Sexually Transmitted Infections in HIV-Infected Adults and Special Populations

A Clinical Guide

Laura Hinkle Bachmann
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To Kurt, Elisabeth, and Kate, my anchors in this world, and to my patients, for the privilege of working with you and learning from you.

Preface

The synergistic relationship between sexually transmitted infections (STIs) and Human Immunodeficiency Virus (HIV) has been appreciated since early in the HIV epidemic. Transmitted through many of the same behaviors, the co-infection rate of STIs and HIV are significant, particularly in this age when STIs are on the rise again. As of the time of this writing, the most recent CDC STD surveillance (2015) report detailed an all-time high of cases of the three reportable STIs—chlamydia, gonorrhea, and syphilis.[1] While the reasons for these increases are multi-factorial, the promise of HIV Treatment as Prevention (TasP) and the availability of HIV Pre-exposure Prophylaxis (PrEP) likely play a significant role in rising STI rates, particularly amongst men-who-have-sex-with-men (MSM).

New tools and multi-pronged approaches are needed to combat these (often) curable, but frustratingly persistent, pathogens. One important strategy in the fight against STIs and HIV relies on the ability (and willingness) of the physician or Advanced Practice Provider (APP) to include sexual health as part of comprehensive HIV care. This includes taking a competent, nonjudgmental sexual history, performing a physical examination, applying appropriate diagnostic testing and screening strategies and, depending on the situation, sometimes treating the patient empirically. In addition, understanding the nuances of STIs and their interaction with HIV on the molecular, microscopic, and macroscopic level is critical to providing excellent care in the HIV primary care setting. This is not always straightforward. The significant stigma that sexual behavior, and by association STIs and HIV, elicits often presents a significant barrier for both the provider and the patient, compromising care.

While this book does not pretend to have all of the answers, the hope is that this text will aid HIV providers by providing practical information to aid in taking a sexual history and managing the major STI syndromes (as well as the specific STIs) in HIV-infected individuals in an office setting and will serve as a guide for working with special populations around the topics of sexual health. Therefore, the reader will find a mix of practical advice and brief state-of-the-art topic reviews relevant to the HIV provider within these pages.

[1]Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2015. Atlanta: U.S. Department of Health and Human Services; 2016.

I would like to thank each of the outstanding clinicians and scientists who wrote chapters for their generous contribution to this project. This book would not have been possible without their tireless effort—an effort that can only properly be described as a labor of love for their patients and the STI/HIV field. I would also like to thank my family for their patience with this project and their boundless support of me and my work.

I hope that you find this book useful for your practice.

Winston-Salem, NC, USA Laura Hinkle Bachmann

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Part I

Office-Based Approaches to Improve Sexual Health

1 Office-Based STI Management: A Practical Approach to Sexual History Taking and Syndromic Management of Sexually Transmitted Infections

Laura Hinkle Bachmann and Candice Joy McNeil

Introduction

Despite significant progress over the last several decades in the development of diagnostic tests for the evaluation of sexually transmitted infections (STIs), the fact remains that most providers must apply syndromic management skills in order to accurately evaluate STIs in the office setting. There are few point-of-care (POC) tests for the evaluation of STIs at the time of this writing and some older POC tests (i.e., Gram stain, Darkfield) are no longer readily available in the office setting due to increased regulation of laboratory procedures. In order to provide competent syndromic management in the office setting, a thorough sexual history together with a targeted physical examination and an understanding of the etiologic agents associated with common STI syndromes is imperative.

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Sexual History: Let us Start at the Beginning…

The harsh reality is that the prospect of taking a sexual history from a patient is still met with dread by many providers. Much of this may be due to the stigma associated with sexual behavior and, by association, infections transmitted through sexual acts, in our society. As a result, sexual history taking may be the "exception" and not the rule, and many may not see sexual health as a valued part of comprehensive health care. However, studies have shown that patients feel that providers who address sexual history and sexual health concerns are perceived as more competent than providers who skip this important aspect of human health due to limited time and/or downright discomfort with the subject matter [1, 2]. While it may not be necessary to take a thorough sexual history at each clinical encounter, the provider should address this issue at the time of comprehensive health assessment whether it is at a primary care visit or at the baseline visit at entry to human immunodeficiency virus (HIV) care. The latter scenario dictates that a sexual history be addressed at least once a year, even in individuals who report abstinence, as sexual behavior and risk are dynamic. A follow-up sexual history should occur at increased frequency in patients at high risk for STI acquisition (i.e., diagnosed with a curable STI, multiple partners, engaging in drug use, etc.).

The task does not have to be as onerous as it may seem. In fact it is quite the opposite. By

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providing a comfortable, nonjudgmental environment for the patient, providers are likely to learn to appreciate aspects of the patient's life experiences that they were not aware of before, including gaining insight into issues that impact not just sexual health but overall success with HIV care, due to a more thorough elucidation of social and behavioral determinants of health. Also, the sexual history does not, by necessity, need to take a significant amount of time, though obviously the amount of time will vary by the breadth and complexity of the patient's sexual behaviors (and other issues that may be related to sexual behavior such as mental health issues and substance use, etc.).

So where does one start? First, ensuring privacy and confidentiality and making the patient comfortable are all important aspects. For example, it is generally not a good idea to take the sexual history with others in the room (including the patient's partner, friends, or family members), nor to ask these questions of a patient who is already unclothed. Tempting as it may be for busy providers to take shortcuts for the sake of expediency, these pitfalls should be avoided. Several different approaches to determining the specific questions to ask may be considered. For instance, the Centers for Disease Control and Prevention (CDC) recommends the "5 P's" (**P**artners, **P**ractices, **P**rotection from STDs, **P**ast history of STDs, prevention of **P**regnancy) [3]. To expand on this, one may consider adding the discussion of **P**leasure as we know that there is a component of gratification built into the act of sex itself that may influence a patient's practices and use of barrier protection to prevent STIs and pregnancy. The bottom line is that there are common themes for all of these approaches, and they will be reviewed below with a focus on questions that are particularly helpful in the HIV primary care setting.

Setting the Stage

It is important to frame the sexual health questions prior to jumping in by providing context. This does not need to take long and can include a statement such as, "In order to provide the best care, it is important for me to understand aspects of your sexual health. I ask the same questions of all of my patients and your answers will be kept confidential. Do you have any questions before we get started?"

After setting the context, there are a couple of broad questions that providers can put to the patient with subsequent in-depth exploration dependent on the response to the initial key questions (see Table 1.1 for sample questions).

When is the last time that you engaged in any type of sexual activity? It is helpful to keep this question broad and perhaps to emphasize that you are asking about ANY type of sexual activity, keeping in mind that the patient may define sex differently than you do. If the patient states that it has been a long time (keep in mind that the definition of a "long time" may be relative and this should be further clarified), the provider does not need to pursue additional information for the sake of guiding STI screening; however, all individuals should have baseline STI screening at entry into care regardless of timeframe of last sexual contact since some STIs can be chronic and may have been acquired months or even years in the past. Following the baseline evaluation, subsequent evaluation should be guided by sexual behavior reported by the patient. In addition, there may be other issues pertinent to sexual health (i.e., sexual dysfunction, depression, etc.) that may need to be discussed in individuals who are not sexually active in order to improve overall sexual health.

How many partners have you had in the last year? In the last 2 months? These questions can help the provider to better understand the patient's risk for STIs. It can also be helpful, during follow-up appointments, to ask about other time intervals (i.e., "since the last time you were here"). In addition, it is important to ask this question periodically even when patients report no recent partners as life circumstances may change and risk can be dynamic. Based on their responses, probing more on relationship dynamics and other contextual factors for risk such as partner concurrency,

Table 1.1 Examples of specific sexual risk questions

When is the last time that you engaged in any type of sexual activity?
How many partners have you had in the last year? In the last 2 months?
When you have sex is it with men, women, or both?
What types of sex do you engage in?
What is the HIV status of your partner(s)?
Do you and your partner use any barrier protection against STIs?
Do you and your partner have sex with anyone else besides each other?
Are you trying to conceive or "father a child"?
Have you been diagnosed with any STIs in the last 12 months (or other logical timeframe)?
Do you have any other questions or concerns?

victimization, substance use, and exchange of sex for resources, may further guide risk/harm reduction strategies [4].

