

## Case Series

# Clinical Review of Urethral and Vaginal Discharge Syndrome: A Comprehensive Case Series from Primary Care Centers in Bahrain

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## Abstract

**Background:** This case series presents a comprehensive clinical review of twelve cases exhibiting symptoms of urethral and vaginal discharge syndrome in men and women attending primary care centers in Bahrain. The cases encompassed a diverse range of clinical manifestations, including dysuria, frequency, pyuria, urethral pruritus, malodorous urine, vulval itching, purulent vaginal discharge, abnormal vaginal bleeding, dyspareunia, lower abdominal pain, anorectal pain, and anal skin lesions. The individuals included in the case series engaged in various types of sexual activities, ranging from heterosexual intercourse, unsafe sexual behavior, a history of sexual abuse, to homosexual activity. This study aims to provide a scientifically rigorous analysis of these cases, highlighting the clinical presentation, potential risk factors, and implications for diagnosis and management of urethral and vaginal discharge syndrome in the primary care setting in Bahrain.

**Methods:** The clinical evaluation of the patients encompassed a comprehensive assessment of their medical history, physical examination, and laboratory investigations. Urethral and vaginal swabs were collected for culture and sensitivity testing, urine analysis, microscopy, and imaging studies were performed. The most frequently identified etiological agents in this study were *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Trichomonas vaginalis*, *Candida* yeasts infection. This study provides valuable insights into the clinical management of urethral and vaginal discharge syndrome, aiding in accurate identification and appropriate treatment of patients with similar symptoms.

**Results:** Management of the patients involved a combination of antibiotic therapy, antifungal medications, and symptomatic relief measures. Safe sexual behaviors were highlighted as a preventive measure against sexually transmitted infections, which were identified as the primary causative agents of urethral and vaginal discharge syndrome. These findings have significant implications for primary care providers, offering valuable insights into the clinical presentation, diagnosis, and management of these conditions, particularly in primary care.

## Introduction

Urethral and Vaginal Discharge Syndrome (UVDS) is a prevalent condition that commonly affects individuals of reproductive age. It is characterized by the manifestation of abnormal vaginal and urethral discharge, and its etiology can stem from various factors such as infections, hormonal imbalances, and anatomical abnormalities. Epidemiological studies have reported a prevalence range of 5% to 35% in developed countries [1,2], while

developing countries generally exhibit higher prevalence rates, ranging from 60% to 80% [3,4].

Investigating case series related to UVDS is of utmost importance due to its potential implications for reproductive health and overall well-being among adults. In addition to the associated physical symptoms, UVDS may contribute to psychological

distress and sexual dysfunction [5]. Despite its high prevalence and significant impact, UVDS is often underdiagnosed and undertreated, potentially due to limited awareness among health-care providers and patients, as well as a lack of clear diagnostic criteria and evidence-based management guidelines [6].

Syndromic diagnosis and management of UVDS in primary care play a crucial role in reducing disease morbidity and mortality. Syndromic management allows for timely and effective treatment of the most common causes of the syndrome by addressing the clinical syndrome as a whole, rather than targeting specific pathogens. This approach is particularly relevant in resource-limited settings where laboratory testing and microbiological culture may be limited [7]. Furthermore, effective syndromic management of UVDS in primary care can significantly improve quality of life, reduce psychological distress, and alleviate sexual dysfunction [8].

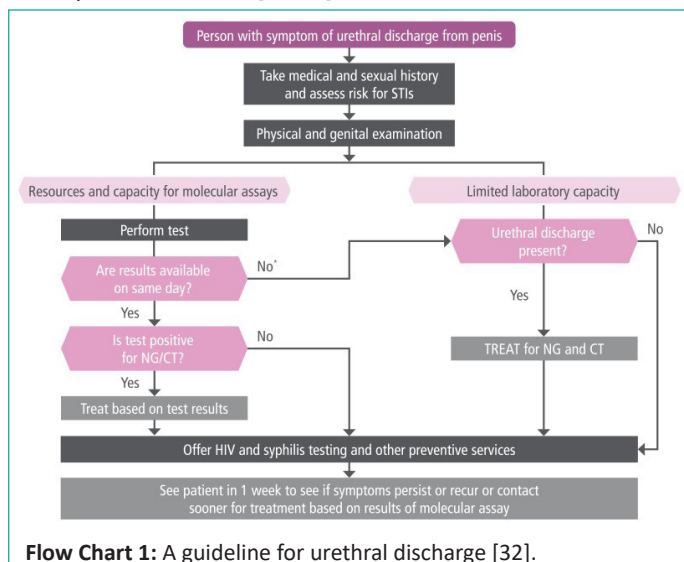
The objective of this case series is to provide a comprehensive and updated overview of the various etiologies, diagnostic approaches, and management strategies for UVDS, based on the analysis of case series [9]. The aim is to enhance health-care providers' awareness and knowledge regarding the clinical and epidemiological aspects of UVDS, ultimately improving the quality of care provided to patients presenting with this condition [10].

**Case 1**

A 25-year-old male presented for a follow-up of urine routine microscopy, with complaints of dysuria, frequency, urethral pruritus, and malodorous urine. The urine analysis revealed the presence of pyuria (100 white blood cells per high-power field) and positive results for leucocyte esterase and nitrate.

