

Sexually transmitted diseases (STDs) are discussed in the following two chapters. We have chosen a different approach for this important public health topic because of the complexity, breadth, and multiple dimensions of these diseases. Persons may have one or more STDs. Some may be without symptoms, while others can present with an array of overlapping syndromes. The diagnosis is rarely made solely on a clinical basis, but usually requires laboratory and microbiological studies.

With such diversity and so much overlap, Dr. Noreen Hynes of Johns Hopkins University Schools of Medicine and Public Health has graciously divided STDs into two broad clinical categories. Part I discusses the causes of genital “sores” while Part II focuses on the inflammatory STDs that cause “drips” or discharges. Rather than chapters on each specific disease, an anatomic approach has been taken that focuses on the specific site of the clinical findings. For each physical sign or symptom, such as a vaginal discharge or urethritis, the differential diagnosis is offered and discussed. We hope that this will be practical for clinicians in the field caring for homeless persons, and will help give a framework for approaching this increasingly complex topic.

The following outlines are offered as a guide to the diseases discussed in the next two chapters.

STDs, Part I: Genital Sores

- I. Ulcers (Genital Ulcer Disease)
 - Herpes Simplex Virus
 - Primary Syphilis
 - Chancroid
- II. Non-Ulcerative Genital Lesions
 - Genital Warts
 - Pubic Lice
 - Scabies
 - Secondary Syphilis
 - Molluscum Contagiosum
 - Genital Candida Dermatitis

STDs, Part II: Drips and Discharges

- I. Acute Inflammatory STDs in Women
 - A. Lower Genital Tract STDs
 - 1. Vaginitis
 - Bacterial Vaginitis (BV)
 - Trichomoniasis
 - Vulvovaginal Candidiasis (VVC)
 - 2. Mucopurulent Cervicitis (MPC)
 - Gonorrhea
 - Chlamydia
 - Herpes Simplex Virus
 - B. Upper Genital Tract STDs (Pelvic Inflammatory Disease)
 - Gonorrhea
 - Chlamydia
- II. Acute Inflammatory STDs in Men
 - A. Urethritis
 - Gonococcal Urethritis
 - Non-Gonococcal Urethritis
 - B. Epididymitis
 - Gonorrhea
 - Chlamydia



Sexually Transmitted Diseases, Part I : Genital Sores

Noreen A. Hynes, MD, MPH

Sexually transmitted diseases (STDs) can be caused by numerous pathogens including viruses, bacteria, parasites, fungi, and ectoparasites. These infections cause a spectrum of disease from asymptomatic infection to an array of often overlapping syndromes that make clinical diagnosis alone inadequate for predicting the cause of the infection. Untreated or inadequately treated STDs can have long-term adverse consequences, particularly for women and their fetuses and newborn infants. STDs presenting as either genital sores, either ulcers or non-ulcerative lesions, have been shown to enhance the acquisition and transmission of human immunodeficiency virus (HIV). Early detection, treatment, partner notification services, and education targeting behavior modification are all critical components of interrupting the transmission of STDs. These prevention and control elements have to be more rigorously and creatively pursued among certain at-risk groups, including guests in homeless shelters, to help interrupt the ever-expanding “hidden epidemic” of STDs. When possible, diagnostic testing should be available at the point of patient care and directly observed single-dose therapy offered whenever the efficacy of this approach has been demonstrated for a particular STD.

Oral Herpes Simplex. Small clear blisters are grouped on a reddish base and are frequently painful. This lesion lasts about 7-10 days, and recurred twice each year in this patient. Photo by Irwin Freedberg MD

A General Approach to the STDs

Every sexually active individual not in a long-term mutually monogamous relationship who is seen in the clinic should be considered at risk for newly incident STDs, both asymptomatic and symptomatic. A routine STD screening history and physical examination should be obtained on all at-risk patients, regardless of the presenting complaint. Contacts of patients treated for bacterial STDs or

trichomoniasis should be treated and also offered screening for HIV infection, if indicated. Contacts of persons with viral STDs should be tested for the presence of infection and offered screening for HIV, if indicated. Sexually active persons, with or without symptoms, should undergo diagnostic testing for treatable STDs and be offered HIV counseling and testing. Those with symptoms should have further evaluations based upon the clinical

(top)
Oral Herpes Simplex.

This painful inflammation of the tongue can be accompanied by a low-grade fever and swollen neck glands.

The symptoms usually resolve in about two weeks.

Photo by
Irwin Freedberg MD



(bottom)
Genital Herpes Simplex.

This HSV infection of the anus and rectum is very painful.

Photo by
Howard Koh MD



syndrome noted at presentation. Most of the STD clinical syndromes fall into two general categories: “sores” and “drips/discharges”. The approach to these general syndrome categories is discussed in this and the following chapter.

