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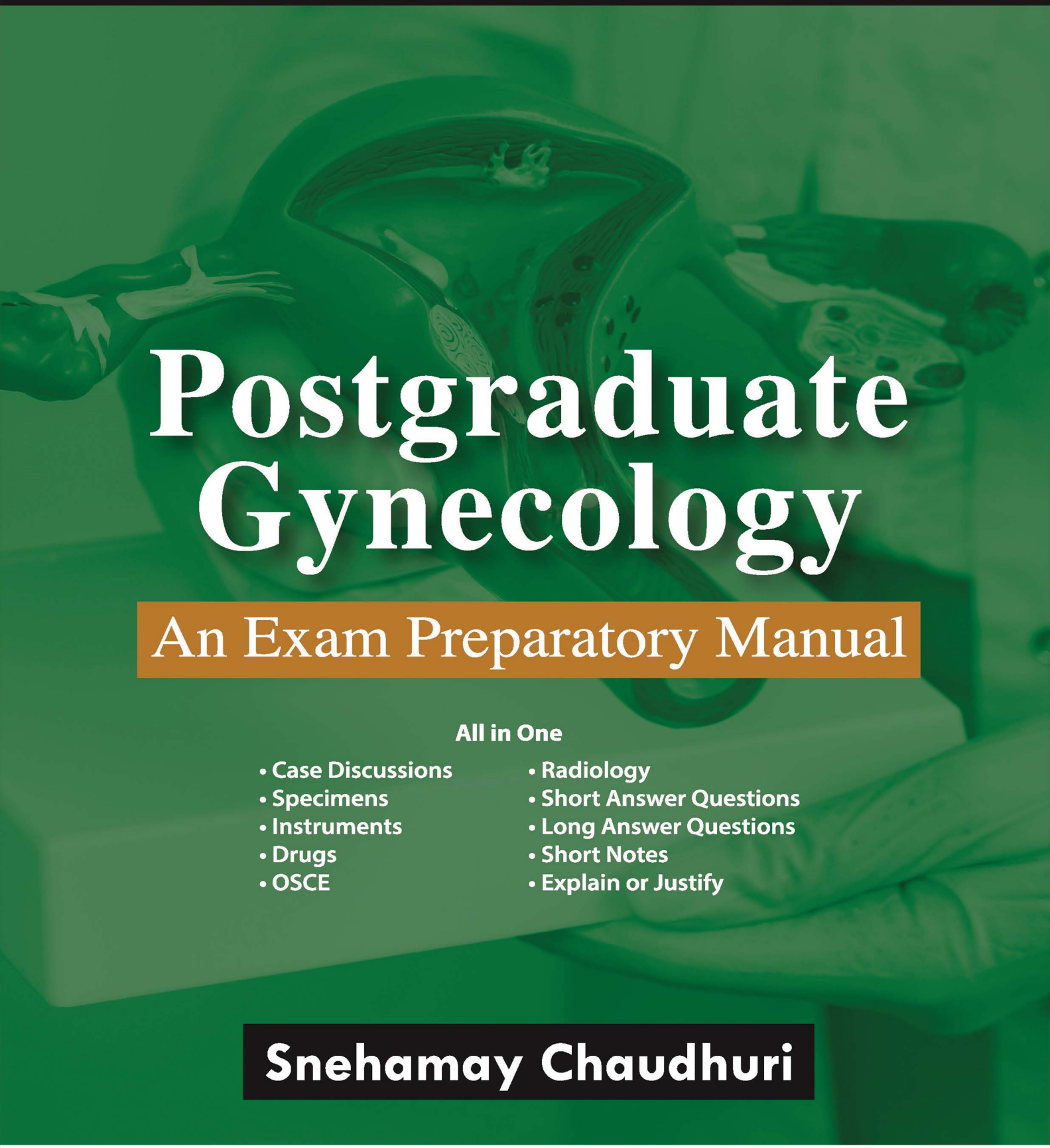

