acute bacterial cystitis. Acute bacterial prostatitis is more common in young men, and chronic bacterial prostatitis is more common in older men. **Pyelonephritis** or **epididymitis** may also develop.
- **Nonbacterial prostatitis** tends to be chronic. Increased numbers of leukocytes are present in prostatic secretions, but no **etiologic organisms** can be isolated. Symptoms from this type of prostatitis are usually mild.
- **Urethral stricture** predisposes clients to recurrent prostatitis.
- Clients who present with acute urinary retention, infection, and obstruction are at high risk for **sepsis**.
- Diagnosis is made by careful examination of the abdomen, by bladder palpation, and by gentle rectal examination to check for tender prostate.
- Examination of a divided sample of urine and urethral discharge can help distinguish between urethritis, cystitis, and prostatitis.
- During diagnosis, it is important to rule out perirectal or bladder pathology, such as acute **recto-sigmoid diverticulitis, interstitial cystitis, carcinoma in situ** of the bladder, anal fissure, thrombosed hemorrhoid, or **prostatic abscess**.
- The rectal examination may be painful for the client because of the inflamed prostate gland.
- Prostate massage is contraindicated because it may spread bacteria and cause **bacteremia**.

Management

- Tell the client to drink plenty of fluids, get plenty of rest, and take hot sitz baths.
 - Give the client an analgesic or an anti-inflammatory agent for pain and a stool softener.
 - Prescribe an organism-specific antibiotic, which is the primary component of treatment.
 - If the client has a prostatic abscess, surgical drainage and antibiotics are required.
 - Explain to the client that he needs to have surgery.
 - Explain to the client that he will have to return in two weeks for a follow-up evaluation, and again in four to six weeks after he completes the course of antibiotics for a repeat prostate examination and urinalysis.
 - Refer the client to a urologist for surgery.
 - If the client shows **systemic signs** of sepsis, he should be admitted to a hospital.
 - If possible, refer clients who are over age 50 with acute prostatitis to a urologist because acute prostatitis is often associated with BPH and has a high recurrence rate.
 - If possible, refer clients with chronic prostatitis to a urologist.
-

Disorders of the Scrotum and Groin

§ *Signs and Symptoms*

- Painful scrotal swelling
- Scrotal trauma

Physical Examination Findings

- Mass, similar to a hydrocele (see below), that does not **transilluminate** (see page 3.11)
- Discolored scrotal skin

Differential Diagnosis

Hematocele

Comments

- This condition is blood or a blood clot within the potential space between the two layers of the **tunica vaginalis**.
- It is usually caused by scrotal trauma and may be caused by a scrotal tumor.
- A hematocele can accompany a **testicular rupture**.
- The transillumination test assesses for the presence of fluid in the scrotal sac by transilluminating the scrotum with a penlight. The fluid should be pink, not dark or red. Dark or red fluid suggests either a scrotal mass, a testicular mass, or blood in the scrotum. Transillumination is less successful for men with dark pigmentation.

Management

Refer the client to a surgeon if he has no recent history of scrotal trauma.

§ *Signs and Symptoms*

- Gradual, painless scrotal swelling
- Sensation of scrotal heaviness that radiates to the genital area

Physical Examination Findings

- Round, cystic mass located around the testes and epididymis
- Definitive palpation of the testes is obscured
- During transillumination, a visible, translucent mass

Differential Diagnosis

Hydrocele (see Photograph 7 in Appendix H on page H.4)

Comments

- This condition is an accumulation of sterile fluid in the tunica vaginalis. It is the most common cause of **nonacute intrascrotal swelling**.
- A hydrocele can be **congenital**. It also can be caused by an overproduction of fluid related to the inflammation of the testes or appendages or to testicular cancer (see page 1.33).
- The condition can develop rapidly in response to a scrotal injury, radiation treatment, **acute nonspecific** or **tuberculous epididymitis**, or orchitis (see page 1.32).
- A chronic hydrocele can develop gradually in middle-aged and older men.

Disorders of the Scrotum and Groin (*continued*)

- In a hydrocele in a young boy, **congenital failure** of the tunica vaginalis to **obliterate** after birth allows communication between the tunica vaginalis and the peritoneum. This is a “communicating hydrocele.” Parents usually say that the scrotal swelling disappears when the boy sleeps. A pediatric hydrocele is “communicating” and decompressing when the client is supine (i.e., a **communicating hernia**).
- A hydrocele may result from epididymitis, trauma, tumor, or prior surgery.

Management

- If the hydrocele is not excessively large and bothersome, surgery is not necessary.
- Refer the client to a surgeon if a testicular tumor is the underlying etiology.

§ *Signs and Symptoms*

- Scrotal swelling
- More prominent scrotal swelling when the client coughs, lifts objects, or increases intra-abdominal pressure

Physical Examination Findings

- Enlarged scrotum, usually unilaterally
- With a bowel that is not **strangulated**, a visible, warm mass, with **audible peristaltic sounds** or **palpable vibrations**
- **Reduction of the bowel** through the **inguinal defect**

Differential Diagnosis

Inguinal hernia (see Photograph 8 in Appendix H on page H.5)

Comments

- **THIS IS A MEDICAL EMERGENCY** when the inguinal hernia is strangulated or incarcerated (see page 1.TK). If the condition is not treated promptly, it can lead to bowel necrosis resulting from impaired circulation, with **bowel perforation**, peritonitis, and death.
- The condition is a protrusion of the contents of the abdomen, often the bowel, through the inguinal canal into the scrotal sac.
- Developing an **incarcerated hernia** is most common during the first year of life.
- With a hernia, the spermatic cord *cannot* be palpated above the mass, but with a hydrocele or a hematocele, the spermatic cord *can* be palpated above the mass.

Management

- Refer the client to a surgeon immediately if the hernia appears to be strangulated or incarcerated.
 - If no signs of strangulation are apparent (the bowel is warm and **peristalsis** is present), reduce the hernia manually by gently pulling up on its contents while the client is supine.
 - Refer the client to a surgeon for a **herniorrhaphy**.
 - Explain to the client that routine postoperative follow-up is indicated.
-

Disorders of the Scrotum and Groin (*continued*)

§ *Signs and Symptoms*

Symmetrical scrotal swelling

Physical Examination Findings

Edema of the scrotal tissue and penis

Differential Diagnosis

Scrotal edema

Comments

- This condition is an accumulation of fluid within the scrotal sac.
- It is caused by **abdominal lymphatic** or **venous compression**, an **intra-abdominal tumor**, **congestive heart failure**, cirrhosis with **ascites**, **nephrotic syndrome**, **filariasis**, or **idiopathic lymphedema**.
- Scrotal edema in children may be caused by an allergic reaction to an article of clothing, a powder, a lotion, or a chemical, or by **angio-neurotic edema**.

Management

- Elevate the scrotum.
 - Refer the client to a surgeon for treatment of the underlying cause.
-

§ *Signs and Symptoms*

Scrotal swelling

Physical Examination Findings

- Enlarged, painless scrotum
- During palpation, a solid firmness of the scrotal skin
- Enlargement of the legs, arms, or breast

Differential Diagnosis

Scrotal elephantiasis (see Photograph 9 in Appendix H on page H.5)

Comments

- This condition is an enlarged, painless scrotum.
- It is caused by filaria worms that infest the lymphatic system, resulting in inflammation and scarring, which eventually obstruct the normal flow of the lymph. The larvae of the filaria worm are transmitted by mosquito bites.
- Scrotal elephantiasis presents initially as a slowly developing enlargement of the scrotum with soft and **pitting** edema, with or without pain. Later, the scrotal skin thickens, the edema becomes nonpitting, and a solid firmness of the skin develops, along with a significantly enlarged scrotum.
- The enlargement of the scrotum can reach incapacitating sizes.
- The condition is found mostly in tropical and subtropical areas.

Management

- Prescribe antifilaria drugs (diethylcarbamazine, ivermectin) to kill the worm.
 - Explain to the client that surgery to excise the redundant scrotal tissue is necessary.
 - Reduce the dependency (hanging) of the scrotum by supporting it with firm bandaging.
 - Refer the client to a surgeon.
-

Disorders of the Scrotum and Groin (*continued*)

§ *Signs and Symptoms*

Small, painless scrotal swelling

Physical Examination Findings

- Small, cystic mass based in the epididymis
- During transillumination, a soft, freely mobile, lucent mass
- In the chronic state, a firm mass

Differential Diagnosis

Spermatocoele (see Photograph 10 in Appendix H on page H.5)

Comments

- This condition is a benign, circular, nontender mass that occurs next to the epididymis in the **upper pole** of the testes and often contains sperm.
- Most spermatocoeles are small, less than 1 cm in size, but some can be as large as 10 cm.
- A large spermatocoele may be difficult to differentiate from a hydrocele and may feel like a third testicle.

Management

- If a spermatocoele causes pain or discomfort, a **spermatocoelectomy** is required.
 - Refer the client to a surgeon.
-

§ *Signs and Symptoms*

Scrotal swelling, usually chronic and on the left side

Physical Examination Findings

- Scrotum that feels like a “bag of worms” because of its prominent, slippery vessels
- Small “bag of worms” felt just above the testicle, along the **spermatic cord**

Differential Diagnosis

Varicocele

Comments

- This condition is a collection of **varicose** veins in the scrotal sac.
- A varicocele more commonly occurs on the left side because the left testicular vein drains into the left **renal vein**, whereas the right testicular vein drains into the **inferior vena cava**.
- Nearly 20% of men have a left varicocele of some degree. An acute appearance of a varicocele, especially on the right side, should prompt further evaluation for the presence of renal cancer, renal vein thrombosis, or vena cava obstruction.
- The condition is associated with infertility.
- A client who presents with a varicocele of recent or rapid onset, especially on the right side, should be evaluated for kidney cancer, which might be occluding the renal vein.
- A varicocele is usually visible when the client is in an upright position.

Management

- Refer clients with suspected testicular cancer (see page 1.33) to a urologist.
 - Varicocele ligation surgery involves tying of the veins.
-

Disorders of the Skin of the Genitals

§ *Signs and Symptoms*

- Burning or warm sensation in the genital area
- Itching and red rash in the genital area
- Swelling of the genital area
- Stinging sensation in the genital area
- **Vesicles** in the genital area

Physical Examination Findings

- Redness in the genital area
- Possible thickening of the skin in the genital area
- Possible open **ulcers** or moist areas of the genital skin

Differential Diagnosis

Genital dermatitis

Comments

- This condition is caused by inflammation of the skin in the genital area from an **allergen**. Allergic reactions commonly occur after contact with soaps, spermicides, latex, perfumed lubricants, detergents, fabric softeners, nylon undergarments, and topical medications.
- Symptoms usually begin one to two days after exposure to the allergen.
- A client with dark pigmentation may have **hyperpigmentation** rather than redness.
- Physical examination findings may be due in part to the client's scratching of the affected area.

