

Vaginal discharge reviewed: the adult pre-menopausal female

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A vaginal discharge is one of the most common gynaecological symptoms affecting women and a very common cause for seeking medical attention. This is especially true during the reproductive years. In the US, vaginal discharge accounts for more than 10 million office visits to physicians each year.¹ This figure correlates well with this symptom in South African private practice.² An estimated 1% of all outpatient antibiotics prescribed are written to women given this diagnosis.³ The woman's perception as to the cause of the discharge will influence her choice of medical attention. In many cases, the woman may have attempted self-treatment of the discharge with over-the-counter (OTC) preparations prior to consulting her doctor. This action often leads to an unsuccessful outcome, with the majority using OTC antifungals inappropriately to treat gynaecological conditions that are similar, but potentially more severe.⁴⁻⁶ Consultation is often delayed due to embarrassment or fear, with most women believing that sexual transmission played a role in the transmission of symptoms.⁷ Vaginal discharge is a non-specific symptom that requires the correct approach to be able to make a diagnosis. Although empiric therapy and a syndromic approach based on the woman's symptoms and a naked-eye evaluation of the discharge was and is still common practice, modern management of vaginitis demands that a specific diagnosis be made. In the high risk population or the sector with limited resources, syndromic treatment is more appropriate though.^{69,70} The modern management of vaginitis demands that a specific diagnosis be made in the low-risk population and where laboratory facilities are available.

Syndromic treatment is more appropriate in the high-risk population or the sector with limited resources. This is advised due to the significant complications of not treating, or otherwise inadequately treating, STDs, and the loss of follow up of patients.

A common clinical misconception is that a vaginal discharge is synonymous with a vaginal infection. This is evident when one considers the extensive differential diagnosis that needs to be considered in the woman presenting with a vaginal discharge. In his study of more than 20 000 women presenting with a perceived abnormal discharge, Fleury found that aetiologies other than an infective vaginitis were responsible for more than a third of all cases.⁸

In developing countries, the incidence of sexually transmitted diseases (STD) remains very high and these patients commonly present with a vaginal discharge. The STD burden is heaviest in sub-Saharan Africa.⁹

The management of vaginal and cervical infections is especially difficult in developing countries due to the limited availability of laboratory facilities for diagnosing these infections. For this reason, syndrome-based management was introduced by the WHO.¹⁰ This should not, however, replace a diagnostic approach and specific treatment in a medical setting where laboratory access is available and affordable.

The approach of most physicians, generalists and specialists included, to the management of a vaginal discharge is, however, still found to be unsatisfactory. This seems to be a global dilemma that is not limited to developing countries only.¹¹⁻¹⁵ The effective management of a chronic vulvovaginal disorder remains challenging.

What is a normal discharge?

A physiological vaginal discharge does exist and consists of secretions from the different cellular and anatomical structures in the reproductive tract. Vaginal secretions are composed of vulvar secretions – from the sebaceous, sweat, Bartholin and Skene glands, transudate from the vaginal walls, exfoliated vaginal and cervical cells, cervical mucous, endometrial and fallopian tube fluids, and micro-organisms and their metabolic products.¹⁶ The type and amount of the above secretions are determined by biochemical processes that are influenced by hormone levels.

The vaginal desquamative tissue is made up of vaginal epithelial cells that are responsive to varying amounts of oestrogen and progesterone. The phase of the menstrual cycle therefore influences the quantity and quality of normal discharge. During the follicular phase, there is a gradual increase in vaginal fluid discharge, peaking at ovulation. After ovulation (luteal phase), the discharge becomes more viscous and thick. These cyclic variations do not occur when oral contraceptives are used that result in anovulatory cycles.

Diet, medication and OTC dietary supplements affect the odour of the normal vaginal discharge. In healthy women, the vagina contains 10⁹ bacterial colony-forming units/gram of secretions.¹⁷ The normal vaginal flora is predominantly aerobic, with the most common being Gram-positive *Lactobacillus* sp. Physiological discharge is usually clear or white, viscous in consistency and located in the posterior fornix of the vagina.¹⁸

Microscopy of normal vaginal secretions will reveal many superficial

epithelial cells, lactobacilli with long rods and very few white blood cells.