When you have sex is it with men, women, or both? This question should be asked in a matter-of-fact manner and, with practice, will roll off of your tongue. It can be helpful to further clarify the patient's history by asking about sex with transgender individuals (see transgender chapter). It is of utmost importance that sexual orientation is not assumed based on patient phenotype or marital status. While we all know better than to do this, as human beings, it is easy to make assumptions.

What types of sex do you engage in? The primary purpose of this question is to elucidate which anatomic sites should be screened for STIs. An introduction to the question may be something like, "People have all types of sex. In order to take better care of you, it is important that I understand which parts of your body are exposed through sex. This will help to guide the testing that is best for you." It is helpful to clarify simultaneously the directionality of exposure and to define the specifics in a variety of ways. For example, "Does your penis get exposed through sex—meaning are you the insertive partner or 'top'," "Do you practice penile-vaginal sex (or penis in the vagina sex)," "Does your partner perform oral sex on you (or have mouth contact with your vagina/penis)." This is not the time to pull out our Latin-based medical vocabulary and use terms such as "fellatio" and "cunnilingus," for example, as they may be difficult terms for patients to understand and the use of these terms does not always inform the provider about the specific anatomic sites exposed as they do not tease out directionality (particularly for same gender partners). Avoid jargon and use terms and phrases that are easily understood. Though one can consider mirroring the language that your patient is using, you should remain professional. Finally, while detailed study of specific sexual behaviors was not likely part of the training curriculum for most providers, this knowledge can be useful in terms of understanding the risks an individual patient may have for a specific pathogen. It is not uncommon for providers to feel a bit anxious about whether or not they know or understand enough about specific sexual behaviors; however mastering this part of the history taking can provide essential clues in determining STI risk and site specific testing needs. Additionally, by outlining risk-taking behaviors you have the opportunity to provide targeted risk/harm reduction counseling. A (not exhaustive) list of sexual behaviors to consider inquiring about can be found in Table 1.2. For the purposes of this table, activities resulting in penetration and/or significant exposure to body fluids were focused on. It is important for the provider to bear in mind that terms for these behaviors are constantly changing and may vary outside of the U.S. As a rule of thumb, if you encounter a term or behavior that you are not familiar with during the clinical encounter, simply ask the patient to "Tell me more about that…". You will find that patients are often

Table 1.2 Examples of sexual activities

Common terminology	Medical terminology	Definition
Rimming	Anilingus	The act of using the tongue to stimulate the anus
Eat out	Cunilingus	The act of using the tongue to stimulate the clitoris
Fisting		The act of inserting the hand, sometimes gloved, into the vagina or anus of the partner
Fingering		The act of inserting the finger(s) into the vagina or anus of the partner
Blow job	Fellatio	The act of oral stimulation of the penis
Bareback sex		The act of having condomless sex
Felching		The act of extracting/sucking semen from an orifice
Frottage		The act of men rubbing their penises together
Golden showers		The act of urinating on the body or in the mouth of the partner
Sounding		The act of placing various metal instruments into the urethra for sexual stimulation
Top	Insertive anal sex	The insertive or penetrative partner in a sexual act. Often used to describe sexual positioning for men who have sex with men
Bottom	Receptive anal sex	The receptive partner in a sexual act. Often use to describe sexual positioning for men who have sex with men

Sources Caring for lesbian and gay people: a clinical guide; The complete guide to gay men's sexual, physical, and emotional well-being [39, 40]; https://en.wikipedia.org

willing to share this information with their healthcare provider if the question is asked in a genuine and nonjudgmental manner.

What is the HIV status of your partner(s)? Understanding the partner (s) HIV serostatus can inform discussions with the patient as this information may drive decisions around acceptable level of risk and the use of barrier protection for specific acts [5]. This information is also important when counseling patients about the value of a suppressed HIV viral load for transmission prevention as well as to determine if the patient's partner would benefit from HIV pre-exposure prophylaxis (PrEP).

Do you and your partner use any protection against STIs? While patients' should still undergo recommended STI screening regardless of reported condom use, it can be useful to understand whether or not patients use barrier protection and the reasons they may choose not to use these methods. A follow-up question may include, "How often do you use barrier protection with your partner?" If the patient responds, "sometimes," it can be enlightening to determine the driving forces behind that decision with a statement such as: "Help me to understand why you use barrier protection sometimes and other times you don't." The patient's answers to these questions can assist the provider in addressing misconceptions that the patient may have about determining whether or not a partner has an STI, as well as an opportunity to correct any inaccurate understandings of specific behaviors and associated risks. Furthermore, it allows the provider to tailor messages specific to the patient, a key aspect of effective provider-delivered interventions [6–9].

Do you and your partner have sex with anyone else besides each other? This question is geared toward patients who report only one sexual partner, keeping in mind that the risk for STIs is not always directly related to the risk of the patient in front of you but can be impacted significantly by the partner's risk behaviors.

Are you trying to conceive or "father a child"? The appropriateness of this question will be related to the gender of the patient and the partner. However, determining pregnancy intention helps to plan for a healthy pregnancy upfront

Table 1.3 Symptoms associated with specific STI syndromes

Syndrome	Symptoms	Signs	Associated organisms
Urethritis	Discharge, dysuria, "tingling" or pruritus at the urethral meatus	Mucoid, mucopurulent or purulent discharge; enlarged inguinal ± femoral lymph nodes	*Neisseria gonorrhoeae* *Chlamydia trachomatis* *Trichomonas vaginalis*[a] *Mycoplasma genitalium* *Herpes simplex virus* *Ureaplasma urealyticum* (specific serovars) *Neisseria meningitidus* *Adenovirus*
Cervicitis	Abnormal vaginal discharge, bleeding after sex	Cervical mucopus ± cervical friability; ectocervicitis may manifest as petechiae or erosions on the cervix	*Neisseria gonorrhoeae* *Chlamydia trachomatis* *Trichomonas vaginalis*[b] *Mycoplasma genitalium* *Herpes simplex virus* *Ureaplasma urealyticum*
Vaginitis	Abnormal vaginal discharge, abnormal odor, vaginal irritation, vaginal itching, dysuria, particularly external dysuria[c] when significant vaginal/vulvar inflammation is present	Abnormal vaginal discharge, abnormal vaginal pH, vaginal erythema (see pathogen-specific chapters for details)	*Trichomonas vaginalis* *Candida albicans* and other candida species *Gardnerella vaginalis* and other primarily anaerobic bacteria for bacterial vaginosis
Proctitis	Pus or blood on the stools or when wiping, tenesmus, anorectal pain, constipation (sometimes)	Erythema of rectal tissue, purulent discharge, erosions or ulcers (on anoscopic exam)	*Neisseria gonorrhoeae* *Chlamydia trachomatis (including LGV serovars)* *Herpes simplex virus* *T. pallidum*
Proctocolitis	May have proctitis symptoms plus diarrhea and abdominal cramping	As above plus possibly fecal leukocytes	*Campylobacter* sp., *Shigella* sp., *Entamoeba histolytica*, LGV serovars of *Chlamydia trachomatis*, CMV (in very immunosuppressed)
Enteritis	Diarrhea and abdominal cramping	Depending on pathogen possible fecal leukocytes, positive O and P	*Shigella* sp., *Salmonella* sp., *Campylobacter* sp., *Cryptosporidium, Microsporidum, Isospora, Mycobacterium avium intracellulare*
Pelvic inflammatory disease	Abnormal vaginal discharge, lower abdominal pain, bleeding between periods, dyspareunia	Cervical motion tenderness ± pain with palpation of the adnexa ± uterus; Signs of cervicitis may or may not be present	*Neisseria gonorrhoeae, Chlamydia trachomatis, Streptococcus* sp., Anaerobic bacteria
Epididymitis/Orchitis	Swelling and pain of the scrotum/testes	Edema, erythema, and/or tenderness of the testes and epididymis	*STIs (Neisseria gonorrhoeae, Chlamydia trachomatis)* *Enteric pathogens*

