Vaginal discharge: normal or abnormal?

Pretty much on a daily basis GPNs see women concerned about unusual vaginal discharge. As GPNs, we need to remind ourselves that the most common reasons for altered vaginal discharge are normal and physiological, bacterial vaginosis (BV) and candida, but also consider sexually transmitted infections (STIs) and non-infective causes.

Among women presenting with vaginal discharge, many with perceived symptoms have no identifiable microbial cause. One possible explanation is that women frequently interpret normal physiological processes as abnormal, i.e. symptomatic of infection or disease (Med Gen Med 2004;6:49). So let’s start by sorting out what is normal and what is not:

Normal vaginal discharge

The ABC Of Sexually Transmitted Infections (KE Rogstad, Wiley–Blackwell, 2011) helps us out here and tells us that:

- Vaginal discharge is a combination of cervical mucus and vaginal secretions: it has important protective functions, keeping the vagina lubricated and preventing pathogens from proliferating. The nature of physiological vaginal discharge in healthy women of reproductive age varies considerably both across individuals and in the same individual during the menstrual cycle.
- Normal vaginal bacteria (lactobacilli) produce lactic acid: it is the low pH balance of the vagina that helps to defend against infection. Vaginal discharge is least acidic on the days just prior to and during menstruation and, therefore, infections are most common at this time.
- From menstruation to mid-cycle, women commonly experience thin, clear, watery vaginal discharge.
- Around ovulation, from days 12 to 16, is it normal for women to experience a heavier volume of discharge, and for this to be jelly-like and ‘mucousy’ in consistency. This mucus is normally clear and inoffensive.
- Following ovulation, the corpus luteum (yellow body), a progesterone-secreting mass that forms in the ruptured egg follicle, causes a decrease in the quantity of cervical mucus and vaginal discharge is thicker and creamy-white to yellowish.
- During their early 20s, as oestrogen peaks, women’s vaginal discharge may be heavier than in their teens. Some women with higher oestrogen levels may experience heavier discharge, enough to warrant wearing a pantyliner.

Abnormal vaginal discharge

- Characterized by change of colour, consistency, volume, or odour.
- Associated with symptoms of itch, soreness, dysuria, pelvic pain, or intermenstrual or post-coital bleeding.
- Commonly, abnormal vaginal discharge is caused by infection.
  - Vaginal infections include:
    - Bacterial vaginosis, anaerobic bacterial overgrowth, particularly Gardnerella vaginalis.
    - Vaginal candidiasis, fungal infection with Candida albicans.
    - Trichomoniasis, STI caused by Trichomonas vaginalis.
    - Herpes simplex, STI, can cause discharge if cervicitis.
  - Endocervical infections, chlamydia or gonorrhoea. Cervicitis, may ascend to cause PID.

Less commonly, abnormal vaginal discharge has a NON-INFECTIVE cause:
- Retained foreign body (e.g. tampon, condom, or vaginal sponge).
- Inflammation caused by deodorants, lubricants, and disinfectants.
- Vulval, vaginal, cervical, or endometrial tumours.
- Post-menopausal atrophic vaginitis.
- Cervical ectopy or polyps.
- Fistulae, rectovaginal or urovaginal.


Here’s a whistle-stop guide to who we should investigate, who can be treated empirically, and who to refer.

History

Is your patient:
- At risk of STI, ≤25y and new sexual partner in last 12m?
- Symptoms of infective causes:
  - Cervicitis or PID – post-coital/intermenstrual bleeding, dysuria, dyspareunia, or lower abdominal pain.
  - Vaginal candidiasis – white odourless discharge with itching and superficial soreness.
  - Bacterial vaginosis (BV) – fishy-smelling discharge, no itching or soreness.
  - Trichomoniasis – fishy-smelling discharge, with itching, soreness, and dysuria.
  - Is a non-infective cause of vaginal discharge likely?
Empirical treatment

Women can be advised, and treatment for candida or BV can be safely prescribed, without examination if history suggests:

- Physiological discharge (see above) or
- Characteristic symptoms of vaginal candidiasis or BV, if:
  - Woman at low risk of an STI, and
  - NO other vaginal symptoms, and
  - NO recent gynaec procedure, and
  - 1st episode, or if recurrent <4 times per year, and
  - NOT pregnant, postnatal, or post-ToP, and
  - If BV, previous episode of BV was diagnosed following examination, and cleared following antibiotics.

Examination is recommended for all other women

Examine:

- Vulva for lesions, discharge, vulvitis, ulcers and any other changes.
- Cervix and vagina using speculum, look for cervicitis, vaginal discharge or foreign body.
- Offer blood tests for HIV and syphilis, if swab-testing for gonorrhoea and chlamydia.
- Swabs, and pH test discharge from lateral vaginal wall.
- Candidiasis, pH<4.5 – odourless, white, curdy discharge.
- BV, pH >4.5 – white/grey homogenous coating of the vaginal walls and vulva, with fishy odour.
- Trichomoniasis, yellow-green, frothy discharge, fishy odour.
- Chlamydial/gonorrhoeal cervicitis, inflamed cervix, bleeds easily +/- mucopurulent discharge.
- PID caused by chlamydia (or gonorrhoea), lower abdominal pain, +/- fever.
- Bi-manual palpation, check for cervical motion or adnexal tenderness and abnormal masses, if PID suspected.