Postgraduate Gynecology

An Exam Preparatory Manual

All in One

- Case Discussions
- Specimens
- Instruments
- Drugs
- OSCE
- Radiology
- Short Answer Questions
- Long Answer Questions
- Short Notes
- Explain or Justify

Snehamay Chaudhuri

JAYPEE

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CHAPTER 14

Vaginal Discharge

JAYPEE BROTHERS

CASE DISCUSSION

A 26-year-old, P1+0 married woman has noticed profuse vaginal discharge which has an offensive smell. She also has mild irritation over vulva, and she has had some discomfort in passing urine. Her menstrual history is regular and most recent began 21 days before. There is no past history of sexually transmitted infection (STI), and her general health is good. Her vaginal speculum examination reveals greenish frothy discharge with redness of vaginal wall. Cervix is normal.

Q.1. What is your provisional diagnosis?

Trichomonas vaginitis.

Q.2. What is your differential diagnosis?

Bacterial vaginosis.

Q.3. What are the other causes of vaginal discharge in a sexually active woman?

Candidiasis, gonococcal infection, and chlamydial infection.

Q.4. If laboratory facilities are available, how will you investigate her?

Vaginal fluid pH will be >4.5 and wet mount preparation will be positive for mobile flagellated organisms.

Q.5. What is your management plan for this patient?

If laboratory facilities are available and trichomoniasis is confirmed:

- Metronidazole 400–500 mg twice daily for 5–7 days or metronidazole 2 g orally in a single dose.
- Sexual partner must be treated simultaneously and treatment of both partners should be completed before resumption of sexual activity.
- Side effects of metronidazole treatment including a disulfiram-like reaction should be discussed with the patient and patient should be encouraged to abstain from alcohol during and for 3 days after treatment with metronidazole.

Q.6. What are the additional issues you would want to discuss with this patient?

Sexually transmitted infection protection and contraception.

SHORT ANSWER TYPE QUESTIONS

Q.1. What are the characteristics of physiological vaginal discharge?

Physiological vaginal discharge is a white or clear, non-offensive mucous like discharge and the amount varies with the menstrual cycle (1–4 mL/24 hours). The physiological discharge is noticeable at the time of ovulation, premenstrual phase, and sexual activity.

Q.2. What is the composition of physiological vaginal discharge?

The normal physiological vaginal discharge is composed of (i) Vulval secretions—from Bartholin's, sebaceous, sweat, and apocrine glands, (ii) vaginal transudate, (iii) the cervical secretions come from the numerous endocervical glands, (iv) uterine secretions from the endometrium, and (v) fallopian tubes secretions.

Q.3. Name the conditions when physiological vaginal discharge increases in amount?

The physiological discharge increases in amount during ovulation, premenstrual phase, during sexual activity, and during estrogen containing pill use.

Q.4. What is the normal vaginal pH?

<4.5.

Q.5. What does microscopy of normal vaginal secretion reveals?

Predominantly squamous epithelium, few white blood cells, and possibly few clue cells.

Q.6. What are the typical symptoms of vaginitis?

Increased vaginal discharge, pruritus, odor, irritation, dyspareunia, soreness, bleeding, and dysuria.

Q.7. What are the causes of abnormal vaginal discharge?

Common causes of vaginal discharge in relation to age are:

- *During childhood:* An infection due to bacteria from the digestive tract, chemicals in bubble baths or soaps, a foreign body, such as a piece of toilet paper or sometimes a toy.
- *During reproductive period:* Bacterial vaginosis, candidiasis, trichomonal vaginitis, and other STIs such as gonorrhea or chlamydial infection. Cervical causes of vaginal discharge include acute cervicitis (gonorrhea, chlamydia), chronic cervicitis (following childbirth and abortion or infection), cervical erosion, cervical polyp and cervical carcinoma. Decubitus ulcer in women with pelvic organ prolapse can result in vaginal discharge.
- *During postmenopausal period:* Atrophic vaginitis, cervical, and endometrial cancer.