(continued)

Table 1.3 (continued)

Syndrome	Symptoms	Signs	Associated organisms
Genital ulcer disease	Ulcers or erosions; single or multiple; diffuse rash; constitutional symptoms may be present	Erosions (single or multiple); bilateral inguinal ± femoral lymphadenopathy	*Herpes simplex virus*
		Single indurated ulcer with clean base, rolled borders, painless; rash on trunk, palms, soles, genitals; bilateral inguinal ± femoral lymphadenopathy	*T. pallidum*
		Multiple ulcers that are painful with dirty base; unilateral (usually) inguinal lymphadenopathy	*H. ducreyi*
		Small papule or ulcer; unilateral (usually) inguinal lymphadenopathy ("the groove sign")	LGV strains of *Chlamydia trachomatis*
Arthritis-dermatitis syndrome	Joint ± skin manifestations in a sexually active adult	Tenosynovitis, polyarthritis, and/or dermatitis	*N. gonorrhoeae*
Reactive arthritis	Antecedent or concurrent infection in the setting of eye, skin, genitourinary, gastrointestinal and/or joint symptoms and findings	Urethritis or cervicitis Dysentery Inflammatory eye disease Mucocutaneous disease	*STIs (N. gonorrhoeae C. trachomatis)* *Enteric pathogens*

[a]More common in men who also have sex with women, in the southern region of the United States and among ethnic/racial minorities [3]
[b]*Trichomonas vaginalis* is associated primarily with an ectocervicitis in women
[c]External dysuria is defined as discomfort after the urine exits the urethra and hits the vaginal tissue versus discomfort within the urethra

(including the prevention of HIV transmission in the context of conception, if applicable) with the ability to optimize outcomes.

Have you been diagnosed with any STIs in the last 12 months (or other logical timeframe)? While a proportion of our patients will have a history of an STI, a history of recent curable STIs (i.e., gonorrhea, syphilis, chlamydia, etc.) will give the provider a clue that the patient should undergo STI screening at that visit and perhaps even more frequently than annually (see relevant chapters for specific recommendations).

Do you have any other questions or concerns? This question can be utilized to wrap things up as well as give the patient an opportunity to bring up an issue that was not directly addressed.

Now that you understand the patient's risk behavior, we will move on to evaluation and management considerations related to common STI syndromes.

Approach to the Patient with Signs and Symptoms of an STI

Prior to the examination, a review of systems (complete or targeted depending on the setting) should be conducted. While most STIs are entirely asymptomatic, an understanding of the

symptoms experienced by the patient in terms of onset, sequence, duration, and specific characteristics can aid the provider in arriving at an appropriate differential diagnosis. See Table 1.3 for symptoms specific to each STI syndrome.

At its most basic, an STI exam should include examination of the mouth, the skin, the lymph nodes (head and neck, axillary, inguinal and femoral), the genitals, and the perianus. Specific signs and symptoms may merit further investigation (i.e., anoscopy).

STIs are generally approached through the use of signs and symptoms that are associated with relatively well-defined etiologic agents and the various STI syndromes will be addressed accordingly below. Of note, the 2015 CDC STD Treatment Guidelines are cited frequently in this chapter. These guidelines are updated at least every 4 years and the reader should ensure that they are utilizing the most recent guidelines for patient care. The most recent guidelines can be found on or linked to the following website: https://www.cdc.gov/std/.

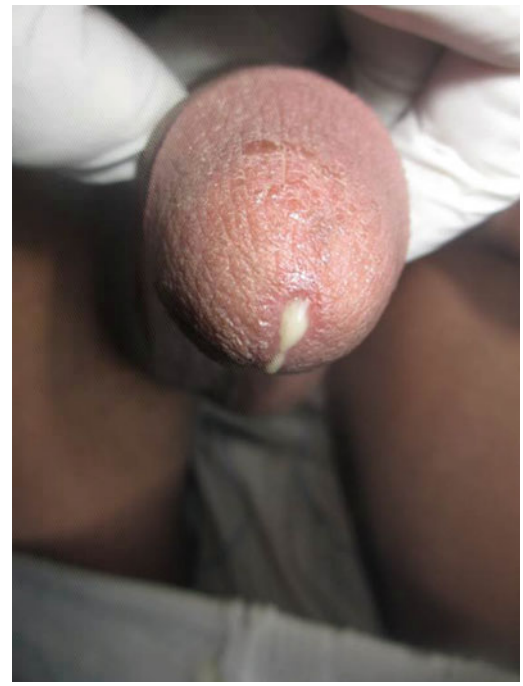

Fig. 1.1 Penile discharge due to *N. gonorrhoeae*

The "Discharges" or "Drips": Recommended Approach

Urethritis

Urethritis can occur in men and in women and is characterized by symptoms ranging from intrameatal pruritus and tingling (in males) to dysuria and frank discharge (Fig. 1.1). The etiologic spectrum of urethritis is broad and can range from bacterial organisms (*Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Mycoplasma genitalium*, various serovars of *Ureaplasma urealyticum*) to parasitic (*Trichomonas vaginalis*) to viral (*Herpes simplex virus (HSV)* 1 and 2, and adenovirus). A specific pathogen cannot be identified approximately 20–40% of the time, regardless of exhaustive testing [10].

The physical examination is helpful for determining whether or not a spontaneous discharge is present and it can be useful to strip the penis (either the provider or the patient can do this) by compressing the urethra from the base of the penis, moving forward until the glans penis is reached. This maneuver may demonstrate a discharge that may not be immediately evident on exam (and occasionally can produce a discharge in men who deny this sign on review of systems). Examining the urethra with a female patient in the lithotomy position may yield an erythematous urethra on visual inspection and compression of the urethra may elicit a discharge. Additional findings on physical exam that support the clinical impression of urethritis include the presence of inguinal and/or femoral lymphadenopathy (Fig. 1.2). Inspection of the testes and epididymis in men can help rule in (or out) a complicated infection such as orchitis or epididymitis.

Diagnostic Evaluation

Access to Gram stain or Methylene Blue/Gentian Violet (MB/GV) stain to aid in the diagnosis of urethritis is invaluable, though not available in many settings. The Gram stain (or MB/GV) can indicate the presence of inflammation (i.e., ≥ 2 white blood cells/per high power field (hpf) as defined by the 2015