**Common Pitfall in Assessment**

A common pitfall in evaluating dysuria in male patients is the failure of physicians to obtain a thorough medical and sexual history and to screen for Sexually Transmitted Infections (STIs). This oversight may stem from patients' hesitancy to disclose urethral discharge due to associated societal stigma. Additionally, physicians may neglect to examine the genitalia for the presence of urethral discharge. Consequently, they may prematurely order urine routine microscopy, leading to the identification of signs of infection. As a result, patients may receive a misdiagnosis of Urinary Tract Infection (UTI) and be prescribed antibiotics typically used for UTIs, which may prove ineffective in the presence of STIs [11,12].



**Flow Chart 1:** A guideline for urethral discharge [32].

**Evidence-Based Practice in the Presence of Urethral Discharge**

The best evidence-based practice in cases of male urethritis involves a comprehensive approach encompassing diagnosis, treatment, and management. This includes obtaining a comprehensive medical and sexual history, conducting a thorough physical examination [11], and adhering to established guidelines for diagnosing and treating urethritis [Flow chart 1 (32)].

According to the Centers for Disease Control and Prevention (CDC), all sexually active men with urethritis should undergo testing for STIs, particularly Chlamydia trachomatis and Neisseria gonorrhoeae. The CDC also recommends considering testing for other STIs, such as HIV and syphilis, based on risk factors and clinical judgment [11,12].

**Syndromic Diagnosis and Management of Male Urethral Discharge**

The syndromic diagnosis and treatment of urethral discharge in male patients involve an approach that integrates signs and symptoms with epidemiological data to identify and manage Sexually Transmitted Infections (STIs). This approach is particularly valuable in settings with limited or unavailable laboratory testing, allowing for the timely initiation of empirical treatment based on the most probable etiology of the infection [Flow chart 1(32)]. The syndromic approach for male urethral discharge entails several steps: [13]

Obtain a sexual history and perform a genital examination to assess the presence of urethral discharge and other STI-related signs. Classify the patient's symptoms as either uncomplicated or complicated urethritis based on the presence of additional symptoms, such as fever, joint pain, skin rash, or tender inguinal lymph nodes.

Administer empirical treatment based on the most likely causative agent, which may involve antibiotics targeting gonorrhea and chlamydia.

Provide counseling on the importance of completing the full antibiotic course, abstaining from sexual intercourse until treatment completion, and notifying sexual partners about the infection.

Recommended treatment regimens for uncomplicated urethritis include a single intramuscular injection of Ceftriaxone 250 mg (or a single oral dose of Cefixime 400 mg) and Azithromycin 1 g orally as a single dose (or erythromycin 500 mg four times daily or Ofloxacin 200-400 mg twice daily or doxycycline 10 mg twice daily for 7 days). For complicated urethritis, treatment involves Ceftriaxone 250 mg intramuscularly and Azithromycin 1 g orally as a single dose, along with Doxycycline 100 mg orally twice daily for 7 days [7].

**Molecular Assay Testing for Urethral Discharge**

Molecular assay tests refer to highly sensitive and specific Nucleic Acid Amplification Tests (NAATs) designed to detect the presence of specific pathogens' DNA or RNA in urethral discharge samples. These tests utilize advanced techniques such as Polymerase Chain Reaction (PCR), Transcription-Mediated Amplification (TMA), and Loop-Mediated Isothermal Amplification (LAMP). They have demonstrated effectiveness in diagnosing STIs, particularly Neisseria gonorrhoeae and Chlamydia trachomatis, in male patients presenting with urethritis. The Centers for Disease Control and Prevention (CDC) recommends the use

Doxycycline 100mg orally twice daily for seven days [11,13].

### Advice to the Patient's Partner

It is crucial to ensure that the patient's sexual partner(s) undergo testing and receive appropriate treatment to prevent reinfection and further transmission of the infection. This recommendation holds true even if the female partner does not exhibit any symptoms, as infections can be asymptomatic, and partners may unknowingly transmit the infection to others. Both the patient and their partner should abstain from sexual contact until they have completed the full course of treatment to prevent reinfection and transmission. Emphasizing safe sex practices, such as consistent and correct use of condoms, is essential to reduce the risk of contracting and spreading STIs [11,13].

### The Prevalence of NGU

NGU is the most prevalent type of urethritis in males, accounting for approximately 70% of cases. The prevalence of NGU and the specific microorganisms causing the condition may vary across different populations, geographic locations, and diagnostic testing approaches used to identify the causative pathogens [11,13,14].

### Treatment for NGU Caused by *Trichomonas vaginalis* or *Chlamydia trachomatis*

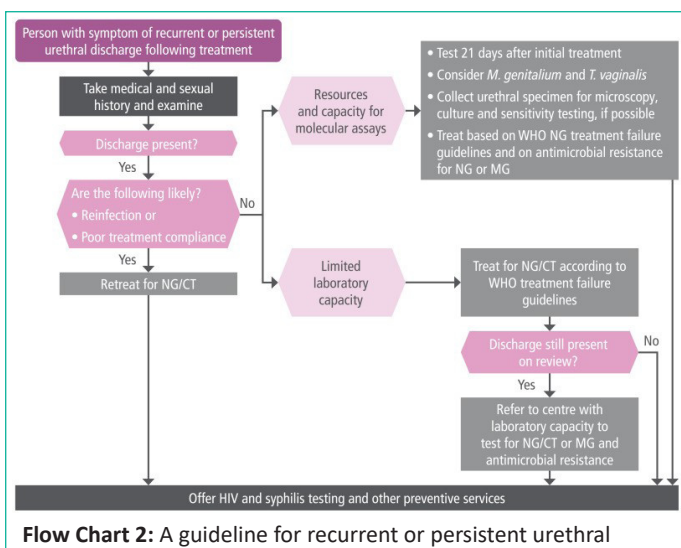
*Trichomonas Vaginalis* (TV) and *Chlamydia Trachomatis* (CT) are two sexually transmitted pathogens known to cause NGU. Treatment of TV infection in NGU typically involves a course of antibiotics, such as metronidazole 2 gm as a single oral dose or 400-500 mg daily for seven days. For CT infection, the recommended treatment is Doxycycline 100 mg orally twice daily for seven days, with an alternative regimen of Azithromycin 1 g orally as a single dose or Azithromycin 500 mg in a single dose, followed by 250 mg orally daily for four days. Testing and treating the patient's partner, practicing safe sex, and offering investigation for other Sexually Transmitted Diseases (STDs) in both partners are important aspects of management [15].