History

A thorough and detailed history is essential and can be a helpful indicator of the cause of the vaginal discharge. Traditional 'typical' symptoms and signs of infectious vaginal discharge are, however, not specific and sensitive enough for identification of a specific organism and it has, in fact, been shown to be of limited diagnostic value.¹⁹ Mixed genital infections with more than one infection present at the same time compound the presentation.²⁰ This is especially true in high-risk populations and HIV-infected patients.²¹ Table I lists the factors in the history that should be considered.²²

Differential diagnosis of the vaginal discharge

Table II lists the more frequently encountered causes of a vaginal discharge. Most vaginal symptoms are caused by one of three types of vulvovaginitis: bacterial vaginosis, *Candida* vulvovaginitis and trichomoniasis. Other, less common aetiologies are also encountered. The most common causes shall be discussed.

Physiological Pregnancy

Hypertrophy of the vaginal epithelium during pregnancy leads to an increased number of glycogen-containing cells being shed into the vagina. Women thus notice an increase in vaginal discharge. Pregnancy may also predispose women to infective conditions, such as *Candida* vulvovaginitis.²³ It is important to investigate an offensive, purulent or bloody discharge, or a discharge with associated symptoms. Most women can be assured, however, that an increased discharge is normal.

Atrophic vaginitis

Atrophic vaginitis is a symptomatic vaginal inflammatory condition caused by oestrogen-deficient vaginal epithelium. It mostly occurs in postmenopausal women, but should also be considered in cases of prolonged lactation³ and premature ovarian failure.¹⁶ Symptoms include vaginal spotting, soreness, external dysuria, pruritus, dyspareunia and an increased vaginal discharge. Signs are a thin, shiny, pale pink vagina with loss of rugae. Treatment consists of intravaginal oestrogen preparations daily for one to two weeks.^{16,18} Topical long-lasting lubricants are also an option for patients unwilling or unable to use oestrogen.

Table I: History

Nature of discharge
Colour
Odour
Consistency
Associated irritation or discomfort
Timescale
Duration
Variation in relation to menstrual cycle, coitus
Factors associated with onset of the discharge
Gynaecological symptoms
Smear history
Lower abdominal pain
Dyspareunia (superficial or deep)
Associated intermenstrual or post-coital bleed
Vulvar pain, blisters, lesions
Urinary symptoms
Climacteric symptoms
Sexual history
New sexual partner, number of recent partners
Symptoms in partner
Previously diagnosed abnormal/infectious discharge
Other factors
OTC or prescribed medications already used to treat
Medications, e.g. hormonal drugs, antibiotics
Retained foreign body
Personal hygiene practices, e.g. douching
Medical history, e.g. gynaecological surgery, radiotherapy, possible diabetic symptoms
Inflammatory bowel disease

Table II: Causes of vaginal discharge

Physiological
Physiological discharge
Pregnancy
Atrophic vaginitis
Sexually transmitted infections
<i>Trichomonas vaginalis</i>
<i>Chlamydia trachomatis</i>
<i>Neisseria gonorrhoeae</i>
Herpes simplex infection
Human papilloma virus
Human immunodeficiency virus
Other infections
<i>Candida</i> species vulvovaginitis
Bacterial vaginosis
Desquamative inflammatory vaginitis
Toxic shock syndrome
Neoplasms
Vaginal tumours
Cervical cancer and polyps
Endometrial tumours
Iatrogenic
Drug induced
Foreign bodies
Other
Fistula
Dermatologic conditions
Pyometra
Psychosomatic vaginitis

Infectious vaginitis

Candida vulvovaginitis

Candida vaginitis (CV) ranks as the second most common cause of vaginal infection. Approximately 75% of women are estimated to have at least one episode of this infection during their reproductive life.²⁴ About 90% of the infections are caused by *Candida albicans* species, with the remainder being non-*albicans* species, mainly *C. glabrata*.^{23,25} Of the infected women, 40-50% will experience recurrence. Only a small subpopulation will suffer chronic recurrence.²⁶ It can be a normal asymptomatic colonisation in the vagina.