Q.8. What laboratory tests are typically ordered to diagnose the etiology of vaginitis?

Vaginal pH, wet mount microscopy.

Q.9. What are the typical characteristics of discharge due to candida infection?

White curdy discharge with vulval itching or soreness, erythema/vaginitis, and fissuring.

Q.10. What are the typical characteristics of discharge due to bacterial vaginosis?

Thin, gray/white homogenous discharge coating the vaginal walls, fishy/offensive odor, not generally associated with inflammation.

Q.11. What are the typical characteristics of discharge due to trichomoniasis?

Yellow, green frothy discharge with fishy/offensive odor + pruritus, vaginitis, and dysuria.

Q.12. What are the infections associated with malodorous vaginal discharge?

Bacterial vaginosis and trichomoniasis.

Q.13. In which infections vaginal discharge are associated with pruritus?

Candidiasis and trichomoniasis.

Q.14. What are the triple swab test for the vaginal discharge?

- High vaginal swab to identify bacterial vaginosis, candida infection, and *Trichomonas vaginalis*.
- Endocervical swab in transport medium (charcoal or non-charcoal) to diagnose gonorrhea.
- Endocervical swab for a chlamydial deoxyribonucleic acid (DNA) amplification test to diagnose *Chlamydia trachomatis*.

Q.15. What is wet mount microscopy with vaginal discharge?

Saline preparation	***KOH preparation***
• Sample of vaginal discharge on glass slide + saline • *Normal:* Lactobacilli. Few white blood cells, epithelial cells • *Abnormal:* Lot of white blood cells, trichomonads, clue cells, budding yeast, pseudohyphae	• Sample of vaginal discharge on glass slide + 10% KOH • *Positive whiff test:* Fishy odor in presence of bacterial vaginosis, trichomonads • *Microscopy:* Pseudohyphae and budding yeast

LONG ANSWER TYPE QUESTIONS

Q.1. How do you clinically examine a woman with abnormal vaginal discharge?

The history should include: (i) Features of the discharge such as its timing, color, consistency, smell, and presence of itch **(Table 1)**; (ii) Pelvic pain and fever which is important features of pelvic inflammatory disease (PID); (iii) New or multiple sex partners to identify patients at high risk of a STI; (iv) Contraceptive vaginal ring or IUD use; and (v) Douching.

The need for examination and investigations is usually determined on the basis of such a history. A vaginal examination using a speculum is often done routinely when a patient presents with vaginal discharge. The character of

TABLE 1: Questions to ask women who complain of vaginal discharge.

Related to discharge	***Associated symptoms***
Onset	Itching
Duration	Soreness
Amount	Lower abdominal pain
Color	Dysuria
Consistency	Dyspareunia
Odor	Post coital or intermenstrual bleeding
Blood staining	Pelvic pain
Previous episode	

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vaginal discharge may help to reach a diagnosis (see next). A bimanual examination is done to evaluate for pelvic mass or cervical motion tenderness.

Following findings are of help to reach a diagnosis:

- *White curdy discharge* with vulval itching or soreness, erythema/vaginitis, fissuring suggestive of candida infection.
- *Thin, gray/white homogenous discharge* coating the vaginal walls, fishy/offensive odor, not generally sore suggestive of bacterial vaginosis.
- *Yellow, green frothy discharge with fishy/offensive odor* ± pruritus, vaginitis, dysuria suggestive of trichomoniasis.
- *Discharge has other appearance*—consider other causes such as physiological, foreign body, STI, streptococcal, and staphylococcal infections.

Q.2. Describe the syndromic management of abnormal vaginal discharge.

See Chapter 13.

Q.3. How do you identify the different causative agents of vaginal discharge through laboratory investigations?

Simple tests can be done in or near the examination room and can provide quick results to identify the cause.