I. Genital Ulcer Disease (GUD)

Sexually transmitted genital sores can be subdivided into two groups - genital ulcers and other genital sores. Although certain “classic” presentations of genital sores may suggest a particular diagnosis, clinical diagnosis alone is neither sensitive nor specific enough as the only diagnostic modality.

Causes of Genital Ulcer Disease

Although there are numerous causes of genital ulcer disease (GUD), the three most common in the USA are:

- herpes simplex virus (HSV), the most common GUD;
- primary syphilis, a cause of GUD that is increasing in many areas; and
- chancroid, a very infrequently diagnosed GUD.

Other much less commonly seen GUDs include lymphogranuloma venereum (LGV) and granuloma inguinale, both of which are bacterial STDs rarely diagnosed in the USA.

Signs and Symptoms

The physical characteristics of the lesion, the temporal evolution of the lesion, lymph nodes draining the area, and the presence or absence of pain or itching may provide clues to the diagnosis.

HSV classically begins with a pruritic macule that rapidly develops into one or more vesicles that upon rupture cause painful, shallow ulcers with a scant amount of associated fluid. On average, the lesions appear within 6 days following a primary exposure to an asymptomatic viral shedder. Tender bilateral lymphadenopathy is most likely to be seen with primary HSV GUD, whereas non-tender unilateral lymphadenopathy may be seen in recurrent disease. However, a broad spectrum of associated signs and symptoms can be seen, particularly with recurrent ulcerative disease and in immunocompromised persons. Except in severely immunocompromised persons the symptoms will resolve without treatment, but all symptomatic persons are treated to decrease their risk for HIV acquisition or transmission. The infection is life-long, and recurrences of clinical symptoms are not uncommon, although the severity and duration are usually less impressive than that noted with primary disease.

Primary Syphilis causes a temporal spectrum of acute and chronic manifestations. The chancre is the classically painless ulcer of primary syphilis. The chancre occurs 10 to 90 days after exposure. It begins as a macule, evolves to a papule, and then a painless indurated ulcer with a sharply demarcated border on a smooth red base. Single ulcers are the rule, but multiple lesions are not uncommon. The chancre occurs at the point of contact; hence, oral and rectal chancres can be seen. Non-tender, firm, enlarged regional lymph nodes are seen at this stage of infection. The chancre will resolve without treatment, but the infection will not.

Chancroid is a very uncommon cause of GUD that intermittently is identified in outbreak settings. A small papule evolves into a classically painful and deep ulcer with a purplish border and “dirty” yellow to gray exudate with enlarging, tender lymph nodes that often suppurate over the course of 2 to 3 weeks.

Complications of GUDs

Some GUDs can cause complications related to local extension of the lesions (HSV, chancroid) or spread of the infectious organism to extragenital sites (HSV, syphilis).

HSV. Genital HSV can result in local or systemic complications that are seen more frequently with primary infection and in women. Local extension of disease is most commonly seen in immunocompromised persons. The ulcers may coalesce and continue to spread. Secondary bacterial infection is uncommon and is seen more frequently in immunocompromised persons. Neurological complications include aseptic meningitis (particularly common in primary infection), transverse myelitis, urinary retention, and constipation. Transmission to the newborn can occur during parturition, particularly when lesions are present.

Primary Syphilis. The chancre of syphilis represents the first stage of early infection. Untreated syphilis is a systemic disease that can lead to neurologic, ophthalmologic, cardiovascular, skeletal, or gastrointestinal complications. Pregnant women with untreated syphilis remain potentially infectious for the fetus for 4 years following initial infection.

Chancroid. This cause of GUD is rarely is associated with ulcer superinfection. In uncircumcised men, cicatrix formation with phimosis is a late complication and may require circumcision to cure.

Prevalence

HSV. Approximately 45 million Americans are estimated to be infected with genitally-acquired HSV. By the age of 35 years, approximately 25% of adults are infected. Most have asymptomatic infection although they continue to intermittently shed the virus. About one million new infections with this persistent pathogen are genitally acquired each year.

Primary Syphilis. The chancre of syphilis is a short-lived lesion and thus the incidence and prevalence are essentially the same. Statistics are only available for combined primary and secondary syphilis (the most infectious forms of syphilis). Over 6000 cases were reported in 2002. After a significant decline, cases are increasing. Risk groups include residents in urban and rural indigent areas, men who have sex with men, and commercial sex workers and their contacts.

Chancroid. The prevalence and incidence of chancroid is less than 300 cases per year nationwide.

