Handbook of Infectious Diseases

Stewart M. Brooks

Natalie Paynton Brooks

Lorelle J. Pelletier

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Stewart M. Brooks, M.S.
Chairman, Science Curriculum,
Newton-Wellesley Hospital School of Nursing,
Newton Lower Falls, Massachusetts

Natalie Paynton Brooks, B.A.
Assistant in Science,
Newton-Wellesley Hospital School of Nursing,
Newton Lower Falls, Massachusetts

Lorelle J. Pelletier, R.N., B.S., M.S.
Chairman, Nursing of Children,
Newton-Wellesley Hospital School of Nursing,
Newton Lower Falls, Massachusetts

Medical Consultant
Edward C. Dyer, M.D.
Instructor, Pediatric Nurse Practitioner Program,
Northeastern University; Associate Pediatrician,
Massachusetts General Hospital, Boston

Foreword by
Cameron F. McRae, M.D., M.P.H., F.A.P.H.A.
Formerly Commissioner of Health,
Broome County, New York

Little, Brown and Company, Boston

Foreword

As all health professionals know, medical knowledge – including information specific to infectious diseases – has increased so greatly that no one can hope to keep abreast of all of it. Although information is available in various texts and journals, there is an obvious need for a single reference. Such a work would obviate time-consuming and possibly frustrating research as well as ensure that the information being conveyed is the most current. I feel that the *Handbook of Infectious Diseases* meets these needs. Besides outlining the causal agent, signs and symptoms, diagnosis, and treatment, the book has many practical features. Nurses will find the Nursing Care highlights especially helpful. Further, the alphabetical listing of the diseases covered, with cross-referencing of common names, makes it possible to locate data quickly and easily – a real plus when time is of the essence. As one who has been involved with preventive medicine for several decades and has seen great advances made in the control of infectious diseases, I welcome this book as a valuable tool for nurses and all other health-care professionals.

Cameron F. McRae

Preface

The purpose of this handbook is to present fingertip information on the many and various infectious diseases that are known throughout the world, with special stress on those encountered in the United States. The diseases are arranged alphabetically, and each monograph has been organized in ten categories, always in the same sequence: Etiology, Reservoir, Transmission, Incubation Period, Communicability, Susceptibility, Signs and Symptoms, Diagnosis, Treatment and Nursing Care, and Prevention. Further, to ensure comprehensiveness and usefulness, all recognized common names have been listed with a cross-reference to the most accepted medical name. An extensive appendix provides practical information and an inclusive glossary provides succinct definitions and explanations of key technical terms and expressions used in the book. Although this work is addressed to student and practicing nurses, we hope it will prove useful to those involved in other health areas. We have made every effort to be clear and concise within a structural framework that is readable and easy to follow.

S.M.B.
N.P.B.
L.J.P.

Notice

The indications and dosages of all drugs in this book have been recommended in the medical literature and conform to the practices of the general medical community. The medications described do not necessarily have specific approval by the Food and Drug Administration for use in the diseases and dosages for which they are recommended. The package insert for each drug should be consulted for use and dosage as approved by the FDA. Because standards for usage change, it is advisable to keep abreast of revised recommendations, particularly those concerning new drugs.

Contents

Infectious Diseases

abacterial meningitis

See meningitis, aseptic.

abscess

See under staphylococcosis.

actinomycosis (lumpy jaw)

A chronic suppurative or granulomatous bacterial infection of man (infrequent) and animals (especially cattle). Occurs sporadically throughout the world. When it occurs in humans, most often seen in adult males.

Etiology
Actinomyces israelii (in man) and *A. bovis* (in animals) are the usual pathogens. These and related species are gram-positive anaerobic to microaerophilic organisms.

Reservoir
A. israelii can be found in the normal mouth (growing around carious lesions) and in the tonsils.

Transmission
Man to man. Pathogen may be inhaled, swallowed, or introduced into local lesions.

