

Thrush and other vaginal infections

The three most common vaginal infections in women are bacterial vaginosis, candidiasis (also known as thrush) and trichomoniasis. While candidiasis is often considered by women to be responsible for most vaginal infections, bacterial vaginosis is also very common. Other common conditions include the sexually transmitted chlamydia, genital HPV and genital herpes.

The most typical symptom of a vaginal infection is an abnormal vaginal discharge. Recognising what is 'abnormal', however, is sometimes difficult for women as vaginal discharge differs in consistency and amount during different phases of the menstrual cycle and different life stages. Normal vaginal discharge can range from clear and slippery, like raw egg white (around the time of ovulation) to sticky and white or cloudy (just before and after a period). The discharge can have an odour but it is generally not unpleasant. Women who take the oral contraceptive pill may experience an increase in vaginal discharge while menopausal women commonly report a reduction.

Bacterial vaginosis

Bacterial vaginosis (BV), previously referred to as Gardnerella, is caused by an overgrowth in bacteria which occur naturally in the vagina. BV is, therefore, not actually an infection as such, but rather an imbalance. Normally, the bacteria which cause BV are kept in check by the presence of 'good' bacteria, *Lactobacilli*, which keep the vagina acidic.

Smoking increases the risk of BV as does douching (rinsing the vagina out with water or a solution). While it is unclear if BV is actually sexually transmitted, it is **associated** with sexual activity. That is, sexual intercourse, particularly with a new partner or multiple partners, appears to increase a woman's risk of BV. It is thought that sexual intercourse might result in a decrease in the acidity of the vagina, leading to the growth of other bacteria.

BV is associated with pelvic inflammatory disease (PID) and can increase the risk of miscarriage and preterm delivery.

SYMPTOMS

Approximately 50% of women with BV will be asymptomatic (experience no symptoms). If present, symptoms can include:

- Fishy smelling vaginal discharge (smell often worse at menstruation or after unprotected vaginal intercourse)

- Grey or white vaginal discharge, thin or watery in consistency
- Vaginal itching (although not particularly common)

DIAGNOSIS AND TREATMENT

Women who suspect they may have a vaginal infection should visit their doctor. If possible, women should abstain from vaginal intercourse for at least 24 hours prior to the visit as the presence of semen, lubricants or spermicides can make the diagnosis of a vaginal infection more difficult. Women should also avoid douching, using a tampon or vaginal medications (ie., thrush medication) prior to the visit.

A doctor will examine the genital area to look for signs of other conditions and take a swab of vaginal discharge for laboratory testing. Taking a swab is an important step in obtaining a diagnosis. A doctor cannot accurately diagnose a vaginal infection by asking the woman about symptoms and/or by just conducting an examination.

BV is treated with either oral antibiotics or antibacterial vaginal creams. Recurrence of BV can be as high as 30-40%. Recurrent infections are also treated with antibiotics or antibacterial creams.

PREVENTION

To reduce the risk of recurrence, women should avoid practices that upset the natural bacterial balance in the vagina. It is best to avoid douching, using perfumed talcs and deodorants in the genital area and using bubble-bath, soap, bath salts and shampoo when taking a bath (sitting in water which contains these products can disturb the natural environment in the vagina). Having a male partner wear a condom may also be helpful as it is thought that semen may contribute to an imbalance in the normal vaginal bacteria. Quitting smoking may also reduce recurrences.

Candidiasis (Thrush)

Candidiasis is caused by the overgrowth of yeast-like fungi called Candida. Candida inhabits the vagina, mouth and digestive tract in small numbers and is normally harmless. When the balance of naturally occurring organisms in the vagina is disrupted an overgrowth of Candida can occur. Thrush can develop as a result of the use of antibiotics, oral contraceptives or steroids. It is also more prevalent in those with diabetes, multiple sclerosis, a weakened immune system, a history of allergies or who are pregnant. Thrush does not appear to be sexually transmitted but is associated with some sexual practices (women receiving oral sex).