- *Vaginal pH testing:* A sample of vaginal discharge should be obtained and pH can be determined using litmus paper (using narrow range pH paper). Vaginal pH testing discriminate between the two most common causes of vaginal discharge—bacterial vaginosis (pH ≥ 4.5) and vulvovaginal candidiasis (pH < 4.5).
- *High vaginal swab for wet mount microscopy:* Wet mount microscopy is performed by placing a small sample of discharge on two separate areas in a slide and adding normal saline to one and potassium hydroxide to the second area. Then a cover slip is placed on the slide, and these are visualized with a microscope. The findings may reveal the following:
  - Amsel criteria are made—bacterial vaginosis
  - Presence of trichomonads—trichomoniasis
  - Budding yeast and hyphae—candidiasis
  - White blood cells (WBCs) without trichomonads and yeast—cervicitis or other inflammatory conditions
- *Endocervical swab for culture:* Endocervical swab in transport medium (charcoal or non-charcoal) is used to diagnose gonorrhea by culture.
- *Endocervical swab for nucleic acid amplification tests:* Nucleic acid amplification tests, such as polymerase chain reaction and ligase chain reaction, are biological techniques that amplify DNA and other genetic material. These tests can detect tiny amounts of cells or viruses and are highly sensitive and specific. Commercial assays are available for *C. trachomatis*, *T. vaginalis*, *Neisseria gonorrhoeae*, *Candida albicans*, and some of these assays give real time rapid results.

Q.4. Outline the treatment of vaginal discharge.

Treatment: The underlying condition is corrected or treated if possible. For example, bacterial vaginosis is treated with antibiotics or, if the discharge is accompanied by pelvic pain and/or cervical motion tenderness, the patient should be treated for PID. Some general measures can help relieve symptoms, although they do not eliminate an infection.

General measures: The genital area should be kept clean as far as possible. Washing every day with a mild, unscented soap (such as glycerin soap) and rinsing and drying thoroughly are recommended. Changing underwear and bathing or showering once a day may help relieve symptoms. Improved hygiene is particularly useful if the cause is being incontinent or bedbound. Young girls should be taught good hygiene—to wipe from front to back, to wash their hands after bowel movements and urinating, and to avoid fingering the genital area.

Treatment of vaginal infections: The treatment of vaginal infections such as bacterial vaginosis, candidiasis, trichomoniasis, chlamydial, and gonococcal infections is mentioned in **Box 1**.

BOX 1: Management of vaginal infections.

Bacterial vaginosis:
- Metronidazole 400–500 mg twice daily for 5–7 days or metronidazole 2 g, as single dose. Intravaginal clindamycin cream (2%) once daily for 7 days or intravaginal metronidazole gel (0.75%) once daily for 5 days. The infection often recurs and acidic vaginal jelly may reduce relapse rates
- Partner notification not needed

Vulvovaginal candidiasis:
- Vaginal imidazole preparations (such as clotrimazole, econazole, and miconazole—various preparations are available including single dose ones), or fluconazole 150 mg orally as single dose
- Partner notification not needed

Chlamydia trachomatis:
- Doxycycline 100 mg twice daily for 7 days (contraindicated in pregnancy), azithromycin 1 g orally in a single dose
- Partner notification required

Gonorrhea:
- Cefixime 400 mg as a single oral dose or ceftriaxone 250 mg intramuscularly as a single dose
- Partner notification required

Trichomonas vaginalis:
- Metronidazole 400–500 mg twice daily for 5–7 days or metronidazole 2 g orally in a single dose
- Partner notification required

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Partner notification: Partner notification is considered when vaginal discharge is due to STIs such as trichomoniasis, chlamydia infections, and gonococcal infections. Partner notification of recent sexual contact is essential to prevent and treat STIs including human immunodeficiency virus (HIV).

