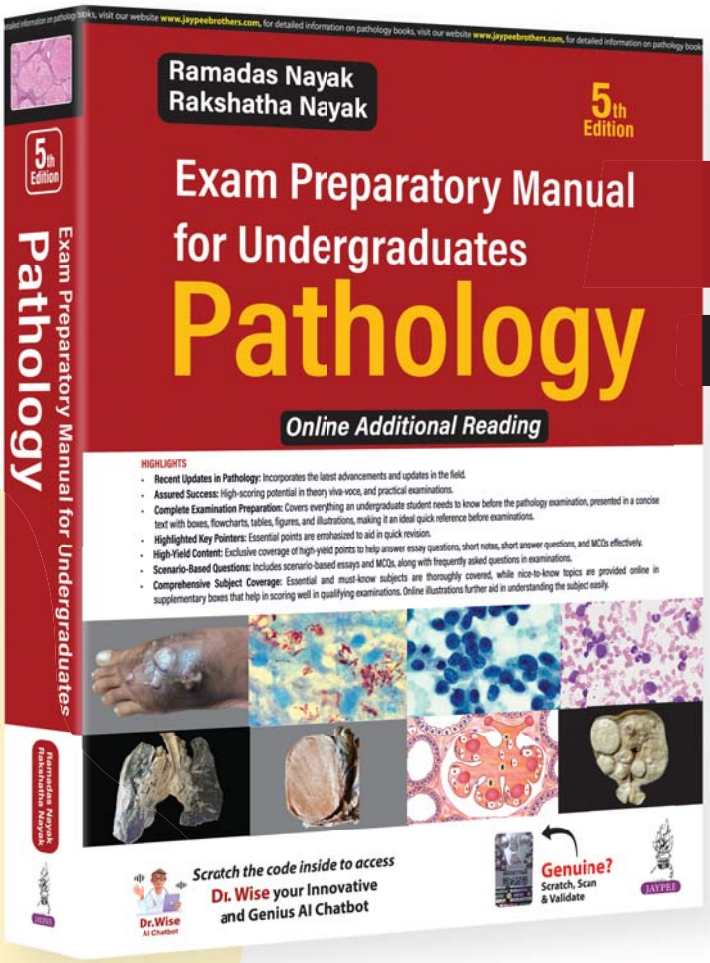

Exam Preparatory Manual for Undergraduates

Pathology

Online Additional Reading

Ramadas Nayak
Rakshatha Nayak

5th Edition

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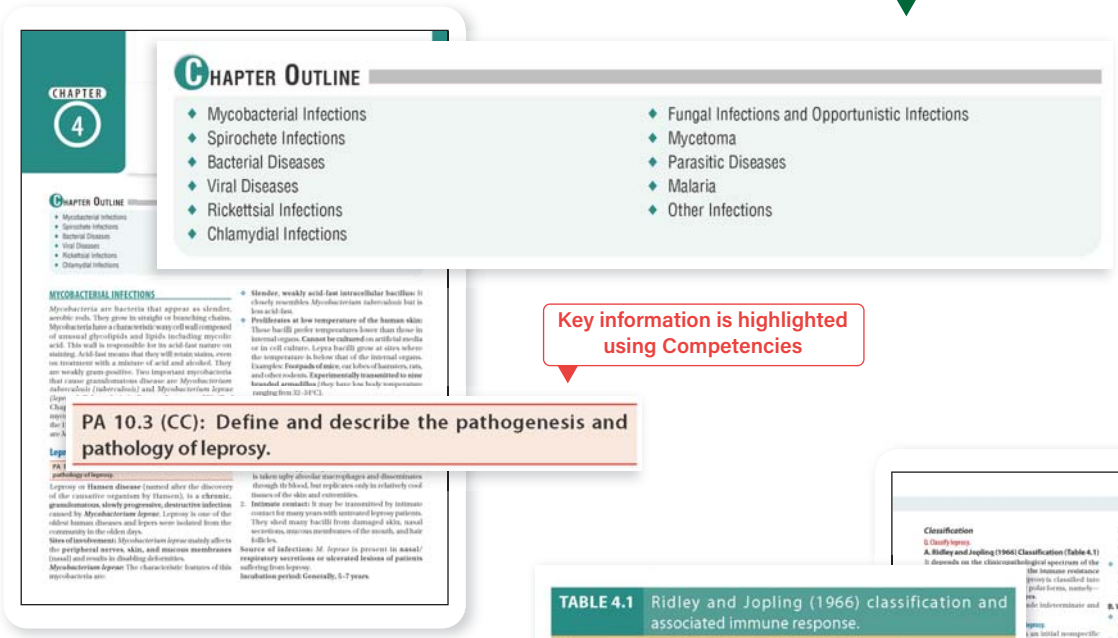
Key Features

