

ENTEROBIUS VERMICULARIS

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Enterobius vermicularis (Linnaeus, 1758)

Common Names: Threadworm, pinworm, seatworm.

Geographical Distribution. It is cosmopolitan in distribution

Habitat. Adult worms (gravid females) live in the caecum and vermiform appendix

Morphology.

ADULT WORM.

It is small and white in colour. It is more or less resembles a short piece of thread.

In both male and female, a pair of cervical alae (Winglike expansions) is present at the anterior extremity

There is no buccal cavity.

The posterior end of the oesophagus is dilated into a conspicuous globular bulb (a doublebulb oesophagus), a characteristic feature of this nematode.

- **Male.** It measures 2 to 4 mm in length and 0.1 to 0.2 mm across its girth.
- The posterior third of the body is curved and sharply truncated.
- It is rarely seen and is difficult to obtain except after a purge.
- It usually dies after fertilising the female. .

Female.

- It measures 8 to 12 mm in length and 0.3 to 0.5 mm across its thickest part.
- The posterior extremity is straight and drawn out into “a long, tapering and finely pointed tail which is nearly one-third the length of the worm. The gravid female, after oviposition, dies within 2 to 3 weeks.
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EGGS.

- The general characteristics of the egg are as follows: (i) Colourless, i.e., not bile-stained.
- (ii) Asymmetrical in shape, being plano-convex, i.e., flattened on one side (the ventral side) and convex on the other (the dorsal side).
- (iii) Measures 50 to 60 μm in length by 30 μm in breadth. (iv) Surrounded by a transparent shell.
- (V) Contains a coiled tadpole-like larva.
- (Vi) Floats in saturated solution of common salt.

Life Cycle.

- No intermediate host is required
- Each of the eggs, newly-laid on the perianal skin, containing a tadpole-like larva completes its development in 24 to 36 hours' time, in the presence of oxygen.
- Infection occurs by ingestion of these eggs.
- The egg-shells are dissolved by digestive juices and the larvae escape in the small intestine where they develop into adolescent worms.
- After the worms become sexually mature, the male fertilises the female and dies.
- The gravid female then migrates from the small intestine down to the caecum and colon
- The fertilised female then wanders down the rectum and works its way out of the anus during the night (after the patient has retired to bed) to deposit eggs on the perianal skin.
- The cycle is then repeated. The whole life cycle is completed in 2 to 4 weeks' time.

Pathogenicity.

MODE OF INFECTION.

Children are the usual victims and familial infection is common. Transmission is effected from one person to another by the ingestion of eggs.

The first infection is either contagious from close association or due to contaminated food and drink.

Persons handling the night-clothes and bed linens of infected patients often contract the infection.

There is also a possibility of the infection being air-borne, specially in an infected place.

Auto-infection.

The movement of the worms at the time of egg-laying causes intense itching, inducing the patient to scratch the affected part and thereby carrying the eggs containing the infective larvae on their fingers.

These eggs are subsequently transferred to food and swallowed by the patient himself or the infection may occur direct from anus-to-mouth, a very common habit with children.

Retrofection (Retrograde Infection).

This is a process in which the eggs laid on the perianal skin immediately hatch into the infective-stage larvae and migrate through the anus to develop into adolescent forms in the colon.

PATHOGENESIS.

The significant pathology is the irritation caused by the gravid females around the anus. The migrating females often enter into the female genital tract and female urethra, causing inflammation. These worms may even enter into the peritoneal cavity through the Fallopian tubes.

Clinical Features

- Pruritus perianal and an eczematous condition round the anus and perineum, salpingitis,
- nocturnal enuresis (frequency of micturition) and sometimes (2 per cent of cases)
- inflammation of the vermiform appendix

Laboratory Diagnosis.

DETECTION OF ADULT WORMS

- (a) The worms are often discovered by the patient himself or by the parents of the children.
- (b) If there is any history Of passage of small whitish worms in the faeces,
- (c) The adult worms may be recovered from stool after a purge or an enema.
- ((1) Inspection Of the anal region at the time of commencement Of itching may reveal the gravid females.

DEMONSTRATION OF EGGS

- ⦿ Although oviposition in the bowel is exceptional, microscopical examination of stool for eggs of *E. vermicularis* either by a direct smear examination or by concentration method may occasionally be successful.
- ⦿ Eggs are generally demonstrated in the scrapings from the perianal skin by mm it is advisable to take the swab immediately after the patient wakes up in the morning.
- ⦿ Eggs can also be recovered from under the finger-nails and the washings from garments

Reference

- Essentials of Medical Parasitology Apurba Sankar Sastry
- Medical Parasitology K.D Chatterjee