Diagnosis

HSV. The diagnostic gold standard is culture. A Tzanck smear is positive in only 50% of cases and may be useful in the outpatient setting with classic-appearing lesions. PCR remains a research tool. Serology is only useful if negative for both



Genital Herpes Simplex.
Several small blisters on the shaft of the penis in addition to areas of erosion. The differential diagnosis of these latter lesions would include chancres due to syphilis.
Photo by Irwin Freedberg MD

HSV-1 and HSV-2 to rule out HSV as the cause of the ulcer.

Primary Syphilis. Darkfield microscopy is the gold standard for the diagnosis of primary syphilis. Antibody to cardiolipin, as measured by the rapid plasma reagin (RPR) test, will yield a low antibody titer in 80% at the time of presentation. If the RPR is positive, a treponemal antibody test, such as the MHA-T and the FTA-Abs, is necessary to confirm the diagnosis. These treponemal antibody-specific tests cannot be used alone for diagnosis because they remain positive for life. Hence a positive test does not mean the infection is new or untreated.

Chancroid. Culture is the diagnostic test of choice. However, the sample must be carefully collected and transported using a cotton or calcium alginate in special transport media. Most state health department laboratories can provide diagnostic laboratory assistance.

Treatment

The treatment of genital ulcer disease due to syphilis or chancroid should utilize directly observed, single dose therapy at the time of diagnosis. Genital herpes requires different regimens for primary and recurrent lesions.

HSV. Acyclovir (ACV), valacyclovir (VACV),

Primary Syphilis.
Retraction of the
foreskin reveal this
painless chancre
of primary syphilis.
Photo courtesy
of the CDC



and famciclovir (FCV) are all effective against herpes simplex virus.

First clinical episode of genital HSV:

- ACV 400 mg orally three times a day for 7-10 days, or;
- ACV 200 mg orally five times a day for 7-10 days, or;
- VACV 1 gm orally twice a day for 7-10 days, or;
- FCV 250 mg orally twice a day for 7-10 days.

Recurrent genital HSV:

- ACV 200 mg orally five times a day for 5 days, or;
- ACV 800 mg orally twice a day for 5 days, or;
- VACV 500 mg orally twice a day for 3-5 days, or;
- VACV 1 gm orally once a day for 5 days, or;
- FCV 125 mg orally twice a day for 5 days.

Suppressive therapy (for persons with > 5 recurrences per year):

- ACV 400 mg orally twice a day, or;
- VACV 500 mg orally once a day, or;
- VACV 1 gm orally one a day, or;
- FCV 250 mg orally one a day.

Primary Syphilis. The treatment of choice for all stages of syphilis is parenteral penicillin. Treatment of primary and secondary syphilis is benzathine penicillin G 2.4 million units intramuscularly in a single dose. Some public health experts recommend a second dose one week after the first dose, particularly in HIV-infected persons and pregnant women. Patients with penicillin allergy who are pregnant or whose compliance with alternative therapy cannot be ensured must be desensitized and treated with benzathine penicillin G. In non-pregnant patients with penicillin allergy, doxycycline

100 mg orally twice a day for 14 days can be used. Preliminary data suggests that a single 2-gram dose of azithromycin may be effective. However, many patients experience moderate to severe gastrointestinal upset at this dose of azithromycin.

Chancroid. Recommended single-dose regimens include azithromycin 1 gm or ceftriaxone 250 mg intramuscularly. Up to 10 percent of patients with chancroid are co-infected with syphilis and some public health experts recommend concomitant treatment for primary syphilis. Multi-day regimens include ciprofloxacin 500 mg orally twice a day for three days, or erythromycin base 500 mg orally three times a day for 7 days.

Follow-up

Patients with syphilis and chancroid require follow-up to ensure adequacy of treatment.

Syphilis. Treatment failure can occur with any regimen. Therefore, reassessment is needed. Patients whose signs or symptoms persist or recur or who, after 6 months, have a sustained fourfold rise in nontreponemal antibody titers compared with the maximum or baseline titer measured on the day of treatment have probably failed treatment or have been reinfected. A lumbar puncture with a CSF analysis is needed in such cases to rule out neurosyphilis.

Chancroid. Patients should be re-examined 3 to 7 days after initiation of treatment to determine if treatment is successful, i.e. significant improvement in symptoms in 3 days and objective improvement in ulcers by 7 days. Failure to improve requires consideration of an alternative diagnosis or the need for treatment longer than 2 weeks.

Prevention and Control

Syphilis, chancroid, and the genital form of HSV are spread only by sexual contact and can be prevented by abstaining from sexual activity or engaging in a long-term mutually-monogamous relationship in which both partners are uninfected at the outset. Condoms do not cover all potentially exposed areas and are less effective in preventing STDs transmitted by direct skin-to-skin contact, including syphilis, chancroid, and genital HSV, than STDs transmitted by secretions, such as gonorrhea, Chlamydia, and trichomoniasis.

