serious in people with AIDS, in whom it often causes encephalitis and death.

Trichomoniasis

The most common form of trichomoniasis is a vaginal infection caused by *Trichomonas vaginalis*. The disease is usually spread by sexual intercourse. Antitrichomonal drugs may be administered systemically (ie, metronidazole) or applied locally as douche solutions or vaginal creams.

HELMINTHIASIS

Helminthiasis, or infestation with parasitic worms, is a common finding in many parts of the world. Helminths are most often found in the gastrointestinal (GI) tract. However, several types of parasitic worms penetrate body tissues or produce larvae that migrate to the blood, lymph channels, lungs, liver, and other body tissues. Helminthic infections are described in Box 41–1.

Drugs used for treatment of helminthiasis are called *anthelmintics*. Most anthelmintics act locally to kill or cause expulsion of parasitic worms from the intestines; some anthelmintics act systemically against parasites that have penetrated various body tissues. The goal of anthelmintic therapy may be to eradicate the parasite completely or to decrease the magnitude of infestation ("worm burden").

SCABIES AND PEDICULOSIS

Scabies and pediculosis are parasitic infestations of the skin. Scabies is caused by the itch mite (*Sarcoptes scabiei*), which burrows into the skin and lays eggs that hatch in 4 to 8 days. The burrows may produce visible skin lesions, most often between the fingers and on the wrists.

Pediculosis may be caused by one of three types of lice. Pediculosis capitis (head lice) is the most common type of pediculosis in the United States. It is diagnosed by finding louse eggs (nits) attached to hair shafts close to the scalp. Pediculosis corporis (body lice) is diagnosed by finding lice in clothing, especially in seams. Body lice can transmit typhus and other diseases. Pediculosis pubis (pubic or crab lice) is diagnosed by the presence of nits in the pubic and genital areas. Occasionally, pubic lice may infest the axillae, mustache, or eyelashes. Pediculosis may infect persons of any socioeconomic status. Although scabies and pediculosis are caused by different parasites, the conditions have several common characteristics:

- They are more likely to occur in areas of poverty, overcrowding, and poor sanitation. However, they may occur in any geographic area and socioeconomic group.
- They are highly communicable and transmitted by direct contact with an infected person or the person's personal effects (eg, clothing, combs and hairbrushes, bed linens).
- Pruritus is usually the major symptom. It results from an allergic reaction to parasite secretions and excrement. In

BOX 41–1 HELMINTHIC INFECTIONS

Hookworm infections are caused by *Necator americanus*, a species found in the United States, and *Ancylostoma duodenale*, a species found in Europe, the Middle East, and North Africa. Hookworm is spread by ova-containing feces from infected people. Ova develop into larvae when deposited on the soil. Larvae burrow through the skin (eg, if the person walks on the soil with bare feet), enter blood vessels, and migrate through the lungs to the pharynx, where they are swallowed. Larvae develop into adult hookworms in the small intestine and attach themselves to the intestinal mucosa.

Pinworm infections (enterobiasis), caused by *Enterobius vermicularis*, are the most common parasitic worm infections in the United States. They are highly communicable and often involve school children and household contacts. Infection occurs from contact with ova in food or water or on bed linens. The female pinworm migrates from the bowel to the perianal area to deposit eggs, especially at night. Touching or scratching the perianal area deposits ova on hands and any objects touched by the contaminated hands.

Roundworm infections (ascariasis), caused by *Ascaris lumbricoides*, are the most common parasitic worm infections in the world. They occur most often in tropical regions but may occur wherever sanitation is poor. The infection is transmitted by ingesting food or water contaminated with feces from infected people. Ova are swallowed and hatch into larvae in the intestine. The larvae penetrate blood vessels and migrate through the lungs before returning to the intestines, where they develop into adult worms.

Tapeworms attach themselves to the intestinal wall and may grow as long as several yards. Segments called proglottids, which contain tapeworm eggs, are expelled in feces. Tapeworms are transmitted by ingestion of contaminated, raw, or improperly cooked beef, pork, or fish. Beef and fish tapeworm infections are not usually considered serious illnesses. Pork tapeworm, which is uncommon in the United States, is more serious because it produces larvae that enter the bloodstream and migrate to other body tissues (ie, muscles, liver, lungs, and brain).

Threadworm infections (strongyloidiasis), caused by *Strongyloides stercoralis*, are potentially serious infections. This worm burrows into the mucosa of the small intestine, where the female lays eggs. The eggs hatch into larvae that can penetrate all body tissues.

Trichinosis, a parasitic worm infection caused by *Trichinella spiralis*, occurs worldwide. It is caused by ingestion of inadequately cooked meat, especially pork. Encysted larvae are ingested in infected pork. In the intestine, the larvae excyst, mature, and produce eggs that hatch into new larvae. The larvae enter blood and lymphatic vessels and are transported throughout the body. They penetrate various body tissues (eg, muscles and brain) and evoke inflammatory reactions. Eventually, the larvae are reencysted or walled off in the tissues and may remain for 10 years or longer.

Whipworm infections (trichuriasis) are caused by *Trichuris trichiura*. Whipworms attach themselves to the wall of the colon.