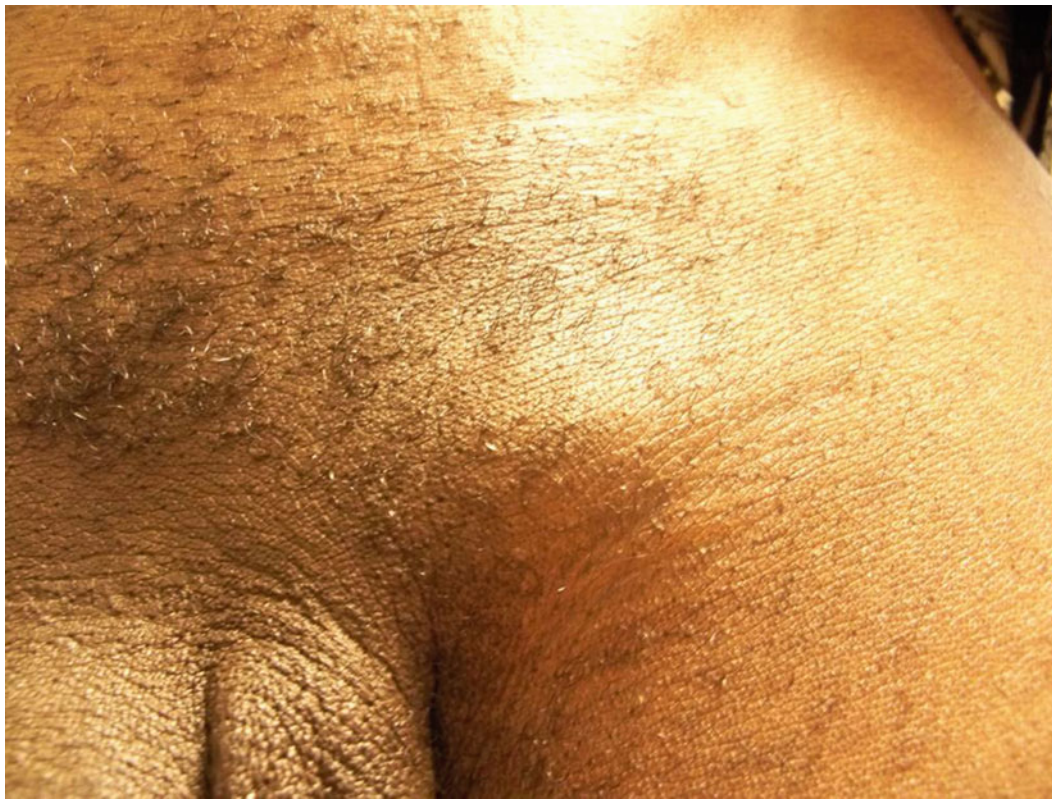

Fig. 1.2 Inguinal lymphadenopathy in a patient with nongonococcal urethritis

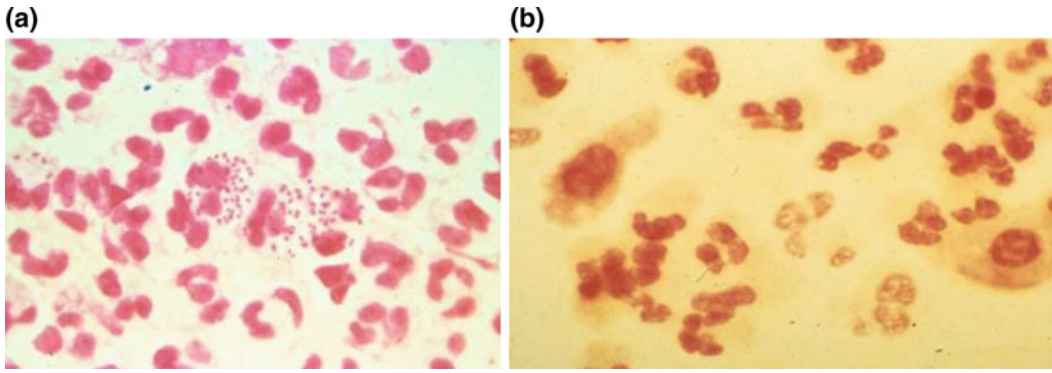

Fig. 1.3 **a** Gonococcal urethritis. **b** Nongonococcal urethritis

CDC STD Treatment Guidelines at the time of this writing; this cut-off will vary in settings in the United States and in other countries) as well as determine whether or not organisms consistent with *N. gonorrhoeae* (intracellular gram negative diplococci or purple diplococci on MB/GV stain) are present (Fig. 1.3) [3]. See Fig. 1.4 for demonstration of penile swab technique. The performance of urethral Gram stain for detecting gonorrhea in men ranges from approximately 50% in asymptomatic men to at least 95% in symptomatic men for sensitivity and the specificity is high [11]. In the absence of an available Gram stain or MB/GV stain, a urine dipstick test

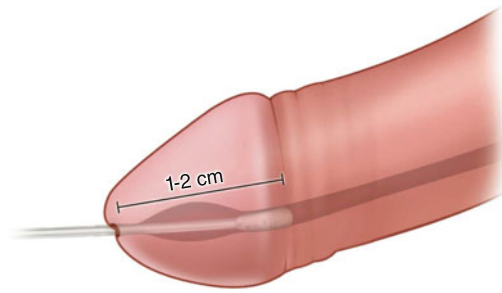

Fig. 1.4 Demonstration of acquisition of penile swab for urethral Gram stain. It is helpful to compress the glans penis in order to open the urethra prior to inserting the swab

that reveals positive leukocyte esterase or a spun urine sediment from first void urine with $\geq$10 WBC/hpf on microscopic exam can lend supportive evidence for urethritis in terms of documentation of inflammation, though these techniques are unable to rule out the presence of gonorrhea, thereby necessitating empiric therapy that covers this organism.

STIs should also be considered in women presenting with signs and symptoms of urethritis. However, women should also be evaluated with a urinalysis and culture in this setting, unless physical examination findings yield another explanation for the urinary tract symptoms. In fact, differentiating between internal dysuria (i.e., pain emanating from inside the urethra commonly associated with frequency and micturia) from external dysuria (discomfort once the urine passes out of the urethra—noticed most prominently when urine hits the vaginal tissues) can be helpful in guiding the thought process related to potential etiologies of the symptoms, as the latter group of symptoms are most common with etiologies that cause tissue inflammation and irritation (i.e., HSV outbreak, severe candida vaginitis, trichomonas, contact dermatitis). Also, suspicion for an STI etiology should be higher for women presenting with urinary tract symptoms who subsequently have negative urine cultures.

Men presenting with urethritis and women in which urethral symptoms are thought to represent an STI (vs. routine urinary tract infection) should undergo testing for *C. trachomatis* and *N. gonorrhoeae* as well as testing for other STIs (i.e., syphilis). Testing for *T. vaginalis* (TV) could be considered in men who have sex with women, particularly in the southeastern part of the United States where TV prevalence in men is higher. HIV-infected women should routinely be tested for TV due to the high prevalence of infection (even in the absence of symptoms) [3]. Further, the detection and treatment of TV, a curable STI in this population, is a point of paramount significance due to potential to decrease genital HIV viral load and shedding with successful elimination of the pathogen [12]. Tests utilizing nucleic acid amplification-based techniques (NAATS) provide the greatest sensitivity, high specificity, and a varied choice of specimen types [12–14] (i.e., urine, vaginal swabs, cervical swabs, etc—see relevant chapter for further detail).

Considerations for Empiric Therapy

Men presenting with symptoms of urethritis and documentation of inflammation based on the procedures above should be treated at the point of care. Unless a Gram stain or MB/GV stain is available to allow the provider to rule out the presence of gonorrhea, empiric therapy should cover both gonorrhea and chlamydia (see relevant chapters for details on treatment options). It is important that providers cover both etiologies in this circumstance, despite the nature of the discharge. While it is true that a purulent, profuse urethral discharge is more consistent with gonorrhea, the nature of discharge is not a definitive distinguishing characteristic. One exception may be an uncommon but particularly flagrant example of the gonococcal discharge that has, somewhat facetiously, been coined the "Bachmann sign"[1] by our group. The sensitivity and specificity of this particular presentation for predicting gonococcal infection has not been systematically studied. If the provider is able to exclude gonococcal infection based on the diagnostic test

[1]The "Bachmann Sign"—a finding where a male patient with a urethral discharge has taken measures to contain or "catch" a profuse discharge. The measures may include toilet tissue stuffed into the underwear (most common in the authors' experience) or something secured to the penis (i.e. an empty M & M® bag, a baby's sock, a condom).

