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Vaginal Discharge

Vaginal discharge is a common presenting symptom and may be either physiological or pathological. The most common causes of vaginal discharge are the normal physiological discharge, bacterial vaginosis and candidal infections.^[1] Sexually transmitted infections (STIs) and non-infective causes should also be considered.

A normal physiological discharge is a white or clear, non-offensive discharge that varies with the menstrual cycle.^[2]

Causes of vaginal discharge

Non-infective

- Physiological:
 - Newborn infants may have a small amount of vaginal discharge, sometimes mixed in with a little blood, due to high levels of circulating maternal oestrogen. This should disappear by 2 weeks of age.
 - During the reproductive years the fluctuating levels of oestrogen and progesterone throughout the menstrual cycle affect the quality and quantity of cervical mucus which is perceived by women as a change in their vaginal discharge. Initially, when oestrogen is low, the mucus is thick and sticky. As oestrogen levels rise, the mucus gets progressively clearer, wetter and more stretchy. After ovulation, there is an increase in the thickness and stickiness of the mucus once more.
 - At menopause the normal amount of vaginal discharge decreases as oestrogen levels fall.
- Cervical polyps and ectopy.
- Foreign bodies - eg, retained tampon.
- Vulval dermatitis.
- Erosive lichen planus.
- Genital tract malignancy - eg, cancer of the cervix, uterus or ovary.
- Fistulae.

Non-sexually transmitted infection

- Bacterial vaginosis (BV) - is most commonly seen in sexually active women.
- Candidal infections - caused by an overgrowth of *Candida albicans*.

See also the separate articles on [Bacterial Vaginosis](#) and [Vaginal and Vulval Candidiasis](#).

Sexually transmitted infection

- *Chlamydia trachomatis*.
- *Neisseria gonorrhoeae*.
- *Trichomonas vaginalis* - particularly common in young women attending the genitourinary medicine (GUM) clinic and is frequently found in association with infection with *N. gonorrhoeae*.

See also the separate articles on [Chlamydial Genital Infection](#), [Gonorrhoea](#) and [Trichomonas Vaginalis](#).

Epidemiology

- The most common cause of pathological vaginal discharge in women of childbearing age is bacterial vaginosis.
- BV is commonly asymptomatic and the true prevalence is unknown. It is more common in women with pelvic inflammatory disease (PID) but it is not known whether treating asymptomatic women with BV reduces their subsequent risk of developing PID.^[3]
- Vulvovaginal candidiasis affects about 75% of women at some point during their reproductive life. 40-50% have two or more episodes and 10-20% may harbour *Candida* spp. asymptotically at any one time.^[4]

Assessment

- A full clinical and sexual history should be sought (see also the separate article [Sexual History Taking](#)). Take particular note of the nature of the discharge (what has changed, odour, onset, duration, colour, consistency) and associated symptoms (these may include itch, superficial dyspareunia or dysuria, abdominal pain, deep dyspareunia, abnormal bleeding, pyrexia).^[1]
- Risk of STI needs to be assessed. It is higher in women under the age of 25 and women who have a new sexual partner or have had more than one partner in the preceding 12 months. This can initially be assessed by simply asking the woman when she last had sex and then when she last had sex with anyone else.
- Also consider current contraceptive use and concurrent medications (eg, antibiotics, corticosteroids), previous treatments used (prescription and over-the-counter) and medical conditions (eg, diabetes, immunocompromised state).
- Symptoms suggesting that discharge is abnormal include:
 - A discharge that is heavier than usual.
 - A discharge that is thicker than usual.
 - Pus-like discharge.
 - White and clumpy discharge.
 - Greyish, greenish, yellowish or blood-tinged discharge.
 - Foul-smelling (fishy or rotting meat) discharge.
 - A discharge accompanied by bloodiness, itching, burning, a rash or soreness.

Presentation

Infective (non-sexually transmitted) vaginal discharge

- BV:
 - Causes a thin, profuse and fishy-smelling discharge without itch or soreness.
- Candidiasis:
 - Thick, typically curd like, white, non-offensive discharge which is associated with vulval itch and soreness.
 - May cause mild dyspareunia and dysuria.