How to swab vaginal discharge

Following insertion of a vaginal speculum:

- To test pH of vaginal discharge: swab discharge from lateral wall, rub onto narrow-range pH paper.
- HVS: swab discharge from the lateral vaginal wall and posterior fornix.
- Endocervical swab: clean cervix with sterile swab, discard. Insert new swab into endocervix, rotate 360°.
- On the laboratory request form note the nature of the vaginal discharge, risk of STI, and symptoms.
- Refrigerate swabs at 4°C if not immediately sent to lab.
- HVS for trichomoniasis should arrive AND BE EXAMINED in the laboratory within 6h of taking – for this reason, ideally refer women with suspected trichomoniasis to GUM.
- Other swabs should be received by the laboratory within 48h of taking.
- Swabs used for chlamydia or gonorrhoea testing vary around the country: check with your lab.
- For chlamydia, follow manufacturers instructions. Some laboratories test the same sample for gonorrhoea.
- If your lab does not test for gonorrhoea and chlamydia together, send Neisseria gonorrhoeae culture in a charcoal-based transport medium, and transport to lab a.s.a.p.

Once swabbed, and based on clinical signs, give empirical antibiotics to women with:

- Cervicitis – treat for chlamydia while awaiting swab results.
- Suspected PID – if same day treatment in GUM not possible.
- Suspected trichomoniasis – if referral to GUM not feasible, or not acceptable to patient.

**ONLY IF CLINICAL FEATURES SUGGEST INFECTION** should you prescribe empirical antibiotics to women at increased risk of STI while awaiting swab test results.

Who to refer

- PID and pregnant or pyrexial and unwell – **urgently admit**.
- Suspected PID or trichomoniasis – **urgently refer** to GUM for same day assessment.
- Confirmed gonorrhoea, chlamydia or trichomoniasis – **refer to GUM** for partner notification.
- Suspected gynaec cancer – **urgent 2w cancer pathway referral**.

N.B. Group B strep is often reported but does not cause discharge or need treatment, except in pregnancy at delivery.

Management of chlamydia in primary care – RCGP & BASHH, 2013

In 2013, the RCGP and BASHH updated their guidance on the management of STI in primary care. Two-thirds of sexual partners of people who test positive for chlamydia will also test positive! (BASHH, 2013).
ALWAYS discuss partner notification, and encourage screening for STIs, ideally at GUM.

Although NICE tells us general practice can support patients in notifying partners, referral to Sexual Health or GUM may offer a better avenue.

Depending on the patient, options for management include:

- Referral to GUM clinic, BUT do not delay treatment if there is a delay in accessing GUM services.
- Treat chlamydia after testing for other STIs. Partner notification may be done by appropriately trained staff.
- Treat chlamydia and refer to a GUM clinic for partner notification and screening for other STIs. In this case, other STIs should not be investigated until at least 1w after completion of antibiotics.

Azithromycin or doxycycline both offer 95% cure rates, so re-testing is usually unnecessary.

If re-testing, wait 6w after treating because tests can remain positive until this time (BASHH, 2013).

Chlamydia in young people. Consider sexual abuse, unless clear evidence otherwise, especially if:

- Aged <13y.
- Aged 13–15y, unless STI was acquired from consensual sexual activity with a peer.
- A young person (even if over the age of consent) or a vulnerable person of any age, if there is a concern that exploitation may be occurring.

Follow appropriate child protection procedures and refer to a paediatrician if necessary.

What advice should we be giving to women testing positive for chlamydia

Discuss and provide written information on chlamydia, including:

- Chlamydia often causes no symptoms but without treatment can persist for months or even years.
- Complications can occur, including PID or fertility problems, if it is left untreated.
- Importance of all sexual partners being evaluated and treated.
- Avoid sexual intercourse (including genital, oral, and anal sex) until both partners complete treatment.
- If single-dose azithromycin, advise abstinence for 7d, or until sexual partners treated, whichever is the longer.
- Testing for other STIs.
- Safer sexual practices and contraception.
- Correct contraceptive practice if using COCP and experiences vomiting with antibiotics (BASHH, 2006).

Method of partner notification

A Cochrane systematic review suggests that GP/GPN referral to GUM increases the proportion of partners treated per person with chlamydia, compared to patient self-referral (NICE, 2007). Where this is not feasible, giving additional information to both the person with chlamydia and their partners reduces the rates of persistent or recurrent infections (NICE, 2007).