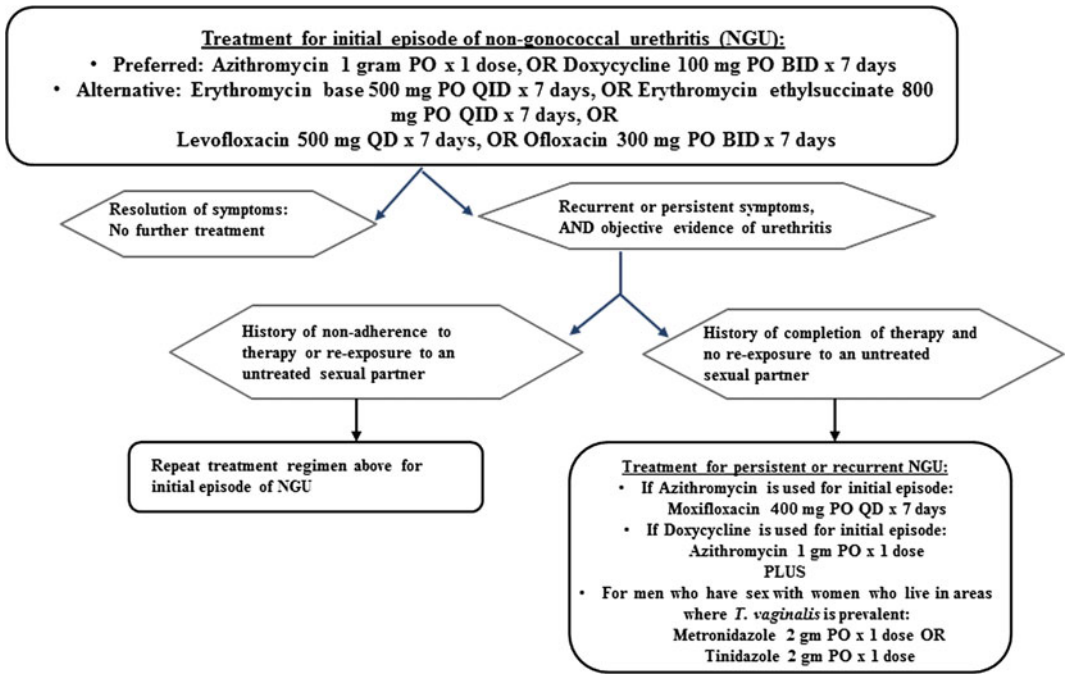

Fig. 1.5 Treatment algorithm for nongonococcal urethritis. Abbreviations: *BID* Twice daily; *PO* Per oral; *QD* Once daily; *QID* 4 times daily. Adapted from Bachmann et al. [10], by permission of Oxford University Press

available, therapy should cover nongonococcal urethritis with either azithromycin 1 g orally once or doxycycline 100 mg orally twice a day for 7 days [3]. If symptoms do not resolve with treatment, reinfection and non-adherence have been excluded, and there is documentation of persistent inflammation on examination (by one of the methods above), the patient would be considered to have persistent urethritis. In this situation, the subsequent course of antimicrobials should cover *M. genitalium* and, (in men who also have sex with women) *T. vaginalis* (Fig. 1.5).

Empiric therapy for female patients presenting with urethral symptoms should be based on examination, results of urinalysis, wet prep, and clinical judgment.

Cervicitis

Cervicitis is defined as inflammation of the cervix and the presence of at least one of two major diagnostic criteria best noted through the "swab test" [3]: (1) the presence of purulent or mucopurulent (i.e., yellow, beige, green) discharge on a white swab used to clean the cervix (Fig. 1.6) and/or (2) the presence of sustained endocervical bleeding following the passage of a small swab into the cervical os (i.e., friability) [3]. Many women with cervicitis are asymptomatic though some women may complain of abnormal vaginal discharge or bleeding between menstrual cycles or after vaginal intercourse. The etiologic spectrum for cervicitis is similar to the etiologies of urethritis in men (i.e., *N. gonorrhoeae*, *C. trachomatis*, *M. genitalium*, *Ureaplasma* sp., *T. vaginalis* and herpes simplex virus with the latter two presenting as more of an ectocervicitis) (Figs. 1.7 and 1.8). Also similar to male urethritis, a significant proportion of cervicitis cases fails to yield a specific pathogen, despite extensive testing [3, 15]. This is especially true in older (>30 years) and lower risk women.

Diagnostic Evaluation

While the presence of leukorrhea on wet prep is supportive of cervicitis (i.e., >10 WBC/hpf on

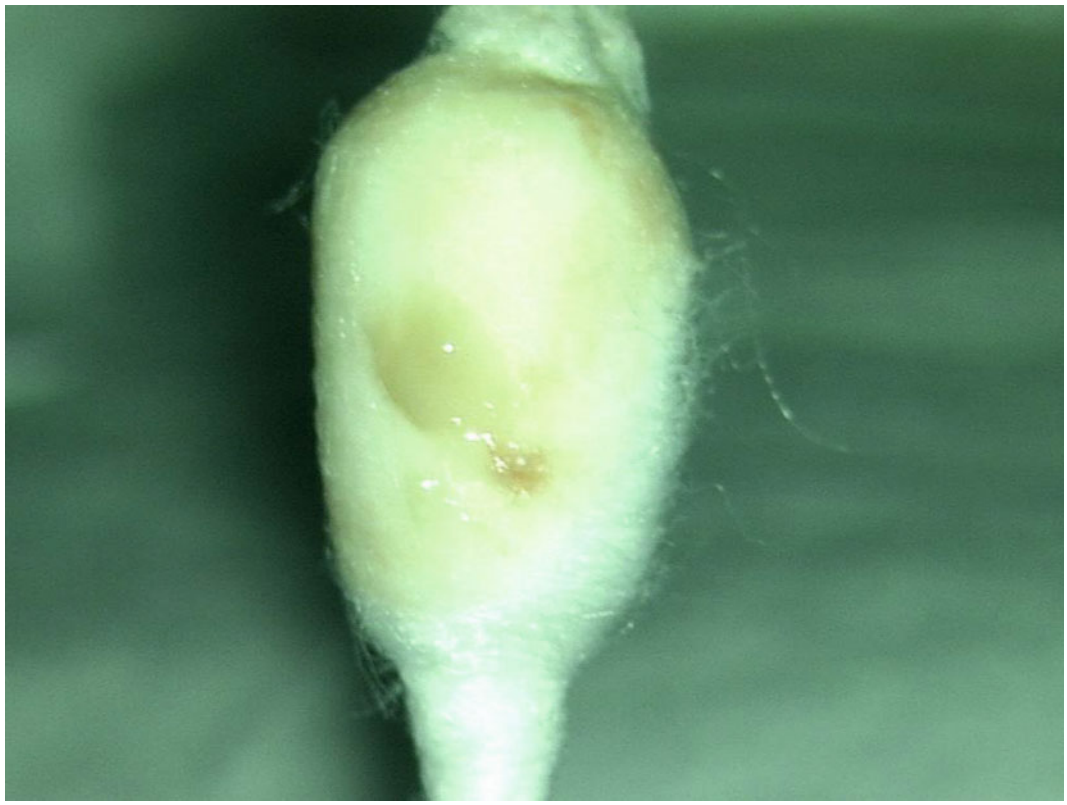

Fig. 1.6 Positive swab test

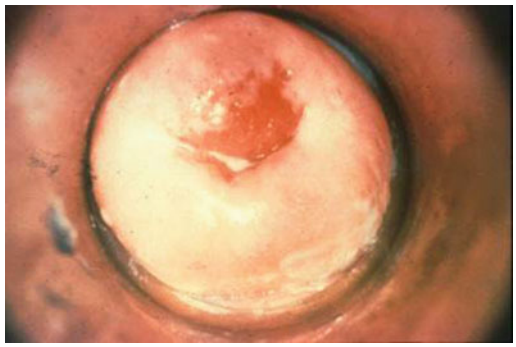

Fig. 1.7 Endocervicitis secondary to *N. gonorrhoeae*

microscopic examination of vaginal secretions), the clinical diagnosis of cervicitis is primarily based on the swab test cited above. Women with cervicitis should be tested for gonorrhea and chlamydia, preferably with a NAATs-based test. Testing for other STIs (trichomonas, syphilis, and HIV, etc.) as well as for bacterial vaginosis (BV) should be performed in women with cervicitis.

