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Microbiology

Practical Record Book

For MBBS Phase II

Based on Revised Competency Based Medical Education (CBME) Curriculum by National Medical Commission

Name of the Candidate: _____

Name of the Institution: _____

_____

Jyoti M Nagamoti
Apurba S Sastry
Suman P Singh
Anand B Janagond

2nd Edition

Foreword
MB Nagamoti

JAYPEE

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COMPETENCIES

MI8.1: Describe the etiopathogenesis and discuss the laboratory diagnosis of common bacterial, viral, fungal and parasitic infections of the genitourinary system.

MI8.2: Enlist common sexually transmitted infections (STI). Explain the pathogenesis, laboratory diagnosis and prevention of common bacterial and viral sexually transmitted infections.

MI8.3: Explain the concept and utility of syndromic management of STI.

Specific Learning Objectives

At the end of the session, the students shall be able to:

- Enlist various sexually transmitted pathogens.
- Describe collection, transport and storage of various specimens for diagnosis of genitourinary and sexually transmitted infections.
- Choose the appropriate microbiological investigation to be conducted in a case of genital tract/sexually transmitted infection.
- Interpret the results of the microbiological investigation conducted in a case of genital tract/sexually transmitted infection.
- Counsel a patient of genital tract/sexually transmitted infection about preventive aspects of such infections.

Quick Recap: Genital Infections

Infection type	*Etiological agent(s)*	*Key patient characteristics/ risk factors*	*Key laboratory findings*
Gonorrhea	*Neisseria gonorrhoeae*	Unprotected sexual activity, young adults	Gram-negative diplococci in urethral smear, NAAT positive
Chlamydia	*Chlamydia trachomatis*	Sexually active adolescents and young adults	NAAT (urine or endocervical), rarely seen on Gram stain
Candidiasis (Vulvo-vaginal)	*Candida albicans*	Antibiotic use, diabetes, pregnancy, immunosuppression	KOH wet mount: Budding yeast, pseudohyphae; culture on Sabouraud agar
Trichomoniasis	*Trichomonas vaginalis*	Multiple sexual partners, poor condom use	Wet mount: Motile flagellates; NAAT or antigen detection
Schistosomiasis (Urinary)	*Schistosoma haematobium*	Endemic areas (Africa, Middle East), contaminated water exposure	Terminal hematuria, ova in urine microscopy
Bacterial vaginosis	*Gardnerella vaginalis* (with anaerobes)	Altered vaginal flora, recent antibiotics, douching	Clue cells on microscopy, positive whiff test, high vaginal pH
Pelvic inflammatory disease	Polymicrobial: *N. gonorrhoeae, C. trachomatis, anaerobes*	IUD use, multiple partners, prior PID	Cervical motion tenderness, elevated ESR/CRP, NAAT positive
Genital herpes	*Herpes Simplex Virus-2* (HSV-1 also possible)	Unprotected sex, prior history of STIs	Tzanck smear (multinucleated giant cells), PCR from lesion fluid
Syphilis	*Treponema pallidum*	High-risk sexual behavior	VDRL/RPR (screening), FTA-ABS (confirmation), dark-field microscopy in chancre

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Exercise 37.1

A case of painless genital ulcer.

Case Scenario

1. What is the most likely clinical diagnosis of the case? Justify.

2. Describe the sample collection, transport and storage of samples in a case of genital ulcer.

3. Describe the laboratory techniques that can be used in the diagnosis of the disease.

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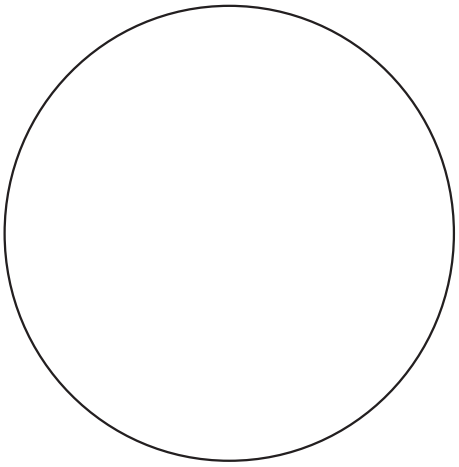
4. Draw the microscopic examination findings from the sample collected from ulcer.



Exercise 37.2

A case of painful genital lesions.

Case Scenario

1. What is the most probable clinical diagnosis of the case?

_____

_____

_____

2. Describe the sample collections required for diagnosis of this disease.

_____

_____

_____

_____

_____

_____

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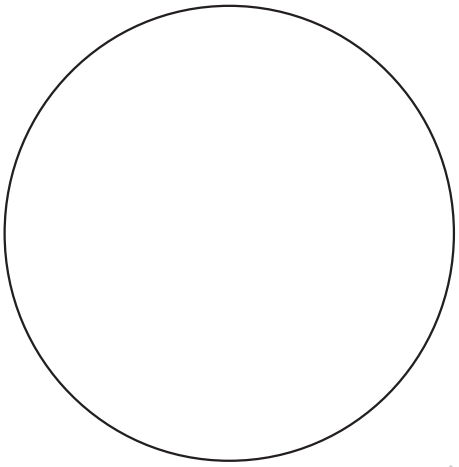
3. Describe the microscopic examination that can be performed and draw the diagram.



4. Briefly describe other diagnostic tests for this infection.

5. Explain the reason for recurrence of this infection.

6. Enumerate complications of this condition.

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Exercise 37.3

A woman with vaginal itching and discharge.

Case Scenario

1. Name the most likely organism seen in the wet preparations.

2. Describe the laboratory diagnosis of this disease.

3. Name other organisms transmitted in the similar manner.

4. Suggest treatment for this condition.

Assessment

Faculty Remarks/Feedback if any:	
Date :	Faculty Name & Signature

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Microbiology

Practical Record Book

For MBBS Phase II

The **Microbiology Practical Record Book for MBBS Phase II** was initially designed by a team of expert microbiologists and medical educationists to help all MBBS students learning microbiology and microbiology teachers across the nation. This was a pioneering effort to help them adapt effectively and with ease to the then newly introduced microbiology curriculum of Competency Based Medical Education (CBME) in India. The authors are grateful and delighted by the wide acceptance and the positive reviews received by the student users and the teachers from most of the medical colleges in India.

Now, the **2nd edition of Microbiology Practical Record Book for MBBS Phase II** is available to further enhance the learning of practical aspects of medical microbiology with the following salient features:

- **Content updated as per the CBME Guidelines 2024**, the latest guidelines by the National Medical Commission (NMC)
- **New exercises** are added in **Healthcare-Associated Infections, Antimicrobial Resistance, and Stewardship sections**
- **Competency-based structured format** that allows conducting classes in any sequence that is considered suitable at the institutional level
- **Clear learning objectives** that provide proper direction for learning, and **outcome measures** to track learning of the students
- **Problem-based learning approach** that enables learning of practical skills with clinical relevance and enhance analytical skills
- Exercises of **certifiable competencies** are provided as per the minimum requirement of the curriculum. Effective yet simplified **rubrics are provided to assess** the acquisition of the competencies.
- **OSPE exercises** with checklists on important skills
- Exercises of **AETCOM competencies** are provided as per the AETCOM module, and NMC's competency table of microbiology. Appropriate **format and space for reflection writing** by the students is available.
- **Flexibility for the teachers to frame cases** as per the availability of resources at the institution, instead of providing one standard case, is a hallmark of this book.
- **Teachers Guide** is a handy supplement provided along with the book to hand-hold and help the teachers in making best use of this book.

Shelving Recommendation
MICROBIOLOGY

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