Management

- Remove the allergen.
 - Apply cold **compresses** and/or topical steroids to the affected area.
 - Prescribe oral medication (steroidal or nonsteroidal anti-inflammatory medication).
-

§ *Signs and Symptoms*

- Blisters or ulcers on the mouth, lips, genitals, anus, or surrounding areas
- Burning or pain during urination
- Itching or tingling in the genital area

Physical Examination Findings

Inguinal lymphadenopathy that may present two to three weeks after the onset of symptoms

Differential Diagnosis

Genital herpes (see Photograph 11 in Appendix H on page H.6)

Comments

- Complications of this condition include aseptic meningitis and **encephalitis**.
- Initial lesions are painful vesicles with surrounding erythema that can cause shallow ulcers.

Disorders of the Skin of the Genitals (*continued*)

- There is a recurrence in 90% of clients with genital herpes during the first year of infection.
- Even though clients can be asymptomatic, they can still infect others, even when they “shed the virus” (some viruses can fall off or leave the body).

Management

- This condition is incurable, but the lesions can be suppressed with antiviral medications.
- Instruct the client to follow general supportive measures:
 - ✦ Sitting in a bathtub or basin filled with warm water and some baking soda two times a day.
 - ✦ Keeping the sores and the areas around them clean and dry.
 - ✦ Using pain relievers, such as acetaminophen or aspirin.
- Counsel the client on the importance of compliance with treatment, follow-up visits, **partner management**, and the use of condoms.

For more information about the management, treatment, and prevention of genital herpes, see Appendix B on page B.4.

§ *Signs and Symptoms*

- Burning in the genital area
- Itching and red rash in the genital area
- Swelling in the genital area

Physical Examination Findings

- Red, scaly papules that coalesce to form round-to-oval plaques
- Scales are **adherent** and silvery white, and reveal **bleeding points** when removed (**Auspitz’s sign**)

Differential Diagnosis

Psoriasis

Comments

- This condition is an excess of skin cells that can cause red, scaly patches that can affect various parts of the body, including the genitals.
- Its cause is unknown.
- Psoriasis usually develops in such areas as the elbows, knees, scalp, **gluteal cleft**, fingernails, and toenails.
- Typical psoriatic plaques with white scale can appear on a circumcised penis but do not form on an uncircumcised penis (this penis is covered by a foreskin).
- The client may also complain of arthritis.

Management

- Prescribe a topical cream that contains steroids.
 - The client may need systemic treatment and light therapy for extensive involvement.
 - Refer the client to a dermatologist if necessary (if the condition worsens or does not respond to treatment).
-

Disorders of the Skin of the Genitals (*continued*)

§ *Signs and Symptoms*

- Lesions in the genital area
- Severe itching in the genital area

Physical Examination Findings

Erythematous papules that may be **hemorrhagic**

Differential Diagnosis

Pubic lice

Comments

- This condition is caused by a parasite that may migrate to other hairy areas of the body, such as the eyebrows and eyelids.
- The client may indicate that family members also have severe itching.
- Severe itching can lead to **excoriations**, which predispose the client to bacterial infections.

Management

- The condition is curable with a special shampoo.
- Counsel the client on the importance of compliance with treatment, follow-up visits, and partner management.

For more information about the management, treatment, and prevention of pubic lice, see Appendix B on page B.7.

§ *Signs and Symptoms*

- Lesions in the genital area
- Penile discharge
- Severe itching in the genital area
- Areas of excoriation on the penis, scrotum, **axilla**, buttocks, elbows, and **interdigital web spaces**

Physical Examination Findings

Vesicular, pustular, or papular skin lesions

Differential Diagnosis

Scabies

Comments

- This condition is difficult to differentiate from pubic lice.
- It is associated with overcrowding.
- The client may indicate that family members also have severe itching.

Management

- The condition is curable.
- Prescribe a topical cream.
- Advise the client to practice good hygiene.
- Treat all family members.

For more information about the management, treatment, and prevention of scabies, see Appendix B on page B.7.

Disorders of the Skin of the Genitals (*continued*)

§ *Signs and Symptoms*

- Burning in the genital area
- Itching and red rash in the genital area
- Swelling in the genital area

Physical Examination Findings

- Lesions, which are usually bilateral, in the **crural fold**
- Half-moon–shaped plaques, scaling, and sometimes a **vesicular border** that advances out of the crural fold onto the thigh

Differential Diagnosis

Tinea of the groin (jock itch)

Comments

- This condition is a form of ringworm, which is a type of fungal infection of the outer layers of the skin, hair, and nails.
- It usually occurs in the summer months, after the client has been sweating or wearing wet clothing for long periods of time.
- A warm, moist environment predisposes clients to this condition.

Management

Apply an antifungal cream or a combination antifungal/steroid cream for several days.

Disorders of the Testes

§ *Signs and Symptoms*

- **Undescended testes**
- Infertility

Physical Examination Findings

- Testes that are not palpable in the scrotum
- Undescended testes that may be palpable as a mass in the **inguinal canal**
- Testes that may be **retractile**

Differential Diagnosis

Cryptorchidism (see Photograph 12 in Appendix H on page H.6)

Comments

- This condition is the incomplete or abnormal descent of one testicle or both testes into the scrotum.
- In an infant, a retractile or **hypermobile** testicle that pulls up into the inguinal canal can often be moved down into the scrotum with gentle pressure. But a true undescended testicle cannot be brought down in this way.
- An absent testicle is very rare.

Disorders of the Testes (*continued*)

- **Ectopic testicle** is associated with cryptorchidism. Once in a while, when the inner thigh is stroked longitudinally, a retractile testicle can be brought back up into the inguinal canal by a hyperactive cremaster reflex (see below).
- Cryptorchidism of both testes leads to infertility; undescended testes lose the ability to produce sperm if they are not brought back up into the scrotum (see page 1.54). Cryptorchidism also leads to a high risk of developing testicular cancer (see page 1.33) later in life.
- If only one testicle is undescended and diagnosed after puberty, surgery is usually performed.
- Retractable or hypermobile testes do not require treatment.

Note: The cremaster reflex is a superficial skin reflex that is elicited by stroking the skin of the inner aspect of the thigh in an upward motion. This action causes the cremaster muscle to contract and the testicle to elevate at least 0.5 cm. The cremaster reflex is best demonstrated when the client is supine or in a **lithotomy position**.

Management

- Refer the client to a urologist if surgery is necessary.
- Performing **orchidopexy**, preferably before age 2, may be considered. If surgery is delayed until after age 5, **impaired spermatogenesis** may result, especially if both testes are undescended.
- Even after treatment, the client may still be at higher risk for testicular cancer (see page 1.33). Advise the client (or his parents) of the signs and symptoms of testicular cancer and explain how to perform a genital self-examination.
- Explain to the client (or his parents) that he needs to have yearly follow-up examinations.

§ **Signs and Symptoms**

- Gradual onset of scrotal pain and swelling that peaks over a period of three to 24 hours
- Scrotal swelling that radiates to the abdomen or genital area
- Scrotal swelling that develops after heavy lifting or exercise
- Dysuria, frequent urination, and urgent urination
- Nausea and low-grade fever
- Increased incidence of epididymitis after vasectomy

Physical Examination Findings

- Localized, tender, swollen epididymis when the epididymis is palpated inferior and posterior and separately from a less painful testicle
- Testicular discomfort that can be relieved through scrotal elevation
- Scrotal skin that is reddened or, when an abscess is present, dry, flaky, and thin
- Urethral discharge
- Thickened spermatic cord

Differential Diagnosis

Epididymitis

Disorders of the Testes (*continued*)

Comments

- **THIS IS A MEDICAL EMERGENCY** in severe cases. This condition is an infection or inflammation of the epididymis. If the infection is left untreated, it can enter the bloodstream, which is life-threatening.
- It is usually caused by gonorrhea, chlamydia, or **gram-negative enteric bacteria**. Organisms generally reach the epididymis through the lumen of the vas deferens from a previous infection of the bladder or posterior urethra.
- The condition is most often associated with **sexual activity** and STIs. It is also caused by tuberculosis. In young clients, epididymitis is most commonly caused by STIs, so taking a thorough sexual history is important (see page 1.61).
- Commonly, epididymitis is caused by direct scrotal trauma. It may present as **chemical epididymitis** following heavy lifting or straining that causes urine to **reflux** from the bladder down the vas deferens. As the condition progresses, swelling of the scrotum (epididymis and testicle) becomes apparent. The accompanying pain is difficult to distinguish from the pain associated with orchitis (see page 1.32).
- Recurrent attacks can lead to **chronic epididymitis** with fibrosis and scarring. In chronic epididymitis, the epididymis is thickened and enlarged; it may or may not be tender. Chronic prostatitis (see page 1.20) may also be present.
- Tuberculous epididymitis findings are similar to those of chronic epididymitis. The client may have bead-like thickenings of the vas deferens, a thickening of the seminal vesicle on the same side, a **nodular** prostate, and other evidence of urinary tract tuberculosis.
- If the condition is bilateral, sterility may result. Because sperm production and transport are disrupted, the client may not be able to fertilize the eggs of his female partner.
- There is an increased incidence of epididymitis after vasectomy. There are two possible reasons for this increase: An infection at the site of the surgery may ascend backward toward the epididymis, and the chronic or permanent obstruction in the vas deferens may play a role.
- Epididymitis is primarily a disorder that affects adults; the condition is rarely found in preadolescent boys.
- A history of urinary tract infection, painful voiding, urethral discharge, or catheterization suggests epididymitis. A history of lifting and straining or events that increase **intrapelvic** pressure also suggests this diagnosis.
- The condition may be obscured by a hydrocele (see page 1.21).
- The client may also have prostatitis. If so, do **not** massage the prostate gland, because this may cause the epididymitis to worsen.

Management

- General measures are complete bed rest and scrotal elevation with ice applied for 10 minutes three times a day.
 - Prescribe an organism-specific antibiotic, analgesics, and stool softeners.
 - In severe cases, such as sepsis and testicular abscess, the client must be hospitalized and treated with antibiotics intravenously.
-

Disorders of the Testes (*continued*)

§ *Signs and Symptoms*

- Generalized scrotal swelling and pain
- Fever
- Urethral stricture
- Scrotal-skin **furuncle**

Physical Examination Findings

- Initial findings that are very subtle
- **Edematous**, red, tense, warm, **crepitant**, black, foul-smelling scrotum
- No localized area of infection

Differential Diagnosis

Fournier's gangrene

Comments

- **THIS IS A MEDICAL EMERGENCY.** If the condition is not treated within 24 hours, it can lead to necrosis of the scrotal wall.
- The condition is a rapidly spreading skin infection that presents with scrotal swelling.
- The average client with Fournier's gangrene is age 55.
- The client may have a history of perirectal disease.
- Immunocompromised clients, such as those infected with HIV, have a higher risk for infection. Clients who have diabetes, use steroids, or abuse alcohol are also at higher risk for Fournier's gangrene.