Considerations for Empiric Therapy

Decisions about empiric therapy for cervicitis should be based on the patient's sexual risk behaviors and the epidemiology of gonorrhea and chlamydia in your practice. The 2015 CDC STD Prevention Guidelines recommend empiric coverage utilizing a regimen with activity against *C. trachomatis* such as azithromycin 1 g orally once or doxycycline 100 mg orally twice a day for 7 days. Women with cervicitis who are engaging in high risk behavior and/or are from communities with a high prevalence of gonorrhea may merit empiric treatment that also covers gonococcal infection such as ceftriaxone 250 mg intramuscularly once and azithromycin 1 g orally once. Cervicitis noted in low risk

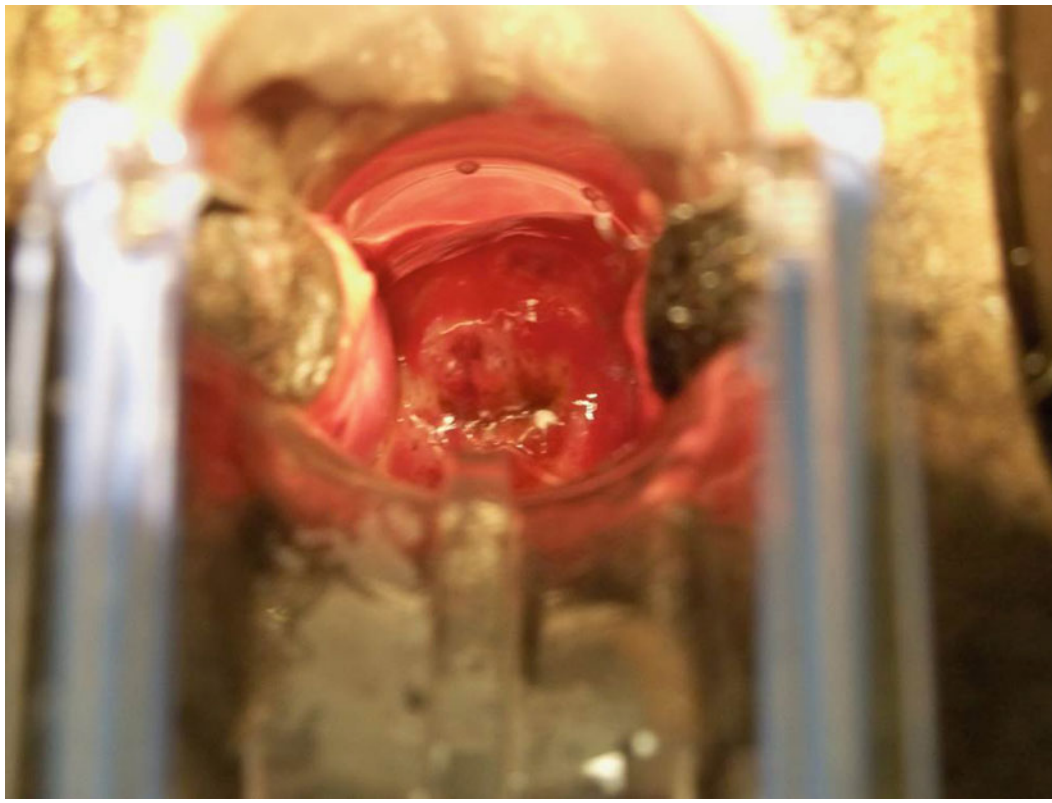

Fig. 1.8 Ectocervicitis due to HSV-2

women who will reliably follow-up does not mandate empiric treatment and therapy can be based on test results.

Vaginitis

Vaginitis is the most common clinical syndrome encountered in women in the HIV care setting. Vaginitis may be associated with abnormal vaginal discharge, irritation, itching, and/or an odor. The most common causes of vaginitis (or vaginosis) include bacterial vaginosis, trichomoniasis and candidal vaginitis though non-infectious etiologies like contact dermatitis, lichen planus, etc., should be considered in certain situations.

Diagnostic Evaluation

Though not relished by patient or provider, the pelvic examination is an invaluable part of the vaginitis evaluation. The external exam, performed prior to the insertion of the speculum, may yield the first clues regarding etiology. Erythema of the vaginal tissues is supportive of a trichomonal or candidal infection and less likely to be consistent with BV (unless a mixed infection is present). In addition to erythema, fissures and satellite lesions may be present in the setting of candida vaginitis (Fig. 1.9). At times, the homogenous adherent vaginal discharge associated with BV may be noted at the introitus during visual inspection. Following the insertion of the speculum, additional details may be noted including the presence and characteristics of the vaginal discharge. The vaginal pH, which should be obtained from the vaginal wall and not the cervicovaginal pool, is helpful in sorting out potential etiologies as candida infection is usually associated with a lower pH (i.e., <4.5) while BV and trichomoniasis are associated with a

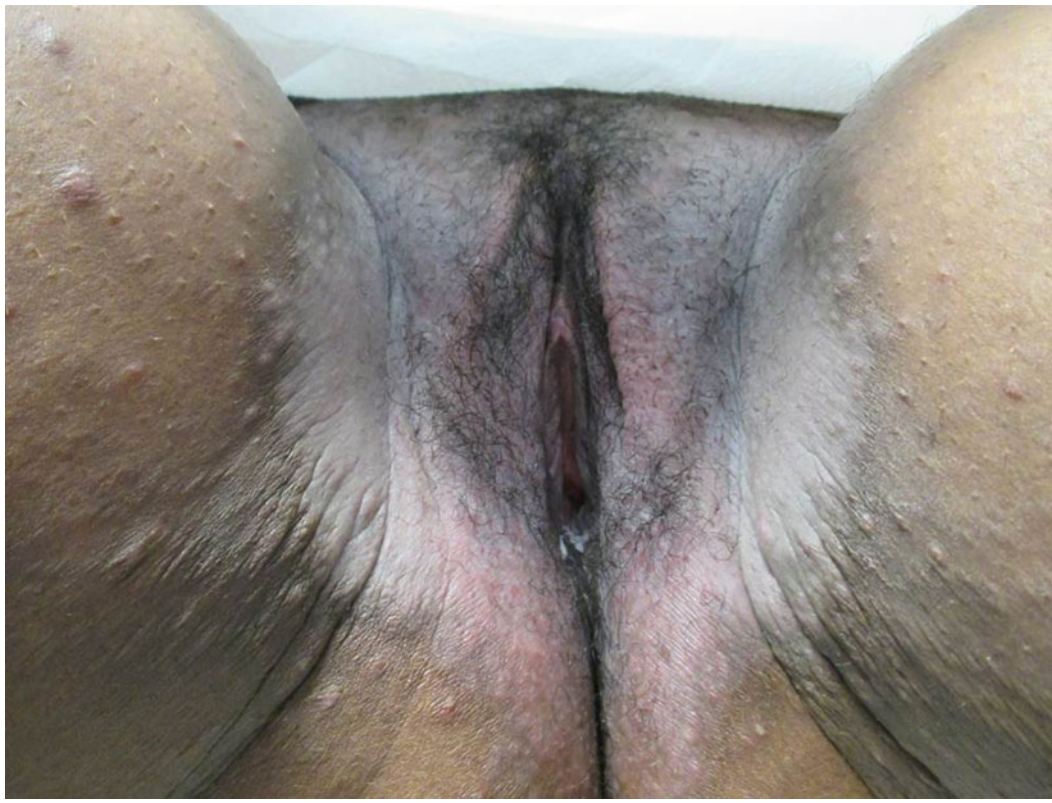

Fig. 1.9 Severe vulvovaginal candidiasis

higher pH. The characteristics of the discharge can be useful as yeast infections are frequently associated with clumpy white to yellow discharge while BV is associated with a homogenous adherent discharge that is usually white/gray. The discharge associated with TV is variable and may present as very profuse and purulent (Fig. 1.10) or even as a normal-appearing discharge. The presence of petechiae on the ectocervix, while not a common finding (present in an estimated 1–2% of women), is highly specific for TV [16].

