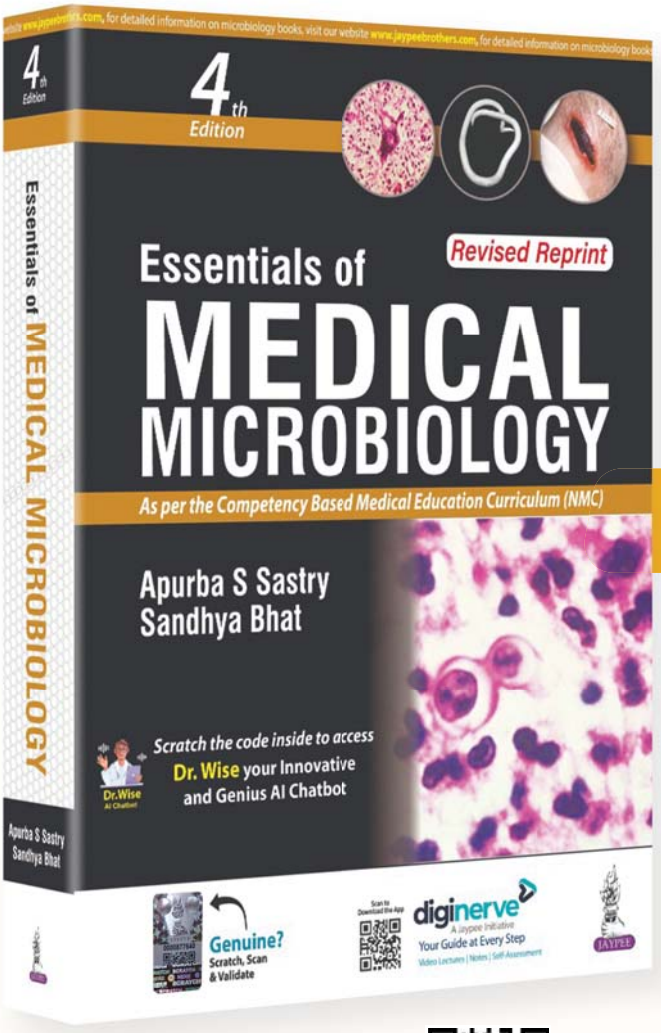


Essentials of
MEDICAL MICROBIOLOGY

As per the Competency Based Medical Education Curriculum (NMC)

Apurba S Sastry
Sandhya Bhat

4th Edition
Revised Reprint

Scratch the code given inside the book to access
Dr. Wise your Innovative and Genius AI Chatbot
DR. WISE AI Chatbot
Scan & Download Dr. Wise App

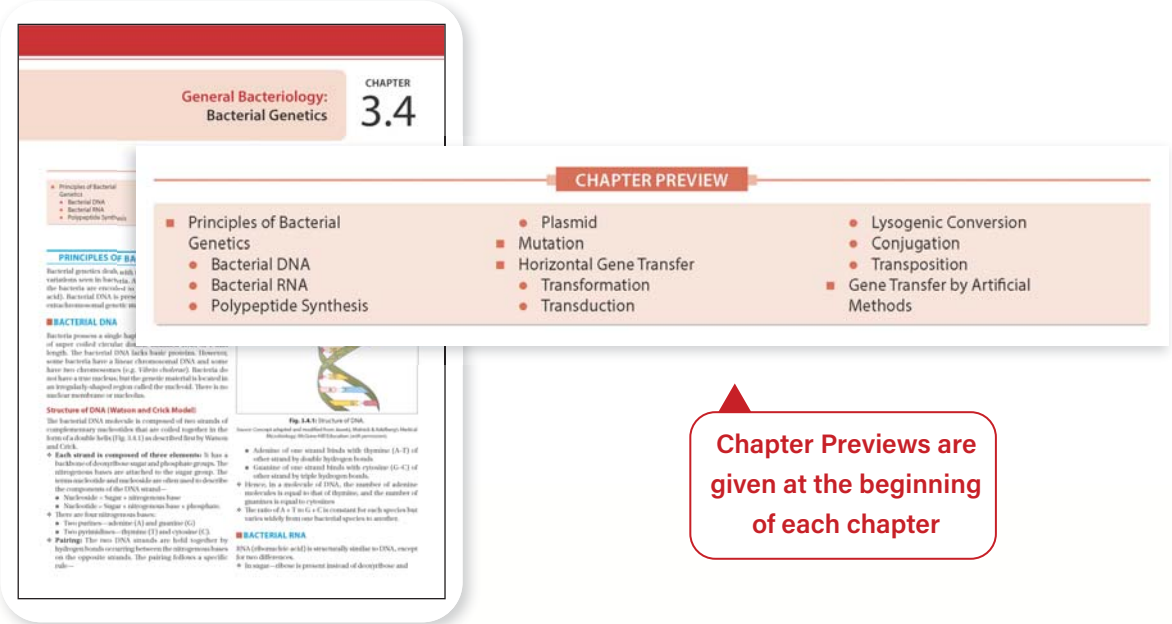
Scan the QR Code
for TOC & Sample Chapter on General Bacteriology: Bacterial Taxonomy

Scan to Buy the Book

What is new in this edition?