Infective (STI) vaginal discharge^[5]

C. trachomatis, *N. gonorrhoeae*, and *T. vaginalis* can present with vaginal discharge but may also be asymptomatic. They are associated with an increased risk of HIV transmission.^[2]

- *C. trachomatis*:
 - May cause a copious purulent vaginal discharge but it is asymptomatic in 80% of women.
- *T. vaginalis*:
 - May cause an offensive yellow vaginal discharge, which is often profuse and frothy, associated with vulval itch and soreness, dysuria, abdominal pain and superficial dyspareunia.^[6]
- *N. gonorrhoeae*:
 - May present with a purulent vaginal discharge but is asymptomatic in up to 50% of women.^[2]

Non-infective causes of vaginal discharge

- Retained foreign bodies - result in a foul-smelling serosanguinous discharge. Diagnosis is confirmed on examination.
- Cervical polyps and ectopy - tend to be asymptomatic but there may be increased discharge and intermenstrual bleeding. Diagnosis is made on speculum examination.
- Genital tract malignancy - presentation varies and, in some cases, a persistent vaginal discharge not responding to conventional treatment may be the first clue. Diagnosis is made on examination and biopsy.
- Fistulae - history of trauma or surgery is suggestive. There may be a foul or feculent discharge in association with recurrent urinary tract infections.
- Allergic reactions - diagnosis is suspected on taking the history - eg, use of irritant chemicals in douching, contact with latex and semen.
- Vulval lichen planus and vulval dermatitis will be apparent on examination but may require biopsy to confirm the diagnosis.

Vaginal discharge in pregnancy^[1, 7]

Vaginal discharge quality and quantity often change during pregnancy with most women producing more discharge during pregnancy.

- BV:^[8]
 - Is associated with poor perinatal outcomes, particularly preterm birth.
 - Routine screening during pregnancy for asymptomatic BV is not recommended as it has not been shown to reduce the risks of preterm birth. There may, however, be a role for screening women who are at high risk of preterm delivery and treating them before 20 weeks of gestation but the evidence is conflicting.
- Candidiasis:^[4]
 - Common in pregnancy (30-40%) and often asymptomatic. There is no evidence of any harm to the fetus.
- *C.trachomatis*:
 - Incidence is highest in those aged under 20, where it is found in almost 13%.^[9]
 - Does not affect pregnancy outcome but mother-to-baby transmission can occur at delivery, causing ophthalmia neonatorum in 15-25% or pneumonitis in 5-15% of newborns. It may be associated with postpartum endometritis.^[10]
- *T. vaginalis*:
 - Increasingly thought to be associated with preterm delivery and low birth weight.

Vaginal discharge following miscarriage, abortion or delivery

- These patients should be fully investigated and empirically treated whilst awaiting results of swabs.
- BV is associated with endometritis and PID following abortion but retained products of conception should be considered in all women, particularly in the presence of a heavy growth of coliforms.

Investigations

- Patients who present with typical symptoms suggestive of BV or vulvovaginal candidiasis, *who are at low risk of an STI*, can be treated without sampling.^[1]
- Otherwise, STI screening and swabs should be offered:
 - Endocervical swab in transport medium (charcoal preferably) to diagnose gonorrhoea.
 - Endocervical swab for a chlamydial nucleic acid amplification test (NAAT) to diagnose chlamydia.
 - If examination is declined, a self-taken vulvovaginal swab for *C. trachomatis* and *N. gonorrhoeae* for NAAT may be an option and is more sensitive in women than urine testing.^[1]
 - Blood tests for HIV and syphilis.

- Vaginal pH testing (using narrow range pH paper) is a quick, cheap and simple test that can help discriminate between BV which reduces the normal acidity of the vagina (pH 4.5 or above) and vulvovaginal candidiasis (pH <4.5).^[2] It cannot, however, be used to differentiate between BV and *T. vaginalis*.

NB: a high vaginal swab (HVS) is only worthwhile where there are recurrent symptoms, treatment failure or in pregnancy, postpartum, post-abortion or post-instrumentation.^[1]

Management

- Take history with particular care to elicit clues suggestive of the presence of an STI. If there are suggestions that there might be an STI or for recurrent infections, refer to a level 1, 2 or 3 GUM service as appropriate.
- The finding of an STI should prompt patient education and counselling, screening for other STIs (including chlamydia, gonorrhoea, syphilis and HIV) and sexual contact tracing for testing and appropriate management.