The wet prep provides additional information including the presence and amount of WBCs (increased WBC being more supportive of candida or TV), clue cells, and trichomonads. The addition of 10% KOH to the tube containing the vaginal swab, or adding a drop of KOH to a slide with vaginal secretions will aid in the detection of the "amine" or fishy odor, otherwise known as the "whiff" test (see Fig. 1.11 for full Amsel criteria) [17]. If adding KOH directly to the tube, it is important that the practitioner has finished reading the wet prep prior as the KOH will destroy the squamous epithelial cells and make subsequent interpretation of the wet prep impossible. The addition of KOH can also be helpful for increasing the sensitivity of the detection of yeast forms (buds and/or pseudohyphae). Several rapid POC tests now exist for the diagnosis of vaginitis with processing times ranging from 10 to 60 min and include the OSOM® BVBLUE® (sialidase) test (Sekisui Diagnostics, Lexington, MA), the OSOM® Trichomonas Rapid Antigen Detection Test (Sekisui Diagnostics, Lexington, MA), and the Affirm™ VP III (Becton-Dickinson, Sparks, Maryland) which can be utilized for the diagnosis of BV, trichomoniasis, and candida infection (see bacterial vaginosis and trichomonas chapter for more detail). Though not a POC test, several

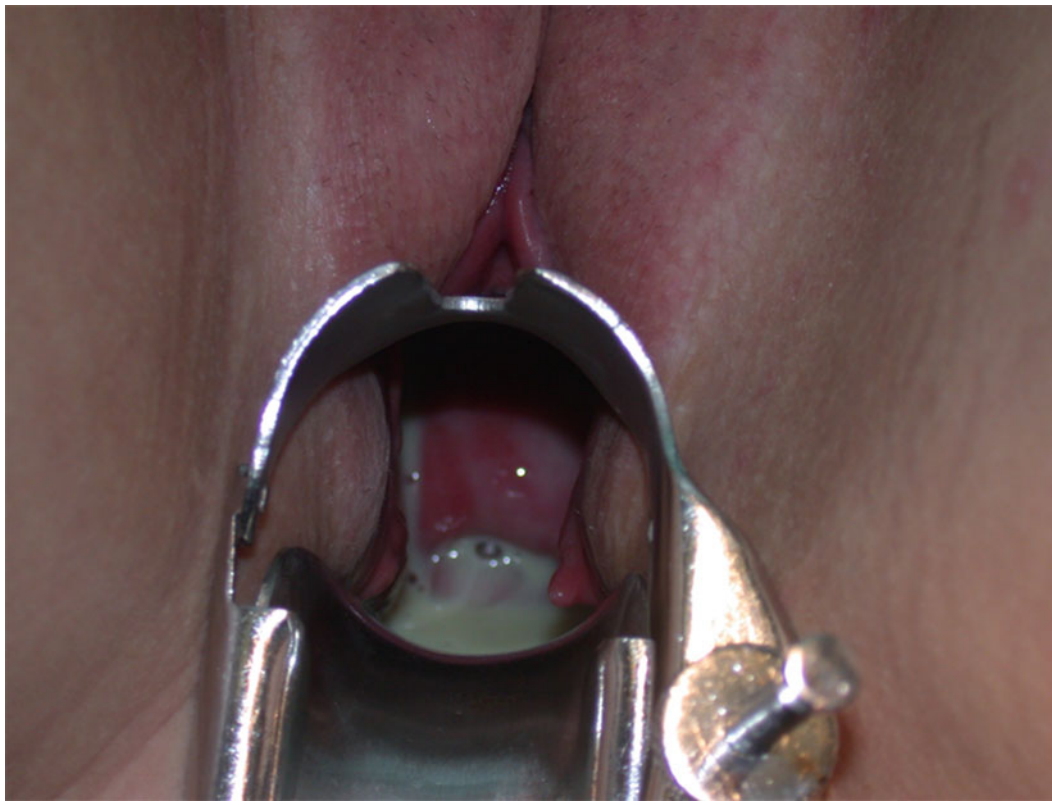

Fig. 1.10 *Trichomonas vaginalis* infection

BV Diagnosis: Amsel Criteria	
Amsel Criteria: Must have at least <u>three</u> of the following findings:	**Vaginal pH >4.5**
	Presence of "clue cells" on wet mount examination
	Positive amine or "whiff" test
	Homogeneous, non-viscous, milky-white discharge adherent to the vaginal walls

Fig. 1.11 Amsel Criteria. *Source* Amsel, Am J Medicine 1983

NAAT-based tests (APTIMA *T. vaginalis* assay (Hologic Gen-Probe, San Diego, CA) and BD ProbeTec^{TM} Q^{x} (BD Diagnostics, Sparks, MD) for *T. vaginalis*) provide additional, highly sensitive, diagnostic options, and can be paired with testing for *N. gonorrhoeae* and *C. trachomatis* on the same swab (if appropriate). Trichomonas culture is also an option in some settings, though this test is less sensitive than NAAT-based tests (see chapter on trichomoniasis).

Considerations for Empiric Therapy

Given the value of the physical exam and the availability of point-of-care tests for vaginitis, the patient can usually leave the clinic with a diagnosis and appropriate treatment. Since the wet prep is less sensitive than culture, the rapid POC tests and NAAT-based testing for TV, sending one of these tests in HIV-infected women with a wet prep negative for TV should be strongly considered since the addition of these more sensitive tests significantly increases the yield [18].

In addition to the infectious etiologies mentioned above, it is important for the provider to keep in mind the noninfectious causes of vaginitis including primary dermatologic processes (i.e., lichen planus) as well as irritant or allergic contact dermatitis. Remember: human beings love to put products on their genitals whether to treat a perceived or real problem or just to enhance the smell. We live in an age of (possibly) unrealistic expectations regarding odors emanating from the genitalia which may lead to excessive cleaning and/or the application of perfumed soaps, lotions, and other products. The tissue in this area is particularly sensitive. Taking a comprehensive history regarding the use of products as well as grooming habits including the frequency of washing and temperature of water (some individuals may actually wash or bathe too often!), whether or not the patient is using irritating cleansers (i.e., bleach, dishwashing detergent, or other caustic substances in the bathtub or directly on the skin), can go a long way in helping the provider determine other offending agents that may be at play (Table 1.4). This is particularly important when the initial workup does not reveal the usual suspects and/or the patient does not respond to therapy. Additionally, examination of the remainder of the skin may be helpful in sorting out primary dermatologic processes such as lichen planus, psoriasis, etc.

Proctitis, Proctocolitis, and Enteritis

Keeping in mind that most rectal infections with gonorrhea and chlamydia are asymptomatic, when patients do present with symptoms of rectal and/or gastrointestinal infection, this should prompt consideration of and workup for sexually transmitted pathogens. Symptoms of proctitis (inflammation of the distal 10–12 cm of the rectum) may include tenesmus, rectal pain, discharge, and/or bleeding. Infection with some pathogens (i.e., lymphogranuloma venereum (LGV)) may result in systemic illness. Proctocolitis, secondary to inflammation 12 cm above the rectum, may present with symptoms similar to proctitis in addition to diarrhea and abdominal cramping. Enteritis usually presents as abdominal cramping and diarrhea in the absence of proctitis symptoms [3]. Each of these syndromes is associated with a spectrum of etiologic agents (see Table 1.3).

