Diagnosis and management of gonorrhoea: a guide for GPs

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With gonorrhoea infection rates at their highest since the 1970s and antibiotic resistance increasing, prompt identification and referral to a GUM clinic for testing and treatment is important. This article discusses the diagnosis of gonorrhoea, current recommended treatment options and the GP’s place in management.

Gonorrhoea is a sexually-transmitted infection (STI) caused by the bacteria Neisseria gonorrhoeae, which infects the mucous membranes of the endocervix, urethra, rectum, pharynx and conjunctiva. It has been recognised as an STI since ancient Greek times, and was one of the three infections implicated in the Venereal Disease Act of 1917: “4. In this Act the expression ‘venereal disease’ means syphilis, gonorrhoea, or soft chancre”.¹

Gonorrhoea affects both men and women and can be transmitted through oral, vaginal and anal sex, and also during childbirth. The rates of gonorrhoea infection have been rising in England, with a 26% increase in reported infections between 2017 and 2018, and 56,259 cases reported in 2018 – the highest number of cases since 1978.² The emergence of resistant gonorrhoea is a concern with multidrug-resistant gonorrhoea now a reality.

Symptoms
In men, urethral gonorrhoea causes discharge in more than 80% of cases and dysuria in more than 50%. It is asymptomatic in fewer than 10% of cases. In women, cervical gonorrhoea is asymptomatic in approximately 50% of cases, but it can cause altered vaginal discharge in up to 50% of cases, lower abdominal pain in 25% and dysuria in up to 12%. It can also cause intermenstrual bleeding. Rectal gonorrhoea is nearly always asymptomatic in women, but can be associated with rectal discharge or perianal pain in men. Throat gonorrhoea is asymptomatic in more than 90% of cases in both men and women. Gonorrhoea can also infect the mucous membranes of the eye, causing conjunctivitis in adults, and in babies where the mother was infected at the time of vaginal delivery.

Complications
Gonorrhoea infection can spread in two different ways: directly into the upper genital tract to cause prostatitis, epididymo-
Gonorrhoea

Possible causes

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dysuria</td>
<td>Urinary tract infection, chlamydia, herpes</td>
</tr>
<tr>
<td>Vaginal discharge</td>
<td>Candida, bacterial vaginosis, Trichomonas vaginallis, chlamydia, foreign body, physiological</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>Constipation, urinary tract infection, chlamydia</td>
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<tr>
<td>Deep dyspareunia</td>
<td>Endometriosis, pelvic inflammatory disease, chlamydia</td>
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<tr>
<td>Rectal discharge</td>
<td>Chlamydia, lymphogranuloma venereum (LGV), inflammatory bowel disease</td>
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<tr>
<td>Conjunctivitis</td>
<td>Viral, allergic, or chlamydial conjunctivitis</td>
</tr>
<tr>
<td>Post-coital or intermenstrual bleeding</td>
<td>Chlamydia, cervical ectropion, cervical cancer, pregnancy</td>
</tr>
</tbody>
</table>

Table 1. Differential diagnosis of gonorrhoea

Diagnosis

Gonorrhoea can be detected using a nucleic acid amplification test (NAAT) or culture. NAATs are more sensitive than culture and can be used for infections at all sites, although in the pharynx some tests can cross react with commensal neisserias. Culture is also mandatory in all cases of NAAT-positive gonorrhoea, to check for antibiotic sensitivities.

Microscopy is more than 90% sensitive for men with urethral discharge, and should ideally be offered first line, as treatment can then start sooner. Microscopy is much less sensitive when used to look for urethral gonorrhoea in asymptomatic men or cervical gonorrhoea in women. It can be used to look for gonorrhoea in men with rectal symptoms, but is not recommended for those with no rectal symptoms or for infection in the throat. Positive microscopy should always be confirmed with a NAAT test and samples cultured for antibiotic sensitivities.

Asymptomatic men should be offered a first-catch urine test and asymptomatic women should be offered a vulvo-vaginal self-swab. Asymptomatic patients should be tested if they are contacts of gonorrhoea cases, or where their sexual history reveals that a gonorrhoea test is indicated. In addition, screening should be carried out in areas where the prevalence of gonorrhoea is greater than 1%.4 If women are symptomatic and having a speculum examination anyway, then a cervical swab can be done, but vulvo-vaginal self-swabs have been shown to be more sensitive, even in symptomatic women.5

Recommended second-line treatment options are:
- Ceftriaxone 1g IM or
- Gentamicin 240mg IM plus azithromycin 2g orally or
- Spectinomycin 2g IM plus azithromycin 2g orally or
- Azithromycin 2g orally.7

Ciprofloxacin should only be used if the organism is known to be susceptible. In 2017, 36.4% of gonococcal isolates that were referred to the Public Health England reference laboratory through the Sentinel reporting system were resistant to ciprofloxacin.6 Cefixime should only be used if an injection is contraindicated or the patient refuses to have one. Resistance to cefixime is currently low in the UK. Spectinomycin is not recommended for pharyngeal infection because of poor efficacy; it may also be difficult to obtain in the UK as it is an unlicensed, imported product.7

Co-morbid HIV

The guidelines for treatment of gonorrhoea are the same for patients with HIV as for those without HIV.