Management

- Refer the client to a surgeon immediately; a delay in treatment can significantly increase mortality.
 - Tell the client to drink plenty of fluids.
 - Prescribe an organism-specific antibiotic.
-

§ *Signs and Symptoms*

- Scrotal pain
- **Peritoneal irritation**, including nausea and vomiting

Physical Examination Findings

Tender, firm mass that can be palpated in the **superior scrotal** and **inguinal region**

Differential Diagnosis

Incarcerated hernia

Comments

- **THIS IS A MEDICAL EMERGENCY.** If the condition is not treated promptly, it can lead to necrosis of the bowel.
- An incarcerated hernia may cause an intestinal obstruction.
- This condition is difficult to distinguish from a strangulated hernia.
- An incarcerated hernia of short duration can be carefully reduced by palpating and applying pressure to the swelling.

Disorders of the Testes (*continued*)

Management

Refer the client to a surgeon.

§ *Signs and Symptoms*

- Scrotal pain
- Gradual onset of testicular pain that radiates to the genital area
- Nausea, vomiting, and high fever

Physical Examination Findings

- Enlarged, tense, tender testicle
- Normal epididymis
- Recognizable scrotal abscesses, which are rare
- Acute hydrocele
- In **mumps parotitis**, salivary gland swelling and pain that develop three to four days before orchitis (the viruses attack both the parotid glands, causing swelling [mumps], and the testes)
- In **tuberculous orchitis**, a tuberculous infection of the lung or epididymis

Differential Diagnosis

Orchitis

Comments

- This condition is a rare infection or inflammation of the testicle.
- It is caused by the spread of infection from epididymitis (see page 1.29) or by hematogenous spread. It is also caused by the mumps virus in postadolescent males, by tuberculosis, and by syphilis (see page 1.66).
- **Granulomatous orchitis**, which is probably an autoimmune response to sperm, can occur in middle-aged and older men. This condition is hard to distinguish from testicular tumors, and it can be diagnosed only after orchiectomy.
- Testicle atrophy may occur after the acute phase of orchitis, with impaired sperm production but normal hormonal function. Spermatogenesis is irreversibly damaged in about 30% of testes after mumps orchitis. After **bilateral orchitis**, clients may become sterile.
- In early orchitis, it may be possible to distinguish between epididymitis and orchitis, but in later orchitis, inflammation and swelling affect both testes.
- Urinary symptoms are absent in orchitis unless epididymitis is also present.
- Orchitis can mask a testicular tumor.
- **Live, attenuated** mumps vaccine is highly effective in preventing mumps parotitis and orchitis.
- Orchitis is most often seen as a secondary infection during a systemic illness.

Management

- Tell the client to get plenty of rest.
- Elevate the scrotum.
- Prescribe analgesics.

Disorders of the Testes (*continued*)

- Perform a urinalysis to check for leukocytes in the urine and a **Gram stain** for **gram-negative bacteria**.
 - Explain to the client that follow-up treatment is necessary until the testicle and epididymis can be easily examined and are determined to be normal. This may take as long as four weeks.
 - **Testicular atrophy** with infertility later in life occurs in many cases, regardless of the treatment.
-

§ *Signs and Symptoms*

- Scrotal pain
- Swelling and discoloration of the scrotal skin

Physical Examination Findings

- Pain during palpation of the scrotum
- Visible laceration on the scrotum

Differential Diagnosis

Scrotal injury

Comments

- **THIS IS A MEDICAL EMERGENCY** if the testicle ruptures upon severe, blunt scrotal injury. If the condition is not treated promptly, it can lead to the permanent loss of reproductive function.
- Scrotal injury can be caused by various events, such as when scrotal skin gets caught in zippers or machinery. The testes may escape injury.
- Trauma to the scrotum sometimes involves profuse bleeding, which must be controlled.
- Scrotal injury can be blunt or penetrating. Blunt trauma can be accompanied by scrotal swelling, and severe blunt trauma can involve rupture of the testicle.
- The client may have a history of scrotal injury.

Management

Refer clients with suspected testicular trauma to a surgeon immediately.

§ *Signs and Symptoms*

Hard, irregular, and usually painless scrotal swelling

Physical Examination Findings

Testicle or testes that may be enlarged and feel firmer than normal

Differential Diagnosis

Testicular cancer (see Photograph 13 in Appendix H on page H.6)

Comments

- This condition is a malignant tumor of the testicle.
- At least 50% of testicular masses are malignancies; about 90% to 95% are **germ cell tumors**. Most scrotal masses are not testicular cancer. A painless mass in the testicle should be presumed to be cancer until proven otherwise.

Disorders of the Testes (*continued*)

- Testicular cancer is rare, but it is one of the most common cancers in men under age 30.
- The incidence of testicular cancer varies widely among countries and races.
- Men with a history of cryptorchidism (see page 1.28) are at much higher risk for testicular cancer.
- Signs of tumor spread—such as abdominal mass, edema, back pain, or weight loss—can also be present.
- About 1% to 2% of primary testicular cancers are bilateral.
- Testicular cancer is most commonly misdiagnosed as epididymitis.
- The condition may be accompanied by a hydrocele that conceals the underlying tumor.
- Pain is not generally a major complaint, but it can be a symptom if the tumor invades other structures, causing a hematocele (see page 1.21).

Management

Refer clients with suspected testicular cancer to a urologist immediately for surgery, radiotherapy, and/or chemotherapy, depending on the stage of the disease.

§ *Signs and Symptoms*

- Sudden onset of moderate to severe scrotal pain that radiates to the abdomen or genital area
- Onset of pain during sleep
- Abdominal pain only
- Intermittent episodes of severe pain
- Nausea, vomiting, and low-grade fever

Physical Examination Findings

- Tender testicle that is retracted upward and lies with its longest diameter parallel to the floor (instead of perpendicular to it) when the client stands
- Scrotal swelling
- Thickened spermatic cord
- Discomfort that is not relieved by elevating the testicle
- Swelling of the **hemiscrotum** that prevents palpation of the testicle
- Cremaster reflex often absent

Differential Diagnosis

Testicular torsion (see Photograph 14 in Appendix H on page H.7)

Comments

- **THIS IS A MEDICAL EMERGENCY.** If the condition is not treated promptly, it can lead to ischemia and necrosis of the testicle.
- This condition is the twisting of the testicle on the spermatic cord.
- Testicular torsion is caused by a congenital anomaly of the spermatic cord. The condition is also caused by cold weather, sexual arousal, and scrotal trauma.
- After the first six to 12 hours, the testicle may atrophy or develop into a scrotal abscess. Testicular torsion should be highly suspected and treated promptly because of the serious consequences.

Disorders of the Testes (*continued*)

- The client may not present in the typical manner. **Referred pain** to the abdomen, diagnosed as a stomach virus, is a common misdiagnosis.
- Testicular torsion can occur at any age, but it is most common in boys between ages 12 and 18.
- Previous episodes of testicular pain suggest testicular torsion.

Management

- Testicular torsion should be the primary consideration for any scrotal complaint in young boys and adolescent males.
 - Refer the client to a surgeon immediately.
 - The primary treatment for testicular torsion is surgical exploration. Generally, surgery within six to 12 hours of occurrence is necessary to prevent necrosis of the testicle and to salvage it.
 - **Manual detorsion** (reduction) can be attempted while definitive treatment is sought. To perform the maneuver, stand on the client's right side and help him assume a lithotomy position. Proceed with manual **detorsion** from medial to lateral—this action is similar to opening a book—because most testes twist in a lateral-to-medial position. The client's right testicle is detorsed in a counterclockwise direction.
-

Disorders of the Urethra

§ *Signs and Symptoms*

- Painful, curved erection that makes sexual intercourse difficult or impossible
- Deviation of the urinary stream
- Urethra that does not open at the glans of the penis

Physical Examination Findings

- Urethral opening on the dorsal surface of the penis, between the pubis and glans
- Groove that extends on the shaft of the penis from the actual urethral opening to the tip of the glans
- Hooded foreskin
- Dorsal scar tissue on the shaft of the penis that may be palpable
- In severe cases, a visible, malformed scrotum

Differential Diagnosis

Epispadias

Comments

- This condition is a congenital displacement of the location of the urethral opening on the dorsal surface of the penis.
- The condition is usually diagnosed at birth. If it is neglected, fully grown men may present with epispadias.
- Epispadias is much rarer than hypospadias (see page 1.36).

Management

- Explain to the parents or client that surgery corrects epispadias and that some follow-up is necessary to ensure the expected outcome of the surgery.

Disorders of the Urethra (*continued*)

- Inform the parents that they should **not** circumcise the baby because the foreskin tissue is needed for the corrective surgery.
 - If the baby or client has already been circumcised, explain that corrective surgery will be done but that it is less likely to correct epispadias.
 - Refer the parents or client to a urologist for surgery.
-

§ *Signs and Symptoms*

- Painful, curved erection that makes sexual intercourse difficult or impossible
- Deviation of the urinary stream
- Urethra that does not open at the glans of the penis

Physical Examination Findings

- Urethral opening on the **ventral** surface of the penis, between the scrotum and glans
- Groove that extends on the shaft of the penis from the actual urethral opening to the tip of the glans
- Hooded foreskin
- Ventral scar tissue on the shaft of the penis that may be palpable
- In severe cases, a visible, malformed scrotum

Differential Diagnosis

Hypospadias (see Photograph 15 in Appendix H on page H.7)

Comments

- This condition is a congenital displacement of the location of the urethral opening on the ventral surface of the penis.
- The condition is usually diagnosed at birth. If it is neglected, fully grown men may present with epispadias.
- Hypospadias is much more common than epispadias (see page 1.35).