### Timing for Additional STIs Investigations

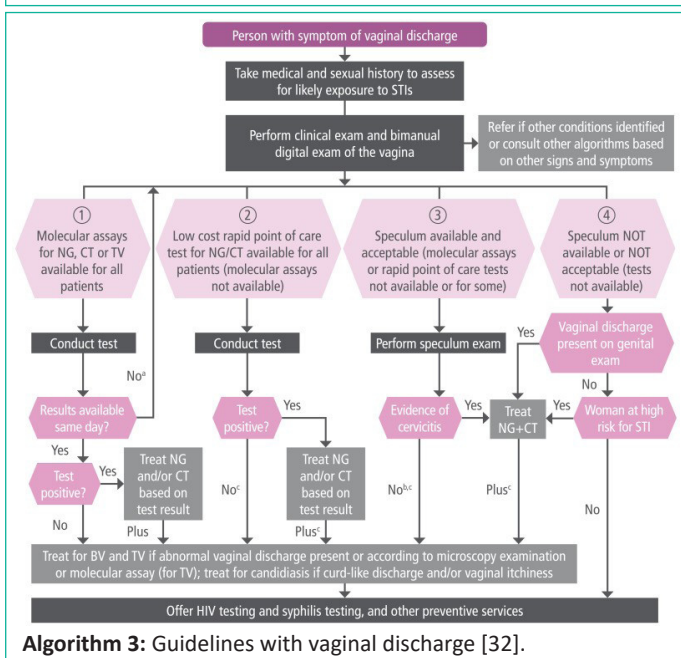
When a person is diagnosed with gonorrhea or NGU, it is recommended to screen for other STIs such as syphilis, HIV, and hepatitis B-C infections. This comprehensive screening is important as these infections can frequently coexist and share similar modes of transmission. Repeat testing may be necessary in cases of new or recurrent symptoms, exposure to an infected partner, or engagement in high-risk sexual behavior. The timing and frequency of repeat testing should be individualized based on specific STIs and individual risk factors. It is noteworthy that routine STI screening is recommended for sexually active individuals, irrespective of symptoms or perceived risk, due to the high prevalence of asymptomatic infections [11,13,14].

### Management of Recurrent Urethritis

Recurrent urethritis in males can pose a management challenge and may require referral to specialized care for accurate diagnosis and appropriate treatment. Culture and sensitivity testing can be employed to determine the most effective antibiotic regimen. Treating sexual partners to prevent reinfection and abstaining from sexual activity until the infection is completely treated are crucial in preventing reinfection. Furthermore, avoiding potential irritants such as spermicides, perfumed soaps, and tight-fitting clothing can help reduce urethral



Flow Chart 2: A guideline for recurrent or persistent urethral



Algorithm 3: Guidelines with vaginal discharge [32].

of molecular assay tests for screening all men with urethritis for these STIs. Furthermore, multiplex assays are available that enable the simultaneous detection of multiple STIs from a single sample, offering potential advantages in resource-limited settings [13].

### Case 2

A 34-year-old married male patient presented with a recent history of sexual activity three days prior and reported symptoms such as clear white urethral discharge, terminal dysuria, urinary frequency, and itching or irritation around the opening of the penis. A urethral swab was obtained, and microscopy revealed the absence of gram-negative diplococci microorganisms.

### Most Likely Diagnosis and Recommended Treatment

The most likely diagnosis in this case is Non-Gonococcal Urethritis (NGU), which is typically confirmed through testing urethral specimens using Nucleic Acid Amplification Tests (NAATs) to identify pathogens such as *Chlamydia trachomatis*, *Mycoplasma genitalium*, *Ureaplasma urealyticum*, *Trichomonas vaginalis*, herpes simplex virus, and adenovirus. Additionally, testing for other STIs such as gonorrhea, syphilis, and HIV may be recommended. The recommended treatment for NGU involves a course of antibiotics targeted at the specific pathogen identified. This includes Azithromycin 1g orally as a single dose or



irritation. In cases of persistent or recurrent urethral discharge, consideration should be given to factors such as drug resistance, poor compliance, or reinfection from an untreated partner, including pathogens like *Trichomonas vaginalis* and *Mycoplasma genitalium* [17-19]. The management of recurrent urethritis can be guided by a flow chart approach [Flow chart 2(32)].

