

# **Topic: *Ancylostoma***

**Dr. Chitra Singh**

(Associate Professor)

**Department of Zoology  
Isabella Thoburn College,  
7, Faizabad Road, Lucknow-226007**

## *Ancylostoma*

Intestinal hookworm disease in humans is caused by *Ancylostoma duodenale*, *A. ceylanicum*, and *Necator americanus*. Classically, *A. duodenale* and *N. americanus* were considered the two primary intestinal hookworm species worldwide, but newer studies show that a parasite infecting animals, *A. ceylanicum*, is also an important emerging parasite infecting humans in some regions. Occasionally larvae of *A. caninum*, normally a parasite of canids, may partially develop in the human intestine and cause eosinophilic enteritis, but this species does not appear to reach reproductive maturity in humans.

Another group of hookworms infecting animals can penetrate the human skin causing cutaneous larva migrans (*A. braziliense*, *A. caninum*, *Uncinaria stenocephala*). Other than *A. caninum* noted above, these parasites do not develop further after their larvae penetrate human skin.

Eggs are passed in the stool, and under favorable conditions (moisture, warmth, shade), larvae hatch in 1 to 2 days and become free-living in contaminated soil. These released rhabditiform larvae grow in the feces and/or the soil, and after 5 to 10 days (and two molts) they become filariform (third-stage) larvae that are infective. These infective larvae can survive 3 to 4 weeks in favorable environmental conditions. On contact with the human host, typically bare feet, the larvae penetrate the skin and are carried through the blood vessels to the heart and then to the lungs. They penetrate into the pulmonary alveoli, ascend the bronchial tree to the pharynx, and are swallowed. The larvae reach the jejunum of the small intestine, where they reside and mature into adults. Adult worms live in the lumen of the small intestine, typically the distal jejunum, where they attach to the intestinal wall with resultant blood loss by the host. Most adult worms are eliminated in 1 to 2 years, but the longevity may reach several years.

Some *A. duodenale* larvae, following penetration of the host skin, can become dormant (hypobiosis in the intestine or muscle). These larvae are capable of re-activating and

establishing patent, intestinal infections. In addition, infection by *A. duodenale* may probably also occur by the oral and the transmammmary route. *A. ceylanicum* and *A. caninum* infections may also be acquired by oral ingestion. *A. caninum*-associated eosinophilic enteritis is believed to result following oral ingestion of larvae, not percutaneous infection. *N. americanus* does not appear to be infective via the oral or transmammmary route.