- This book aligns with National Medical Commission (NMC) guidelines, covering both Core and Non-Core Competencies for Indian Medical Students.
- Comprehensive Content: Covers essential disease concepts simply and clearly for undergraduates.
- Online Supplement: Additional illustrations and information are available online, aiding exam preparation beyond standard Pathology texts.
- Rich Illustrations: Features multicolor visuals for better understanding.
- Structured Organization: Divided into three sections –
  - General Pathology and Basic Cytology (Chapters 1 to 10)
  - Hematology, Blood Banking and Transfusion, and Clinical Pathology (Chapters 11 to 15)
  - Systemic Pathology (Chapters 16 to 27)
- Concise & Effective: Bullet points with key highlights for quick revision.
- Rapid Review: Designed for quick review before exams, covering usual exam questions, essays, MCQs, and clinical case interpretations.
- Enhanced Learning: Includes flowcharts, tables, and visual aids like photomicrographs and radiographs.

SAMPLE PAGES

Chapter Outlines are Highlighted in front.



CHAPTER 4

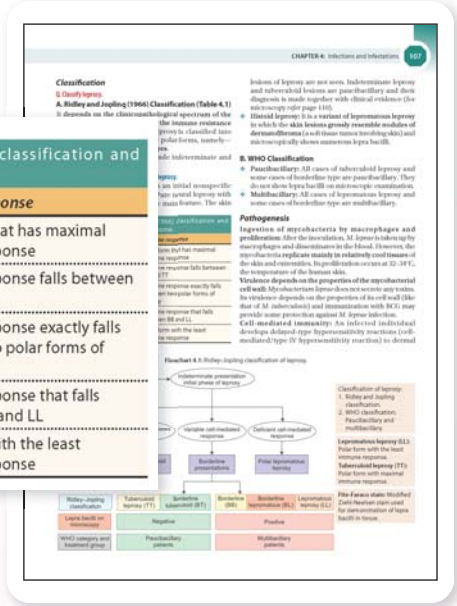
CHAPTER OUTLINE

- Mycobacterial Infections
- Spirochete Infections
- Bacterial Diseases
- Viral Diseases
- Rickettsial Infections
- Chlamydial Infections
- Fungal Infections and Opportunistic Infections
- Mycetoma
- Parasitic Diseases
- Malaria
- Other Infections

MYCOBACTERIAL INFECTIONS

Key information is highlighted using Competencies

PA 10.3 (CC): Define and describe the pathogenesis and pathology of leprosy.



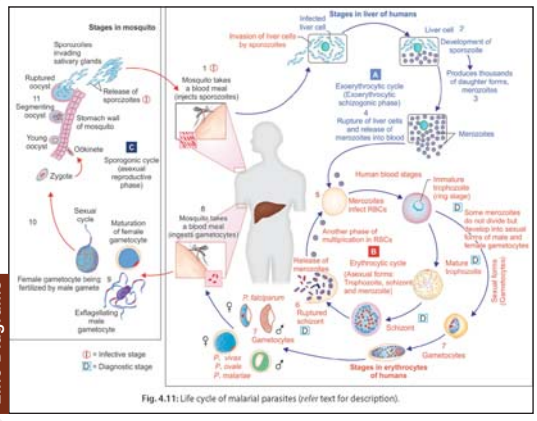
Tables are given to simplify complex topics in structured parts

TABLE 4.1 Ridley and Jopling (1966) classification and associated immune response.