Incubation period
Probably several years following initial establishment of pathogen in oral tissues.

Communicability
Except in the instance of human bite (which is rare), infection is not related to exposure.

Susceptibility
Naturally low susceptibility. Immunity apparently does not follow an attack.

Signs and symptoms
In man, the infection may be cervicofacial, thoracic, abdominal, or generalized. The cervicofacial type (which accounts for about half of the cases) is marked by swelling and suppuration of the soft tissues of the face, jaw, and neck.

The thoracic type is marked by multiple abscesses in the lungs. The abdominal form affects the intestines and the peritoneum; an abdominal mass appears and draining sinuses and fistulas may develop in the abdominal wall. In the generalized infection the skin, spine, brain, liver, kidney, and ureter – and in women, pelvic organs – may be involved.

Diagnosis
Clinical picture, x-rays, and demonstration of *A. israelii* in sputum, pus, or biopsy specimen.

Treatment and nursing care
Prolonged administration of penicillin or tetracycline is usually effective. Aspiration is indicated for small abscesses and drainage for large ones; extensive and repeated surgical procedures may be required. Prognosis is most favorable in the cervicofacial form, and is progressively worse in the thoracic, abdominal, and generalized forms. Special mouth care may provide comfort. Secretion precautions advocated when contact with oral or draining skin lesions occurs although the transmission of infection is very slight.

Prevention
Good dental hygiene.

acute anterior poliomyelitis

See poliomyelitis.

acute aseptic meningitis

See meningitis, aseptic.

acute bacterial conjunctivitis

See conjunctivitis, acute bacterial.

acute benign lymphoblastosis

See mononucleosis, infectious.

acute conjunctivitis of the newborn

See ophthalmia, neonatorum.

acute contagious conjunctivitis

See conjunctivitis, acute bacterial.

acute coryza

See common cold.

acute epidemic lymphadenitis

See mononucleosis, infectious.

acute infectious adenitis

See mononucleosis, infectious.

acute infectious nonbacterial gastroenteritis

See gastroenteritis, epidemic viral.

acute posterior ganglionitis

See herpes zoster.

African sleeping sickness

See trypanosomiasis.

African trypanosomiasis

See trypanosomiasis.

ague

See malaria.

alastrim

See under smallpox.

aleppo boil

See leishmaniasis, cutaneous.

aleppo button

See leishmaniasis, cutaneous.

alveolar hydatid disease

See hydatid disease, alveolar.

amebiasis (amebic dysentery, entamebiasis)

A protozoan infection of the colon. Worldwide, but occurs most commonly in warm, moist climates.

Etiology
Entamoeba histolytica, which exists in two forms: the motile, fragile trophozoite and the nonmotile, resistant cyst. Parasite may act as a commensal.

Reservoir
Man; typically the chronically ill patient or asymptomatic carrier.

Transmission
Cysts excreted in the feces are swallowed by a new host. In the small intestine trophozoites are liberated, pass into the colon, and attack the mucosa. If diarrhea does not occur, the trophozoites multiply one or more times and then encyst. If diarrhea does occur (as in acute amebiasis), the feces contain mainly trophozoites that usually either die quickly of their own accord or, if they are swallowed, are destroyed by gastric juice. Endemic spread is mainly by contaminated, uncooked food (especially vegetables), and epidemic spread is mainly by water.

Incubation period
Usually 2 to 4 weeks, but may range from days to years.

Communicability
Transmissible for as long as cysts appear in the feces.

Susceptibility
General susceptibility to infection but general resistance to active disease. Immunity apparently does not follow an attack.

Signs and symptoms
Intestinal disease ranges from mild abdominal discomfort (commonly with intermittent diarrhea and constipation) to classic amebic dysentery. The classic form is characterized by

fever, chills, and frequent semifluid or fluid stools, which often contain blood or flecks of mucus. Between relapses symptoms diminish to recurrent cramps and loose or very soft stools, but emaciation and anemia increase. Liver abscess may develop 4 to 12 weeks after an attack of dysentery. Signs and symptoms include liver discomfort, fever, sweating, chills, nausea, vomiting, weakness, and weight loss. Occasionally the lungs, brain, and other organs become infected. Also, there may be ulceration of the perianal skin caused by direct extension from intestinal lesions. Healing of intestinal lesions sometimes results in excessive scar formation and partial obstruction.

