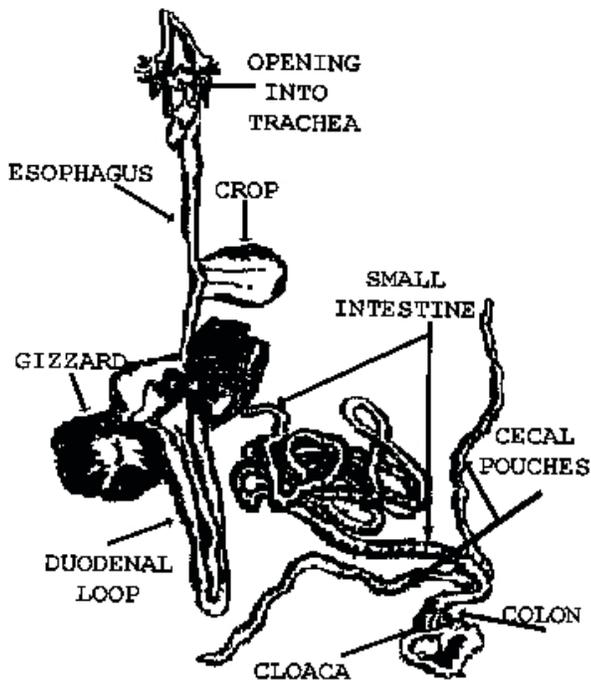


Nematode Parasites of Poultry (and Where to Find Them) ¹

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Nematodes or roundworms are the most important group of helminth parasites of poultry. This is due to the large number of parasitic species (23) that cause damage to the host, especially in severe infections. Roundworms are elongated, cylindrical and unsegmented. They are covered with a tough, noncellular layer called the cuticle. Roundworms have a well-developed alimentary tract.



Intestinal gastro tract of chicken including selected organs.

Nematode Life Cycle

Each species of roundworm tends to infect a specific area of the intestinal gastro tract. Different species of the same genus may infect several different areas of the tract. In general, the different species of roundworms have very similar life cycles. Adult roundworms lay eggs inside the infected bird. The eggs are voided from the hosts through the feces. The eggs incubate in soil before they become infective. Roundworms may or may not require intermediate hosts. The eggs or intermediate hosts must then be consumed by the avian host. Once the infective agent finds its way back to its infective site, the cycle is complete. An interesting example of this is the eye worm (*Oxyspirura mansoni*). The eye worm lays eggs on the surface of the eye. These eggs are then washed down the naso-lachrymal duct and pass into the intestinal tract of the host and are voided with feces. The eye worm eggs must then be consumed by a cockroach, the intermediate host. After an incubation period, the worm larvae becomes free inside the body cavity and legs of the cockroach. After the cockroach has been consumed by the avian hosts (chickens, turkeys, peafowl and ducks) the eye worm larvae are released in the crop. They migrate up the esophagus, tear ducts and back to the eye. The time required for the cycle to be completed may be a few days or several weeks depending upon the worm species.

Six infectious groups of roundworms are identified in this fact sheet. The first three groups (large roundworms, cecal

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worms and capillaria) are the more common, the remaining three groups (eye worms, gapeworms and gizzard worms) are less common.

Prevention

The best method for controlling roundworms is prevention, which includes sanitation of the area where poultry are kept, controlling secondary hosts, keeping poultry age groups separated and keeping different kinds of poultry separated. Secondary hosts include not only insects such as beetles, roaches and grasshoppers, but also earthworms.

Problems associated with roundworms can be reduced if the hosts are maintained on wire placed above ground level, thus preventing contact with contaminated feces and/or intermediate hosts.

Symptoms

Symptoms of roundworm infections closely resemble symptoms of other types of diseases. The presence of roundworms should be identified prior to using chemical treatment. In all cases if chemical treatments are to be used, **manufacturers recommendations should be followed.**

Large roundworms

Primary species: *Ascarida galli*

Location: Lumen of intestines

Symptoms: Large roundworms are found in all ages of chickens, the greatest amount of damage is in young birds under 12 weeks of age. Unthriftiness, drooping of the wings, bleaching of the head and emaciation are described. In adult hens, egg production can be reduced. In heavy infections, large roundworms may move up the oviduct and be found in hens' eggs, and sometimes large roundworms can be found in the birds' feces.

Autopsy: Large numbers of worms can occlude the intestines and penetrate the mucosa during growth causing injury, loss of blood and permitting bacterial infection.

Treatment: Piperazine salts, continuous medication in feed with Hygromycin B.

Cecal Worms

Primary species: *Heterakis gallinae*

Location: Lumen of cecal pouches

Symptoms: With heavy infection (500), especially in young birds, listlessness, depression and unthriftiness are present. In production birds, heavy infestation of cecal worms can adversely affect production. Cecal worm eggs can be carriers of the blackhead organism *Histomonas meleagridis*.

Autopsy: Large numbers of worms can cause thickening of the cecal walls, hemorrhages.

Treatment: Phenothiazine as drug of choice, piperazine salts, Hygromycin B in the feed and Levamisole.

Capillaria or Small Roundworms

Primary species: *Capillaria amulata*

Location: Embedded in the lining or mucosa of the [esophagus](#), [crop](#), [duodenum](#) and [small intestine](#).

Symptoms: Droopiness, anemia, muscular weakness, loss of appetite, foul breath, emaciation, twisting of the neck and paralysis of the legs are described.

Autopsy: To identify presence of small roundworms, scrape mucosa of infected area, wash through a fine mesh screen, backwash into a large glass jar. Identify worms suspended in the backwash. Inflammation and thickening of walls are described.

Treatment: Levamisole in drinking water, Hygromycin B in feed.

Eye Worms

Primary species: *Oxyspirura mansoni*

Location: Under the nictitating membrane of the eye and in the naso-lachrymal duct.

Symptoms: Scratching of the eyes; can cause blindness.

Treatment: Physical removal of worm using local anaesthetic.

Gapeworms

Primary species: *Syngamus trachea*

Location: Inner lining of trachea

Symptoms: Respiratory distress and death may occur from asphyxiation.

Autopsy: Red worms can be found in trachea causing inflammation, ulceration and accumulation of mucus in the trachea.

Treatment: None

Gizzard Worms

Primary species: *Cheilospirura hamulosa*

Location: Musculature of gizzard

Symptoms: Dullness, loss of appetite, emaciation, weakness and death are described.

Autopsy: Presence of red worms attached to musculature of gizzard at opening to proventriculus; nodules also may be present.

Treatment: None

Descriptions

Gapeworms: Red, $\frac{1}{4}$ to $1\frac{1}{2}$ inches* long, worms that infect the inner lining of the trachea. Two species involved.

Large Roundworms: Grey, white worms $1\frac{1}{2}$ to 4 inches* long infecting the lumen** of the duodenal loop through the small intestines. Several species of roundworms involved.

Cecal Worms: White, $\frac{1}{4}$ - to $\frac{1}{2}$ -inch* long worms infecting the lumen** of the cecal pouches. Several species of roundworms involved.

Eye Worms: White, $\frac{1}{4}$ - to $\frac{1}{2}$ -inch* long worms infecting the eye, beneath the nictitating membrane. One species of roundworms involved.

Gizzard Worms : Red, $\frac{1}{2}$ to 1 inch* long, worms that infect the musculature of the gizzard.

* Length varies with age and species.

** Lumen is the space inside the specific organ wall occupied by feed that is being digested and/or absorbed.