Predisposing factors: Antibiotics, pregnancy, oral contraceptives, diabetes, high dietary glucose intake, sexual behaviour, tight synthetic underwear and HIV infection.³ There could also be a genetic predisposition.⁴⁸

Clinical presentation: The presentation typically consists of vulvar pruritus, vulvar pain,²⁷ terminal dysuria and a variable vaginal discharge, ranging from thick, cottage cheese-like to watery. An odour is significantly absent in *Candida* infections.¹⁹ None of the symptoms is specific to CV or invariably associated with disease.²⁸ Diagnosis based on clinical findings alone is unreliable and

as many as 65% of women who believe they have thrush will have a different condition causing their symptoms.²⁹

Physical findings vary from an exudative syndrome of copious discharge and white plaques on the vaginal walls, to minimal discharge and severe erythema with extensive vulvar involvement.

Diagnosis: The lack of specificity of symptoms and signs in CV precludes a satisfactory diagnosis based on the clinical picture alone. On the other hand, positive vaginal cultures may reflect colonisation and are not used as the sole basis of diagnosis either. Most patients with symptomatic vaginitis can be readily diagnosed on the basis of a microscopic examination of the discharge. A wet-mount preparation of the secretion mixed with 10% KOH, in addition to a saline preparation, is examined. The presence of branch-like pseudohyphae or budding yeasts are diagnostic (see Figure 1). The presence of large numbers of white cells would suggest a mixed infection. Vaginal pH reveals a normal pH (<4.5). Routine cultures (Sabouraud's medium or Nickerson's agar) are unnecessary and should only be performed in the presence of negative microscopy in symptomatic patients.³⁰

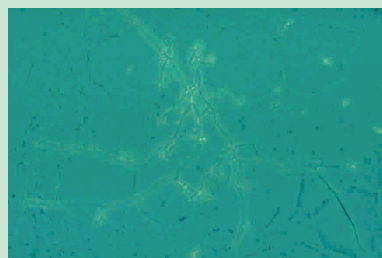
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Infectious vaginitis continued

Treatment: Topical imidazole antifungal agents are available in a variety of formulations and treatment is highly effective in the majority of cases. The patients' preference should guide the choice of therapeutic formulation. Single-dose preparations offer an advantage when compliance is a problem. Fluconazole is the only oral antifungal agent approved for this indication. Resistance to triazoles has been reported on rare occasions, especially in immunocompromised patients.³¹ Non-albicans species are notorious for their resistance to azole agents. Fungal cultures are best to identify these species. Treatment with Nystatin has been well established.³² Boric acid, 600 mg in a gelatine capsule, used vaginally for 10 days, has also been shown to be highly effective in resistant cases.¹⁷ Recurrence is common if the full course of treatment is not completed and is also likely if there are predisposing factors

or concomitant infection. True recurrence (>4 episodes annually) needs to be evaluated further.

Figure 1: 10% KOH wet-mount smear demonstrating pseudohyphae of *Candida albicans*.



Bacterial vaginosis

Bacterial vaginosis (BV) is the most common vaginal infection among women in their reproductive years, accounting for 40–50% of all cases of vaginitis.^{3,4,20} Because the cause of BV remains unknown, the definition remains imprecise and currently relies on the description of the changes that occur. It reflects an overgrowth of anaerobic organisms causing a polymicrobial disequilibrium of the vaginal ecosystem. The production of amines is responsible for the 'fishy' odour characteristic of this condition. BV, although never proven to be sexually transmitted, has an epidemiological profile consistent with that of an STD.^{33,34} Changes in the vaginal flora occur most commonly around the time of menstruation and following sexual intercourse, and women who suffer recurrent BV often report that the discharge is worse at these times.²³ BV may be symptomatic or asymptomatic, may occur acutely or episodically, may become persistent, or may resolve spontaneously. Approximately half of women with BV are asymptomatic. There are no proven individual predisposing factors exclusive to BV.²⁶

Complications: Many recent studies have shown the relation of BV to considerably important gynaecological and obstetric complications. Among the gynaecological complications are pelvic inflammatory disease,³⁵ abnormal bleeding, endometritis, postoperative infections following pelvic surgery,³⁶ and transmission of HIV infection.^{37,43} Obstetric complications are preterm delivery, mid-trimester miscarriages, and intra- and postpartum infections.²⁶