Management

- Explain to the parents or client that surgery corrects hypospadias and that no follow-up is necessary.
 - Inform the parents that they should **not** circumcise the baby because the foreskin tissue is needed for the corrective surgery.
 - If the baby or client has already been circumcised, explain that corrective surgery will be done but that it is less likely to correct hypospadias.
 - Refer the parents or client to a urologist for surgery.
-

§ *Signs and Symptoms*

- Urinary retention or difficulty urinating
- Bloody, urethral discharge

Physical Examination Findings

Palpable urethral mass

Differential Diagnosis

Urethral carcinoma

Disorders of the Urethra (*continued*)

Comments

- This condition is a rare complication of chronic urethral stricture (see below).
- It usually occurs after a long period of **urethritis** (see page 1.38) and subsequent urethral stricture.
- Usually, this very serious lesion has spread outside the confines of the urethra to the rest of the shaft of the penis at the time of diagnosis. The cancer grows very quickly, and the client typically comes in after it has spread.
- The condition is generally rare in men over age 50.

Management

Refer the client to a urologist if necessary.

§ *Signs and Symptoms*

- Urinary retention or difficulty urinating
- Narrowed urethral opening

Physical Examination Findings

- Palpable **induration** in the area of the stricture
- Tender, enlarged masses along the urethra, suggesting **periurethral abscesses**
- Multiple streams of urine during urination

Differential Diagnosis

Urethral stricture

Comments

- **THIS IS A MEDICAL EMERGENCY.** If the condition is not treated promptly, it can lead to kidney failure and backflow of urine.
- This condition is a urethral narrowing.
- It is usually caused by trauma or by scarring or adhesions from an infection.
- Urethral stricture may be congenital when seen in children.
- **Urinary extravasation** into surrounding tissues may result from urethral strictures.
- The condition is usually painless unless the stricture causes urinary retention. Urethral stricture can be a result of gonococcal urethritis or its treatment (see page 1.40).
- If the client has prostatitis, he may present with mild dysuria, urinary frequency, or chronic urethral discharge.
- **Urethral polyps, congenital urethral valves, urethral genital warts,** phimosis, and a benign or malignant obstruction of the urethra should also be considered.

Management

- Explain to the client that he needs a simple **dilation** procedure, which is done by a urologist.
 - Tell the client that he will feel pain during urination after the procedure.
 - Explain to the client that he will require follow-up care for at least 12 months after the procedure because urethral stricture may reoccur.
 - Refer the client to a urologist.
-

Disorders of the Urethra (*continued*)

§ *Signs and Symptoms*

- Blunt trauma of the bladder and urethra
- Blood at the urethral opening
- Lower abdominal pain
- Urinary retention
- Pelvic or perineal pain and **hematoma**
- Shock (fast, weak pulse; sweating; cold, clammy skin; low blood pressure; loss of consciousness)

Physical Examination Findings

Lacerations or contusions at the site of the trauma

Differential Diagnosis

Urethral trauma

Comments

- **THIS IS A MEDICAL EMERGENCY.** If the condition is not treated promptly, it can lead to urethral stricture, erectile dysfunction, and urinary incontinence.
- The condition is an intraurethral trauma from a foreign object, a crush injury, or a straddle injury.
- Blood at the urethral opening is the most important sign of urethral injury.
- **Anterior urethral injuries** (penile and **bulbous urethra** below the **urogenital diaphragm**) are associated with **self-instrumentation**, falls, and straddle injuries. **Posterior urethral injuries** (between the bladder and the prostate gland) are usually associated with pelvic fractures.

Management

- Treat the client for shock and hemorrhage, if present (see “Overview: Emergency Management of Shock” on page 1.39).
- Do not allow the client to urinate, and do not attempt to insert a urethral catheter until assessment of the urethra is complete to eliminate any risk for extravasation.
- Refer the client to a urologist immediately for assessment and management.
- Explain to the client that after initial treatment, he will require follow-up care because posttraumatic urethral stricture may develop.

§ *Signs and Symptoms*

Dysuria and frequent urination

Physical Examination Findings

Tender, inflamed urethra

Differential Diagnosis

Urethritis (bacterial)

Comments

This condition is usually caused by an **E. coli urinary tract infection**.

Management

Prescribe an organism-specific antibiotic.

Overview: Emergency Management of Shock

The primary purposes of the physical examination are to rapidly assess the client and diagnose life-threatening injuries.

Airway and Breathing

- Give the client oxygen.
- If the client cannot adequately oxygenate, give him **ventilatory support**.

Circulation

Control bleeding from a visible injury with direct pressure.

Disability

Perform a brief neurological examination to determine level of consciousness.

Exposure

- Perform a head-to-toe examination to determine the client's injuries.
- If the client presents with pelvic trauma, check for associated disabilities, such as rupture of the urethra or bladder, intestinal perforation, nerve damage, and large-blood-vessel damage.

Access

- Catheterize the client intravenously with two large-caliber catheters placed for fluid resuscitation.
- Stabilize the client, and arrange to transport him to a facility with the resources required for his treatment.

§ *Signs and Symptoms*

- Dysuria
- Insignificant discharge from the urethra

Physical Examination Findings

Minimal physical findings (insignificant discharge)

Differential Diagnosis

Urethritis (chlamydial)

Comments

- The client usually presents with less severe symptoms than a client with gonococcal urethritis (see page 1.40).
- The **incubation period** can be as long as 45 days.

Management

Prescribe an organism-specific antibiotic.

Disorders of the Urethra (*continued*)

§ *Signs and Symptoms*

- Dysuria
- **Purulent urethral discharge** (see Photograph 16 in Appendix H on page H.8) that develops a few days after a sexual encounter
- Itching

Physical Examination Findings

Urethral discharge

Differential Diagnosis

Urethritis (gonococcal)

Comments

- Although rare, the client can develop a hematogenous spread of the organism to the joints, heart, and skin.
- The condition is commonly associated with chlamydia.
- The condition can lead to urethral stricture.

Management

- A Gram stain of the discharge examined under a microscope helps to diagnose the condition.
- Prescribe an organism-specific antibiotic.
- Explain to the client that follow-up care is necessary to ensure adequate treatment.
- Refer the client to an STI clinic.

§ *Signs and Symptoms*

- Dysuria
- Discharge from the penis
- Itching of the penis

Physical Examination Findings

With a chronic infection of the periurethral glands, induration and tender micro-abscesses that may be palpable along the urethra

Differential Diagnosis

Urethritis (nonchlamydial or nongonococcal [nonspecific]) (NGU)

Comments

- This condition is an inflammation of the urethra, which may be classified as non-chlamydial or nongonococcal.
- Nonchlamydial urethritis is most often caused by chlamydia, and nongonococcal urethritis is most often caused by gonorrhea.
- The condition is less commonly caused by **candida, herpes simplex, trichomonas infection, or ureaplasma.**
- It is infrequently caused by meningitis, gram-negative rods, or *Haemophilus*.
- Recurrent urethritis can be caused by inadequate treatment of either gonorrhea or chlamydia, reinfection by the partner, or an organism like herpes.

Management

Prescribe an organism-specific antibiotic.

Disorders of the Urethra (*continued*)

§ *Signs and Symptoms*

- Blunt trauma of the bladder and urethra
- Local swelling that extends to the scrotum, along the shaft of the penis, and up to the abdominal wall
- Pain at the site of the trauma, fever, and shock

Physical Examination Findings

Swelling and discoloration of affected tissues of the scrotum, shaft of the penis, and abdominal wall

Differential Diagnosis

Urinary extravasation

Comments

- **THIS IS A MEDICAL EMERGENCY.** If the condition is not treated promptly, it can lead to infection, sepsis, **morbidity**, and death.
- This condition is the leakage of urine into the tissues of the perineum, scrotum, and penis.
- Urinary extravasation is caused acutely by trauma to the urethra and bladder, or results from a urethral stricture.

Management

- Treat the client for shock and hemorrhage, if present (see “Overview: Emergency Management of Shock” on page 1.39).
 - Do not allow the client to urinate, and do not attempt to insert a urethral catheter until assessment of the urethra is complete to eliminate any risk for extravasation.
 - Refer the client immediately to a urologist for assessment and management.
-

Male Sexual Dysfunction

Sexual dysfunction is the inability to react emotionally or physically to sexual stimulation in a way expected of the average healthy individual or according to one’s own standards of acceptable sexual response.

Common Causes of Male Sexual Dysfunction

Any of the following factors can contribute to male sexual dysfunction:

- **Psychological/emotional factors**, including stress, negative body image, **performance anxiety**, expectation of failure, fear of making a partner pregnant, memory of negative sexual experiences, and fear of acquiring or transmitting an STI.
- **Biological/physiological factors**, including changes related to aging, certain medical conditions (arthritis, reproductive cancers, diabetes, cardiac disease, hypertension), physical injury (such as spinal cord injuries), and substance abuse. Alcohol and anxiolytics can be “disinhibiting,” removing usual psychological inhibitions against sexual

activity. Many men have occasional experiences of not being able to attain an erection when they are tired, are physically cold, or have ingested too much alcohol.

- **Medications**—including antihypertension medications (especially diuretics, sympatholytics, and beta blockers), central nervous system drugs, hormones, and chemotherapeutic drugs—are also likely to have adverse sexual effects. Antidepressants may decrease desire due to the action of the drug, or increase desire due to alleviation of the depression. (This increased desire could have an adverse sexual effect in a very few cases. It could get out of control and lead to distress or, at the extreme, to unsafe sexual behavior or even illegal sexual behavior such as rape.)

One of the first questions that should be asked of any man who complains of sexual dysfunction is whether he is taking any medications and, if so, whether his problem appeared or worsened when he started the medication. It is often possible to switch to another medication that will have similar therapeutic benefits, but less negative impact on sexual functioning.

- **Interpersonal/social factors**, including peer pressure, poor communication with his partner, sexual abuse, religion, attitudes toward his sexual orientation, uncertainty of how to behave, and conflicts with his partner.
- **Environmental factors**, including cultural influences, gender dynamics, the availability of partners (partner ratio), and physical setting (lack of privacy).

Common Male Sexual Dysfunctions

Male sexual dysfunction can manifest in a variety of ways. Therefore, taking a good history is critical to ensuring a proper diagnosis and subsequent treatment. The following discussion describes common male sexual dysfunctions and their corresponding causes, signs and symptoms, and management.

Erectile Dysfunction

Erectile dysfunction, or impotence, occurs when a man is unable to attain or maintain a hard, erect penis satisfactory for sexual intercourse. Men with erection problems often retain other sexual functions. They may, for example, still have sexual desire, as well as the ability to have orgasms and ejaculate semen.

Causes. Erectile dysfunction can occur for a variety of reasons and often may have more than one cause. It can occur for psychological or physical reasons or for a combination of both.

Psychological causes of erectile dysfunction include stress and anxiety due to marital, financial, or any other external problem. For example, a man who is having problems in his marriage may find himself unable to have an erection because of the stress and anxiety he is experiencing in his relationship. **Performance anxiety** is also a common cause of erectile dysfunction. Because of anxiety about his ability to “perform,” a man finds he cannot perform—which causes more anxiety, thus completing a vicious cycle. Psychiatric illnesses, such as depression, can also cause erectile dysfunction.

