



College of Veterinary Medicine
Department of Pathology & Poultry Diseases



Poultry Parasitic Diseases

HELMINTH PARASITES

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NEMATODES OF THE RESPIRATORY TRACT

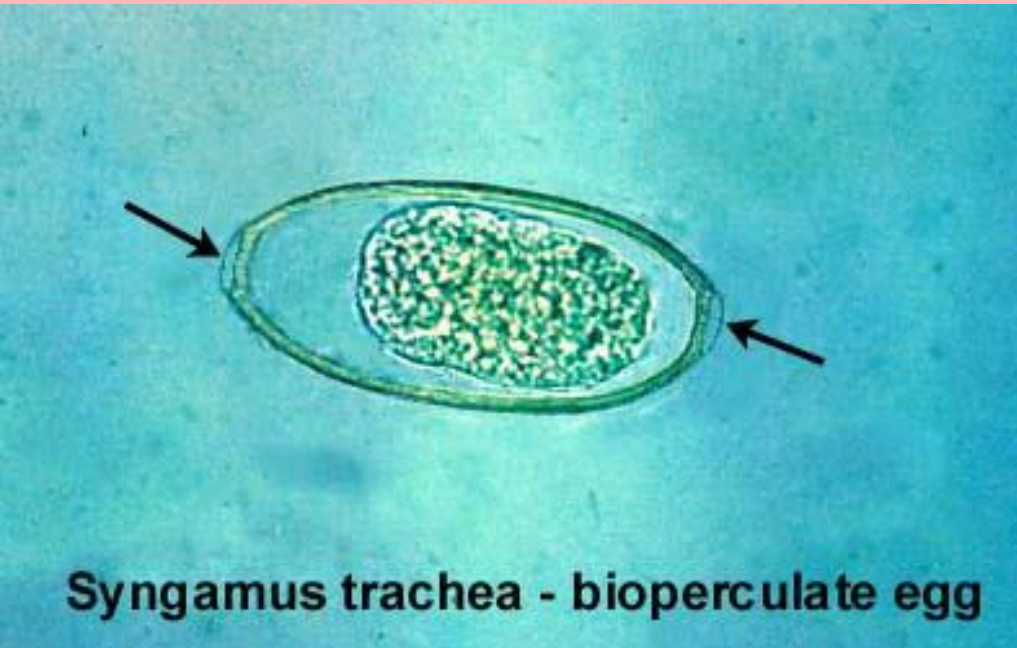
Syngamus trachea causes the condition of 'gapes' in chickens.

((the related *Cyathostoma bronchialis* causes a similar condition in geese)).

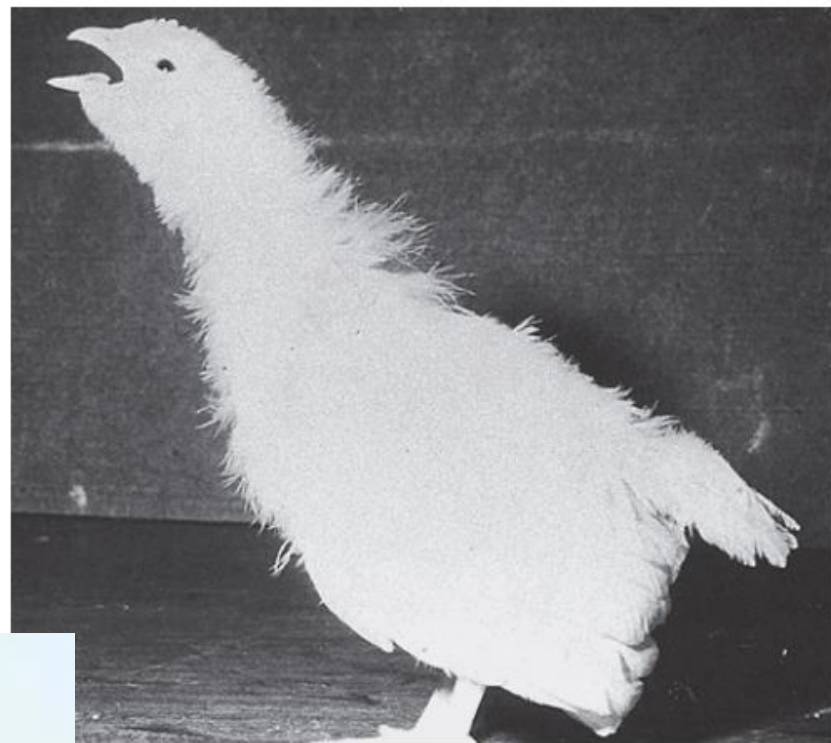
Syngamus parasitizes the trachea of a variety of wild as well as domestic birds.