- Divided into two parts: (1) General Microbiology, Immunology, and Hospital Infection Control; (2) Systemic Microbiology.
- Systemic Microbiology features eight sections with initial chapters on clinical infectious syndromes and detailed chapters on etiological agents.
- Updated Parasitology for Indian Medical Graduates, integrated with respective syndromes.
- Enhanced Hospital Infection Control with new topics like antimicrobial stewardship, PPE protocols, and transmission precautions.
- General Microbiology restructured to include virology, parasitology, mycology, and condensed general bacteriology.
- Overview chapters added for clarity in Systemic Microbiology.
- COVID-19 Chapter-has been revised and updated as per the current scenario.
- Updated AETCOM module for second MBBS students.
- Recent updates on lab diagnosis, treatment guidelines, and vaccines, including tuberculosis and HIV.
- Epidemiology includes recent outbreaks and geographical distribution with a focus on Indian epidemiology.
- Latest references from textbooks and health guidelines.
- Increased use of tables, flowcharts, images, and diagrams.
- Designed for MBBS and NExT exams with a concise, bulleted format.
- Simple language with summary boxes for lab diagnosis and treatment; includes clinical case-based essays and MCQs.

SAMPLE PAGES



General Bacteriology: Bacterial Genetics

CHAPTER 3.4

CHAPTER PREVIEW

- Principles of Bacterial Genetics
  - Bacterial DNA
  - Bacterial RNA
  - Polypeptide Synthesis
  - Plasmid
- Mutation
- Horizontal Gene Transfer
  - Transformation
  - Transduction
  - Lysogenic Conversion
  - Conjugation
  - Transposition
- Gene Transfer by Artificial Methods

Chapter Previews are given at the beginning of each chapter

Feature Tables to simplify complex topics in structured parts

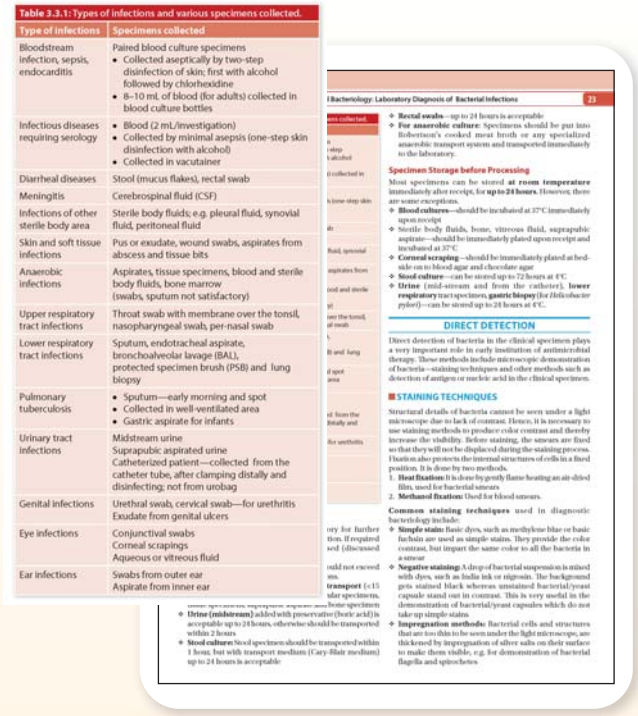


Table 3.3.1: Types of infections and various specimens collected.