### Case 3

**What would be the appropriate practice when facing with the consultation of a married woman who accompanies her husband recently diagnosed with gonorrhea due to extramarital sexual activity.**

As a medical practitioner, it is of paramount importance to approach the situation with the utmost sensitivity and professionalism when addressing the healthcare needs of the concerned individual while concurrently safeguarding the health and well-being of their partner. The appropriate steps to take in this situation are as follows [11,13,20]:

1. Ask for the husband's permission to inform his wife about the diagnosis. While it is important to protect the wife's health, it is also important to respect the husband's privacy and autonomy.
2. Explain the potential health risks of gonorrhea and why it is important for the wife to be assessed and treated if necessary. Untreated and underdiagnosed Gonorrhea is an STI that can cause serious complications, including infertility, pelvic inflammatory disease, and an increased risk of HIV transmission.
3. Provide resources for testing and treatment. The wife should be advised to get tested as soon as possible and to use protection until she receives her test results.
4. Offer counseling and support. A diagnosis of an STI can be emotionally difficult for both partners, and it is important to provide resources and support for coping with the diagnosis and any potential relationship issues that may arise.

**The decision to breach the patient's confidentiality and disclose their STI diagnosis to their partner involves complex ethical considerations.**

As healthcare providers, we have a duty to protect the health of individuals and the public with sensitivity and professionalism. Breaches of confidentiality must be justified, and we should take reasonable steps to minimize such breaches. In the case of a STIs diagnosis, we may need to consider informing sexual partner(s) in a non-judgmental and supportive manner to prevent further transmission and protect public health. It is important to discuss confidentiality and privacy with patients and obtain informed consent for any disclosure of personal health information, which should be done with preserving a high confidentiality and sensitively [21,22]. The physician can provide referrals to counseling or support services to help the wife cope with the emotional impact of the situation. In some jurisdictions, physicians are legally required to report certain communicable diseases, including STIs, to public health authorities. The public health authorities may then contact the individual patient partner(s) to provide information and encourage testing and treatment. Ultimately, the physician must balance the duty to protect the health of individuals and the public with the patient's right to confidentiality and make a judgment based on the specific circumstances of the case [13,20].

### Case 4

A 5-year-old female presented with profuse mucoid purulent vaginal discharge persisting for the past 48 hours, leading to concerns for her mother. The child exhibited withdrawn behavior, feelings of insecurity, and she had a history of recurrent sleep disorders and nightmares. Additionally, she reported symptoms of dysuria, urinary frequency, and both daytime and nighttime enuresis. On physical examination, the patient displayed vulvar soreness and swelling, along with an inappropriate sexual posture characterized by assuming a frog-like supine position and a knee-chest position in the prone position. A urethral swab culture revealed the presence of gram-negative diplococci. Furthermore, the patient made a direct disclosure identifying her father as the perpetrator of the abuse.

**Common pitfalls in assessment and evidence-based management strategies?**

The presented case raises serious concerns regarding potential sexual abuse of a young child. As healthcare professionals, it is imperative to approach this case with utmost sensitivity and prioritize the safety and well-being of the child. The following management strategies should be employed:

Report the suspected child abuse to the appropriate child protective services and involve a social worker, as mandated by legal and ethical obligations [21,22].

Conduct a comprehensive physical examination, including a private genital examination after taking caregiver's consent, to assess for any physical signs of sexual abuse or injury. Accurate documentation of any physical findings and injuries is essential [21,22].

Initiate appropriate treatment for identified physical injuries or infections observed during the examination. Additionally, consider involving psychological or psychiatric evaluation and treatment for the child and family [21,22].

Ensure regular follow-up care and monitoring to guarantee the ongoing safety and well-being of the child [21,22].

Provide preventive education and guidance to the family, establish a safe environment for the child, and promptly inform the appropriate law enforcement authorities regarding the incident [23-25].

### The screening questionnaire for suspected child abuse?

Healthcare providers may utilize the Hurt-Insult-Threaten-Scream-Sex Screening (PedHITSS) tool to identify children who may be at risk of abuse or neglect. The PedHITSS tool comprises six categories of screening questions:

Hurt: Evaluates the possibility of physical abuse.

Insult: Assesses the presence of verbal abuse.

Threaten: Examines the likelihood of emotional abuse or exposure to threatening behavior.

Scream: Evaluates the likelihood of emotional abuse or exposure to screaming violence.

Sex: Assesses the possibility of sexual abuse or exposure to sexual behavior.

Summary: The goal of the PedHITSS tool serves as a comprehensive risk assessment instrument designed for implementa-

tion during routine well-child visits by healthcare professionals. Its primary objective is to discern and effectively address potential risk factors, particularly with regard to physical, emotional, verbal, and sexual abuse within clinical contexts. It should be noted that its scope is specifically geared towards identifying and diagnosing these forms of abuse, with a focus on clinical settings, while not encompassing assessments related to child neglect [26-28].

### Case 5

A 28-year-old married woman presented with complaints of vulval itching and purulent yellow vaginal discharge. Based on the history suggestive of vulvovaginal candidiasis, a diagnosis was made, and the patient was prescribed a treatment regimen consisting of miconazole antifungal cream to be applied topically twice daily, and vaginal suppositories containing miconazole to be inserted once daily for a duration of 12 days.

#### Common pitfalls in the above case?

Several common mistakes can occur in the management of vulvovaginal candidiasis, including:

Failure to conduct a comprehensive physical examination to confirm the diagnosis, as other vaginal infections may present with similar symptoms [29]. Over-reliance on nonspecific symptoms, leading to inappropriate treatment [30].

Inappropriate selection of treatment based on the causative organism and resistance patterns to commonly used antifungal agents [30].

Inadequate treatment duration, which can contribute to recurrent or persistent infections [29].

Failure to address underlying risk factors such as diabetes, pregnancy, and the use of antibiotics or oral contraceptives, which can increase the risk of vulvovaginal candidiasis [29].