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SYMPTOMS

Approximately 10-20% of women with thrush are asymptomatic. Symptoms are often worse in the week before menstruation. Symptoms can include:

- A thick white or creamy vaginal discharge (may be cottage-cheese like in appearance)
- Itchiness and redness in and around the vagina
- Discomfort and/or pain during sexual intercourse
- Burning on urination

DIAGNOSIS AND TREATMENT

Women who suspect they may have a vaginal infection should visit their doctor (see Bacterial vaginosis section). Treatment for thrush involves the use of anti-fungal creams, vaginal pessaries and/or oral medication. Many of these treatments are now available over the counter (no prescription required). Women who choose to self-treat with over the counter thrush preparations should see their doctor if symptoms persist or recur as they may have a different condition (eg., bacterial vaginosis, dermatitis, lichen sclerosis, genital herpes) or a resistant strain of thrush. Recurrent thrush infections (those that have been confirmed by a doctor) may require a longer course of treatment before they go away.

PREVENTION

There are a number of practices that are said to reduce a woman's chances of getting thrush. While in some cases there is limited scientific evidence about their effectiveness, many women believe they are helpful. Practices include:

- Avoid wearing tight fitting clothing like jeans and pantyhose, underwear made from synthetic fibres and panty liners (as these creates a moist, warm environment which may encourage the growth of *Candida*)
- Avoid douching and taking baths with bubble-bath, soap, bath salts (can upset the natural balance in the vagina)
- Change underwear daily and wash underwear in hot water (to destroy fungi)
- Maintain a strong immune system by eating a well-balanced diet, getting enough sleep, not smoking and managing stress levels
- If prescribed antibiotics for a health complaint, ask the doctor about also taking anti-fungal preparations in combination as a preventative measure
- Consuming yoghurt or other products (eg., capsules) containing the 'good' bacteria, *Lactobacilli*.

There is currently insufficient evidence to support dietary changes (eliminating high sugar foods and/or foods containing yeast) in the prevention of thrush. Using plain yoghurt in the vagina also appears to be of little benefit in treating or preventing thrush.

Trichomoniasis

Trichomoniasis is caused by a small parasite, *Trichomonas vaginalis*, and is almost always sexually transmitted. Rarely, it is transmitted by the use of wet towels/washcloths. Trichomoniasis is associated with preterm delivery and also increases the risk of acquiring the human immunodeficiency virus (HIV).

SYMPTOMS

Nearly half of the women with trichomoniasis are asymptomatic. When present, symptoms may include:

- Yellow, green or grey coloured vaginal discharge
- Vaginal discharge which is frothy or has an unpleasant odour
- Irritation or itching around the outside of the vagina
- Burning sensation when urinating
- Lower abdominal pain
- Discomfort and/or pain during sexual intercourse

DIAGNOSIS AND TREATMENT

Women who suspect they may have a vaginal infection should visit their doctor (see bacterial vaginosis section). Women who are found to have trichomoniasis should also consider being tested for other sexually transmitted infections. Trichomoniasis is treated with either oral antibiotics or vaginal creams. It is important that current sexual partners are treated at the same time to prevent a woman becoming re-infected. Alcohol should be avoided during treatment as combining it with some of the antibiotics used can cause severe nausea and vomiting.

PREVENTION

The best strategy to avoid being infected with trichomoniasis is to always practise safe sex. Barrier protection (condoms, dams) should always be used when having sex with a partner whose previous sexual habits or partners are unknown.

Chlamydia

Chlamydia is a common sexually transmitted infection (STI) caused by the bacteria, *Chlamydia trachomatis*. It can be transmitted through vaginal, oral or anal sex with an infected person. It may also be transmitted from the genitals to the eye and from mother to baby during birth.

Chlamydia causes inflammation of the urethra (tube from the bladder to the urinary opening) and/or the cervix (neck of the uterus). If left untreated the infection can travel to the uterus, fallopian tubes and ovaries. When the infection progresses to these areas it is referred to as pelvic inflammatory disease (PID). PID may form scar tissue and adhesions which can result in serious health issues including chronic pelvic pain, ectopic pregnancy and fertility problems.

A pregnant woman infected with chlamydia has an increased risk of: premature delivery; having a baby of low birth weight; and developing a pelvic infection after delivery.

SYMPTOMS

It is estimated that up to 75% of women and 25% of men will experience no symptoms. In women, symptoms of chlamydia can be similar to those of other conditions (e.g. thrush, cystitis), they may also be overlooked. If symptoms do occur in women they can include:

- pelvic pain
- painful and heavy periods
- deep pain with vaginal sex
- bleeding between periods or after having sex
- frequent and burning urination
- unusual vaginal discharge.