Clinical presentation: The predominant complaint is of an offensive, fishy-smelling, thin vaginal discharge present at the introitus. The odour is often more noticeable after unprotected coitus. The patient will otherwise present with any possible combination of the already mentioned symptoms of infective vaginitis, hence the limited value of diagnosing solely on the history.²⁰

Diagnosis: The diagnosis is based on Amsel's criteria.³⁸ Three of the following four criteria are necessary to confirm the diagnosis of BV:

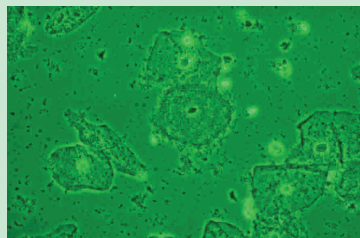
1. A raised vaginal pH >4.5
2. Presence of a homogenous thin grey or white discharge coating the vaginal walls.
3. Release of amines on mixing the discharge with 10% KOH, the 'whiff test'.

4. Presence of >20% clue cells on wet-mount microscopy of the vaginal fluid.

Clue cells, i.e. vaginal epithelial cells with bacteria densely adhered to them and obscuring their borders, is the single most reliable predictor of bacterial vaginosis (see Figure 2). The presence of leucorrhoea (>10 white blood cells/HPF) would suggest a concurrent infection.³⁹ Vaginal pH testing is highly sensitive, but not specific.⁴⁰ Gram staining on an air-dried slide of vaginal fluid, using Nugent's criteria, has been proven to be a reliable diagnostic procedure.⁴¹ The diagnostic value of a Papanicolaou smear and vaginal culture is limited because these organisms are members of the normal vaginal flora. In offices where microscopy is not available, commercial diagnostic tests are available, e.g. BVBlue⁴² and FemExam.⁴³

Treatment: Treatment options for BV include oral and topical formulations containing metronidazole or clindamycin. The seven-day metronidazole course (400mg 8-hrly po) still represents the gold standard of therapy, although shorter courses are as effective in the acute phase (2g stat po). Vaginal acidification to normalise the flora has been shown to be ineffective.⁴⁵ How to manage women with continuing recurrences still remains unclear and treatment is difficult. It has been common practice not to treat asymptomatic BV infection, because evidence suggest that spontaneous resolution will occur in >75% of patients after a six-month period of observation.⁴⁴ However, this view has now been challenged as a result of complications linked to BV. Further work still needs to be undertaken to establish the role of treating asymptomatic infection, because of the conflicting information in the studies conducted thus far.

Figure 2: Saline wet-mount smear showing clue cells indicative of bacterial vaginosis (*Gardnerella vaginalis*).



Desquamative inflammatory vaginitis

This is a rare disorder arising from an unknown cause.⁴⁶ It is characterised by diffuse exudative inflammatory vaginitis with epithelial cell exfoliation, resulting in a profuse, purulent discharge. Women complain of this discharge, dyspareunia and vulvar pain. There is no prominent odour. Examination reveals an intensely reddened vagina. No consistent microbio-

logical pathogen has been identified. Although most cases are associated with oestrogen deficiency, oestrogen therapy does not induce a therapeutic response. Management is still controversial. Good response has been shown with topical 2% clindamycin therapy, intravaginally (one to two weeks). Occasionally, steroids may be required.

Sexually transmitted infections

Trichomonas vaginalis

Trichomonas vaginalis is a unicellular flagellated protozoan that is the third most common cause of infectious vaginitis. It is an anaerobic parasite that is responsible for 15 to 30% of cases.³ It is one of the more common STDs. Non-venereal transmission has been deemed a possibility due to the organism's isolation outside of the human body in humid areas. It has been isolated from toilet seats, baths, poorly chlorinated water, etc.²⁶ There is concomitant BV infection in 60% of patients infected with *T. vaginalis*.¹⁶

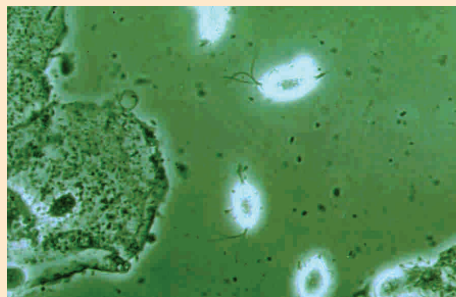
Predisposing factors: It is a sexually transmitted disease, with transmission being greater from men to women.⁴⁷ Men clear *T. vaginalis* at a greater rate and could thus serve as an asymptomatic reservoir and vector for transmission.⁵⁰ Trichomoniasis is also an important co-factor in amplifying HIV transmission.⁴⁹