Although there are a variety of **physical causes** of erectile dysfunction, the most frequent ones are vascular diseases. Vascular diseases may cause problems involving blood flow into the penis to make it erect. They can also cause problems of holding the blood in the penis to maintain the erection. Thus, hardening of the arteries and other diseases that affect the vascular system are risk factors for erectile dysfunction.

Diseases that affect the nervous system, such as multiple sclerosis and alcoholism, can also cause erectile dysfunction. Some diseases associated with erectile dysfunction, such as diabetes, can affect both the vascular and the nervous systems.

Erectile dysfunction can also result from pelvic fractures or crush injuries experienced in an automobile, motorcycle, or other accident. The accident victim may be left with injured nerves and/or penile arteries that cannot supply enough extra blood to the penis for an erection. Spinal cord injuries that destroy nerve fibers are another cause of erectile dysfunction. Some types of surgery and radiation therapy, such as for treating prostate, bladder, or rectal cancer, carry a risk for erectile dysfunction. In addition, certain medications might contribute to erectile dysfunction (National Kidney and Urologic Diseases Information Clearinghouse Web Site).

If erectile dysfunction occurs only occasionally, the problem is probably due to psychological causes, such as stress and fatigue. If the problem is chronic, however, it is important for the client to see a urologist or a physician who can determine the causes through a complete physical examination and a medical history review.

The biological/physiological processes associated with the various causes of erectile dysfunction are presented below.

Cause: Diabetes _____

Comments

- About 60% of men with diabetes are impotent. They become impotent within six years of the onset of diabetes.
- The high levels of blood sugar associated with diabetes can damage blood vessels and nerves.

Management

- Diabetes is potentially treatable.
- Inject a variety of **vasoactive substances** into the corpora cavernosa to produce an erection.
- Treatment may require surgery to reestablish circulation.
- Fit the client with a penile prosthesis.
- Refer the client to a specialist as necessary.

Cause: Heavy smoking _____

Comments

- Smoking causes blood vessels throughout the body to **vasoconstrict**, which reduces the amount of blood that flows to the penis.

Biological/Physiological Processes Associated with Erectile Dysfunction (*continued*)

- Erectile dysfunction is more than twice as common among heavy smokers than non-smokers.

Management

Advise the client to stop smoking, and provide or refer for counseling and nicotine patches, as requested.

Cause: Hormonal abnormalities _____

Comments

- When erectile dysfunction results from decreased testosterone, it is usually accompanied by decreased libido or interest in sex.
- Other signs and symptoms of decreased testosterone are a loss of facial and body hair, a decrease in lean muscle mass, fatigue, and **lethargy**.
- In about 5% of men with erectile dysfunction, the condition is caused by abnormal levels of sex hormones, such as low levels of testosterone and high levels of prolactin and estrogen.
- Hypogonadism is a condition in which the testes do not produce enough testosterone (see “Male Infertility” on page 1.48).

Management

- Hormonal abnormalities are potentially treatable.
- Refer the client as necessary.

Cause: Medication side effects _____

Comments

- Medications and other drugs are involved in an estimated 25% of erectile dysfunction cases, especially in older men, who tend to take more medications than younger men.
- The drugs that most commonly cause erectile dysfunction include hypertension medication, antidepressants, sedatives, cimetidine, and lithium.
- Erectile dysfunction can be made more severe by medications that are used to treat many of the disorders that cause it, such as diabetes and hypertension.

Management

- Medication side effects are potentially treatable.
- Refer the client as necessary.
- Consult with the client’s service provider about changing the timing or dosage of his medication.

Cause: Nerve damage _____

Comments

- Obtain a thorough history of medications and prior surgeries, such as hernia repair.

Biological/Physiological Processes Associated with Erectile Dysfunction (*continued*)

- Erectile dysfunction can be caused by penile nerve damage, which results from diabetes, direct injury to the penis, multiple sclerosis, spinal cord injury, or stroke.
- Surgery in the spinal, pelvic, or penile area can also cause nerve damage.

Management

- Nerve damage is difficult to treat.
- Refer the client as necessary.

Cause: Nutritional deficiencies _____

Comments

- Erectile dysfunction can be caused by nutritional deficiencies in a variety of ways, including neurologic dysfunction.
- Zinc deficiency has been identified as a cause of erectile dysfunction.

Management

- Nutritional deficiencies are potentially treatable.
- Refer the client as necessary.

Cause: Systemic disorders _____

Comments

- These systemic disorders include **alcoholism**, cancer, cirrhosis, **hemochromatosis**, **renal failure**, **scleroderma**, and **syphilis**.
- These disorders can impair circulation, nerve function, and/or hormonal function, which can prevent erections.

Management

- Systemic disorders are potentially treatable.
- Refer the client as necessary.

Cause: Trauma _____

Comments

- Erectile dysfunction can be caused by trauma to the pelvic blood vessels and nerves.
- The client will provide a history of trauma.
- Bicycle riding for long periods of time has been identified as a contributing etiologic factor. It causes vascular and nerve injury.

Management

- Trauma is potentially treatable.
- Refer the client as necessary.

Cause: Vascular disease _____

Comments

- Risk factors include diabetes, high cholesterol, and hypertension.

Biological/Physiological Processes Associated with Erectile Dysfunction (*continued*)

- The decrease of blood flow to the penis can affect the ability to achieve an erection.
- **Arteriosclerosis** is associated with age and accounts for 50% to 60% of impotence in men over age 60.
- Prior pelvic or penile surgery can decrease penile blood flow.

Management

- Vascular disease is potentially treatable.
- Refer the client as necessary.

Inhibited Sexual Desire

Sexual desire changes over the course of our lives, and occasional loss of desire is not uncommon. In **inhibited sexual desire (ISD)**, however, a persistent loss of desire disrupts an individual's sexual relationship(s). It is characterized by diminished sexual attraction, decreased sexual activity, few or no sexual dreams or fantasies, and diminished attention to erotic material.

Causes. Similar to erectile dysfunction, the causes of ISD in men can be psychological and/or physical. **Psychological causes** can include stress, relationship problems, sexual trauma, and major life changes.

Physical causes can include testosterone deficiency, whose signs and symptoms are a loss of facial and body hair; a decrease in lean muscle mass; fatigue; lethargy, or a loss of energy; erectile dysfunction; depression; alcoholism; liver or kidney disease; chronic illness; and the side effects of drugs, such as antidepressants, recreational drugs (such as alcohol, cocaine, and marijuana), and tobacco.

Comments. Although ISD is less commonly reported in men than in women, men can be affected by this sexual dysfunction.

Management. ISD can be difficult to treat. Replacement therapy is indicated if testosterone deficiency is the cause of ISD. Determine which factors (relationship, situational, or physical or psychological) may be contributing to the loss of desire, and treat or refer the client to a sex therapist, urologist, or other specialist if possible and as appropriate. (If the cause is psychological, most studies indicate that response to psychological interventions for ISD is very poor.)

Usually, decreased desire passes with time, especially if there is open communication between partners. Simple exercises in which partners touch each other without the goal of sex in mind may help to boost libido and reduce stress. If sexual desire does not improve within three months, it may be useful to visit a provider specializing in sex therapy.

Premature Ejaculation

Premature ejaculation is a condition in men characterized by persistent or recurrent ejaculation with minimal sexual stimulation before, on, or shortly after penetration and before the person wishes it. It occurs when a man is unable to exert reasonable voluntary control

of his ejaculatory response and is unaware of erotic sensations leading to the **point of inevitability** and ejaculation. Premature ejaculation is most common among younger men and men with limited sexual experience. The condition is often associated with performance anxiety.

Causes. The causes of premature ejaculation are rarely physical. Some infections of the urethra and the prostate gland, untreated gonorrhea, and an overly tight foreskin have been considered as possible physical causes. More commonly, the affected man has not learned to recognize the sensory feedback that indicates ejaculation is imminent. This is common among men who have taught themselves to ignore this sensory feedback and “think of other things” as a means of avoiding ejaculation before they are satisfied or before their partner is satisfied.

Comments. Premature ejaculation is most common among younger men and men with limited sexual experience. The condition does not have an organic cause. It is often associated with performance anxiety, unreasonable expectations about performance, and emotional disorders.

Management. The following may help men who have concerns about premature ejaculation (Inlander & The People’s Medical Society, 1999):

- **Wear a condom.** This will reduce sensitivity and help to protect against unintended pregnancy and transmission of STIs.
- **Masturbate before sexual intercourse.** Masturbate to orgasm before engaging in sexual intercourse because a second erection lasts longer than a first.
- **Change positions.** Have your partner move to a position that you find less stimulating in order to delay ejaculation.
- **Talk to each other.** Sometimes you need to slow down or stop movement altogether to decrease stimulation. Your partner may not know this fact, so tell him or her.
- **Use the “stop/start” technique.** At the brink of orgasm, stop and relax until the ejaculatory feeling subsides. Repeat this exercise several times. This will help you recognize the sensation of ejaculation, thereby allowing more self-control.
- **Use the “squeeze” technique.** At the time of orgasm, gently squeeze (or ask your partner to squeeze) the tip of your penis (or the base of the penis) and hold for several seconds. Repeat the process several times.

Retarded Ejaculation

Retarded ejaculation is a condition in which the man has unusually delayed ejaculation. He may be able to ejaculate only with great effort and after a prolonged length of time despite sufficient arousal and stimulation.

Causes. This condition may have neurological, psychological, and medication-induced causes.

Comments. This condition may cause client anxiety, but it often does not have an organic cause.

Management. Treatment primarily consists of psychological exploration and counseling; refer the client to a specialist if he responds inadequately to reassurance and counseling.

Retrograde Ejaculation

Retrograde ejaculation is a condition in which the man ejaculates into his bladder instead of out the urethra.

Causes. Retrograde ejaculation usually results from dysfunction of the internal urethral sphincter or an open bladder neck during ejaculation. It is also caused by disorders such as multiple sclerosis; medications; bladder neck, colon, or rectal surgery; or spinal cord injury. The condition may occur after prostatectomy, in clients who are taking alpha-blocker medications, and in clients with diabetes, due to autonomic neuropathy.

Comments. Androgen deficiency may result in a lack of emission by decreasing the amount of prostatic and seminal vesicle secretions. A postmasturbation urine specimen will show many sperm.

Management. Clients who present with oligospermia and retrograde ejaculation may benefit from **alpha-adrenergic agonists**, such as pseudo-ephedrine, or imipramine. Medical failures may require the collection of postmasturbation urine for **intrauterine insemination** if a client complains of infertility or for **electro-ejaculation** if a client presents with absent emission.