Group	*Immune response*
Tuberculoid leprosy (TT)	Polar form that has maximal immune response
Borderline tuberculoid (BT)	Immune response falls between BB and TT
Borderline leprosy (BB)	Immune response exactly falls between two polar forms of leprosy
Borderline lepromatous (BL)	Immune response that falls between BB and LL
Lepromatous leprosy (LL)	Polar form with the least immune response

Line Diagrams, Figures, & Understandable Flow Charts Given for detail understanding of concepts.

Line Diagrams



Stages in mosquito

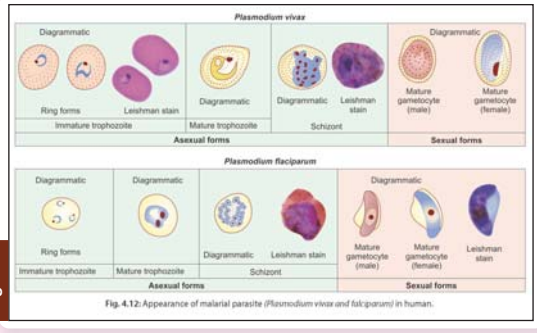
Stages in liver of humans

Human blood stages

Stages in erythrocytes of humans

Fig. 4.11: Life cycle of malarial parasites (refer text for description).

Figures



Plasmodium vivax

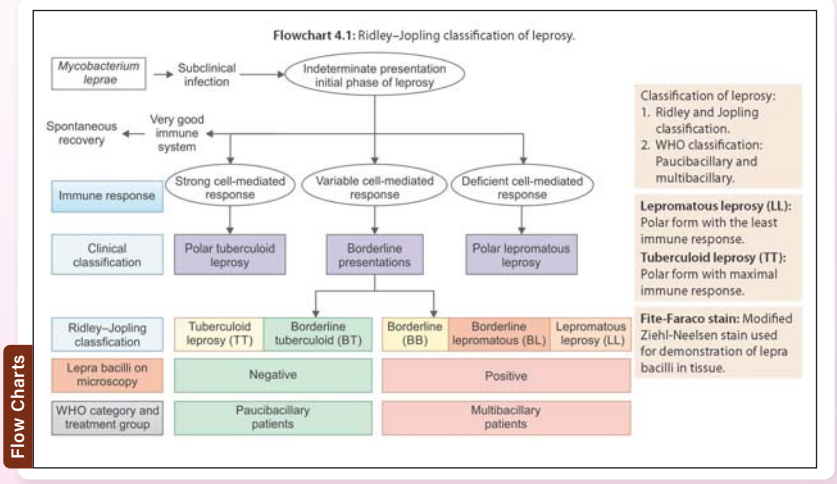
Diagrammatic | Ring forms | Leishman stain | Immature trophozoite | Diagrammatic | Mature trophozoite | Diagrammatic | Schizont | Leishman stain | Diagrammatic | Mature gametocyte (male) | Mature gametocyte (female) | Asexual forms | Sexual forms

Plasmodium flaciparum

Diagrammatic | Ring forms | Diagrammatic | Mature trophozoite | Diagrammatic | Schizont | Leishman stain | Diagrammatic | Mature gametocyte (male) | Mature gametocyte (female) | Leishman stain | Immature trophozoite | Asexual forms | Sexual forms

Fig. 4.12: Appearance of malarial parasite (*Plasmodium vivax and falciparum*) in human.

Flow Charts



Flowchart 4.1: Ridley–Jopling classification of leprosy.