Clinical presentation: Local immune factors and inoculum size influence the appearance of symptoms, with it being much milder in patients with a smaller inoculum, and often being asymptomatic in these patients – up to 50%. Approximately 30% of asymptomatic patients become symptomatic in six months. The predictive value of symptoms in trichomonal infection is very low.²⁰ A copious green or yellow vaginal discharge is the presenting complaint for 70% of infected women, and about 50% will complain of an associated offensive odour.²³ The discharge may be frothy. Associated symptoms can include the spectrum of infective vaginitis symptoms. Examination of patients with high concentrations of the organism may reveal petechial haemorrhages on the vaginal walls and colpitis macularis, the 'strawberry' cervix (only 2%).

Diagnosis: A vaginal pH >4.5 is found in 60% of cases of *Trichomonas* vaginitis. Microscopic examination of a saline wet-mount preparation of the discharge is essential. Trichomonads are pathognomonic and can be identified as small, pear-shaped organisms with highly motile flagellae (see Figure 3). Increased numbers of leucocytes are also seen. With negative microscopy, organisms can be cultured using Diamond's medium or Roiron medium. This remains the gold standard in diagnosing *T. vaginalis*. Also highly effective, but more expensive, is monoclonal antibody testing and polymerase chain reaction (PCR) assay.⁵¹

Treatment: Sexual contacts of women with confirmed infection should always be treated. Oral metronidazole remains the drug of choice, with a single-dose treatment (2g po) being preferred. The longer regimen (400mg 8hrly po, seven days) should be used in women not able to tolerate the high single dose, and in failed single-dose therapy. True resistance to metronidazole is rare. Alternative therapies include tinidazole (2g stat) and paromomycin (not available in SA).

Figure 3: Saline wet-mount smear showing *Trichomonas vaginalis* with characteristic flagellae.



Chlamydia trachomatis* and *Neisseria gonorrhoeae

These two sexually transmitted organisms are grouped together, for they are the main causes of a vaginal discharge due to infectious cervicitis. Chlamydial infection is the most common bacterial STD in the UK.²³ *C. trachomatis* is an intracellular organism, infecting the columnar epithelium of the endocervical canal and urethra. The infection is asymptomatic in 80% of women.⁵² *N. gonorrhoeae* is a Gram-negative diplococcus infecting many sites secondary to sexual contact. It is asymptomatic in 50% of cases. Correct diagnosis and treatment of cervical infection are critical for preventing upper genitourinary tract infection and severe sequelae, and also for preventing further transmission.^{53,54}

Clinical presentation: A purulent vaginal discharge, post-coital or intermenstrual bleeding, dysuria, lower abdominal pain and dyspareunia are encountered. Clinical examination might reveal opaqueness of the endocervical discharge, yellow discharge and easily induced cervical bleeding.⁵⁵

Diagnosis: The Q-tip test has been described to test clinically for mucopurulent cervicitis. The ectocervix is cleaned gently,

a thin cotton swab stick is placed into the endocervical canal and then twirled. The finding of yellow mucopus is a positive test for confirmation of infection. The sensitivity of mucopurulent cervicitis has been shown to be as low as 30% only.²⁰ The microscopic presence of leucorrhoea has been shown to be strongly associated with cervical infection.⁵⁶ Tissue culture is the gold standard diagnosis. Endocervical cultures using DNA probes, PCR assays or ligase chain reaction tests can be recommended for both *Chlamydia trachomatis* and *N. gonorrhoeae* detection. Gonorrhoea can also be cultured in modified Thayer-Martin media or chocolate agar. Because there is a high rate of concurrent infection, any woman being screened for *chlamydia* should also be screened for gonorrhoea.

Treatment: Uncomplicated chlamydial infection is treated with a course of doxycycline (100mg bid seven days). Single-dose azithromycin (1g po) is also effective. Gonorrhoea is treated with single-dose oral ciprofloxacin (500mg). There are gonorrhoea that are resistant to quinolones, and in such cases single doses of ceftriaxone (125mg im) or spectinomycin (2g im) can be used. The sexual contacts of infected women should always be treated.