DIAGNOSIS AND TREATMENT

Women who suspect they may have a vaginal infection should visit their doctor (see bacterial vaginosis section). Chlamydia is diagnosed using either a swab or urine test. A physical examination may also be performed to check for signs of inflammation and tenderness in the pelvic area.

Chlamydia is usually treated with a single dose of antibiotics. If complications have occurred from the infection (eg., PID) a different antibiotic treatment may be necessary. Treating current sexual partners is also important to avoid re-infection.

During treatment, people should abstain from having sex. Alcohol should also be avoided as it may interfere with the effectiveness of the treatment. People are usually asked to return to their health practitioner following treatment to ensure the infection has been eradicated.

PREVENTION

The best protection from chlamydia and other STIs, whatever your sexual preference, is to always practise safe sex. Barrier protection (condoms/dams) should always be used when having sex with a partner whose previous sexual habits or partners are unknown.

Genital HPV

The human papillomavirus is a common virus that infects the body's skin and mucous membranes. There are over 100 types of the human papillomavirus and some of these are sexually transmitted and infect the genital area. These types are referred to as genital HPV.

Genital HPV can be divided into low-risk or high-risk types. The low-risk types include types 6 and 11 which are associated with genital warts. High-risk types are those associated with cancer, with the most common being types 16, 18, 31 and 45. A person can be infected with more than one type of genital HPV at the same time. Genital HPV is not related to the herpes simplex virus which causes genital herpes.

Genital HPV is transmitted through direct skin to skin contact of the genitals. It is not transmitted through the exchange of bodily fluids or blood. Transmission usually occurs during vaginal, anal or oral sex. Genital HPV is transmitted very easily. It has been estimated that four out of five sexually active people will have genital HPV at some point in their lifetime.

SYMPTOMS

The majority of people infected with genital HPV will experience no symptoms. Most people's immune system will get rid of the virus on its own.

Genital warts

A small number of people infected with types 6 and 11 will develop genital warts. Warts occur, on average, three months following exposure to genital HPV, but can take longer. They may, for example, first appear when a person's immune system is lowered (during times of stress, ill-health or pregnancy). In women warts can be found on the vulva, clitoris, cervix, inside the vagina or urethra, and in or around the anus.

Warts can be flesh coloured or pink and come in a variety of sizes and shapes, occurring singularly and in clusters. If they are small and/or inside the vagina, urethra or anus a woman may not be aware of them. While warts are generally painless they can cause itching and burning sensations, bleeding and vaginal discharge and can sometimes become infected.

Cell changes and cancer

Genital HPV can cause changes in the cells of the skin and mucous membranes. If these cell changes persist they can develop into cancer. High-risk types of genital HPV are associated with a range of cancers, in particular cervical cancer. Abnormal cell changes of the cervix due to HPV can be detected by a Pap smear. For many women this is the first time they are aware they have the virus (see HPV and cervical cancer section).

DIAGNOSIS AND TREATMENT

Visible warts can be detected during a visual examination of the genital area by a health professional. An acetic acid solution (vinegar) may be applied to the skin which can highlight areas for closer examination.

There are a number of treatments for genital warts. The most suitable treatment will depend on the size and location of the warts, cost and convenience. They can be removed through the use of: chemical applications (podophyllin or trichloroacetic acid); cryotherapy (freezing), electrocautery (burning with an electric current) or laser therapy. The drug Imiquimod, administered in a cream, is also used and works by enhancing the body's immune response to the virus. Genital warts can recur following treatment. Maintaining a healthy immune system and not smoking can minimise the risk of recurrence.

PREVENTION

Vaccine

The Gardasil vaccine prevents infection from four types of genital HPV (6, 11, 16 and 18). Types 6 and 11 are responsible for 90% of genital warts while types 16 and 18 account for approximately 70% of cases of cervical cancer. A second HPV vaccine, Cervarix, is available to women. It prevents infection from infection from genital HPV types 16 and 18. Women who have received the Gardasil or Cervarix vaccines still need to have regular Pap smears as neither vaccine offers protection from all the types of genital HPV that cause cervical cancer.