Mycobacterium leprae → Subclinical infection → Indeterminate presentation initial phase of leprosy

Spontaneous recovery ← Very good immune system

Immune response: Strong cell-mediated response | Variable cell-mediated response | Deficient cell-mediated response

Clinical classification: Polar tuberculoid leprosy | Borderline presentations | Polar lepromatous leprosy

Ridley–Jopling classfication: Tuberculoid leprosy (TT) | Borderline tuberculoid (BT) | Borderline (BB) | Borderline lepromatous (BL) | Lepromatous leprosy (LL)

Lepra bacilli on microscopy: Negative | Positive

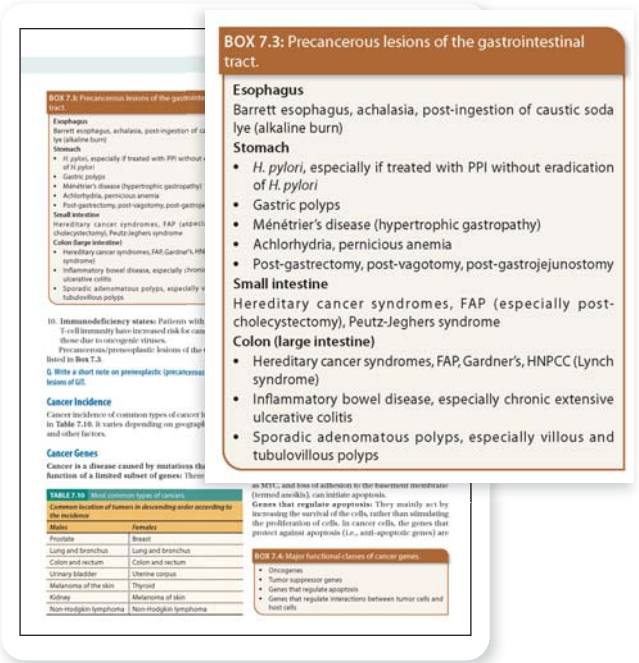
WHO category and treatment group: Paucibacillary patients | Multibacillary patients

Classification of leprosy:
1. Ridley and Jopling classification.
2. WHO classification: Paucibacillary and multibacillary.

Lepromatous leprosy (LL): Polar form with the least immune response.
Tuberculoid leprosy (TT): Polar form with maximal immune response.

Fite-Faraco stain: Modified Ziehl-Neelsen stain used for demonstration of lepra bacilli in tissue.

SAMPLE PAGES



BOX 7.3: Precancerous lesions of the gastrointestinal tract.

Esophagus
Barrett esophagus, achalasia, post-ingestion of caustic soda lye (alkaline burn)

Stomach
- *H. pylori*, especially if treated with PPI without eradication of *H. pylori*
- Gastric polyps
- Ménétrier's disease (hypertrophic gastropathy)
- Achlorhydria, pernicious anemia
- Post-gastrectomy, post-vagotomy, post-gastrojejunostomy

Small intestine
Hereditary cancer syndromes, FAP (especially post-cholecystectomy), Peutz-Jeghers syndrome

Colon (large intestine)
- Hereditary cancer syndromes, FAP, Gardner's, HNPCC (Lynch syndrome)
- Inflammatory bowel disease, especially chronic extensive ulcerative colitis
- Sporadic adenomatous polyps, especially villous and tubulovillous polyps

Boxes are used to highlight various diagnostic understanding.

