Sexually transmitted causes of urethritis, proctitis, pharyngitis and cervicitis

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Abstract

Sexually transmitted infections (STIs) can manifest as urethritis, proctitis, pharyngitis or cervicitis, depending on the site of infection, although asymptomatic infections are frequent particularly at extragenital sites. Classical STIs such as gonorrhoea and chlamydia are well-recognized causes, but many other STIs such as trichomoniasis, lymphogranuloma venereum, syphilis and herpes simplex can infect these mucosal sites. In the UK, there is a high burden of infection in specific populations, including young people, men who have sex with men and individuals from black and minority ethnic populations. Symptoms are often similar regardless of the underlying aetiology, and non-infectious inflammatory conditions also occur. A structured history, appropriate examination and investigations are necessary to make a specific STI diagnosis. Management is best guided by the organisms detected, but treatment is often given syndromically to cover common causative organisms before results are available. Partner notification is an integral component of STI treatment strategies.

Keywords Cervicitis; chlamydia; gonorrhoea; herpes simplex virus; lymphogranuloma venereum; pharyngitis; proctitis; sexually transmitted infections; syphilis; urethritis

Key points

- Many sexually transmitted infections (STIs) can cause both symptomatic and asymptomatic infections at genital, rectal and pharyngeal mucosal sites
- A structured approach tailored to the presenting signs and symptoms is essential for the diagnosis of STI-related causes
- Co-infection with more than one pathogen is common, and investigations should test for relevant STIs in each case
- Treatment should be targeted to the underlying organism, or offered epidemiologically to cover common causative organisms until results are available
- Partner notification is an integral component of STI treatment strategies

Introduction

Urethritis, proctitis, pharyngitis and cervicitis are common manifestations of underlying sexually transmitted infections (STIs). Concurrent infection with more than one pathogen is common. This review covers the major STI-related causes of these syndromes in the UK.

Sexually transmitted infections

Gonorrhoea

The causative organism, *Neisseria gonorrhoeae*, is a Gram-negative diplococcus. In 2016, this accounted for 9% of all STIs in the UK.

Primary sites of infection include the mucous membranes of the urethra, endocervix, rectum, pharynx and conjunctiva.[1] Male urethral infection is usually symptomatic, but asymptomatic infection of the female genital tract is common. Most rectal and nearly all pharyngeal infections are asymptomatic.

Complications of infection include epididymo-orchitis in men, and pelvic inflammatory disease (PID) in women. Disseminated gonococcal infection can result in skin lesions, gonococcal arthritis and tenosynovitis.[1]

There is currently increasing concern about the emergence of antimicrobial-resistant strains.[2]

Chlamydia and lymphogranuloma venereum (LGV)

Chlamydia: *Chlamydia trachomatis* is an obligate intracellular pathogen, with serovars D–K causing urogenital infection, and serovars L1–3 causing LGV. It is the most commonly reported bacterial STI in the UK, accounting for 49% of all new STI diagnoses in 2016.[2] Around 70% of infections occur in those <25 years old.[3]

Transmission is usually through penetrative sexual intercourse, but pharyngeal infection can occur following oral sex. Complications include PID, tubal infertility, ectopic pregnancy and perihepatitis in women, epididymo-orchitis in men, and sexually acquired reactive arthritis (SARA) in both genders.

LGV: in the UK, LGV is currently confined to the population of men who have sex with men (MSM), with a higher incidence in human immunodeficiency virus (HIV)-positive individuals. LGV serovars infect lymphoid cells and thus cause more invasive pathology.

The most common presentation is proctitis – tenesmus, anorectal discharge, bleeding, constipation or altered bowel habits. However, infection can be asymptomatic in up to 30%,[3] and urethritis and pharyngitis have been described. Primary ulcers (genital, anal, pharyngeal; incubation period 3–30 days) can be transient and easily missed. The secondary stage (10–30 days) involves lymphadenopathy (usually inguinal), which can be painful and unilateral. Bubo formation, abscess and rupture can occur. Tertiary (genito-anorectal syndrome) LGV manifests

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as proctitis, procto-colitis, fistulae or strictures, which can mimic Crohn's disease.

Non-gonococcal urethritis (NGU)

Inflammation of the urethra is characterized by the presence of excess polymorphonuclear leucocytes on microscopy of a urethral smear, and if gonococci are not identified, a diagnosis of NGU may be made. Causative organisms include *C. trachomatis* (11–50%), *Mycoplasma genitalium* (6–50%), *Ureaplasma* spp. (11–26%), *Trichomonas vaginalis* (1–20%), adenoviruses (2–4%) and herpes simplex virus (HSV; 2–3%).[4] Bacterial urinary tract infections (UTIs) can also be a cause of NGU.

