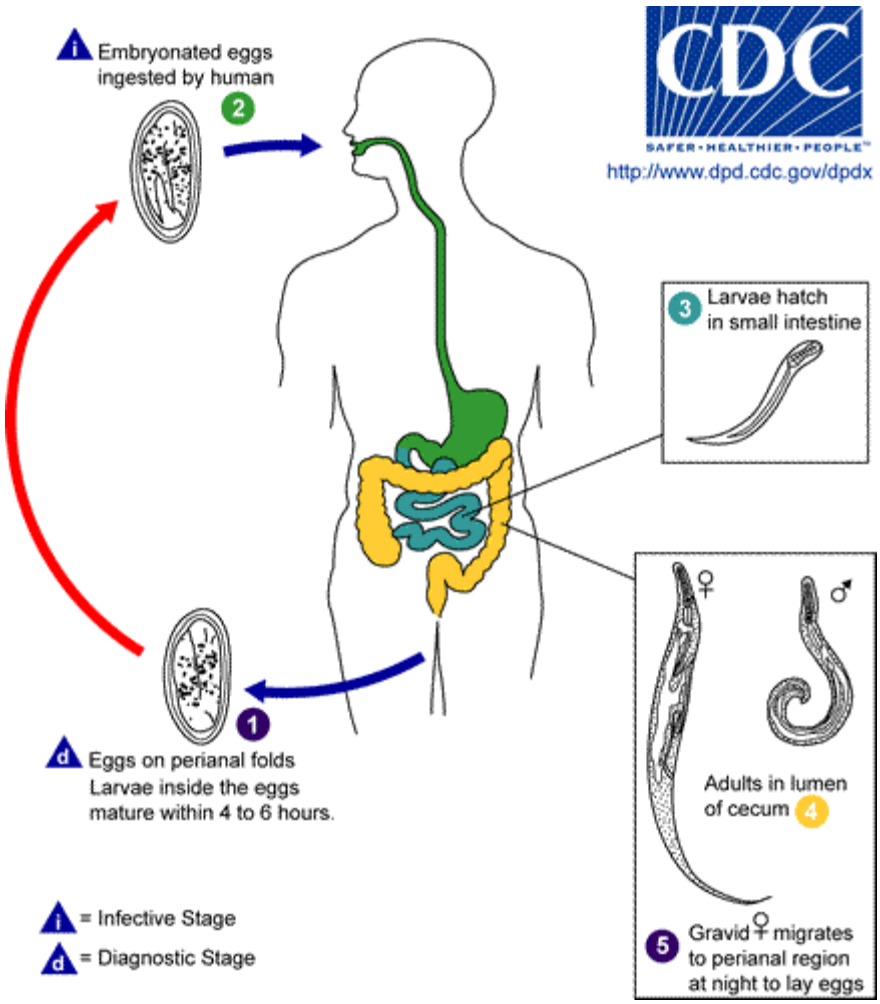
Enterobiasis

Causal Agent:

The nematode (roundworm) *Enterobius vermicularis* (previously *Oxyuris vermicularis*) also called human pinworm. (Adult females: 8 to 13 mm, adult male: 2 to 5 mm.) Humans are considered to be the only hosts of *E. vermicularis*. A second species, *Enterobius gregorii*, has been described and reported from Europe, Africa, and Asia. For all practical purposes, the morphology, life cycle, clinical presentation, and treatment of *E. gregorii* is identical to *E. vermicularis*.

Life Cycle:



Eggs are deposited on perianal folds 1. Self-infection occurs by transferring infective eggs to the mouth with hands that have scratched the perianal area 2. Person-to-person transmission can also occur through handling of contaminated clothes or bed linens. Enterobiasis may also be acquired through surfaces in the environment that are contaminated with pinworm eggs (e.g., curtains, carpeting). Some small number of eggs may become airborne and inhaled. These would be swallowed and follow the same development as ingested eggs. Following ingestion of infective

eggs, the larvae hatch in the small intestine [3] and the adults establish themselves in the colon [4]. The time interval from ingestion of infective eggs to oviposition by the adult females is about one month. The life span of the adults is about two months. Gravid females migrate nocturnally outside the anus and oviposit while crawling on the skin of the perianal area [5]. The larvae contained inside the eggs develop (the eggs become infective) in 4 to 6 hours under optimal conditions [1]. Retroinfection, or the migration of newly hatched larvae from the anal skin back into the rectum, may occur but the frequency with which this happens is unknown.

Geographic Distribution:

Worldwide, with infections more frequent in school- or preschool- children and in crowded conditions. Enterobiasis appears to be more common in temperate than tropical countries. The most common helminthic infection in the United States (an estimated 40 million persons infected).

Clinical Features:

Enterobiasis is frequently asymptomatic. The most typical symptom is perianal pruritus, especially at night, which may lead to excoriations and bacterial superinfection. Occasionally, invasion of the female genital tract with vulvovaginitis and pelvic or peritoneal granulomas can occur. Other symptoms include anorexia, irritability, and abdominal pain.

Laboratory Diagnosis:

Microscopic identification of eggs collected in the perianal area is the method of choice for diagnosing enterobiasis. This must be done in the morning, before defecation and washing, by pressing transparent adhesive tape ("Scotch test", cellulose-tape slide test) on the perianal skin and then examining the tape placed on a slide. Alternatively, anal swabs or "Swube tubes" (a paddle coated with adhesive material) can also be used. Eggs can also be found, but less frequently, in the stool, and occasionally are encountered in the urine or vaginal smears. Adult worms are also diagnostic, when found in the perianal area, or during ano-rectal or vaginal examinations.

Diagnostic findings

- Microscopy
- Morphologic comparison with other intestinal parasites

Treatment:

The drug of choice is pyrantel pamoate. Measures to prevent reinfection, such as personal hygiene and laundering of bedding, should be discussed and implemented in cases where infection affects other household members.