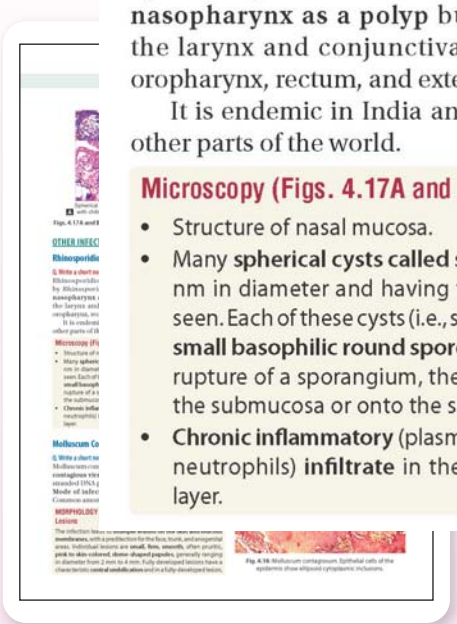
SCENARIO-BASED MCQs

1. **A 29-year-old man presents to the dermatology outpatient department with maculopapular and nodular skin lesions. These lesions are mainly seen on his face, elbows, wrists, and knees. These lesions are has reduced to absent sensation. Microscopy of these lesions showed nodular aggregates of foamy cells (lipid-filled macrophages). Fite Feraco stain revealed numerous bacilli arranged in cigar bundles. The most likely diagnosis is:**
   A. Anthrax B. Hansen disease
   C. Neurofibroma D. Neurilemmoma
2. **A 22-year-old man attends the skin outpatient with a nontender ulcer on his penis for the past week. On enquiry, he revealed that he has multiple sexual partners and does not use barrier precautions. Physical examination showed a 0.7 cm lesion with a firm, erythematous, indurated base, and sharply demarcated borders. The lesion is scraped, and microscopic darkfield examination shows positive for motile spirochetes. Which of the following condition is responsible for the lesion?**
   A. Primary syphilis B. Gonococcal infection
   C. HIV infection D. Tuberculous ulcer
3. **A 65-year-old male has developed aortic root dilation and aortic insufficiency. He has a long history of unprotected sexual intercourse with multiple partners. The most likely disease that has produced the lesions in aorta is:**
   A. Primary syphilis B. Secondary syphilis
   C. Tertiary syphilis D. Congenital syphilis

Answers and Explanation

1. **Answer is B: Hansen disease (leprosy)-lepromatous form.** It is caused by *Mycobacterium leprae*, which infects peripheral nerves and skin. Diagnosis is made by biopsy of a skin lesion. Large aggregates of lipid-filled macrophages contain acid-fast bacilli demonstrated by the Fite Feraco stain. Cutaneous anthrax is caused by *Bacillus anthracis. It* produces a necrotic skin lesion with eschar at the site of inoculation. The other two options are tumors of peripheral nerves and they do not show foamy macrophages with acid-fast bacilli.
2. **Answer is A: Primary syphilis.** Infection with *Treponema pallidum* produces characteristic painless syphilitic chancres in the primary stage of syphilis. It is nontender with an indurated base and is known as hard chancre. Gonorrhea produces acute inflammation with abscess formation and mainly involves urethral region. HIV infection is also sexually transmitted disease but do not produce chancre. Tuberculous ulcer usually do not involve glans.
3. **Answer is C: Tertiary syphilis.** If infection with *Treponema pallidum is not t*reated, it can progress to tertiary syphilis

Question answers, & other Scenario-based MCQs with Explanations are given at the end of each chapter.



OTHER INFECTIONS

Rhinosporidiosis

Q. Write a short note on rhinosporidiosis.

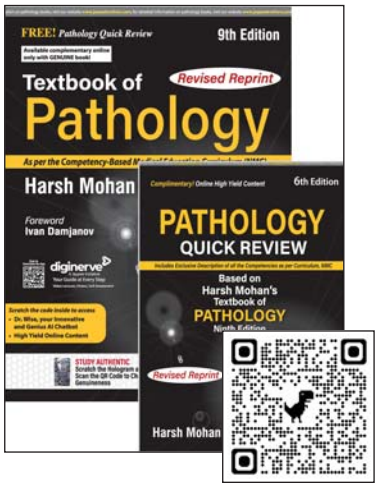
Rhinosporidiosis is an inflammatory disease caused by *Rhinosporidium seeberi*. **Usually, it occurs in the nasopharynx as a polyp** but may also be observed in the larynx and conjunctiva. It is also observed in the oropharynx, rectum, and external genitalia.

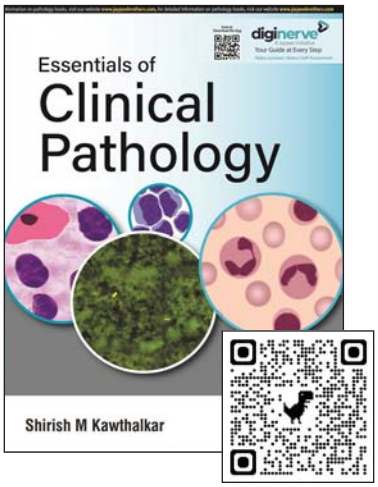
It is endemic in India and Sri Lanka and sporadic in other parts of the world.