Trichomoniasis is caused by *T. vaginalis*, a primarily anaerobic, flagellated parasitic protozoon, infecting the squamous epithelium of the genital tract. The highest incidence in the UK is seen in individuals of Caribbean or African ethnicity. Most trichomoniasis infections are asymptomatic, but symptomatic men can present with urethral discharge and dysuria, and women can present with a change in vaginal discharge, dysuria, itching and abdominal pain.

M. genitalium is strongly associated with NGU, but has been linked with cervicitis, endometritis and PID. Transmission is by direct genital mucosal contact. *M. genitalium is* associated with recurrent or persistent NGU.

Syphilis

Syphilis results from infection with the spirochaete *Treponema pallidum* sp. *pallidum*. Rates of syphilis are rising in the UK, with a 12% increase between 2015 and 2016, mostly in the MSM population.[2] Transmission is via direct contact with an infectious lesion or by vertical transmission during pregnancy, which results in congenital syphilis.

Clinical presentation is varied and divided into stages:

- **Primary syphilis** – typically, a single painless ulcer (chancre) and moderate regional lymphadenopathy develop from 21 days after infection and last for 3–8 weeks. Atypical chancres can be multiple, painful, purulent or extragenital.[5]
- **Secondary syphilis** – this usually occurs weeks to months after primary infection. Common signs include a widespread mucocutaneous rash and generalized lymphadenopathy. The rash can involve the palms and soles (11–70%). Almost any clinical syndrome can be a manifestation of secondary syphilis, and any mucous membrane can become inflamed during this stage of infection.
- **Latent and tertiary syphilis** –these can result from untreated early syphilis.

Anogenital herpes

Whereas HSV-2 was historically the most common cause of anogenital herpes, HSV-1 has now overtaken it as the most common causative agent of first episode anogenital herpes (see Further reading).

Local symptoms can be mild and unnoticed, but typical manifestations are of painful vesicles and shallow ulceration. Some men present with acute or recurrent HSV urethritis in the absence of typical lesions. HSV can cause severe proctitis in primary infection, seen commonly in MSM.

Clinical approach to the symptomatic patient

History

A sexual history should open with questions on the presenting complaint and symptoms, guiding subsequent examinations and testing. This should include the duration of signs and symptoms, and prior medications. A symptom review of extragenital symptoms is important.

A review of recent sexual contacts, types and sites of sexual exposure, condom use, infection risk and symptoms in partners is beneficial in guiding appropriate tests and management, including partner notification. Previous STIs, alcohol and recreational or sexualized drug use can aid risk assessment.

Urethritis: urethral infection can be asymptomatic, especially in chlamydial infections.[3] Discharge is more common in gonorrhoea infection (>80%) and likely to be mucopurulent. Other associated symptoms include dysuria (>50% in gonococcal urethritis) and penile irritation. Symptoms indicating complications should be asked about; these include testicular pain or swelling in epididymo-orchitis, and joint pain or swelling in SARA.

Patient and partners should be assessed for risk of *T. vaginalis* infection. This is more common in black ethnicities and in men aged >30 years.[4]

Pharyngitis: most pharyngeal infections with gonorrhoea or chlamydia are asymptomatic. Patients may report a sore throat. In ulcerative disease (syphilis, herpes, LGV), pharyngeal ulcers may be observed and these can be either painful or painless.

Cervicitis: endocervical infection often presents as altered or increased vaginal discharge. This can be associated with lower abdominal discomfort or pain and, if associated with urethral infection, dysuria. Intermenstrual bleeding or menorrhagia, and post-coital bleeding, can be a feature. Deep dyspareunia can occur.

Complications depend on the pathogen but include PID, chronic pelvic pain and ectopic pregnancy. Right upper quadrant pain may indicate peri-hepatitis secondary to chlamydial infection. SARA can result in joint pains or swelling.

Proctitis: symptoms include anal discharge, perianal or anal discomfort, tenesmus, bleeding and altered bowel habits, especially constipation. Tenesmus and constipation are more specific for LGV infection but are also frequently seen in HSV proctitis. Systemic symptoms such as fevers and malaise may be reported. A history of proctitis, procto-colitis, fistulae formation and strictures or suspected Crohn's disease may raise the possibility of underlying LGV (see Further reading).

Examination

Figure 1 Outlines the possible examination findings.

Differential diagnoses

Table 1 Outlines the differential diagnoses.

Investigations

Table 2 provides a guide for the appropriate initial tests to be requested, if available, in the general clinic setting.

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