Male Orgasmic Disorder

Male orgasmic disorder is persistent or recurrent involuntary delay in orgasm and ejaculation or the inability of the man to have an orgasm.

Causes. The cause is rarely physical and, rather, is associated with a traumatic sexual experience, strict religious upbringing, hostility, overcontrol, or lack of trust.

Comments. The condition is sometimes confused with retrograde ejaculation, which is common in homosexual men and may be related to fears of infection believed to be brought on by “safer sex” campaigns.

Management. Treatment includes psychological exploration and counseling.

Male Infertility

For men to be **fertile**, they must have the following:

- Normal spermatogenesis
- A functional epididymis for sperm maturation
- A patent ductal system to ensure that there are sperm in the ejaculate
- **Motility** of the sperm

- Normal biological structure and functioning of the sperm
- Ability to deposit the sperm in the woman's vagina (this requires an adequate sex drive and the ability to achieve and maintain an erection, have normal ejaculation, and place the ejaculate in the vaginal vault).

A couple or individual is considered **infertile** if the man and/or the woman have been unable to achieve a pregnancy after one year of unprotected intercourse. Scientific data indicate that in approximately 30% of cases, infertility is a result of a problem in the man's reproductive system, while in another 20% of cases, infertility can be due to the functioning of both the man's and the woman's reproductive system.

Infertility is often an anxiety-provoking situation; it can result in despair, shame, grief, depression, and even divorce. When service providers assess an infertile couple, it is best to obtain histories from each member of the couple separately and in *strict confidence*. Either client may have concealed information from the other that is relevant to assessing and dealing with their situation, such as a previous pregnancy, medical condition, or even previous sterilization. It is important to assess that *both* the male client and his partner want to have a(nother) child. Men and women can be coerced by their partners to have a(nother) child even if they are ambivalent about, or even opposed to, the idea of having a child. This should be assessed with each person *separately* and carefully. Providers should never take part in a coercive situation that forces either partner to try to conceive if the other partner seems reluctant.

Approach the male client with positive encouragement, and always avoid any language that suggests blame. Be aware of cultural issues related to infertility. In some cultures, marriages may be annulled if the couple is unable to conceive. They may consider childbearing as their primary role in their society, and the inability to conceive may be considered a significant failure. In addition, for men, the inability to have an offspring may have serious consequences related to loss of continuation of the family name, his concept of manhood, disposal of property, and social power.

Where infertility assessment is possible, it is a lengthy process and requires a team approach to treatments. Failure to treat the condition can result in frustration and grieving; support from a service provider is essential to help clients through this emotionally stressful process. Clients may need to have intercourse on a rigid schedule timed to the peak fertile days in the woman's menstrual cycle. Scheduling sex can decrease the spontaneity of lovemaking and increase the clients' anxiety. An infertility evaluation can require tests that male clients may find embarrassing. For example, semen analysis requires ejaculation by masturbation, and the postcoital test involves a prescribed time for intercourse followed by a scheduled visit within a few hours to the health care facility for semen analysis (see "Overview: Laboratory and Specialized Tests for Male Infertility" on page 1.50).

Overview: Laboratory and Specialized Tests for Male Infertility

The primary test for male infertility is semen analysis. Postcoital testing of the female partner assesses both **male** and **female factors** that may contribute to a couple's infertility. Routine hormonal testing (testosterone, LH, FSH, prolactin, estradiol) is indicated only if a man has very low sperm density or if endocrinopathy is suspected. Other studies, such as chromosomal analysis, immunologic studies to identify anti-sperm antibodies, testicular biopsy, sperm function tests, and testing for syphilis and other STIs may be performed selectively by infertility experts.

Causes of Male Infertility

Most male infertility is caused by a low sperm count or motility of the sperm, which is the sperm's ability to swim into a woman's fallopian tube and fertilize an egg. The following factors can affect sperm count and motility:

- Illnesses, such as the flu or mumps, can decrease the production of sperm
- STIs, which can affect the testes or the spermatic ducts
- Environmental toxins
- Smoking and alcohol and drug use can decrease sperm production
- Varicoceles, which are damaged or enlarged veins near the spermatic cord that can decrease sperm counts by increasing heat in the testes
- Congenital problems
- Chromosomal defects
- Hormonal insufficiency

Diagnosing Male Infertility

A service provider may refer a man to a urologist to determine the possible causes of infertility. The urologist may perform several tests, including:

- **Semen analysis** to test the semen volume, consistency, number of sperm, motility, and sperm shape
- **Postcoital test** to check the compatibility of the man's sperm with a woman's cervical mucus
- **Blood tests** to check for hormone imbalances
- **X-rays** to look for damage and blockage of the vasa deferentia

Preventing Male Infertility

There are some things a man can do to improve his fertility, including the following (Inlander & The People's Medical Society, 1999):

- Avoiding stress
- Not using alcohol or drugs

- Not smoking
- Checking medications that may affect fertility
- Taking antioxidants
- Getting enough zinc
- Eating plenty of fruits, vegetables, and whole grains
- Avoiding environmental toxins
- Wearing loose-fitting undergarments

Pretesticular Causes of Infertility

Pretesticular causes of infertility include congenital or acquired diseases of the hypothalamus, pituitary gland, or peripheral organs that result in an alteration of the **hypothalamic-pituitary axis**. These causes account for 1% to 2% of infertility cases, and are described below.

Cause: Congenital hypogonadotropic hypogonadism (Kallman's syndrome) _____

History/Physical Examination Findings

- Midline facial defects
- Color blindness
- Hearing difficulties
- Cryptorchidism (see page 1.28)

Comments

- This condition is caused by a defect in gonadotropin-releasing hormone (GnRH) secretion.
- **Azoospermia**, when no sperm are found in the ejaculate, or severe **oligospermia**, when a small number of sperm are found in the ejaculate, is present.
- The absence of low levels of testosterone and of gonadal stimulating pituitary hormones (**follicle-stimulating hormone [FSH]** and **luteinizing hormone [LH]**) results in absent or decreased gonadal function.
- The client may have other endocrine (thyroid, adrenal) abnormalities.

Management

The condition is potentially treatable.

Cause: Estrogen excess _____

History/Physical Examination Findings

Gynecomastia

Comments

High estrogen levels may result from testicular tumors, liver failure, or massive obesity.

Management

The condition is potentially treatable.

Pretesticular Causes of Infertility (*continued*)

Cause: Hemochromatosis _____

History/Physical Examination Findings

- Enlarged liver
- Eye-color changes

Comments

This condition is a genetic disorder that affects the body's ability to metabolize iron. The client has an overload of iron deposits in the liver, pituitary gland, or, less commonly, testes.

Management

The condition is potentially treatable.

Cause: Hyperprolactinemia _____

History/Physical Examination Findings

- Infertility
- Gynecomastia
- **Galactorrhea**
- Headaches
- Changes in vision

Comments

- This condition is a disorder that affects the level of prolactin in the blood.
- Elevated prolactin levels disrupt erectile function and adversely affect **semen parameters**.

Management

The condition is potentially treatable.

Cause: Steroid excess _____

History/Physical Examination Findings

- **“Cushing’s syndrome” body habitus** with **moon face (facial adiposity)**, increased **adipose tissue** in the neck and trunk
- Central weight gain, muscle wasting, thin skin, easy bruising, poor wound healing, susceptibility to infection, **hirsutism**, purple striae, thin extremities, osteoporosis, **“buffalo hump,”** bone necrosis, hypertension, headache, backache, general weakness, acne, **hyperglycemia**, and **glycosuria** (all signs of excess steroids)

Comments

High cortisol levels caused by steroid therapy for ulcerative colitis, asthma, arthritis, or organ transplant can lead to inhibition of **GnRH release**.

Management

The condition is potentially treatable.

Primary Testicular Causes of Infertility

Primary infertility affects 15% to 30% of married couples; the percentage varies widely with geographic location. About 33% of primary infertility cases are due to male factors, 33% are due to female factors, and 33% are due to combined factors. Endocrinologic profiles and detailed semen analysis are the cornerstones of laboratory investigations performed after history taking and physical examination findings. Because spermatogenesis takes approximately 74 days, it is important to review events from the past three months.

Primary Gonadal Deficiency. Primary gonadal deficiency is an important cause of infertility, involving 30% to 40% of cases of male infertility. When taking the client's history, ask about previous testicular disorders (torsion, cryptorchidism, trauma), infections (mumps orchitis, urethritis, epididymitis), heat-related issues (e.g., testicular proximity to a hot engine [which truck drivers present with], routinely taking hot baths, wearing tight underwear, riding a bicycle), medications that may affect spermatogenesis (spironolactone, nitrofurantoin, cimetidine), radical pelvic surgery, or hernia repair that may damage testicular blood supply.

When performing the physical examination, pay particular attention to features of **hypogonadism**. Male hypogonadism is caused by deficient testosterone secretion by the testes. It may be classified according to whether it is due to insufficient gonadotropin secretion by the pituitary (**hypogonadotropic hypogonadism**) or to pathology in the testes themselves (**hypergonadotropic hypogonadism**). Signs and symptoms may include diminished libido and erections, as well as decreased body hair growth. In addition, the testes may be small and/or fibrotic, or they may be normal. **Serum gonadotropins** (luteinizing hormone [LH] and follicle-stimulating hormone [FSH]) are decreased in hypogonadotropic hypogonadism, but increased in testicular failure (from mumps, irradiation, cancer therapy, autoimmune disease, **uremia**, **gonadal dysgenesis**, or **Klinefelter's syndrome**).

Conditions causing infertility due to primary testicular causes are presented below.

Cause: Age _____

History/Physical Examination Findings

Usually no physical findings

Comments

A client who is age 64 or older can experience a decline in semen quality. The number of sperm decrease, and the mobility of the sperm slows.

Management

The condition is potentially treatable with hormones.

Cause: Bilateral anorchia _____

History/Physical Examination Findings

Absent testes (a congenital disorder)

Primary Testicular Causes of Infertility (*continued*)

Comments

This condition is rare.

Management

The condition is untreatable.

Cause: Chemotherapy _____

History/Physical Examination Findings

History of treatment for testicular cancer or other cancers

Comments

- Chemotherapy drugs are often most toxic to **actively dividing cells, spermatogonia, and spermatocytes.**
- The most toxic chemotherapy drugs are alkylating agents, such as cyclophosphamide.

Management

The client may become more fertile one year after treatment ends.