Syphilis and chancroid cases are reportable by law to the local or state health department, who will undertake further investigation and partner notification activities that focus on interrupting transmission of these diseases. Many persons benefit

from partner notification services, and shelter guests with diagnosed STDs should be encouraged to make their partners aware of potential STD risk and urge them to seek diagnosis and treatment.

All sexually active shelter guests, particularly women in the childbearing years, HIV-infected persons, and those with a history of a previous STD, should receive a syphilis test every year as part of routine primary care. Pregnant women should have a cardiolipin-based syphilis screening test at the time of the initial prenatal visit, during the third trimester of pregnancy, and again at the time of delivery. Guests diagnosed with any STD, particularly GUD, should be encouraged to receive HIV counseling and testing services.

II. Non-Ulcerative Genital Lesions

Five common STDs and one sexually-associated disease can manifest as non-ulcerative genital skin lesions:

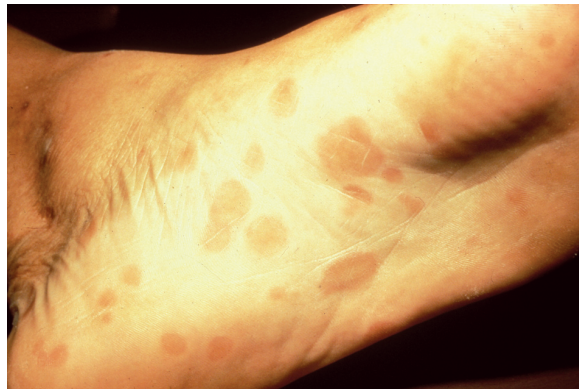
- genital warts
- pubic lice (phthiasis)
- scabies
- secondary syphilis
- molluscum contagiosum
- genital Candida dermatitis.

While considered STDs, both scabies and molluscum contagiosum can frequently be transmitted non-sexually. Candida is not considered an STD, but is commonly seen in sexually active persons, particularly women.

Signs and Symptoms

The signs and symptoms associated with each of the non-ulcerative STD genital skin lesions may be helpful in suggesting a diagnosis. The appearance of these STDs can be very similar to other dermatological conditions, and a definitive diagnosis cannot be made clinically without supportive tests.

Genital Warts. These lesions are caused by several human papillomavirus (HPV) strains. Genital warts can have variable appearances, ranging from flat to verrucous-appearing (condylomata acuminata), and can be confused with other genital lesions. They can be single or multiple in number. Although HPV has been causally linked to cervical cancer and probably other ano-genital squamous cell cancers, visible genital warts have a lower oncogenic potential than asymptomatic infections. In men, warts are commonly seen around the glans penis and the distal penis. Intraurethral warts are not



(top)
Secondary Syphilis.
This itchy rash of the soles of the feet was accompanied by muscle aches and generalized lymphadenopathy. Note the "copper coin" lesions.
Photo by
Howard Koh MD



(bottom)
Secondary Syphilis.
This man presented with a rash of the palms of his hands, the soles of his feet, and the roof of his mouth. He complained of fatigue and a loss of appetite, and did not recall a chancre in the past.
Photo by
Irwin Freedberg MD

uncommon. In women, visible warts are common at the introitus and on the vagina. Cervical warts may be noted at the time of a speculum examination in women. Perirectal warts can be seen in both sexes, with a greater frequency in persons who engage in anal receptive intercourse. Patients with genital warts may complain of itching.

Pubic Lice. Pubic lice appear as adult lice or nits on the pubic hair and may be difficult to see. Erythematous skin is often seen beneath the hair shaft containing the nit. Pruritis is a hallmark of this ectoparasitic infestation. If the person has not been previously infested with pubic lice, redness or itching may not be present for the first 5-7 days. Itching occurs within 24 hours in persons who have had a previous infestation. Please see chapter on Lice.

Scabies. Scabies can be identified by the findings of linear, red, excoriated areas between the fingers, at the belt line, the external genitalia, abdomen, and buttocks. In addition to the classic mite burrow of scabies, the lesions can be urticarial, eczematous, nodular, papular, or pustular. Pruritis may be severe, often worse at night or in a warm environment. Immunocompromised persons may develop severe infestations of disease with diffuse, large crusted lesions. This form of disease is known as crusted or Norwegian scabies and is associated with the presence of a very large number of ectoparasites. Please see chapter on Scabies.