Diagnostic Evaluation

Diagnostic evaluation for proctitis should include an anoscopic exam to better examine the rectal mucosa for the presence of erythema, purulent discharge, and/or lesions (Figs. 1.12 and 1.13). Anoscopy also provides the opportunity to collect a specimen for Gram stain to evaluate for polymorphonuclear cells and/or gram negative intracellular diplococci (GNID) if exudate is present. However, gonorrhea should not be ruled out in this setting if not present in Gram stain as this test has low sensitivity for the detection of gonorrhea. Testing should be performed for *N. gonorrhoeae* and *C. trachomatis*, preferably with a NAATs-based test. HIV-infected men with proctitis should be tested for LGV if testing is available (see chlamydia chapter). Testing for HSV (either a NAAT-based test or culture) and syphilis should be performed in all individuals presenting with proctitis. Acknowledging the potential for sexual transmission of enteric

Table 1.4 Common causes of contact dermatitis of the genitals

Type of dermatitis	Chronicity of symptoms	
	Acute	Chronic
Irritant contact dermatitis	Wart treatment medications	Recurrent trauma (i.e., scratching or scraping)
	Caustic cleansing products	Excessive cleansing
		Bodily fluids (i.e., urine, feces, and sweat)
		Yeast infections
		Hygiene products in contact with or applied to the genitals (i.e., douches, lubricants for the vagina, depilatories, liners, and pads)
		Spermicides
		Medications applied topically to the vagina (especially creams)
Allergic contact dermatitis	Medications applied topically to the vagina Spermicides Components of hygiene products applied to or in contact with the genitals Latex-containing products Perfumes	

Source Genital Dermatology Atlas [41]

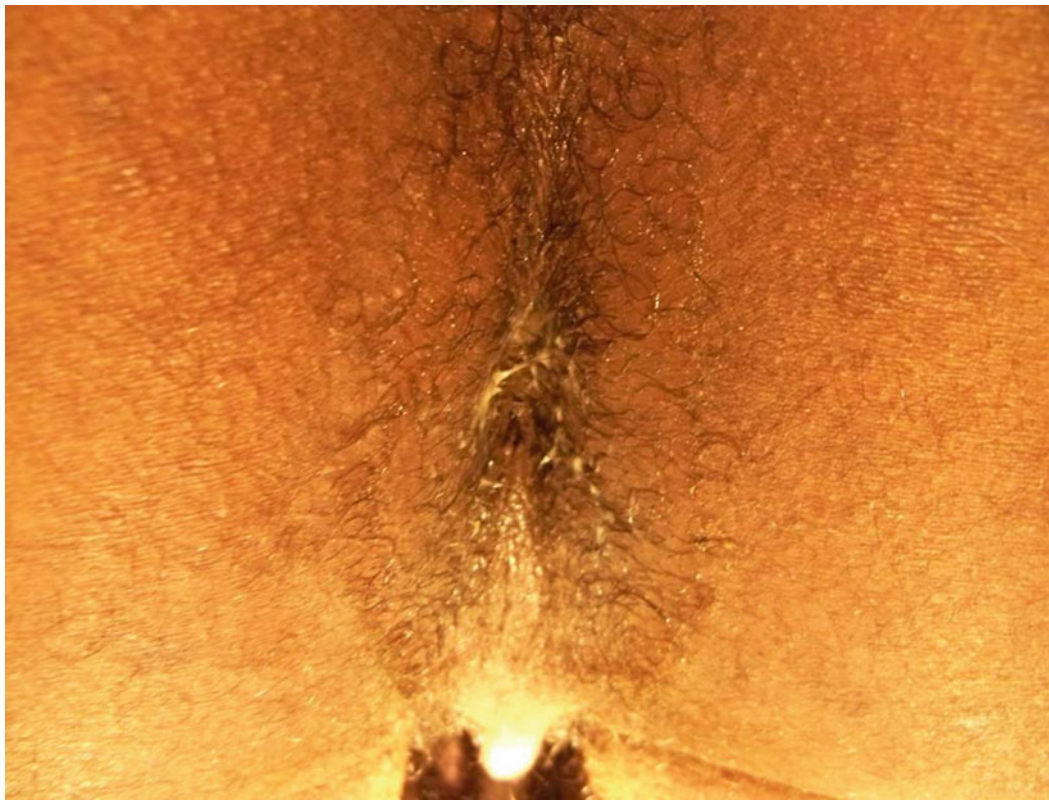

Fig. 1.12 Purulent rectal discharge secondary to proctitis

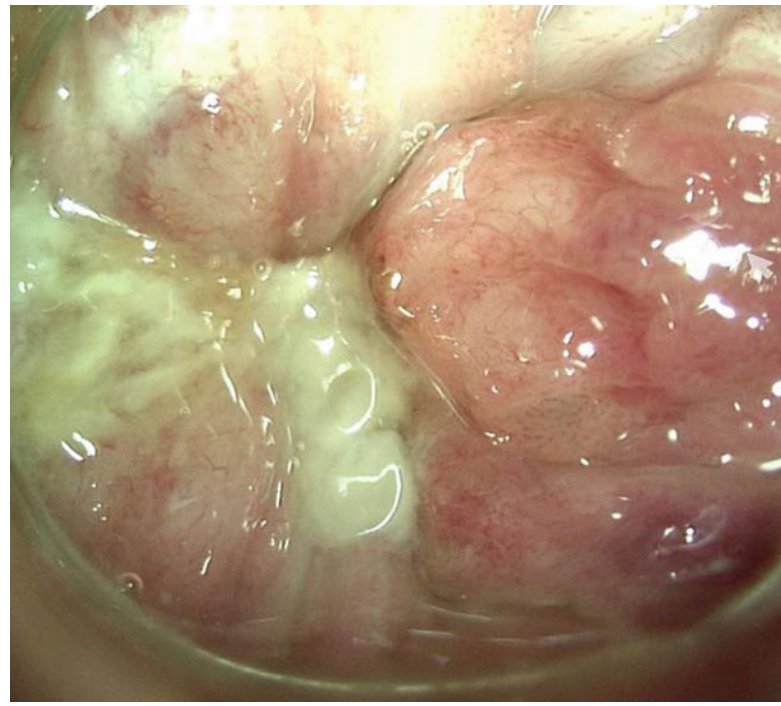

Fig. 1.13 Gonococcal and chlamydial proctitis with purulent exudate noted on anoscopy

pathogens, individuals presenting with symptoms of proctocolitis or enteritis should also have stool examined for the presence of pathogenic bacteria as well as ova and parasites.

Considerations for Empiric Therapy

Patients presenting with symptoms of proctitis should receive empiric therapy to cover both gonococcal and chlamydial infections, even if anoscopy and/or Gram stain is unavailable to confirm the diagnosis. HIV-infected men presenting with these symptoms should, in addition to ceftriaxone 250 mg IM once (and instead of only 7 days of doxycycline), receive doxycycline 100 mg orally twice a day for 21 days to treat potential LGV. If painful ulcers are present in the perianus or intra-anally, empiric therapy should include treatment for HSV (see relevant chapter) [3] (Table 1.5).

Ulcers, Sores, and Rashes: Tips for Evaluation and Management

Genital Ulcer Disease

The etiology of anogenital ulcers may be infectious or noninfectious. The most common infectious cause of genital ulcer disease (GUD) is HSV, followed by syphilis, LGV, and rarely chancroid (*Haemophilus ducreyi*) or granuloma inguinale [19]. As of the time of this writing, the latter two etiologies are exceedingly rare in the United States and most developed countries though they should be considered in individuals from endemic areas.

HSV

Herpes simplex virus classically presents as clustered vesicles, sometimes pustules, which form erosions that may coalesce. HSV can be painful and accompanied by tingling and/or