HPV and cervical cancer

It is now known that genital HPV causes abnormal cell changes on the cervix. The vast majority of these changes will disappear on their own as most women clear the virus naturally in one to two years. However, in a small number of women genital HPV stays in the cells of the cervix. If the infection is not cleared there is an increased risk of cervical cancer (although cervical cancer can take up to ten years or more to develop). Almost all cases of cervical cancer are associated with high-risk types of genital HPV.

The Pap smear is designed to detect these cervical changes at an early stage. All women who have ever had sex should have a Pap smear every two years until the age of 70. Women should start having Pap smears between the ages of 18 and 20, or one or two years after first having sex – whichever is the later.

A Pap smear cannot detect the type of genital HPV infection. There is a DNA-based test which detects high-risk types of genital HPV, from a sample of cervical cells. However, as the virus is so common and the immune system can usually clear it, the test is not considered necessary for most people. The test does play a role, however, in determining if treatment for high-grade cell changes on the cervix has been effective.

Women whose Pap smear indicates abnormal changes will either need to have more frequent Pap smears for a period of time, or be referred for a colposcopy. A colposcopy involves the careful examination of the cervix using a colposcope, an instrument which provides a magnified view. Women with abnormal Pap smear results should refrain from smoking as it may increase a woman's risk of cervical cancer. For more information on HPV and cervical cancer contact the National Cervical Screening Program on 13 15 56.

Genital herpes (HSV)

Genital herpes is caused by the herpes simplex virus (HSV). There are two types of HSV. HSV-1 generally infects the face or lips (e.g. cold sores). It is estimated that up to 80% of Australian adults carry HSV-1. HSV-2 generally infects the genitals. It is estimated that 1 in 8 Australian adults carry HSV-2.

Although HSV-1 tends to favour the face it can be transmitted to the genitals. It is thought that an increase in the popularity of oral sex may be contributing to an increase in genital herpes caused by HSV-1.

The risk of transmission is highest when symptoms are present. However, the virus is also able to be transmitted even when there are no symptoms present. This is called viral shedding.

HSV is unrelated to the human papillomavirus (HPV) which can cause genital warts and lead to cervical cancer.

SYMPTOMS

Many people infected with HSV do not show any symptoms. If symptoms exist in women they may include an initial tingling, itching or burning sensation followed by blisters which burst leaving shallow, painful ulcers. People may also have flu-like symptoms. Many people with a genital herpes infection do not get blisters or ulcers. Some women may not recognise symptoms as genital herpes. For example, a woman may attribute the itching sensation to a thrush infection or the blisters/ulcers may be so insignificant they are not noticed.

DIAGNOSIS AND TREATMENT

If a person has a genital herpes blister or ulcer a swab test can be performed to diagnose the virus. However, if there is no blister/ulcer present this test cannot be performed. A blood test can also be performed to test for antibodies. However, this test only shows that someone has been exposed to the virus, not whether a HSV-1 or HSV-2 infection is related to the mouth or the genitals.

For people with HSV maintaining a healthy immune system can help prevent symptoms from recurring. Anti-viral medications can also be used to speed up healing and reduce the risk of transmitting the virus to others. It is important to note however that anti-viral medications do not kill the virus.

PREVENTION

HSV is passed on by direct skin to skin contact. This means that while use of condoms may reduce the risk of transmission they don't provide complete protection as the infection may be in areas of the skin not covered/protected by the condom. Using a dam when engaging in oral sex will also help prevent transmission of HSV.

Sexual Health Checks

It is important for a woman to visit a doctor if she suspects she may have a vaginal infection or sexually transmissible infection (STI). Because many women with a vaginal infection or STI may not have any symptoms regular check ups are important, particularly if a woman has engaged in unsafe sexual activity, sexual activity with a new partner or with a partner who may have other partners.

Women can contact the Women's Health Information Line on 3839 9988 (from Brisbane) or 1800 017 676 (toll free from outside Brisbane) for further information on sexual health checks, vaginal health checks and Pap smears and where to access them in Queensland.

Further reading

Queensland Health, Sexual Health's website
<http://www.health.qld.gov.au/sexhealth/>



For help understanding this fact sheet or further information on thrush or other vaginal infections call the Health Information Line on 3839 9988 (within Brisbane) or 1800 017 676 (toll free outside Brisbane).

This is one of a series of women's health information factsheets available at www.womhealth.org.au.

A full list of references is available from Women's Health or on the website.

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