Table 1: Differential Diagnostic Features of Sexually Transmitted Genital Ulcer Diseases

FEATURE	PRIMARY HSV	RECURRENT HSV	SYPHILIS	CHANCROID	LGV	GRANULOMA INGUINALE
Incubation period	2-14 days	Recurrence usually within 6-9 months of primary HSV	10-90 days	1-14 days	3-21 days	Unknown; likely 1 to 16 weeks
Initial lesion	Papule → vesicles → ulcer	Papule → vesicles → ulcer	Papule → ulcer	Papule → ulcer	Papule → pustule → ulcer	Papule or nodule → ulcer
Ulcer border	"Punched out", erythematous	"Punched out", erythematous	Sharp, demarcated	Purplish, undermined	Variable, may be missed	Beefy red, rolled up edges
Ulcer base	Red, smooth	Red, smooth	Red, smooth	"Dirty" yellow to gray exudate	Variable	Beefy red
Ulcer depth	Superficial	Superficial	Superficial	Deep, evacuated	Variable	Variable with granulomatous tissue
Ulcer discharge	Serous, scant	Serous, scant	Serous, scant	Purulent to hemorrhagic	Variable	Variable
Number of ulcers	Multiple, may coalesce	Multiple, may coalesce	Usually one	Usually 1 to 3	Usually one	Usually one
Ulcer induration	None	None	Firm (consistency of an Oxford shirt collar buttonhole)	Rare, usually soft	Variable	Moderate firmness
Pain	Common, may be severe	Common, usually less severe	Rare	Usually, can be severe	Uncommon	Rare
Pruritis	Common	Common	Rare	Rare	Rare	Rare
Lymph node enlargement	Bilateral, firm, tender, inguinal area	Uncommon, unilateral, non-tender, inguinal area	Non-tender, firm, inguinal area	Very tender, enlarged and may suppurate	Tender, inguinal and femoral nodes, may suppurate	Uncommon

Secondary Syphilis. The classic genital lesions of secondary syphilis are condylomata lata. These are red, moist, raised, glistening, wheal-like lesions that are often mistaken for the condylomata acuminata caused by HPV infection. Other common lesions include mucous patches (reddish, ulcer-like lesions with a purplish border that can be seen on the penis, scrotum, vagina, vulva, perirectal area, or the mouth), macular-papular eruptions that can be found on the genitalia or other skin surface, and classic "copper coin" lesions most notable on the palms and soles. The lesions of secondary syphilis appear weeks to months after exposure to syphilis and may occur after the disappearance of the chancre of primary syphilis, while the chancre is still present, or in the absence of a history of a chancre having been present. Little or no itching is associated with these lesions. This stage of syphilis is a systemic disease and non-dermatologic findings may be present, including sore throat, headache, fever, malaise, weight loss, general lymphadenopathy, and hepatitis. Circular lesions may be seen on the facial skin of darker pigmented persons.

Molluscum Contagiosum. The lesions caused by molluscum contagiosum virus can appear anywhere on the genitalia and on the skin of the hands and face. They appear as papular, smooth, pearly-white, centrally umbilicated, non- or minimally pruritic lesions, usually 3-5 mm in size. Caseous material can be expressed from the central umbilicated area. Normal hosts may have 10-20 lesions, whereas immunocompromised persons may develop hundreds of lesions.

Genital Candida Dermatitis. This infection is not sexually-transmitted but is commonly considered to be sexually-associated, i.e. found more commonly in persons with STDs than in those without STDs. In women, the dermatitis covers a spectrum from non-specific pruritic patches of erythema to severe erythema and peeling of the hair-bearing part of the labia majora. The affected area may be bounded by a rim of scaling and superficial pustules (satellites). In men, Candida produces red papules or plaques on the glans of the uncircumcised penis. Lesions are rarely seen on the shaft of the penis or the scrotum. Moderate to severe pruritis is seen.

Complications

Genital Warts. More than 30 types of HPV can infect the genital tract. Visible warts are associated with the minority of these infections. HPV infection can be associated with cancer; the association is lowest for visible warts when compared with asymptomatic infection. In women, HPV can cause cancer of the cervix, vulva, vagina, and anus. Heterosexual men have a very small risk of penile cancer. Men who have sex with men have an increased risk of anal cancer. Certain groups are at increased risk for developing very large genital warts, including persons with decreased cell-mediated immunity due to HIV, Hodgkin's disease, immunosuppressive drugs, or pregnancy. These large warts can become locally destructive.

Pubic Lice and Scabies. Persons with pubic lice or scabies, on rare occasion, may develop local bacterial cellulitis in excoriated areas.

Secondary Syphilis. Certain complications seen in secondary syphilis are related to high levels of circulating immune complexes, including patchy alopecia, iritis, anterior uveitis, glomerulonephritis, or nephrotic syndrome. In addition, acute neurosyphilis can occur during this stage, manifested as meningoencephalitis, meningitis, or hearing loss. All cases of neurosyphilis require treatment with parenteral penicillin for 10-14 days. Untreated syphilis may result in long term complications of the skeletal, cardiovascular, or central nervous systems.