In managing vaginal discharge, it is important to conduct a thorough physical examination, including a bimanual digital vaginal examination, to assess for conditions such as Pelvic Inflammatory Disease (PID), surgical issues, or pregnancy. Utilizing molecular assay Nucleic Acid Amplification Tests (NAAT) can help identify potential infections with *Neisseria Gonorrhoeae* (NG), *Chlamydia Trachomatis* (CT), and *Trichomonas Vaginalis* (TV). In high-risk women, serological testing for STIs such as HIV and syphilis should also be considered, alongside appropriate preventive measures. A clinical presentation of vulval erythema and edema, accompanied by yellow/greenish, frothy discharge and cervicitis with punctate hemorrhages (referred to as "strawberry cervix"), strongly suggests *T. vaginalis* infection, which can be confirmed through NAAT. Metronidazole 400 mg taken twice daily for one week is a recommended treatment option in such cases [31,32].

#### Working in the clinic has a vaginal speculum, but rapid tests aren't available?

In the absence of rapid tests, a thorough clinical abdominal examination should be performed to evaluate for conditions such as PID, surgical issues, or pregnancy. A comprehensive external vulvovaginal examination should be conducted to identify any lesions, visible genital discharge, vulval erythema, or excoriations. A bimanual digital examination of the vagina should be performed to assess for cervical motion tenderness or pain upon palpation of the pelvic region, ruling out PID. Treatment

for Bacterial Vaginosis (BV) and Trichomoniasis (TV) should be offered if abnormal vaginal discharge is present, while treatment for candidiasis is appropriate if there are symptoms of crude-like white discharge and/or vaginal itching. Treatment for NG and CT should be considered if there is evidence of cervicitis or PID. Serological tests for syphilis and HIV should be offered to high-risk women, along with appropriate preventive measures [31,32] [Algorithm 3 (32)].

#### Working in the clinic, both vaginal speculum and rapid tests aren't available?

In the presence of vaginal discharge, a thorough assessment of the discharge's consistency and color should be conducted. Abnormal discharge that appears yellow or greenish should be treated for *Trichomonas Vaginalis* (TV) and Bacterial Vaginosis (BV), while crude-like white discharge accompanied by vaginal itching should be treated for candidiasis. A risk assessment should be performed to determine if the patient is at significant risk for STIs. High-risk patients should be treated for *Neisseria Gonorrhoeae* (NG), *Chlamydia Trachomatis* (CT), TV, and BV, while low-risk patients should be treated for TV and BV (31, 32).

#### The drug of choice in the syndromic treatment of vaginal discharge?

The preferred drug for syndromic treatment of vaginal discharge depends on the suspected underlying cause. The following treatment options are commonly used:

Metronidazole: 400-500 mg orally twice daily for seven days or a single oral dose of 2 grams. It is the drug of choice for suspected Bacterial Vaginosis (BV).

Clindamycin: 300 mg orally twice daily for seven days. It is an alternative treatment for suspected BV.

Tinidazole: 500 mg orally twice daily for five days or a single oral dose of 2 grams. It is an alternative treatment for suspected trichomoniasis.

Miconazole vaginal suppositories: 200 mg inserted once daily at bedtime for three nights. It is the preferred treatment for suspected candidiasis.

Clotrimazole pessaries: 100 mg inserted once daily at bedtime for seven days. It is an alternative treatment for suspected candidiasis.

Fluconazole: 150-200 mg orally as a single dose. It is an alternative treatment for suspected candidiasis.

Nystatin pessaries: 200,000 units inserted once daily at bedtime for seven days. It is an alternative treatment for suspected candidiasis [31,32].

#### The drug of choice in gonococcal cervicitis?

The preferred treatment for cervicitis caused by *Neisseria gonorrhoeae* (gonorrhea) is:

Ceftriaxone: 250 mg administered as a single intramuscular injection.

Azithromycin: 1 gram orally as a single dose, or alternatively, doxycycline 100 mg orally twice daily for seven days.

An alternative regimen for gonorrhea treatment includes:

Cefixime: Single 400 mg oral dose, in combination with either azithromycin or doxycycline.

Erythromycin: 500 mg orally four times daily for seven days.

Ofloxacin: 200-400 mg orally twice daily for seven days [31,32].

### Case 6

A 35 old a symptomatic female, attending women screening clinic, she was not pregnant, and her pap smear showed positive test for Candida yeasts.

#### How would you proceed in this situation?

Intervention or treatment is not necessary in this case, as the presence of Candida yeasts can be considered a normal finding in approximately 20-30% of women attending women screening clinics. Asymptomatic carriers do not require treatment unless they develop symptoms in the future [33].

#### From an epidemiological standpoint, which microorganisms are frequently encountered in cases of vulvovaginitis??

The most commonly encountered microorganisms in cases of vulvovaginitis include:

**Bacterial Vaginosis (BV):** BV is prevalent in approximately 40-50% of cases.

**Candida Albicans (CA):** CA is found in approximately 20-25% of cases.

**Trichomonas Vaginalis (TV):** TV is responsible for approximately 15-20% of cases [34].

### Case 7

A 45-year-old symptomatic female attending an outpatient clinic for vulvovaginal candidiasis treatment. She inquires about whether her partner should also be treated.

#### Is it recommended to administer treatment to the partner?

Vulvovaginal candidiasis is not generally classified as a STIs, and routine treatment of the partner is not necessary unless they are experiencing symptoms. However, it is advisable to educate the partner about the condition and recommend seeking medical attention if they develop any symptoms [33].