SHORT NOTE

Defense Mechanism of Vagina

The vaginal mucosal ecosystem is comprised of a stratified squamous nonkeratinized epithelium overlaid by a mucosal layer continuously lubricated by cervicovaginal fluid (CVF). At puberty and during pregnancy, elevated levels of estrogen promote the maturation of and deposition of glycogen in vaginal epithelium. Vaginal defense against infection is maintained by following three mechanisms:

1. Glycogen from exfoliated and lyzed epithelial cells is metabolized to lactic acid by *Lactobacillus* species. Lactic acid and cytolysin produced by lactobacilli stimulate the dissolution of epithelial cells by lysis and enhance availability of the glycogen. Lactic acid acidifies the vaginal milieu favoring the proliferation of lactobacilli and inhibiting growth of infection associated organisms.
2. Lactobacilli further produce hydrogen peroxide (H_2O_2), bacteriocins, biosurfactants as well as inhibition of the physical attachment of pathogens to the epithelium by competitive exclusion and the promotion of the engulfment and degradation of infected epithelial cells (autophagy).
3. Additionally, there is concomitant production of mucins, immunoglobulins [secretory immunoglobulin A (IgA), immunoglobulin G (IgG)], secretory leukocyte protease inhibitor (SLP1), neutrophil gelatinase-associated lipocalin (NGAL), β-defensins, and other antimicrobial protein which all together provide a formidable first-line defense against infection.

Explain or Justify the Following Statements

Treatment of Vaginal Discharge Depends on the Cause

Vaginal discharge may be physiological or pathological. The causes of pathological vaginal discharge can be categorized into noninfective causes, nonsexually transmitted infections, and STIs. Noninfective causes of vaginal discharge include cervical ectopy, foreign body in the vagina, endocervical polyp, atrophic vaginitis, and cervical cancer. Nonsexually transmitted infective causes of vaginal discharge include *candidiasis*, bacterial vaginosis, postabortal sepsis, postoperative infections, and puerperal sepsis. STIs causing vaginal discharge are *C. trachomatis*, *N. gonorrhoeae*, and *T. vaginalis* infections.

Although physiological vaginal discharge does not require treatment, pathological discharge is usually treated. Some general measures such as keeping the genital area dry and clean, changing underwear, daily bathing, etc. can be applied in all cases but the underlying cause is treated if possible. For example, bacterial vaginosis is treated with antibiotics or, if the discharge is accompanied by pelvic pain and/or cervical motion tenderness, the patient should be treated for PID. Alternately, by using flowchart in syndromic management protocol multiple organisms are treated with multiple drugs.

So the statement "treatment of vaginal discharge depends on the cause" is correct.

Likely Cause of Vaginal Discharge Depends on Age

Vaginal discharge occurs at all ages in life. The cause of vaginal discharge varies according to age. During prepubertal period the causes of vaginal discharge are an infection due to bacteria from the digestive tract, chemicals in bubble baths or soaps or a foreign body, such as a piece of toilet paper or sometimes a toy. During the reproductive periods, the causes of vaginal discharge are often infective in origin such as candidiasis, trichomoniasis, bacterial vaginosis, *C. trachomatis,* and *N. gonorrhoeae*. In menopausal period, the common causes of vaginal discharge are atrophic vaginitis, cervical, and endometrial cancer. Classification of causes of vaginal discharge in relation to age helps clinician to identify the cause readily and initiate prompt treatment.

So the statement "likely cause of vaginal discharge depends on age" is correct.

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Snehamay Chaudhuri MBBS MD DNB is a renowned Professor, Department of Obstetrics and Gynecology, Midnapore Medical College, Paschim Midnapore, West Bengal, India. He has more than 20 years of experience teaching undergraduate and postgraduate students. He is an Examiner of both undergraduate and postgraduate examinations, including DNB, at different universities. He has published more than 50 research articles in various national and international journals and contributed many chapters to textbooks. He is the Author of book entitled *Essentials in Gynecology for Undergraduate Medical Students* and a monograph *Selected Research Works in Obstetrics and Gynecology.* He is the recipient of the JOGI Erach Roustam Irani Research Prize (2008) and the FOGSI Corion Award (2015).

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