Diagnosis

Diagnosis is based on the microscopic demonstration of trophozoites or cysts in fresh, warm, stool specimens, mucosal smears, abscess aspirates, or tissue sections. Serologic tests are used to determine extra-intestinal involvement. X-rays and scans are used to disclose the presence of abscess. Since amebic dysentery can be mistaken for a number of intestinal conditions, especially ulcerative colitis, a definitive diagnosis is crucial. Further, hepatic amebiasis and amebic abscess must be differentiated from other hepatic infections. An important diagnostic aid here is a favorable response to chloroquine or emetine (see Treatment and nursing care below).

Treatment and nursing care

For acute amebic dysentery, metronidazole (Flagyl) is generally considered the drug of choice. Alternatives include, in decreasing order of preference, emetine hydrochloride, tetracycline, and diiodohydroxyquin (Diodoquin). Amebic liver abscess is treated with metronidazole or a combination of emetine hydrochloride and chloroquine (Aralen). Carriers and patients with mild symptoms may be treated with tetracycline plus diiodohydroxyquin. General management of amebiasis is directed at relief of symptoms, replacement of lost blood, and correction of fluid and electrolyte losses. Ideally, the patient should not be discharged until three stool examinations performed daily 3 days after completion of treatment are negative. Excretion precautions should be used for the duration of the illness.

Prevention

Preventive measures include the proper disposal of human feces, protection of public water supplies against contamination, sanitary handling of food, and general cleanliness. Carriers should be identified and excluded from preparing, processing, or serving food until they no longer pass cysts. Further,

household members and other contacts should be screened and, if necessary, treated. An outbreak demands a prompt search for the reservoir and mode of transmission and the institution of appropriate corrective measures.

amebic dysentery

See amebiasis.

American leishmaniasis

See leishmaniasis, mucocutaneous.

American trypanosomiasis

See trypanosomiasis.

ancylostomiasis (hookworm disease, necatoriasis, uncinariasis)

A nematode infection of tropical and subtropical countries and also the southern United States. Most common in poorly sanitated areas.

Etiology
Ancylostoma duodenale prevails in Mediterranean countries, China, India, and Japan; *Necator americanus* prevails throughout most of tropical Africa and the Americas and is the most prevalent species in the United States.

Reservoir
Man.

Transmission
Eggs discharged in feces develop into larvae under proper conditions of moisture and temperature and in a week or so become infective. They penetrate the bare skin of the feet or legs and are carried to the lungs through the blood or lymph. From there they ascend the respiratory tract, are swallowed, and settle in the small intestine, where they attach to the mucosa and develop into adult worms (10 to 20 mm in length). Infection with *A. duodenale* may occur directly through ingestion of contaminated food or water.

Incubation period
Weeks to months, depending on degree of infection.

Communicability
Transmissible for as long as eggs are passed in the feces.

Susceptibility
General.

Signs and symptoms
Vary with diet and severity of infection. Asymptomatic disease is common. Usual manifestations include pruritic rash at site of larval penetration ("ground itch") and abdominal pain. Anemia is seen only in moderate to severe infection or in cases complicated by malnutrition.

Diagnosis
Hookworm eggs in the stool. Adult worms seldom found without anthelmintic treatment.

Treatment and nursing care
A number of effective anthelmintics are available, including bephenium hydroxynaphthoate (Alcopara), pyrantel pamoate (Antiminth), and mebendazole (Vermox), the latter being the drug of choice. These should not be used, however, until debility and anemia have been corrected with proper diet and oral iron supplements. Severe cases may require parenteral iron or blood transfusion. Enteric precautions advised until three negative stools are obtained. Disposable diapers are used on infants.