Molluscum Contagiosum. The most frequent complication of infection is an eczematous reaction 3-10 cm in diameter around individual lesions. This reaction occurs 1-15 months after the onset of the lesion and disappears when the lesion resolves. Lesions neither worsen during pregnancy nor appear to affect the outcome of pregnancy.

Genital Candida Dermatitis. Persistent or recurrent infection may be noted in immunocompromised persons. Longer course therapy may be needed in such cases.

Prevalence

No reliable prevalence estimates are available for pubic lice, scabies, molluscum contagiosum, or genital Candida dermatitis.

Genital Warts. HPV is the most common viral STD in the USA; about one percent of the sexually active population has genital warts. Peak prevalence is in persons 17-33 years of age.

Secondary Syphilis. The lesions of secondary syphilis are short lived and resolve without treatment, although the person is still infected and at risk

for long-term complications from infection. In an untreated person, the lesions of secondary syphilis can recur. Statistics are only available for combined primary and secondary syphilis. Together these two stages are the most infectious stages of syphilis. Over 6000 cases were reported in 2002. After a significant decline, cases are increasing. Risk groups include residents in urban and rural indigent areas, men who have sex with men, and commercial sex workers and their contacts.

Diagnosis

All sexually active shelter guests with atypical genital warts, undiagnosed genital rash, or genital lesions should have a screening test for syphilis.

Genital Warts. The diagnosis of genital warts begins with a thorough clinical examination using a bright light and a lens to evaluate small lesions. All persons with genital warts should have a screening test for syphilis because genital warts and lesions of secondary syphilis are often confused. A negative rapid plasmin reagin (RPR) test essentially rules out secondary syphilis. Because cervical and vaginal lesions often accompany lesions of the external genitalia in women, a speculum examination should also be performed. Cytologic examination of cervical (Pap smear) and anal specimens are also an integral part of the examination, particularly in women and in men who have sex with men. Some experts recommend anoscopy when perianal or perineal warts are seen or the person has a history of anal receptive intercourse. Although visible warts are much less commonly associated with cancer, coinfection with several virus types is not uncommon, including oncogenic strains. Detection of HPV DNA by molecular-based assays, although not currently in routine clinical use, is an area of active development and may soon be integrated into primary care practice.

Pubic Lice. The diagnosis begins with a careful history followed by a thorough physical examination. The louse and the nits should be visible with the naked eye, although a hand lens and bright light are very useful. The eyelashes and axillary hair may also be infested.

Scabies. The appearance of the lesions cannot be relied upon to make a definitive diagnosis of scabies. A hand lens and bright light should be used to examine burrows. To make the burrows more visible, rub fountain pen ink on the suspect area and then wipe the area with isopropyl alcohol. The burrow will then be visible. The area is then scraped with a #15 scalpel blade to disrupt the top of the

Secondary Syphilis. Condylomata lata, or genital warts, can be seen in secondary syphilis.

Photo courtesy of the CDC



burrow. This scraping is placed on a microscope slide with a coverslip and examined with the oil immersion microscope lens for the presence of mites, eggs, or fecal pellets.

Secondary Syphilis. The diagnosis of secondary syphilis is made in the presence of any lesion consistent with secondary syphilis on an individual with a history of unprotected sexual contact who has a positive RPR and a positive confirmatory treponemal antibody test.

Molluscum Contagiosum. Diagnosis can be made clinically in the setting of classic pearly lesions with central umbilication. Histology or electron microscopy of a biopsy specimen will identify the virus in atypical lesions.

Genital Candida Dermatitis. The diagnosis is made with a 10% potassium hydroxide slide preparation from a swab specimen collected from a moist area of the lesion. The slide will show budding yeasts and pseudohyphae.

Treatment

Genital Warts. The primary goal is to remove symptomatic warts. In most cases wart removal results in a wart-free period. Notably, if left untreated, visible warts may resolve on their own, remain unchanged, or increase in number or size. Removal of visible warts may decrease infectivity. Persons with fewer than 11 visible warts or a total visible wart area of less than 1 cm by 1 cm can receive either point of care treatment by the clinic health care provider or be given a patient-applied treatment. More complicated warts, including those on mucosal surfaces, should be referred for management. Those who do not respond to one treatment type should be retreated with another modality. Recommended regimens for external genital warts include:

- clinic provider administered treatment;

- cryotherapy with liquid nitrogen or cryoprobe. Repeat application every 1-2 weeks. This is the only recommended therapy for use during pregnancy;
- podophyllin resin, 10% to 25% in a compound tincture of benzoin. Apply a small amount to each wart and allow to air dry. Limit application to an area <10 cm² or <0.6 mL per session. Some experts recommend thorough washing of the area in 1-4 hours after the application. Repeat treatment every week, as needed;
- trichloroacetic acid (TCA) or bichloroacetic acid (BCA) 80% to 90%. Apply a small amount only to the warts and allow to dry, indicated by “frosting” of the lesions. If too much acid is applied, cover the area with baking soda or liquid soap to remove the excess acid. Repeat weekly, if needed;
- surgical removal by tangential scissors excision, tangential shave excision, curettage, or electrosurgery;
- patient-applied treatments;
- imiquimod 5% cream, applied three times weekly.