Pregnancy and breastfeeding

Pregnant or breastfeeding women should not be given quinolones or tetracyclines. The recommended treatment options for gonorrhoea in pregnancy are:
- Ceftriaxone 1g IM or
- Spectinomycin 2g IM or azithromycin 2g orally (if no suitable alternatives).7

See Box 1 for more information on antibacterial resistance.

Partner notification and test of cure

Partner notification is vital in all cases of proven gonorrhoea infection. For men who have urethral symptoms, they should notify all sexual partners in the last two weeks (or their last partner if that was more than two weeks ago). For asymptomatic infection or infection at other sites in both men and women, all sexual partners in the three months prior to testing...
Since the beginning of the antibiotic era, gonorrhoea has become resistant to all classes of antibiotics that have been used to treat it. This began with sulphonamides in the 1940s and has continued to this day, with the first case of multidrug-resistant gonorrhoea in the UK being reported in February 2018.

Treatment guidelines are changed regularly following data collected by Public Health England and published in the yearly Gonococcal Resistance to Antimicrobials Surveillance Programme (GRASP) report, which has been released every year since 2000. The reports document the changing resistance patterns of gonorrhoea to all antibiotics currently or previously used to treat the organism. The most recent GRASP report, published in 2018, show the following patterns of antibiotic resistance reported in 2017:

- Ceftriaxone 0%
- Azithromycin 9.2%
- Cefixime 1.7%
- Ciprofloxacin 36.4%
- Penicillin 10.8%
- Tetracycline 48.5%
- Spectinomycin 0%

The BASHH gonorrhoea treatment guidelines released in 2005 recommended first-line treatment for gonorrhoea to be ceftriaxone, cefixime or spectinomycin. This was changed in the 2011 guidelines to reflect the changing resistance patterns as reported to the Health Protection Agency (now Public Health England) to recommend dual therapy with ceftriaxone and azithromycin as the only first-line treatment. Following increasing reports of azithromycin resistance and concerns over antimicrobial stewardship, the 2019 guidelines have recommended that the first-line treatment returns to monotherapy with ceftriaxone, but at a higher dose of 1g, or ciprofloxacin where susceptibility is known.

The first reported case of gonorrhoea worldwide that was resistant to dual antibiotic therapy was described in the UK in 2015, in a heterosexual man who had sex with a female sexual partner in Japan. He was eventually successfully treated with increased doses of both first-line drugs, after being given 1g ceftriaxone and 2g azithromycin.

More recently, a case of multidrug resistant gonorrhoea was reported in the UK in March 2018, in a heterosexual man who developed urethral symptoms after returning from a holiday in Thailand. Culture revealed that the organism was resistant to ceftriaxone, azithromycin, ciprofloxacin and tetracycline, with only reduced sensitivity to benzylpenicillin. The urethral infection was cleared after treatment with spectinomycin, but the throat infection only responded to ertapenem.

Box 1. Antibiotic-resistant gonorrhoea infection

should be contacted.

All sexual partners within these window periods that are contacted should be offered testing for gonorrhoea and be given epidemiological treatment (ie treating the infection empirically before the results of any tests are back). They should also be offered a full STI screen.

All patients who are treated for gonorrhoea should be offered a test of cure, ideally two weeks after they have completed treatment.

The GP’s role in management

GP’s are well placed to screen for gonorrhoea in asymptomatic patients, but due to the importance of treating the infection correctly, both the British Association for Sexual Health and HIV (BASHH) and Public Health England advise that any patient with a positive diagnosis of gonorrhoea should be referred to a genitourinary medicine (GUM) clinic for treatment. In addition, men who present to their GP with urethral discharge should be referred to a GUM clinic for microscopy in the first instance.

If a baby presents with a sticky eye within 30 days of birth, a gonorrhoea screen should be considered. If the gonorrhoea test is then positive, it is important to remember that, alongside the baby, the mother and her partner(s) will also need to be tested and treated.

Some community sexual and reproductive health services do treat patients for gonorrhoea, but they should have procedures in place for giving adequate treatment, performing partner notification, and transporting samples to the laboratory rapidly enough to ensure the best possible results. The transport issue is key. In a 2009 study by Gopal Rao et al, two culture swabs were taken from patients with a NAAT-positive gonorrhoea result, with one swab being transported to the lab within two hours, and one being stored at 4°C and transported within 4–72 hours. Of the urgent swabs, 85.1% were positive, compared with only 57.4% of the non-urgent ones (p<0.05).

It is also important to always remember to test for other STIs in the event that a gonorrhoea screen is positive – a basic STI screen consists of tests for chlamydia, gonorrhoea, HIV and syphilis.

Conclusion

The rise of resistant gonorrhoea infection is currently one of the most pressing issues in sexual health and it is imperative that all doctors who are in any way connected to testing and treating for STIs are aware of its importance. Prompt referral to a GUM clinic for adequate testing and treatment is the best way to ensure that resistant gonorrhoea infections are identified and treated appropriately.

References


**Declaration of interests**
None to declare.

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