Neoplasms

Always consider a malignancy of the genital tract in a woman who presents with a blood-stained discharge, especially in the case of older women. A persistent vaginal discharge should also raise this suspicion. The importance of a pelvic examination and regular cytological smears need not be motivated and are both mandatory.

Iatrogenic Drug induced

Drugs may cause an allergic or inflammatory process in the vagina, or alter the hormonal environment.²³ Due to their oestrogen activity, oral contraceptives have long been associated with an increased discharge. Chemical desquamation and secondary infection can also be caused by a variety of preparations. Examples are condoms, spermicides, vaginal creams and lubricants, douches and antiseptics.

Foreign bodies

An offensive, sometimes blood-stained vaginal discharge should alert one to the possible presence of foreign bodies. Although most common in small children, it can occur in any age group. Women are often too embarrassed to mention this, or may have forgotten about it. The object usually leads to vaginal ulceration with secondary infection. Vaginal stenosis may occur in the case of the presence of long-term foreign objects. It is important to try and visualise the whole length of the vagina during examination. Management involves the removal of the foreign body, together with antibiotic cover for secondary infection. Psychosomatic causes, although unusual, should be kept in mind.⁵⁷

Other Fistula

A history of prolonged obstructive labour, radiotherapy, pelvic surgery or inflammatory bowel disease should raise a suspicion for the possibility of fistula. The anatomical defect can be a vesico-vaginal or recto-vaginal fistula. This condition needs specialist evaluation and management.

The role of syndromic management in vaginal discharge

The treatment of STDs in women remains one of the most difficult challenges for control programmes. STDs are most accurately detected by using technologically advanced diagnostic techniques, which are often expensive and require health resources. The search for a cheap and effective diagnostic tool to address this challenge is still

underway.⁵⁸ Until it has been found, the recommended approach in resource-poor countries is syndromic management.¹⁰ The syndromic approach is based upon identifying a group of symptoms and easily recognised signs that are associated with a number of well-defined aetiologies. Once these have been identified, treatment can be provided for the majority of organisms responsible for the syndrome. These syndromic flow charts have been found to perform better in males than in females.⁹ However, women suffer most from the long-term sequelae of inadequately treated STDs. The advantage of this approach is that it allows for the treatment of uncomplicated cases of discharge and genital ulcer disease by primary health care providers with minimal or no laboratory support. The effectiveness of this type of management is dependent on proper administration, which should ensure that the required resources are available to follow the national guidelines of syndromic management.⁵⁹ The provision of STD treatment in these settings should help de-stigmatise STD control for women. One other important advantage could be that women would seek treatment more quickly. Unfortunately, the poor performance of the algorithm for the management of an abnormal vaginal discharge in the primary care arena means that this approach will need some rethinking.⁶⁰

The control of STDs is an important strategy in the prevention of HIV infection.^{61,62} STD counselling in the primary care setting is equally important, but is often inadequate.⁶³ The high rate of over treatment of vaginal discharge through the syndromic approach (up to 90% in low-risk populations) carries both financial and social costs – the latter in potentially exposing women misdiagnosed as having an STD to threats of domestic disruption or even violence.^{64,65} It also encourages antibiotic resistance and exposes women to the side-effects of antibiotics.⁶⁶

Another disadvantage of the vaginal discharge (VD) algorithm is that it requires a woman to present with a VD before she can be evaluated using the algorithm. When the algorithm is used as a screening test, it has not performed effectively, especially amongst low-risk populations.⁶⁰

The sensitivities of studies evaluating the WHO algorithm ranged from 73-93%. The incorporation of a speculum examination increased the sensitivity, but led to a slight decrease in the specificity. The incorporation of the symptom of lower abdominal pain and

subsequent pelvic examination⁶⁷ provided the highest combination of sensitivities and specificities in the evaluated algorithms.⁶⁰

Syndromic management is not to be recommended in the low-risk population and where laboratory facilities are available. These resources and diagnostic tools should then be utilised to make a definitive diagnosis.⁶⁸ In the high-risk population or the sector with limited resources, syndromic treatment is more appropriate.^{69,70} The Department of Health currently promotes syndromic management as appropriate for primary care in the majority of South African settings.