Prevention
Proper sanitation and public education. Wearing of shoes in endemic areas is crucial.

anthrax (cutaneous anthrax, malignant pustule, ragpicker's disease, woolsorter's disease)

A highly infectious disease of animals (especially ruminants) transmitted to man by contact with the animals or their products. Occurs mainly in countries that have no public health regulations to prevent industrial exposure to infected goats, cattle, sheep, and horses or to their products. Infrequent in the United States.

Etiology
Bacillus anthracis, a gram-positive, spore-forming, nonmotile, facultative, anaerobic bacillus.

Reservoir
Spores in contaminated areas remain viable for years.

Transmission
Spreads among animals through contaminated soil and feed. Humans become infected by handling diseased animals or their tissues, by ingesting contaminated uncooked meat, or by inhaling spores.

Incubation period
Usually 2 to 5 days.

Communicability
Apparently not passed from person to person.

Susceptibility
Probably general except among those previously infected or vaccinated.

Signs and symptoms
Cutaneous anthrax, the usual form of the disease, begins as a macule that enlarges and vesiculates. Ulceration follows with formation of a black eschar in 2 to 6 days. Occasionally, myalgia, headache, fever, nausea, and vomiting occur. Untreated infections may result in systemic spread and fatal septicemia. Pulmonary anthrax begins as an influenza-like infection and then, in a few days, develops into severe respiratory distress followed by cyanosis, shock, and coma. Death is common. Intestinal anthrax is difficult to recognize except for its characteristic severity. Typical manifestations are abdominal pain, fever, and septicemia. Death is common.

Diagnosis
Occupational history together with the clinical picture (especially for the cutaneous form) is crucial. Laboratory confirmation is by direct demonstration of pathogen in cultures or in gram-stained smears from cutaneous lesions and from throat swabs and stool specimens in the pulmonary and intestinal forms. Animal inoculation tests (performed on mice or guinea pigs) are valuable in the event of unsuccessful cultures.

Treatment and nursing care
Penicillin is the drug of choice, but tetracycline may also be used. These agents are of little value, however, in the treatment of septicemia since antibiotics are not effective against the toxin. Lesions should be managed cautiously to prevent entrance of the bacilli into the bloodstream. Secretion precautions implemented in cutaneous anthrax. Strict isolation is

used until patient is off antibiotics or until cultures are negative. Symptomatic nursing care.

Prevention
Patients should be isolated, dressings burned, and feces, urine, sputum, and other excreta disinfected at once to prevent formation of spores. Infected animals should be separated from the herd and the bodies of dead animals completely burned or buried deeply with quicklime. Other key measures include annual vaccination of animals in enzootic areas, prompt treatment of all animals suspected of exposure, and the sterilization of bone meal that is used as animal feed. Trades and industries dealing with potentially infected animals and/or their tissues require strict supervision at all levels. Persons at high risk, such as veterinarians and those handling potentially contaminated raw materials, should be vaccinated.

ascariasis (roundworm infection)

An intestinal helminthiasis. Worldwide, but most common in warm, moist, poorly sanitated areas.

Etiology
The nematode *Ascaris lumbricoides*. Adult worms range from 20 to 30 cm and resemble earthworms in overall configuration.

Reservoir
Man.

Transmission
Ingested infective eggs (from feces-contaminated soil) hatch into larvae and migrate through the wall of the small intestine and are then carried by the bloodstream and lymphatics to the lungs. There they enter the alveoli, ascend the respiratory tract, and are swallowed. Maturation occurs in the jejunum where the adult worm remains. Eggs are released in the feces and must undergo embryonation in the soil, which lasts two to several weeks, before they become infective. Under favorable conditions eggs may remain viable for years.

Incubation period
Full development of eggs into adult worms takes about 2 months.

Communicability
Transmissible for as long as eggs appear in the feces.