#### What are the risk factors for vulvovaginal candidiasis (VVC)?

The most common risk factors associated with Vulvovaginal Candidiasis (VVC) includes antibiotic use, pregnancy, uncontrolled diabetes, use of oral contraceptives or hormone therapy, impaired immune system (e.g., corticosteroid therapy or HIV infection), wearing tight-fitting clothing, frequent douching with bubble baths and prolonged exposure to wet clothing [33].

### Case 8

A 50-year-old female attending an outpatient clinic with history of Recurrent Vulvovaginal Candidiasis (RVVC).

#### Elucidate on the common risk factors associated with RVVC?

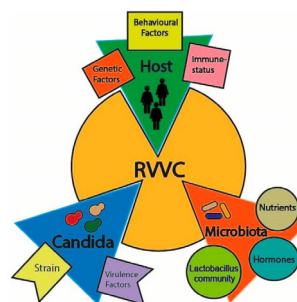
Recurrent Vulvovaginal Candidiasis (RVVC) has a multifactorial etiology. The most typical risk factors include imbalanced vaginal microbiota, immune deficiency, genetic diseases, hormonal changes, uncontrolled diabetes, and the use of antibiotics or corticosteroids (Figure 1) [35].

#### Epidemiological considerations: What is the prevalence

#### rate for RVVC?

The prevalence rate of recurrent vulvovaginal candidiasis (RVVC) varies across different regions and populations. In the general population of women, the prevalence rate of RVVC is reported to range from 5% to 8% in developing countries, including the Middle East and GCC. However, the prevalence rate may be higher among women with specific predisposing factors, such as immunodeficiency, uncontrolled diabetes, and the use of antibiotics or corticosteroids [35].

### Case 9



**Figure 1:** The risk factors contributing to Recurrent Vulvovaginal Candidiasis (RVVC) infection [35].



**Figure 2:** Clue cells seen on direct wet test [36].

A 35-year-old married woman is currently undergoing assessment for the findings of her wet mount microscopic examination. The results of the examination have identified the presence of clue cells (Figure 2) [36].

On reviewing the results of investigation done in women clinic, the wet test was positive for clue cell.

#### Discuss the significance of clue cells in the context of vulvovaginitis:

Clue cells refer to vaginal squamous epithelial cells that exhibit a coating of coccobacilli in the absence or low concentration of lactobacilli. Their presence is indicative of Bacterial Vaginosis (BV), which is characterized by a reduction in lactobacilli and an increase in anaerobic bacteria upon microscopic examination [32,34].

According to the CDC and Prevention (CDC), BV is the most prevalent vaginal infection among women of reproductive age [31]. The diagnosis of BV is based on the identification of at least three of the following clinical criteria: a homogeneous, thin, white discharge that coats the vaginal walls, a vaginal pH exceeding 4.5, the presence of clue cells on wet mount, and a positive whiff test [31].

#### Is it recommended to administer treatment to the partner?

Although BV is not classified as a STIs, it has been associated with various adverse outcomes in women, including an increased risk of STIs (including HIV), pelvic inflammatory dis-



ease, tubal factor infertility, and complications during pregnancy [32,34].

While treating the partner specifically for BV is not necessary, it is advisable to conduct testing and provide treatment for any existing STIs in both partners to prevent reinfection [32,34].

#### Case 10

A 25-year-old woman previously divorced with a history of multiple sexual partners, presents with a constellation of symptoms including vaginal discharge, abnormal vaginal bleeding or dysuria, dyspareunia, and lower abdominal pain. Upon speculum examination, a severely eroded, friable, and easily bleeding cervix with an erythematous appearance and a mucopurulent cervical discharge is observed. Cervical motion tenderness was also noted.

**What is the usual diagnosis for above condition, and which microorganisms are frequently associated with it?**

The most likely diagnosis in this case is cervicitis, with Chlamydia Trachomatis (CT) and/or Neisseria Gonorrhoeae (NG) being the most commonly implicated microorganisms [32].

**What are the factors that increase the risk of developing cervicitis?**

In women at high risk, several factors have been associated with an increased susceptibility to cervicitis. These include age  $\leq 21$  years, recent engagement in multiple sexual partners within the preceding three months, initiation of new sexual partnerships within the preceding three months, as well as having a current sexual partner with a documented STIs [32].

**What are the potential complications that can arise from cervicitis, particularly in the context STIs?**

Cervicitis in women often presents asymptotically, serving as a potential conduit for ascending infection towards the uterus and/or fallopian tubes. This can lead to the development of pelvic inflammatory disease, internal abscesses, and chronic pelvic pain. Timely recognition and appropriate management are crucial in order to mitigate these potential complications [32].

#### Case 11

A 44-year-old woman, who has undergone three cesarean sections and previously had an appendectomy, engages in heterosexual activity and frequently travels abroad. She came to the hospital with her sister, using a wheelchair, due to moderate lower abdominal pain and abnormal vaginal discharge that had been occurring for three days. During the abdominal examination, there was mild tenderness in the lower pelvic area, along with slight abdominal guarding observed during a bimanual digital examination of the vagina. Cervical motion tenderness was also noted. The patient had a body temperature of 38°C, a heart rate of 110 beats per minute, a hemoglobin level of 11g/dL, and a negative Gx test result.

**What should be the initial course of action or the first step to take in this case?**

In cases where sexually active women present with lower abdominal pain along with specific conditions such as missed or overdue menses, recent delivery, abortion, miscarriage, abdominal guarding and/or rebound tenderness, abnormal vaginal bleeding or spotting, abdominal mass, or suspected cervical

lesion, it is imperative to refer the patient for gynecological assessment [32,37].