Pubic lice. Agents used to treat pubic lice should NOT be applied to the eyes or eyelashes. Eyelash infestation is managed by applying occlusive ophthalmic ointment to the eyelid margins twice a day for 10 days.

Bedding and clothing should be decontaminated by machine washing, machine drying using the heat cycle, dry-cleaning, or removing from the body for 72 hours. There is no need to fumigate living quarters. All persons with pubic lice should be evaluated for other STDs. The recommended treatments include:

- permethrin 1% cream rinse applied to affected areas and washed off within 10 minutes. Some public health experts prefer this treatment to lindane because it has less potential for toxicity;
- lindane 1% shampoo applied for 4 minutes to the affected area and then thoroughly washed off. DO NOT USE in pregnant women or children < 2 years;
- pyrethrins with piperonyl butoxide applied to the affected area and washed off after 10 minutes.

Scabies. The recommended regimen for the treatment of scabies is 5% permethrin cream applied to the entire body from the neck down

and washed off after 8 to 14 hours. Clothing and bedding should be decontaminated by either dry cleaning or machine washing followed by drying using the hot cycle. Alternatively, the clothing and bedding can be removed from all bodily contact for 72 hours. Fumigation is not needed. Some public health experts recommend the use of ivermectin 200 µg/kg orally that is repeated 14 days after the initial treatment rather than permethrin cream for immunocompromised persons and other special groups, including guests in homeless shelters. Lindane has increasingly fallen into disfavor by many clinicians due to associated adverse effects, and it cannot be used in pregnancy.

Secondary Syphilis. Recommended treatment regimens for primary and secondary are the same. The treatment of choice for all stages of syphilis is parenteral penicillin. Treatment of primary and secondary syphilis is benzathine penicillin G 2.4 million units intramuscularly in a single dose. Some public health experts recommend a second dose one week after the first dose, particularly in HIV-infected persons. Patients with penicillin allergy who are pregnant or whose compliance with alternative therapy cannot be ensured must be desensitized and treated with benzathine penicillin G. In non-pregnant patients with penicillin allergy, doxycycline 100 mg orally twice a day for 14 days can be used.

Molluscum Contagiosum. The goal of treatment is to hasten the resolution of individual lesions in an effort to decrease autoinoculation (particularly among immunocompromised persons) and to decrease transmission to others (particularly to immunocompromised persons). It is important to note that no treatment is very effective in immunocompromised persons who have a high likelihood of recurrence:

- direct destruction;
- cryotherapy with liquid nitrogen may be useful for small lesions when fewer than 10 are present;
- expression of the lesion core by direct pressure may be useful if fewer than 5 lesions are present. Care must be taken to avoid reinoculation;
- excisional curettage followed by application of a chemical irritant, such as silver nitrate or iodine, to the area.

Genital Candida Dermatitis. Visible genital, perineal, and perianal lesions can be treated by a single dose of fluconazole 150 mg orally. Immunocompromised persons may require re-treatment.

Some experts recommend several days of treatment for this group. Alternatively, an over-the-counter topical antifungal cream can be applied for 3-7 days. The area should be cleansed with mild soap and tepid water and be blotted dry each day until the lesions have resolved. In those using cream therapy, cleansing should precede cream application. In males, the foreskin should be retracted during the cleansing, drying, and cream application process.

Follow-up

Genital Warts. In most patients there is usually no need for further follow-up after warts have cleared. However, in immunocompromised persons for whom recurrences are common, repeated evaluations may be helpful in detecting early recurrence and initiating re-treatment. Annual cervical cytological evaluation is recommended for all women with or without genital warts. Some experts recommend follow-up anoscopy for patients with previously diagnosed anal warts.

Pubic lice. Patients should be evaluated after 1 week if symptoms persist. Re-treatment may be needed if lice are found or nits are observed at the hair-skin interface. Re-treatment should utilize a different regimen than that used initially.

Scabies. At the time of initial treatment, patients should be informed that itching and rash might last as long as 2 weeks after treatment. Patients with crusted scabies should be re-evaluated 1 week after therapy, particularly if a topical agent was utilized for initial treatment. Some experts recommend re-treatment after 1-2 weeks if the patients are symptomatic, whether or not live mites are seen.