Non-pharmacological management

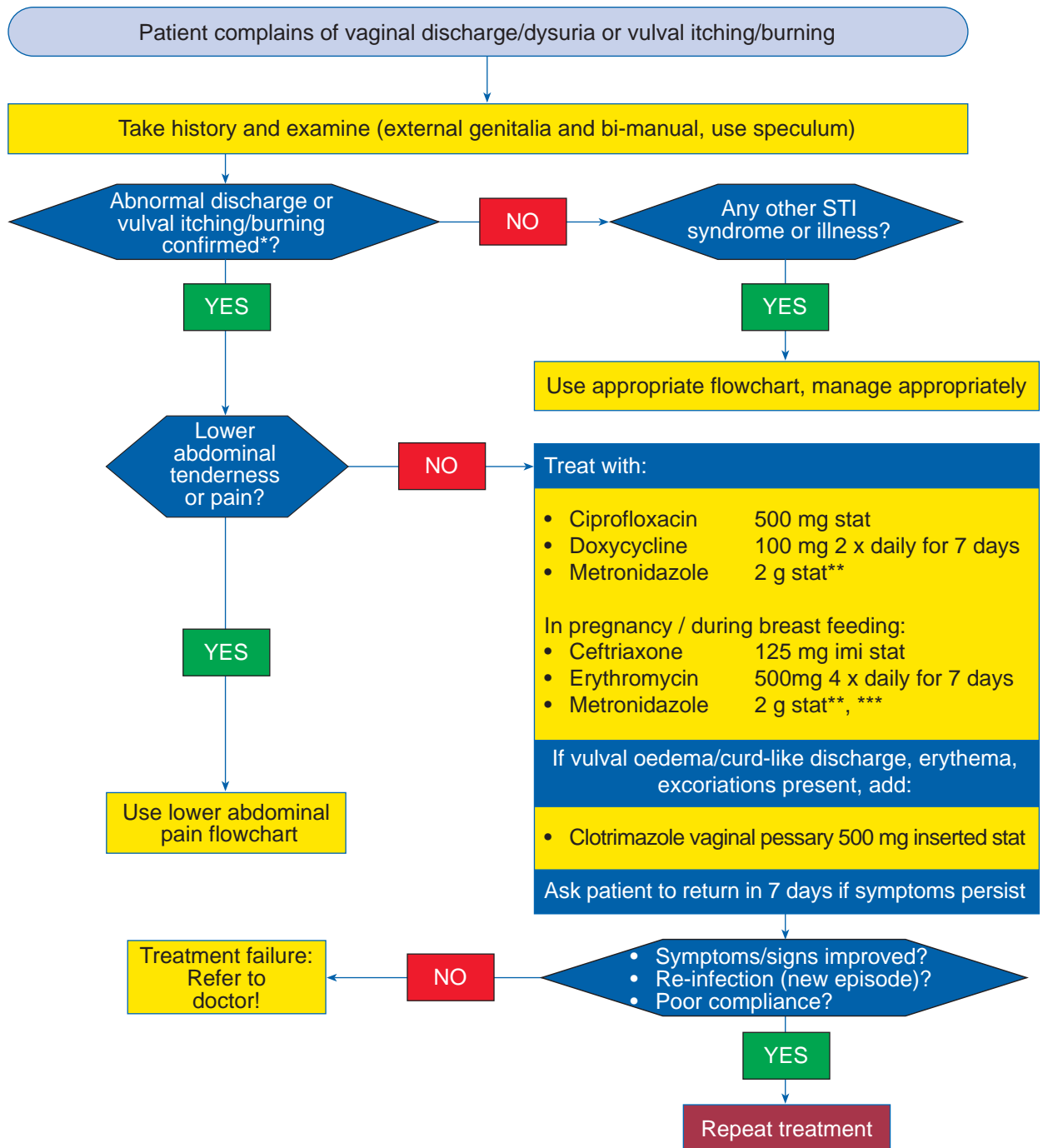
This is an important and often neglected part of managing the patient with an abnormal vaginal discharge. The syndromic approach can only function well if it is followed as a whole. Counselling of all patients being treated is an absolute requirement. Attention must be paid to motivating behavioural changes, with the aim to reduce unsafe sexual practices and therefore to reduce the risk for future STDs. Barrier contraception (i.e. condoms) is to be recommended and freely available. The patient needs to be offered testing as well as pre-test counselling for HIV and syphilis. Partner notification cards or a similarly effective system should be in place to ensure adequate treatment of both parties and the importance of completing the prescribed treatment needs to be re-enforced.