Infective, non-sexually transmitted causes of vaginal discharge

- Metronidazole and clindamycin administered either orally or vaginally are effective in the treatment of BV.^[3]
 - Women with BV who are pregnant (or breast-feeding) may use metronidazole 400 mg twice daily for 5-7 days or intravaginal therapies. A 2 g stat dose is not recommended in pregnancy.
 - Testing and treatment of male sexual partners is not indicated but should be considered where there are female sexual partners.
- Vaginal and oral azole antifungals are equally effective in the treatment of vaginal candidiasis:^[4]
 - Oral treatment should be avoided in pregnancy.
 - Where women have vulval symptoms of candidiasis, topical antifungals may be used in addition until symptoms resolve.
 - There is no need for routine screening or treatment of sexual partners in the management of candidiasis.
 - Latex contraceptives may be weakened by vaginal antifungal treatments.

Sexually transmitted causes of vaginal discharge

See the separate articles under 'Causes of vaginal discharge', above.

Non-infective causes of vaginal discharge

- Retained foreign bodies:
 - Most can be manually removed but these may occasionally be very small (fibrous material or small beads in a child's vagina, a small piece of torn condom) and so not readily visible and require a lavage (in children this may require sedation).
 - Where larger or irregularly shaped objects cause spasm of the vaginal walls, sedation or anaesthesia may also be needed.
 - A short course of antibiotics may be needed if the object was there long enough to cause secondary infection.
- Cervical polyps can usually be easily removed. The polyp should be sent for histology.
- Cervical ectopy may cause an increase in physiological discharge:
 - There are several treatment options available to the gynaecologist once cervical pathology has been excluded, such as cryocautery and silver nitrate. However, there is no good evidence for their effectiveness in reducing discharge.^[1]
 - Ectopy is more common in women taking combined hormonal contraception.^[11] Changing contraception to a non-oestrogen-containing method is an option.
- Allergic reactions - treatment includes identifying and removing the cause.

Management of recurrent discharge

If symptoms recur and treatment has previously been empirical, an examination and appropriate testing should be advised.

Where there is recurrent BV, suppressive treatment with metronidazole vaginal gel may be considered. Evidence to support other regimens is limited.

Recurrent candidiasis is defined as four or more documented episodes annually. 90% of women remain disease-free during treatment with 150 mg fluconazole every three days followed by 150 mg once a week for six months. [4]

Management of persistent discharge [1]

- In some cases, repeated examination and screening yield no positive results, yet the patient still complains of vaginal discharge.
- It is then appropriate to explore with the patient the nature of the discharge and relate this to normal physiological discharge, to review personal hygiene habits (advise to avoid douches, perfumed products and tight synthetic clothing) and to explore the possibility of the hidden complaint, such as depression, anxiety or psychosexual dysfunction.
- Postmenopausal atrophic changes may predispose women to repeated episodes of vaginitis which may respond well to hormonal creams or pessaries.

Complications

- Untreated, some vaginal infections can spread to the upper reproductive tract and cause more serious illness and, in the long term, infertility.
- A retained foreign body has the potential of leading to toxic shock syndrome.
- Cervical polyps are generally harmless although may cause infertility if they grow very large. Rarely, they may undergo malignant change (0.1%). [12] NHS Scotland recommends removal in General Practice even if asymptomatic. [13]
- There are specific complications associated with infective discharge in pregnancy, as outlined above.

Prognosis [1]

- BV has a 70-80% cure rate with the above regimen after one course of treatment (but it commonly recurs).
- Candidiasis has a cure rate of 80-95%.
- Trichomoniasis has an approximate 90% cure rate. [14]

Prevention

- Basic personal hygiene (cleanliness without the use of douches and perfumed chemical agents, including so-called 'feminine hygiene' products) with avoidance of tight, synthetic clothing. Emollients can be used as a soap substitute and moisturiser to prevent dryness and maintain the skin's natural barrier functions. [15]
- Treatment of sexual partners, as appropriate.

Further reading & references

- [Sexually Transmitted Infections in Primary Care](#); Royal College of General Practitioners and British Association for Sexual Health and HIV (Apr 2013)
 - [Management and laboratory diagnosis of abnormal vaginal discharge](#); Quick reference guide for primary care, GOV.UK, 2014
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