Cause: Chromosomal abnormalities (Klinefelter's syndrome) _____

History/Physical Examination Findings

- Gynecomastia
- Small testes
- **Eunuch-like** body proportions caused by **delayed puberty**

Comments

- This condition is associated with an extra X chromosome.
- Klinefelter's syndrome occurs in one out of 500 to 1,000 male births.
- The client is infertile because of **primary testicular failure.**
- The client is usually azoospermic.

Management

The condition is untreatable.

Cause: Cryptorchidism _____

History/Physical Examination Findings

- Possible history of surgery during childhood to correct cryptorchidism
- Testes that are not palpable in the scrotum
- Undescended testes that may be palpable as a mass in the inguinal canal
- Testes that may be retractile

Primary Testicular Causes of Infertility (*continued*)

Comments

- This condition is the incomplete or abnormal descent of one testicle or both testes into the scrotum.
- In an infant, a retractile or hypermobile testicle that pulls up into the inguinal canal can often be moved down into the scrotum with gentle pressure. But a true undescended testicle cannot be brought down in this way.
- An absent testicle is very rare.
- Ectopic testicle is associated with cryptorchidism. Once in a while, when the inner thigh is stroked longitudinally, a retractile testicle can be brought back up into the inguinal canal by a hyperactive cremaster reflex (see page 1.29).
- Cryptorchidism leads to infertility; undescended testes lose the ability to produce sperm if they are not brought back up into the scrotum. Cryptorchidism also leads to a high risk of developing testicular cancer later in life.
- If only one testicle is undescended and diagnosed after puberty, surgery is usually performed.
- Retractable or hypermobile testes do not require treatment.

Management

The condition is treatable if diagnosed early.

Cause: Environmental toxins _____

History/Physical Examination Findings

The client may provide helpful information during the history taking.

Comments

- Cigarettes and marijuana lead to a decrease in **sperm density**, motility, and **morphology**.
- Alcohol produces both an acute and a chronic decrease in testosterone secretion.

Management

The condition is potentially treatable.

Cause: Granulomatous disease _____

History/Physical Examination Findings

The client has manifestations of the disease, including skin changes and lung problems.

Comments

Leprosy and **sarcoidosis** may **infiltrate** the testicle and lead to **testicular failure**.

Management

The condition is potentially treatable.

Primary Testicular Causes of Infertility (*continued*)

Cause: Medications

History/Physical Examination Findings

History of medication use

Comments

Many drugs can cause a decrease in sperm production, including ketoconazole, cimetidine, spironolactone, tetracycline, colchicine, methadone, methotrexate, phenytoin, thioridazine, and calcium channel blockers.

Management

The condition is potentially treatable with cessation of use of medication.

Cause: Myotonic dystrophy

History/Physical Examination Findings

- Weakness
- Cardiac abnormalities
- Cataracts

Comments

This condition is an inherited disorder characterized by delayed onset of impaired motor function, cataracts, premature balding, mild mental retardation, and infertility.

Management

The condition is untreatable.

Cause: Occupational exposure

History/Physical Examination Findings

History of occupational exposures to toxins

Comments

- The client may have worked in a factory, on a farm, in a mine, or in industry.
- Sperm production is impaired because of **direct inhibition of testosterone synthesis and pituitary gonadotropin secretion**, or because of blocking of **peripheral androgen action**.
- Many pesticides have estrogen-like effects.

Management

The condition is potentially treatable.

Primary Testicular Causes of Infertility (*continued*)

Cause: Orchitis

History/Physical Examination Findings

- Scrotal pain
- Gradual onset of testicular pain that radiates to the genital area
- Nausea, vomiting, and high fever
- Enlarged, tense, tender testicle
- Normal epididymis
- Recognizable scrotal abscesses, which are rare
- Acute hydrocele
- In mumps parotitis, salivary gland swelling and pain that develop three to four days before orchitis (the viruses attack both the parotid glands, causing swelling [mumps], and the testes)
- In tuberculous orchitis, a tuberculous infection of the lung or epididymis

Comments

- This condition is a rare infection or inflammation of the testicle.
- It is caused by the spread of infection from epididymitis (see page 1.29) or by hematogenous spread. It is also caused by the mumps virus in postadolescent males, by tuberculosis, and by syphilis (see page 1.66).
- Granulomatous orchitis, which is probably an autoimmune response to sperm, can occur in middle-aged and older men. This condition is hard to distinguish from testicular tumors, and it can be diagnosed only after orchiectomy.
- Testicle atrophy may occur after the acute phase of orchitis, with impaired sperm production but normal hormonal function. Spermatogenesis is irreversibly damaged in about 30% of testes after mumps orchitis. After bilateral orchitis, clients may become sterile.
- In early orchitis, it may be possible to distinguish between epididymitis and orchitis, but in later orchitis, inflammation and swelling affect both testes and epididymides.
- Urinary symptoms are absent in orchitis unless epididymitis is also present.
- Orchitis can mask a testicular tumor.
- Live, attenuated mumps vaccine is highly effective in preventing mumps parotitis and orchitis.
- Orchitis is most often seen as a secondary infection during a systemic illness.

Management

The condition is potentially treatable (see page 1.32).

Cause: Radiation

History/Physical Examination Findings

History of treatment for cancer or occupational exposure to radiation

Comments

Radiation can impair sperm production.

Primary Testicular Causes of Infertility (*continued*)

Management

The condition is potentially treatable.

Cause: Sertoli-cell-only syndrome (germinal cell aplasia) _____

History/Physical Examination Findings

- Small or normal-sized testes
- Azoospermia (see page 1.51)

Comments

The client has a congenital defect of the testes.

Management

The condition is untreatable.

Cause: Systemic illness _____

History/Physical Examination Findings

The client has a history of chronic renal disease, cirrhosis, sickle-cell anemia, **protein-calorie malnutrition**, advanced Hodgkin's disease, cancer (prior to chemotherapy), **amyloidosis**, **myocardial infarction**, severe burns, **celiac disease**, or HIV infection.

Comments

The client has an acquired defect of varying severity.

Management

The condition is potentially treatable.

Cause: Testicular trauma _____

History/Physical Examination Findings

History of testicular trauma, including testicular torsion

Comments

- Testicular trauma is the second most common acquired cause of infertility.
- The testes are at risk for both **thermal trauma** and physical trauma because of their exposed position.

Management

The condition is potentially treatable (see page 1.33).

Cause: Varicocele _____

History/Physical Examination Findings

- Scrotal swelling, usually chronic and on the left side
- Scrotum that feels like a “bag of worms” because of its prominent, slippery vessels
- Small “bag of worms” felt just above the testicle, along the spermatic cord

Primary Testicular Causes of Infertility (*continued*)

Comments

- This condition is a collection of varicose veins in the scrotal sac.
- A varicocele more commonly occurs on the left side because the left testicular vein drains into the left renal vein, whereas the right testicular vein drains into the inferior vena cava.
- Nearly 20% of men have a left varicocele of some degree. An acute appearance of a varicocele, especially on the right side, should prompt further evaluation for the presence of renal cancer, renal vein thrombosis, or vena cava obstruction.
- The condition is associated with infertility.
- A client who presents with a varicocele of recent or rapid onset, especially on the right side, should be evaluated for kidney cancer, which might be occluding the renal vein.
- A varicocele is usually visible when the client is in an upright position.

Management

The condition is potentially treatable (see page 1.24).

Disorders of the Sperm Transport System. The epididymis is an important site for sperm maturation and an essential part of the sperm transport system. The vasa deferentia transport sperm from the epididymides to the urethra (see page A.5). Abnormalities at any of these sites can cause infertility. Disorders of the sperm transport system account for 10% to 20% of male infertility, and are described below.

Cause: Absence of the vasa deferentia _____

History/Physical Examination Findings

- Absent vasa deferentia during palpation
- History of **cystic fibrosis** associated with **respiratory** and **gastrointestinal problems** (which cause poor sperm motility)

Comments

- The client may have a congenital absence of a vas deferens.
- The client may have cystic fibrosis.

Management

The condition is untreatable.

Cause: Blockage of a vas deferens _____

History/Physical Examination Findings

- Thickened, nodular vas deferens observed in tuberculosis from infection and granuloma formation
- STIs
- Vasectomy

Disorders of the Sperm Transport System (*continued*)

Comments

- **Genital ducts** may become obstructed resulting from such infections as **chlamydia, gonorrhea, tuberculosis, and smallpox.**
- Trauma or previous inguinal surgery can also cause blockage.
- Some men have sperm granulomas (an immune response) that form after a vasectomy.
- If the client has had a vasectomy, check for the presence of a **nodular sperm granuloma** at the **proximal vasal end.**

Management

The condition is potentially treatable.

Cause: Immotile cilia syndrome _____

History/Physical Examination Findings

- Respiratory tract trouble
- Frequent infections

Comments

This condition is caused by a defect in the functioning of cilia.

Management

The condition is potentially treatable.

Cause: Retrograde ejaculation _____

History/Physical Examination Findings

- Surgeries
- Medications

Comments

- This condition is caused by dysfunction of the internal urethral sphincter or an open bladder neck during ejaculation.
- It is also caused by such disorders as multiple sclerosis; medications; bladder neck, colon, prostate, or rectal surgery; or spinal cord injury.
- The condition may occur after prostatectomy, in clients who are taking alpha-blocker medications, and in clients with diabetes, due to autonomic neuropathy.

Management

The condition is potentially treatable (see page 1.48).

Other Causes of Infertility

Other causes of infertility include:

- **Psychological/emotional factors.** These include depression, marital disharmony or emotional conflict about intimacy, and sexual relations or parental roles, which can directly affect endocrine (hormonal/glandular) function and such physiological processes as normal libido, erection, and ejaculation (and, in women, ovulation). There is no evi-

dence, however, for any simple causal relationship between stress and infertility. Furthermore, fertility is affected by psychic factors such as frequency, duration, and timing of sexual intercourse, phobic avoidance of intercourse, and painful intercourse. The conditions are treatable.

- **Idiopathic infertility.** This term describes cases of infertility whose causes are unknown. The condition is untreatable.

Sexually Transmitted Infections (STIs)

Sexually transmitted infections (STIs) are infections that can be passed from one person to another person by sexual contact, although in some cases some STIs can be transmitted by other means as well. STIs can be transmitted between any two people—regardless of their sex or age—by penile-vaginal, anal, and oral sex and by skin-to-skin contact during sex. In many places in the world, STIs are referred to as **sexually transmitted diseases (STDs)**.

STIs are part of a broader group of infections known as **reproductive tract infections (RTIs)**. In addition to STIs, RTIs include other infections of the reproductive system that are not caused by sexual contact. Some of these infections result from an imbalance of the microorganisms normally found in the reproductive tract; still other RTIs are incurred during medical procedures.