<table>
<thead>
<tr>
<th>Bacterial vaginosis</th>
<th>Treatment and management options</th>
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<tbody>
<tr>
<td>Profuse, fishy, offensive discharge with no itch/soreness.</td>
<td>(RCGP/BASHH, 2013)</td>
</tr>
<tr>
<td>Due to overgrowth of anaerobes.</td>
<td>Metronidazole 2g orally single dose (not for pregnant or breast-feeding women).</td>
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<tr>
<td>Often remits spontaneously.</td>
<td>Metronidazole 400mg bd orally for 5d.</td>
</tr>
<tr>
<td>Associated with PID, poor pregnancy outcomes and endometritis after miscarriage.</td>
<td>Vaginal metronidazole gel 0.75% od for 5d.</td>
</tr>
<tr>
<td></td>
<td>Topical clindamycin 2% once daily for 7d.</td>
</tr>
<tr>
<td></td>
<td>Testing of male partners is not indicated, but testing and treatment of female sexual partners should be considered.</td>
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<tr>
<td></td>
<td>Metronidazole gel can be effective as suppressive treatment for recurrent BV, though evidence supporting other regimens is limited.</td>
</tr>
</tbody>
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Candida
- Thick white non-offensive discharge.
- Asymptomatic carriage rates high (10%), so treat only if clinical symptoms.

Treatment and management options (RCGP/BASHH, 2013)
Vaginal and oral azole antifungals are equally effective.
Pregnant women should not take oral antifungals, and single-dose treatment is less effective in pregnancy than longer regimens of up to 7d. Effectiveness of alternative therapies (yoghurt, Tea-tree oil) is unproven.
For vulval symptoms, topical azole can be used in addition to an oral or intravaginal antifungal. Women should be advised to return if symptoms have not resolved within 7–14d. Follow-up testing is not necessary if symptoms resolve.

Sexually transmitted infections
- Chlamydia, gonorrhoea and trichomonas may present with a PV discharge but may also be asymptomatic!
- For all three, partner notification is really important.
- Treatment options in pregnancy are different: the BNF gives more details.

Chlamydia
- Commonest STI.
- 5–10% of sexually active under 24s are infected.
- 80% are asymptomatic.
- Untreated may cause PID, although conversion rates from lower GU to upper GU tract vary from study to study (1–40%).

Treatment and management options (RCGP/BASHH, 2013)
Uncomplicated chlamydia, not PID.
First-line treatment:
- Azithromycin 1g single dose, or
- Doxycycline 100mg bd for 7d.
In women who are pregnant or breast-feeding:
- Azithromycin 1g single dose, or
- Amoxicillin 500mg tds for 7d, or
- Erythromycin 500mg qds for 7d.
Azithromycin 1g is available OTC for those >16y, asymptomatic, not pregnant, and tested +ve for chlamydia.
OTC also available for treatment of sexual partners, without need for a test.
Where PID is diagnosed:
- Ceftriaxone (single dose i.m.) then doxycycline (100mg bd po) plus metronidazole(400mg bd po) for at least 14d
- OR ofloxacin (400mg bd) plus metronidazole (400mg bd) for at least 14d. (See separate article on PID.)

Gonorrhoea
- Usually presents with a purulent discharge.
- Asymptomatic in 50% of women.
- Associated with PID.

Treatment and management options (RCGP/BASHH, 2013)
Cefixime 400mg po single dose. Resistance is common, referral to GUM clinic is encouraged and post-treatment follow-up and re-test is recommended.

Trichomonas vaginalis (TV)
- Offensive yellow discharge, may be frothy.
- Vulval itch, soreness, dysuria and superficial dyspareunia common.
- Many are asymptomatic though!
- Associated with pre-term delivery.

Treatment and management options (RCGP/BASHH, 2013)
Metronidazole 2g po single dose or
Metronidazole 400mg bd for 7dSexual partners of women diagnosed with TV should be offered a full sexual health screen AND should be treated for TV, irrespective of the results of their tests. HIV-positive women with TV require longer treatment regimens (7d).

Contraception and vaginal discharge
- Additional contraceptive precautions are not required when using antibiotics that do not induce liver enzymes.
- Latex contraceptives (diaphragms and condoms) can be damaged by vaginal/vulval antifungal treatments.
- Women with recurrent candidiasis who use CHCs may wish to consider switching to an alternative method of contraception.
For women with copper-bearing IUD and recurrent BV, consider switching to an alternative method of contraception.

**Vaginal discharge**
- Look for red flags of PID (pelvic pain, pelvic tenderness, fever).
- Vaginal examination is not helpful if low suspicion of STI.
- Consider physiological causes.
- BV is more common than candida.
- For STIs contact tracing is important.

**Professional development**
- For further reading from the BMJ 10 minute consultation series, this article gives an approach to a consultation regarding abnormal vaginal discharge: BMJ 2013;347:f4975.
- If you read this article write a reflective piece on how the suggested approach might differ from your current practice and what you might do differently in future.
- Do you have litmus paper in your practice? Is this something you could suggest introducing or including in your protocol for managing abnormal vaginal discharge? It is very cheap, <1p per patient!
- If you introduce this change write brief notes on how you did this. Who did you discuss it with? How did you implement the change? What went well? What could have gone better? What might you do differently next time you wish to implement change?

**Practical tools**
- Help! Please email us if you know of something useful, and we will include your tip (and your name if you allow us to) in the next GPN handbook. Email: mail@gp-update.co.uk.

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