Type of infections	Specimens collected
Bloodstream infection, sepsis, endocarditis	Paired blood culture specimens • Collected aseptically by two-step disinfection of skin; first with alcohol followed by chlorhexidine • 8–10 mL of blood (for adults) collected in blood culture bottles
Infectious diseases requiring serology	• Blood (2 mL/investigation) • Collected by minimal asepsis (one-step skin disinfection with alcohol) • Collected in vacutainer
Diarrheal diseases	Stool (mucus flakes), rectal swab
Meningitis	Cerebrospinal fluid (CSF)
Infections of other sterile body area	Sterile body fluids; e.g. pleural fluid, synovial fluid, peritoneal fluid
Skin and soft tissue infections	Pus or exudate, wound swabs, aspirates from abscess and tissue bits
Anaerobic infections	Aspirates, tissue specimens, blood and sterile body fluids, bone marrow (swabs, sputum not satisfactory)
Upper respiratory tract infections	Throat swab with membrane over the tonsil, nasopharyngeal swab, per-nasal swab
Lower respiratory tract infections	Sputum, endotracheal aspirate, bronchoalveolar lavage (BAL), protected specimen brush (PSB) and lung biopsy
Pulmonary tuberculosis	• Sputum—early morning and spot • Collected in well-ventilated area • Gastric aspirate for infants
Urinary tract infections	Midstream urine Suprapubic aspirated urine Catheterized patient—collected from the catheter tube, after clamping distally and disinfecting; not from urobag
Genital infections	Urethral swab, cervical swab—for urethritis Exudate from genital ulcers
Eye infections	Conjunctival swabs Corneal scrapings Aqueous or vitreous fluid
Ear infections	Swabs from outer ear Aspirate from inner ear

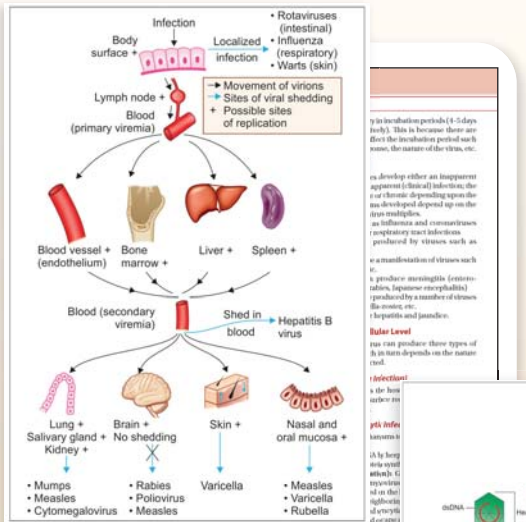
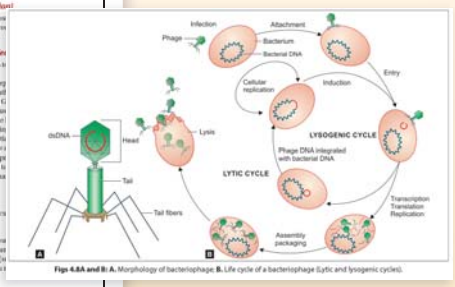


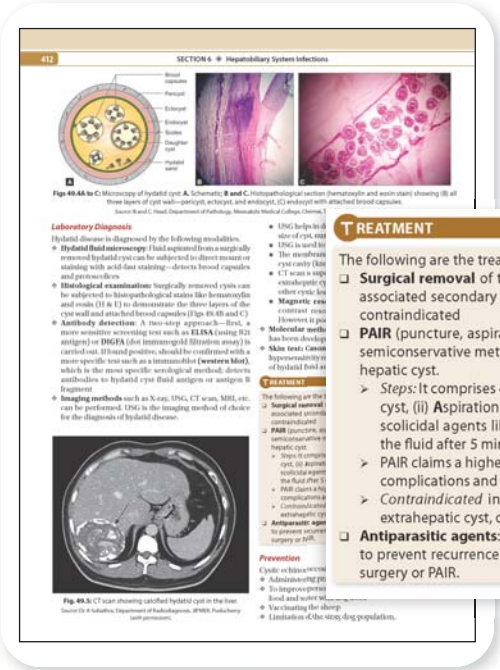
Fig. 4.4: Pathogenesis of viral infections.

Source: Concept adapted and modified from Jawetz, Melnick & Adelberg's Medical Microbiology; McGraw-Hill Education (*with permission*).



Figs. 4.8A and B: A. Morphology of bacteriophage; B. Life cycle of a bacteriophage (Lytic and lysogenic cycles).

Illustrative Diagrams & Figures are given for better understanding

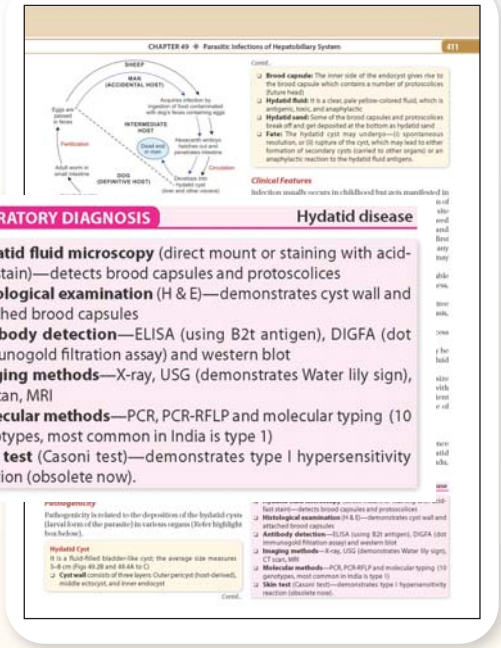


TREATMENT — Hydatid disease

The following are the treatment strategies for hydatid disease.