A word on over-the-counter drugs and probiotics

Certain imidazole drugs were released OTC to enable women to self-medicate a perceived minor complaint and a common infection such as *Candida*. The easy access to self-treatment is appealing to the patient, the pharmaceutical providers, medical aid funds, and many clinicians. The crucial aspect of self-medication is that the woman should be able to self-diagnose correctly. A few studies have recently addressed the inappropriate use of these drugs.⁴⁻⁶ The findings were all of a similar and concerning nature. Nearly all women had used the products before. Almost 66% of women did not have candidiasis, but another cause for the discharge. Previous physician diagnosis did not improve their ability to correctly diagnose the infection compared with women without a previous diagnosis. Women who read the package brochure were not more likely to have candidiasis than women who did not read it. Many women

Figure 4: Current South African vaginal discharge guideline.

VAGINAL DISCHARGE SYNDROME (VDS)



ALL PATIENTS:

- ☒ Educate, ensure compliance, and counsel
- ☒ Promote abstinence from penetrative sex during the course of treatment
- ☒ Promote and demonstrate condom use, provide condoms
- ☒ Stress the importance of partner treatment and issue one notification slip for each sexual partner, follow up partner treatment during review visits
- ☒ Promote HIV counselling and testing, for negative test results repeat test after 3 months

* Confirmed by history taking or examination

** Avoid alcohol for 24 hours; alcohol during pregnancy is not recommended

*** Not in first trimester: use clotrimazole vaginal pessaries for symptomatic relief in 1st trimester

were also found to be using OTC drugs against product recommendations. The main disadvantages of self-medication are unnecessary use and use for the wrong indication. The clinical implication of this is a delay in diagnosing and initiating treatment for a potentially more serious cause, such as STDs and malignancy. Pharmacy personnel should therefore take more responsibility in preventing incorrect self-diagnosis and the continuous use of OTC drugs. The physician's role in making the correct diagnosis at the time of consultation remains vital.

Probiotics have received special interest of late. A probiotic is a viable microbial dietary supplement that exerts its health benefits in the intestinal tract. A prebiotic is a non-digestible food supplement that promotes commensal bacterial growth in the large bowel, thereby promoting health. A recent study evaluating commercial products available in South Africa found a poor correlation between the advertised and determined bacterial content.⁷¹ Despite these products having been commercially available for a number of years, they remain contentious. Their role in promoting a healthy vaginal environment and specifically in reducing the incidence of vulvovaginal candidiasis and bacterial vaginosis remain unclear. Probiotics have been reported to have several health-related benefits, including immune enhancement and improving lactose intolerance. However, work on prebiotics remains limited.⁷² More well-designed studies in humans are required to substantiate the many benefits found in earlier trials.⁷³

Conclusion

The evaluation and management of the woman who presents with a vaginal discharge is a common and often challenging problem. Vaginal discharge is most commonly associated with infection of the genital tract, either sexually acquired or otherwise. A chronic discharge must always raise the suspicion of malignancy, and the relevant cytological smears should therefore be performed.

The aetiology of vaginitis can be difficult to prove due to the limitations of symptoms and signs. An extensive differential diagnosis should not be overlooked, however. Optimal clinical evaluation requires a detailed history and a physical and pelvic examination.

An office laboratory evaluation should include pH testing, the KOH whiff test, endocervical evaluation and the microscopic examination of a wet-mount slide. The selected use of cultures, where indicated and affordable, is recommended. History and physical

evaluation alone are inadequate due to the variable presentation of causes and the presence of mixed infections.

Once a specific diagnosis is made, effective therapy can be provided. In a small number of cases, a thorough investigation may fail to identify a pathological cause. When this occurs, it is essential that the patient receive adequate reassurance and support and appropriate referral. ✱

See CPD Questionnaire, page 46

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