Secondary Syphilis. Treatment failure can occur with any regimen. Therefore, re-assessment is necessary. Persons whose signs or symptoms persist or recur, as well as those individuals who, after 6 months, have a sustained fourfold rise in non-treponemal antibody titers compared with the maximum or baseline titer measured on the day of treatment, have probably failed treatment or have been reinfected. A lumbar puncture with a CSF analysis is needed in such cases to rule out neurosyphilis.

Molluscum Contagiosum. Follow-up after treated lesions have resolved is not necessary in most cases. In HIV-infected persons, periodic follow-up and early treatment of recurrent lesions may be useful.

Genital Candida Dermatitis. There is no need for follow-up after treated lesions have resolved. Immunocompromised individuals with recurrent disease should have follow-up one week after treatment.

*Condyloma
Accuminata.
These genital
warts are caused
by human
papillomavirus
(HPV). In men, these
warts are commonly
seen around the
glans penis and the
distal penis,
as depicted here.*

*Photo by
Irwin Freedberg MD*



Prevention and Control

Among the 6 non-GUD genital lesions discussed in this chapter only genital warts, secondary syphilis, and pubic lice are exclusively transmitted in adults by the sexual route; scabies and molluscum contagiosum are transmitted by sexual and non-sexual routes; genital Candida dermatitis is not sexually transmitted. All of the STDs listed here are transmitted by lesion-to-skin contact. The sexual transmission of these conditions can be prevented by abstaining from sexual activity or by engaging in a long-term and mutually monogamous relationship in which both partners are uninfected at the outset. Condoms do not cover all potentially exposed areas during sexual activity, and are therefore less likely to be effective for the STDs discussed in this chapter than for those transmitted by contact with genital secretions, such as gonorrhea, Chlamydia, and trichomoniasis.

All forms of syphilis, including secondary syphilis, are reportable by law to the local or state health department who will undertake further investigation and partner notification activities that focus on interrupting syphilis transmission. For pregnant women, syphilis screening should be undertaken at the time of the initial prenatal visit, during the third trimester of pregnancy, and again at the time of delivery.

Many persons benefit from partner notification services. Shelter guests with diagnosed STDs should be encouraged to make their partners aware of potential STD risk and urge them to seek diagnosis and treatment.

All sexually active shelter guests, particularly women in the childbearing years, HIV-infected persons, and those with a history of a previous STD, should be offered syphilis screening every year as part of routine primary care. Guests diagnosed with any STD should be encouraged to receive HIV counseling and testing services.

Summary

Ulcers or non-ulcerative lesions of the genitalia due to STDs are often present when shelter guests come to the clinic for other health-related problems. It is critically important to include a sexual history and focused physical examination for all sexually active patients to provide treatment and interrupt further transmission when possible. Key concepts to keep in mind when caring for shelter guests with STDs include:

- single dose, directly observed therapy is the preferred form of therapy when such a regimen is proven to be efficacious;
- persons with genital ulcer disease are at increased risk for HIV acquisition and transmission (if HIV infected);
- the presence of one STD increases the risk for a second STD and also is a marker for possible exposure to HIV. Therefore, all patients diagnosed with an STD should receive HIV counseling and testing, as indicated;
- women and their unborn children bear the greatest burden of adverse outcomes from STDs;
- women are more likely to have asymptomatic STDs than men;
- syphilis and chancroid are reportable diseases, and local or state health departments must be notified. ■■

STDs Part I: Genital Sores Medication List

Generic	Brand Name	Cost
acyclovir (oral)	Zovirax	\$
acyclovir (ointment/cream)	Zovirax	\$\$\$
azithromycin	Zithromax	\$\$
benzathine penicillin G	Bicillin L-A	\$
ceftriaxone	Rocephin	\$\$\$\$\$
ciprofloxacin	Cipro	\$\$\$
doxycycline	Vibramycin	\$\$
famciclovir	Famvir	\$\$\$
fluconazole	Diflucan	\$
ivermectin	Stromectol	\$
lindane 1% shampoo	Kwell	\$
permethrin 5% cream	Elimite	\$\$
permethrin 1% cream rinse	Nix	\$\$
pyrethrins with piperonyl butoxide	RID, A-200	\$
valacyclovir	Valtrex	\$\$\$\$

References

Centers for Disease Control and Prevention. Sexually transmitted disease treatment guidelines. *MMWR* 2002;51(RR06;1).

Holmes KK, Sparling PF, Mardh P-A, et al., eds. *Sexually Transmitted Diseases*. 3rd ed. New York, New York: McGraw Hill; 1999.

Hynes NA. *Johns Hopkins POC-IT Antibiotic (ABX) Guide*.
<https://www.hopkins-abxguide.org/>. Last updated 2003 with planned ongoing updates.