- **Surgical removal** of the cyst is indicated in advanced disease, associated secondary bacterial infection, or cases when PAIR is contraindicated
- **PAIR** (puncture, aspiration, injection, and re-aspiration): It is a semiconservative method, indicated for a single uncomplicated hepatic cyst.
  - *Steps:* It comprises 4 steps—(i) **P**ercutaneous puncture of the cyst, (ii) **A**spiration of 10–15 mL of cyst fluid, (iii) **I**nfusion of scolicidal agents like hypertonic saline, (iv) **R**e-aspiration of the fluid after 5 minutes
  - PAIR claims a higher cure rate, less recurrence rate, and fewer complications and hospitalization compared to surgery
  - *Contraindicated* in a superficially located, inaccessible, or extrahepatic cyst, or cysts communicating to the biliary tree
- **Antiparasitic agents**: Albendazole is the drug of choice, given to prevent recurrence and to reduce the size of the cyst before surgery or PAIR.

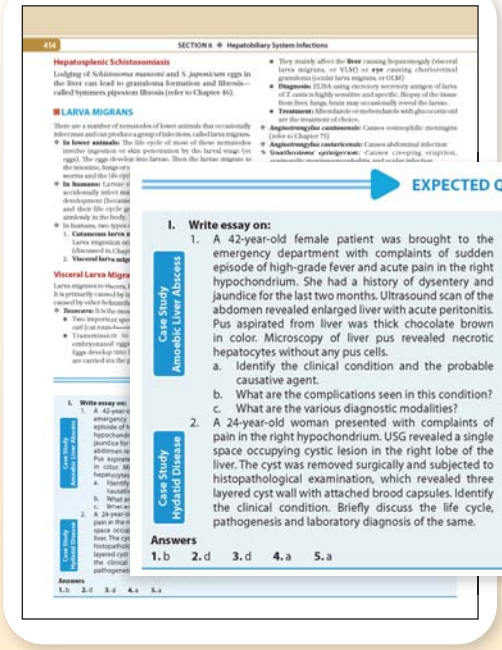
Treatment boxes are used to highlight various diagnostic understanding.



LABORATORY DIAGNOSIS — Hydatid disease

- **Hydatid fluid microscopy** (direct mount or staining with acid-fast stain)—detects brood capsules and protoscolices
- **Histological examination** (H & E)—demonstrates cyst wall and attached brood capsules
- **Antibody detection**—ELISA (using B2t antigen), DIGFA (dot immunogold filtration assay) and western blot
- **Imaging methods**—X-ray, USG (demonstrates Water lily sign), CT scan, MRI
- **Molecular methods**—PCR, PCR-RFLP and molecular typing (10 genotypes, most common in India is type 1)
- **Skin test** (Casoni test)—demonstrates type I hypersensitivity reaction (obsolete now).

Laboratory Diagnosis are highlighted in the pink boxes.



EXPECTED QUESTIONS

I. Write essay on:

1. A 42-year-old female patient was brought to the emergency department with complaints of sudden episode of high-grade fever and acute pain in the right hypochondrium. She had a history of dysentery and jaundice for the last two months. Ultrasound scan of the abdomen revealed enlarged liver with acute peritonitis. Pus aspirated from liver was thick chocolate brown in color. Microscopy of liver pus revealed necrotic hepatocytes without any pus cells.
   a. Identify the clinical condition and the probable causative agent.
   b. What are the complications seen in this condition?
   c. What are the various diagnostic modalities?
2. A 24-year-old woman presented with complaints of pain in the right hypochondrium. USG revealed a single space occupying cystic lesion in the right lobe of the liver. The cyst was removed surgically and subjected to histopathological examination, which revealed three layered cyst wall with attached brood capsules. Identify the clinical condition. Briefly discuss the life cycle, pathogenesis and laboratory diagnosis of the same.