**How should you handle a situation where a patient is unwilling to go to the hospital for treatment or admission?**

When a patient declines hospital attendance due to a previous negative experience and refuses medical advice but insists on treatment, a medicolegal predicament arises. In this situation, the physician must ensure that the patient and her sister are informed about the severity and potential complications of the condition. Despite the patient's refusal, the physician may proceed to treat her for Pelvic Inflammatory Disease (PID) during the same visit, taking precautions to conduct necessary tests for STIs including Neisseria Gonorrhoeae (NG), Chlamydia Trachomatis (CT), and Mycoplasma Genitalium (MG) by performing a High Vaginal Swab (HVS). Treating the patient's husband with the same medication and scheduling regular follow-up assessments after 2-3 days to evaluate clinical improvement is crucial. Additionally, serological tests for Human Immunodeficiency Virus (HIV), hepatitis B and C, and syphilis should be conducted, along with providing other preventive services [32,37].

#### Case 12

A 38-year-old male patient, known for his engagement in homosexual activity with multiple partners, has come to the healthcare facility with concerns of anal discharge, anorectal pain, and a lingering anal skin lesion that has persisted for 10 days. Considering the symptoms and clinical presentation, a physician took a thorough assessment and evaluation to identify the root cause and to establish a suitable treatment plan.

**How should this case be managed or treated according to best practices and recommendations?**

Following a meticulous review of the patient's medical and sexual history, the physician had a high suspicion of STIs. A thorough physical examination, encompassing a detailed inspection of the genital and perianal regions, reveals a notable presence of perianal warts. Additionally, a digital rectal examination and anoscope evaluation are conducted, revealing purulent discharge in the anal area, with no evidence of anorectal fistula [32,38].

To further investigate the patient's condition, it is advisable to perform anorectal and throat swabs, Nucleic Acid Amplification Tests (NAAT), and serological testing for Human Immunodeficiency Virus (HIV), hepatitis B, hepatitis C, and syphilis. Concurrently, the patient should receive treatment for Neisseria gonorrhoeae, Chlamydia trachomatis, and herpes simplex virus, considering the presence of anorectal pain [32,38]. Given the patient's increased risk of STIs, it is recommended to offer treatment and STI testing to both the patient and his partner [32,38].

**What treatment options are accessible for anogenital warts?**

Anogenital warts, recognized as STIs, primarily result from infection with Human Papillomavirus (HPV) types 6 and/or 11. The diagnosis of warts typically relies on their clinical appearance, further confirmed through histological examination. This STI is prevalent among sexually active individuals of all genders [38,39]. In the management of anogenital warts, one potential treatment option involves administering the quadrivalent human papillomavirus vaccine to both the patient and his partner. Various approaches exist for treating anogenital warts. Patient-applied treatments encompass topical sinecatechins, imiqui-

mod, and podofilox, while clinician-applied treatments include trichloroacetic acid, podophyllin, and chloroacetic acid. Surgical interventions, such as electrosurgery, excision, and cryotherapy, may also be employed for wart removal. Treatment decisions are contingent upon multiple factors, including the location, number, and size of warts, as well as patient preferences, cost considerations, and treatment availability. In some cases, a combination of treatment modalities may be necessary [38,39].

### Conclusion

This case series emphasizes the importance of comprehensive clinical evaluation, including medical history, physical examination, and laboratory investigations, for accurate diagnosis and effective management of urethral and vaginal discharge syndromes. Prompt treatment and addressing underlying issues, such as sexual abuse, are crucial for preventing complications and improving patient outcomes. Furthermore, promoting safe sexual practices plays a vital role in preventing the transmission of STIs. The findings of this study will contribute to the existing knowledge and provide valuable information for primary care physicians in managing urethral and vaginal discharge syndromes.