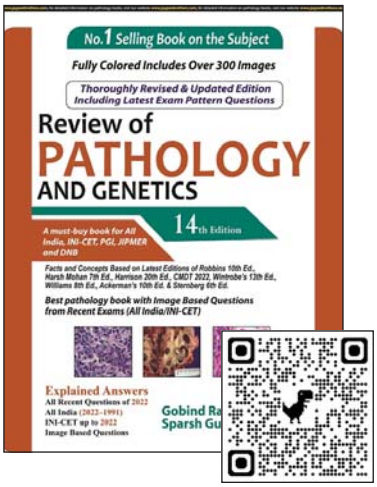
Microscopy (Figs. 4.17A and B)

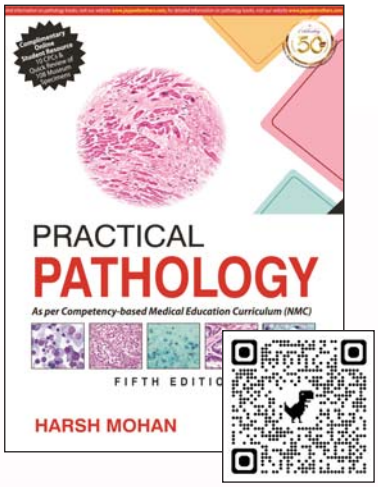
- Structure of nasal mucosa.
- Many **spherical cysts called sporangia** measuring up to 200 nm in diameter and having **thick walls** (chitinous walls) are seen. Each of these cysts (i.e., sporangium) **contains numerous small basophilic round spores** of the size of erythrocytes. On rupture of a sporangium, the spores may be discharged into the submucosa or onto the surface of the mucosa.
- **Chronic inflammatory** (plasma cells, lymphocytes, histiocytes, neutrophils) **infiltrate** in the intervening and subepithelial layer.

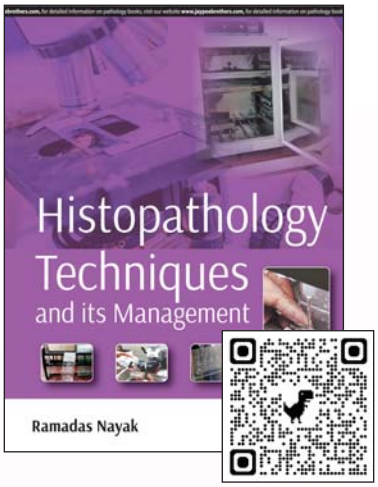
Other Essential Titles

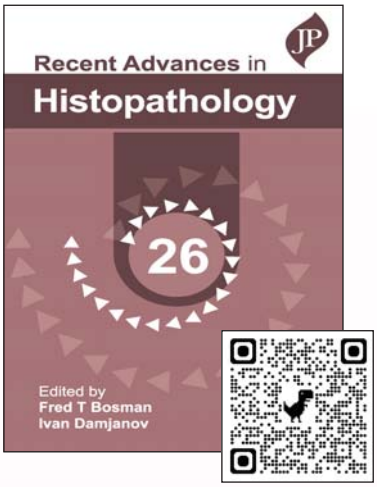


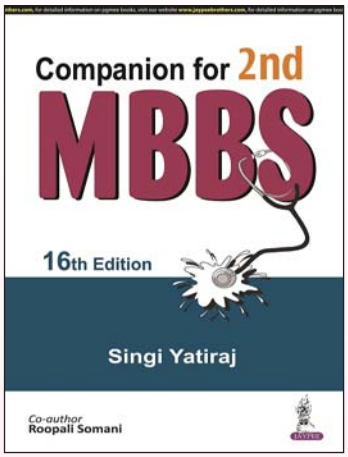












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