The symptoms associated with STIs and other RTIs vary from none to severe. You cannot always tell if a person has an STI, and people without symptoms often transmit the infection to others unknowingly.

Common STIs

STIs can be divided into two broad categories:

- **Curable STIs:** These can be treated and cured with antimicrobial drugs. However, if they are not diagnosed and treated in time, some of these diseases can cause irreversible damage, such as infertility, inflammation of the testes, pneumonia and other infections in infants, and, in extreme cases, death.
- **Incurable STIs:** These are caused by viruses. Although these infections cannot be cured, in some settings they can be managed by relieving or reducing their symptoms.

Symptoms of STIs and RTIs in Men

The most common symptoms of STIs in men are:

- Anal or oral lesions
- Arthralgia
- Blisters or ulcers (sores) on the mouth, lips, genitals, anus, or surrounding areas
- Burning or pain during urination
- Diarrhea and straining
- Itching or tingling in the genital area

- **Jaundice** and/or fever, headache, muscle ache, abdominal pain, dark urine (*Note:* All of these are symptoms of **hepatitis B** and **hepatitis C**, which are STIs.)
- Penile discharge, with or without pain
- Skin lesions
- Swollen and/or painful testes
- Swollen lymph nodes in the groin
- Urethral discharge
- Urethral itching

Less common symptoms of STIs and RTIs include:

- Flu-like syndromes (fever, fatigue, headaches, muscle aches)
- Joint pain
- Mild liver inflammation
- Red nodules or bumps under the skin on the mouth, genitals, or anus that ulcerate, become tender, and often bleed easily
- Small, dimpled bumps or lesions on the skin that usually do not hurt or itch and are flesh colored, but can vary from white to yellow to pink
- Small, red bumps or ulcers in the genital or anal area; lymph node swelling in the genital area; chronic ulcers on the genitals or anus

Common STIs in Men

This section provides information on the signs and symptoms, physical examination findings, differential diagnosis, and management of common STIs in men. General comments are also provided. (For more information about the management, treatment, and prevention of STIs, see Appendix B.)

§ *Signs and Symptoms*

Blisters or ulcers (sores) on the mouth, lips, genitals, anus, or surrounding areas

Physical Examination Findings

- Anal, oral, and skin lesions with irregular, nonindurated borders
- Fluctuant lymph nodes with red, overlying skin

Differential Diagnosis

Chancroid

Comments

This condition is:

- Caused by the bacteria *Haemophilus ducreyi*
- Difficult to distinguish from herpes, lymphogranuloma venereum (LGV) (see page 1.65), or syphilis

Common STIs in Men (*continued*)

Management

- The condition is curable with organism-specific antibiotics.
- Use **syndromic** or **etiologic management** to determine the diagnosis and appropriate treatment.
- Counsel the client on the importance of compliance with treatment, follow-up visits, partner management, and the use of condoms.

Note: Partner management involves treating the partners of STI clients in order to prevent reinfection of the clients and to prevent further spread of the infection to others. If possible, all partners of an infected client should be notified about their exposure to the infection and should be encouraged to seek treatment. Notification of partners can be done by the client, staff, or public health authorities.

§ **Signs and Symptoms**

- Urethral discharge
- Swollen and/or painful testes
- Burning or pain during urination

Physical Examination Findings

Minimal physical findings

Differential Diagnosis

Chlamydia

Comments

This condition is caused by *Chlamydia trachomatis* and is often asymptomatic in men.

Management

- The condition is curable with organism-specific antibiotics.
 - Use syndromic or etiologic management to determine the diagnosis and appropriate treatment.
 - Counsel the client on the importance of compliance with treatment, follow-up visits, partner management, and the use of condoms.
-

§ **Signs and Symptoms**

- Blisters or ulcers (sores) on the mouth, lips, genitals, anus, or surrounding areas
- Burning or pain during urination
- Itching or tingling in the genital area

Physical Examination Findings

- Initial lesions with surrounding erythema that can cause shallow ulcers
- Inguinal lymphadenopathy that may present two to three weeks after the onset of symptoms

Differential Diagnosis

Genital herpes

Comments

- Complications of this condition include aseptic meningitis and encephalitis.

Common STIs in Men (*continued*)

- Initial lesions are painful vesicles with surrounding erythema that can cause shallow ulcers.
- There is a recurrence in 90% of clients during the first year of infection.
- Even though clients can be asymptomatic, they can still infect others, even when they “shed the virus” (some viruses can fall off or leave the body).

Management

- This condition is incurable, but the lesions can be suppressed with antiviral medications.
 - Instruct the client to follow general supportive measures:
 - Sitting in a bathtub or basin filled with warm water and some baking soda two times a day.
 - Keeping the sores and the areas around them clean and dry.
 - Using pain relievers, such as acetaminophen or aspirin.
 - Counsel the client on the importance of compliance with treatment, follow-up visits, partner management, and the use of condoms.
-

§ *Signs and Symptoms*

Warts or bumps on the genitals, anus, or surrounding areas

Physical Examination Findings

Raised or flat wart-like **papules**

Differential Diagnosis

Genital warts

Comments

This condition is:

- Caused by HPV
- Often asymptomatic
- Linked to the development of penile and **anal cancer**
- Frequently seen with other STIs

Management

- The condition is incurable, but the warts can be removed by **cryotherapy** or surgical excision.
 - Apply podophyllin topically to external skin lesions.
-

§ *Signs and Symptoms*

- Urethral discharge
- Swollen and/or painful testes
- Burning or pain during urination

Physical Examination Findings

Tender testes

Differential Diagnosis

Gonorrhea

Common STIs in Men (*continued*)

Comments

This condition is commonly seen with chlamydia.

Management

- The condition is curable with organism-specific antibiotics.
- Use syndromic or etiologic management to determine the diagnosis and appropriate treatment.
- Counsel the client on the importance of compliance with treatment, follow-up visits, partner management, and the use of condoms.

§ *Signs and Symptoms*

Inflammation of the lymph nodes in the genital area

Physical Examination Findings

- Tender inguinal lymphadenopathy without an ulcer
- **Draining sinus tract** in the **inguinal area**

Differential Diagnosis

Lymphogranuloma venereum (LGV) (see Photograph 17 in Appendix H on page H.8)

Comments

This condition is:

- Marked by the prevention of drainage of the lymph nodes in the genital area
- Caused by chlamydia invading the lymph channels and lymph nodes of the genital area

Management

- The condition is curable with organism-specific antibiotics.
- Use syndromic or etiologic management to determine the diagnosis and appropriate treatment.
- Counsel the client on the importance of compliance with treatment, follow-up visits, partner management, and the use of condoms.

§ *Signs and Symptoms*

- Lesions in the genital area
- Penile discharge
- Severe itching in the genital area

Physical Examination Findings

Erythematous papules that may be hemorrhagic

Differential Diagnosis

Pubic lice

Comments

- This condition is caused by a parasite that may migrate to other hairy areas of the body, such as the eyebrows and eyelashes.
- The client may indicate that family members also have severe itching.
- Severe itching can lead to excoriations, which predispose the client to bacterial infections.

Common STIs in Men (*continued*)

Management

- The condition is curable with use of a special shampoo.
 - Counsel the client on the importance of compliance with treatment, follow-up visits, and partner management.
-

§ *Signs and Symptoms*

- Lesions in the genital area
- Penile discharge
- Severe itching in the genital area
- Areas of excoriation on the penis, scrotum, axilla, buttocks, elbows, and interdigital web spaces

Physical Examination Findings

Vesicular, pustular, or papular skin lesions

Differential Diagnosis

Scabies

Comments

- This condition is difficult to differentiate from pubic lice.
- It is associated with overcrowding.
- The client may indicate that family members also have severe itching.

Management

- The condition is curable.
 - Apply a topical cream.
 - Practice good hygiene.
 - Treat all family members.
-

§ *Signs and Symptoms*

Blisters or ulcers (sores) on the mouth, lips, genitals, anus, or surrounding areas

Physical Examination Findings

- Painless ulcers indurated with a smooth base and raised, firm borders
- *Primary syphilis*: Initially causes sores that will heal on their own, but the infection will still be present and can progress to secondary or tertiary syphilis.
- *Secondary syphilis*: Rash, sore throat, muscle aches, tiredness, and swollen lymph nodes
- *Tertiary syphilis*: No symptoms for many years; eventually can affect every part of the body; at this stage, can damage the heart and nervous system and can cause death

Differential Diagnosis

Syphilis

Comments

- Approximately 90% of relapses from latent syphilis occur in the first year after infection.
- Many clients have more than one late manifestation.

Common STIs in Men (*continued*)

- Cardiovascular syphilis is seen only in those who develop syphilis after age 15.
- Asymptomatic neurosyphilis has been reported in 8% to 40% of clients.

Management

- The condition is curable with organism-specific antibiotics.
 - Use syndromic or etiologic management to determine the diagnosis and appropriate treatment.
 - Counsel the client on the importance of compliance with treatment, follow-up visits, partner management, and the use of condoms.
-

Hepatitis and HIV/AIDS

Hepatitis and HIV/AIDS deserve special mention because of their variable presentations. Service providers should suspect these conditions when treating clients, especially those who engage in high-risk behavior.

Hepatitis (Hepatitis A, B, or C)

§ *Signs and Symptoms*

Some of the symptoms that men with viral hepatitis may have include:

- Fatigue, malaise
- Loss of appetite
- Upper abdominal pain
- Jaundice
- Dark urine

Physical Examination Findings

Tenderness in the upper abdomen

Comments

The client may present with such systemic signs as fever and general weakness.

Management

The condition is incurable.

HIV/AIDS

It can take 10 or more years between the time an individual becomes infected with HIV and the development of AIDS.

Many men who are infected with HIV have no symptoms. The signs and symptoms of HIV/AIDS are often nonspecific and common to other illnesses; only a laboratory test can confirm the presence of HIV infection.

§ *Signs and Symptoms*

Some of the symptoms of HIV-related illnesses and AIDS in men include:

- Unexplained weight loss lasting at least one month
- Diarrhea lasting for several weeks

- A white coating on the tongue (thrush/oral candidiasis)
- Enlarged or sore lymph nodes (glands) in the neck, armpits, and/or genital area, as well as generalized swollen glands
- A cough that persists for more than one month
- Persistent fever and/or night sweats

Physical Examination Findings

- Thinness from weight loss
- White tongue
- Swollen glands
- Fever

Comments

Because the condition is incurable, HIV prevention is critical.

Management

The condition is incurable; however, opportunistic infections in HIV-positive clients can be managed. Counseling such clients is directed at changing risky sexual behaviors, maintaining/improving personal hygiene, offering nutritional advice, and encouraging positive living.