### References

- Fong Y, Merkus HM, et al. Prevalence and risk factors for urethral and vaginal symptoms in women. *J Sex Med.* 2005; 2: 621-30.
- Al-Azzawi F, Li TC. Prevalence and risk factors for reproductive tract infections and sexually transmitted infections in women in the Middle East. *Eur J Contracept Reprod Health Care.* 2003; 8: 1-10.
- Gondwe TN, Munthali L, Katumbi C, Kawalazira G, Phiri S, Siwale M et al. Prevalence of urethral and vaginal Discharge Syndrome among Women Attending Reproductive Health Services in Malawi. *Afr J Reprod Health.* 2017; 21: 119-24.
- Tadesse E, Teshome M, Amsalu A. Prevalence and associated factors of sexually transmitted infections among married women in rural Ethiopia: a cross-sectional study. *BMC Public Health.* 2014; 14: 1156.
- Bradshaw CS, Vodstrcil LA, Hocking JS, Law M, Pirotta M, Garland SM, et al. Recurrence of bacterial vaginosis is significantly associated with posttreatment sexual activities and hormonal contraceptive use. *Clin Infect Dis.* 2013; 56: 777-86.
- Donders G, Bellen G, Rezeberga D, Janssens D. Guidelines for the management of vaginal discharge in pregnant women and neonates. *Gynecol Obstet Investig.* 2017; 82: 99-110.
- World Health Organization. WHO guidelines for the syndromic management of sexually transmitted infections; 2016. Available from: <https://www.who.int/reproductivehealth/publications/rtis/sti-guidelines-2016/en/>.
- Paudyal P, Lhaki P, Maharjan B. Effectiveness of syndromic management in reducing prevalence of sexually transmitted infections among reproductive age group in Nepal. *BMC Infect Dis.* 2020; 20: 1-7.
- Bautista CT, Wurapa EK, Saterren WB, Morris SM, Hollingsworth BP, Sanchez JL. Case series on urethral and vaginal discharge syndrome: a comprehensive clinical review. *Sex Transm Dis.* 2014; 41: 427-32.
- Osterberg EC, Gaona SD, Montano SM, Chávez JL, Vargas SL. Urethral and vaginal discharge syndrome: a case-control study. *Int J STD AIDS.* 2013; 24: 527-32.
- Workowski KA, Bolan GA. Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2015. *MMWR Recomm Rep.* 2015; 64: 1-137.
- Schwebke JR, Rompalo A, Taylor S, Seña AC, Martin DH, Lopez LM, et al. Re-evaluating the treatment of nongonococcal urethritis: emphasizing emerging pathogens--a randomized clinical trial. *Clin Infect Dis.* 2011; 52: 163-70.
- Centers for Disease Control and Prevention. Sexually transmitted infections treatment guidelines. 2021. Available from: <https://www.cdc.gov/std/treatment-guidelines/urethritis.htm>.
- Manhart LE. Critique of the evidence that *Ureaplasma urealyticum* is a sexually transmitted infection. *Sex Transm Dis.* 2013; 40: 81-5.
- Moi H, Blee K, Horner PJ. Management of non-gonococcal urethritis. *BMC Infect Dis.* 2015; 15: 294.
- Bignell C, Unemo M, European STI Guidelines Editorial Board. 2016 European guideline on the management of nongonococcal urethritis. *BMC Infect Dis.* 2021; 21: 1.
- Urethritis in males UpToDate. Available from: <https://www.uptodate.com/contents/urethritis-in-males>.
- Urethritis. Centers for Disease Control and Prevention. Available from: <https://www.cdc.gov/std/treatment/urethritis.htm>.
- Mishori R, McClaskey EL, WinklerPrins VJ. Recurrent urethritis in men: diagnosis and management. *Am Fam Physician.* 2012; 86: 1127-32.
- American Sexual Health Association. Talking to your partner; 2021. Available from: <https://www.ashsexualhealth.org/talking-to-your-partner/>.
- American Academy of Pediatrics. Guidelines for the evaluation of sexual abuse of children: subject review. *Pediatrics.* 2015; 135: e186-211.
- Child welfare information gateway; 2016. Responding to Child Sexual Abuse. Available from: [https://www.childwelfare.gov/pubPDFs/sexual\\_abuse.pdf](https://www.childwelfare.gov/pubPDFs/sexual_abuse.pdf).
- Centers for Disease Control and Prevention. Preventing child sexual abuse within youth-serving organizations: getting started on policies and procedures; 2014. Available from: <https://www.cdc.gov/violenceprevention/pdf/preventingchildsexualabuse-a.pdf>.
- Krajewski W, Wojciechowska J, Krefft M, Hirnle L, Kołodziej A. Urogenital tract disorders in children suspected of being sexually abused. *Cent Eur J Urol.* 2016; 69: 112-7.
- Suniega EA, Krenek L, Stewart G. Child abuse: approach and management. *Am Fam Physician.* 2022; 105: 521-8.
- Chaffin M, Bard D, Bigfoot DS, Maher EJ, Isbell TR. A team decision-making approach to child welfare screening, assessment, and planning. *Child Welf.* 2012; 91: 117-38.
- Rimsza ME, Berg RA. Pediatrics Hurt, Insult, Threaten, Scream (HITS) screening tool: a four-item screening tool for intimate partner violence. *Clin Pediatr.* 2013; 52: 313-22.
- Davis RL, Hofferth SL, Hargrove TW. Preventing child maltreatment: A comprehensive evaluation of the SafeCare® home-based services program. *Child Abuse Negl.* 2019; 90: 135-47.
- Sobel JD. Vulvovaginal candidiasis. *Lancet.* 2016; 387: 1999-2012.
- Pappas PG, Kauffman CA, Andes DR, Clancy CJ, Marr KA, Ostrosky-Zeichner L, et al. Clinical practice guideline for the man-



- agement of candidiasis: 2016 update by the Infectious Diseases Society of America. *Clin Infect Dis*. 2016; 62: e1-e50.
31. Centers for Disease Control and Prevention (CDC). STD treatment guidelines: vaginitis. Available from: <https://www.cdc.gov/std/tg2015/vaginitis.htm>. 2015; 2015.
  32. World Health Organization. Guidelines for the management of symptomatic sexually transmitted infections. World Health Organization; 2021.
  33. Sobel JD. Vulvovaginal candidiasis. *Lancet*. 2007; 369: 1961-71.
  34. Paladine HL, Desai UA. Vaginitis: diagnosis and treatment. *Am Fam Physician*. 2018; 97: 321-9.
  35. Rosati D, Bruno M, Jaeger M, Ten Oever JT, Netea MG. Recurrent vulvovaginal candidiasis: an immunological perspective. *Microorganisms*. 2020; 8: 144.
  36. <https://microbiologie-clinique.com/clue-cells-en.html>.
  37. Curry A, Williams T, Penny ML. Pelvic inflammatory disease: diagnosis, management, and prevention. *Am Fam Physician*. 2019; 100: 357-64.
  38. Karnes JB, Usatine RP. Management of external genital warts. *Am Fam Physician*. 2014; 90: 312-8.
  39. Centers for Disease Control and Prevention. Human papillomavirus (HPV) – treatment. Available from: <https://www.cdc.gov/std/treatment/hpv.htm>.