II. Write short notes on:

1. Visceral larva migrans.
2. Fascioliasis.

III. Multiple Choice Questions (MCQs):

1. **Definite host for *Echinococcosis* is:**
   a. Man b. Dog
   c. Sheep d. Pig
2. **Alveolar hydatid disease is caused by:**
   a. *E. granulosus* b. *E. vogeli*
   c. *E. oligarthus* d. *E. multilocularis*
3. **Which of the following is not a liver fluke?**
   a. *Clonorchis sinensis* b. *Opisthorchis viverrini*
   c. *Fasciola hepatica* d. *Fasciolopsis buski*
4. **Which of the following is the common agent of visceral larva migrans?**
   a. *Toxocara canis* b. *Ancylostoma*
   c. *Ascaris* d. *Strongyloides*
5. **Which of the following is associated with cholangiocarcinoma?**
   a. *Clonorchis sinensis* b. *Fasciola hepatica*
   c. *Taenia solium* d. *Fasciolopsis buski*

Answers

1. b **2.** d **3.** d **4.** a **5.** a

Expected questions are mentioned at the end of each chapter.

Amazon Reviews

Anam Fatma

★★★★★ **Best microbiology book for med school.**

Reviewed in India on 8 October 2023

Verified Purchase

The book is awesome with appropriate content and way of representation. I recommend it to every med student!!

Santosh T.

★★★★★ **Good book**

Reviewed in India on 29 December 2023

Good book and good delivery by amazon. Best work and best book to study and original book without any problems

Vivek Patel

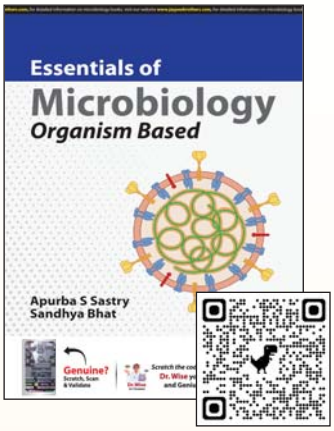
★★★★★ **Top Quality Paper Used**

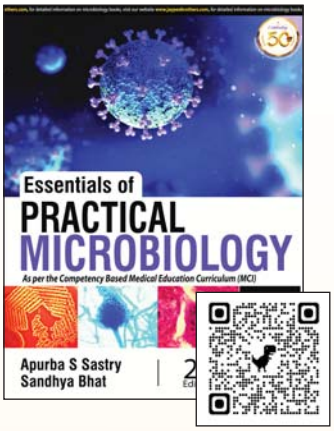
Reviewed in India on 3 May 2024

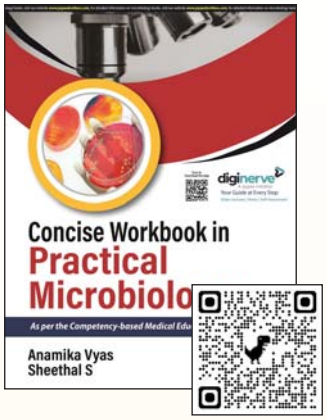
Verified Purchase

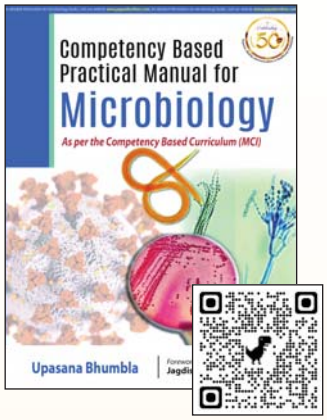
One of the best book for microbiology but instead of that the quality of paper used is very satisfying....
But be aware of the Pirated Books that are available in Amazon too at the same price

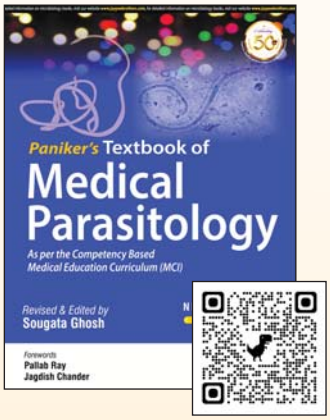
Other Essential Titles

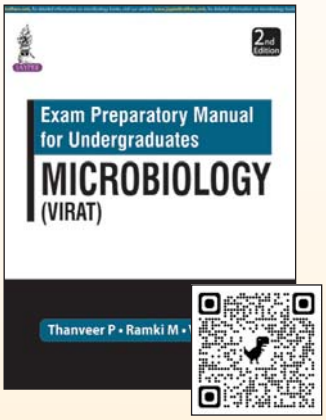












Scan QR Code
For
Microbiology
Catalogue

Connect With Us!
Scan & Explore

Jaypee Brothers Medical Publishers (P) Ltd.

Websites: www.jaypeebrothers.com | https://ejaypee.com

E-mail: marketing@jaypeebrothers.com | **Phone:** +91-11-43574357

For any queries
8377900515