The *Syngamus* are red in color due to suckling the blood (some time called "**Red Worm**").

The Disease is due to physical blockage of the airway, leading to dyspnea, manifested by an outstretched neck with open mouth but may also manifest as lack of condition and mortality.



Syngamus trachea - bioperculate egg



infected by *Syngamus trachea*.





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The life cycle may be direct or, more usually, indirect, involving the earthworm. As a result, soil can remain infected for years. The disease is now most usually seen in birds reared in outdoor pens, such as game birds and ornamental or zoo birds.

((*Syngamus* eggs must be distinguished from those of *Capillaria* spp.))

Treatment : Thiabendazol (0.5%)



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Digestive Nematodes

Cause :

Worms living in the intestines of chickens fall mainly into four categories.

1. **Roundworms** (Ascarid), usually 5 to 7 cm (2-3 inches) long.
1. **Hair(Thread)worms** (Capillaria), only measure 1-1.5 cm long.
1. **Caecal worms** (Heterakis), usually 1.5 cm long.
2. **Tape worms** (Raillietina, Davainea), usually 7 to 10 cm long, consisting of many small segments.



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Digestive Nematodes

There are three main genera of significance:

- *Capillaria* spp.
- *Heterakis*
- *Ascaridia*,

which can readily be distinguished by gross differences in size.



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***Capillaria* spp.**

while the smallest of these nematodes, can be highly pathogenic when present in large numbers.

Different species parasitize different parts of the alimentary tract and may have direct or indirect life cycles.

- ***Capillaria contorta*** and ***Capillaria annulata*** (in the esophagus and Crop)
- ***Capillaria obsignata*** (in the intestine) which has a direct cycle and can be a problem in birds on litter.

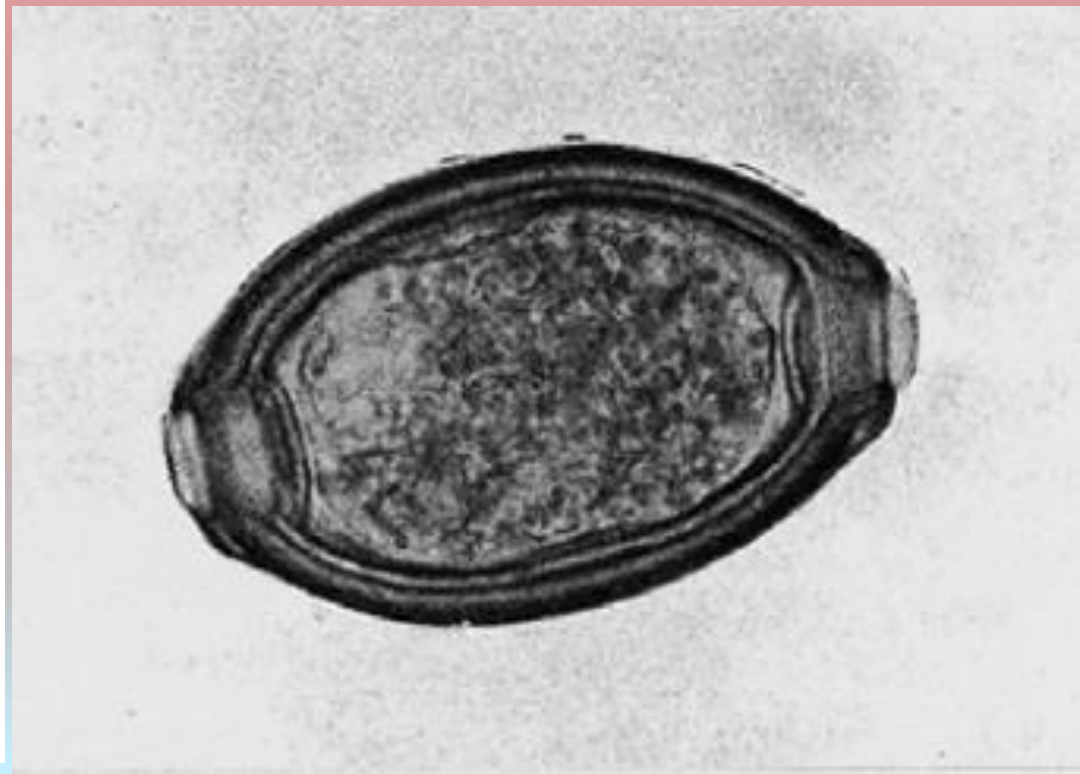
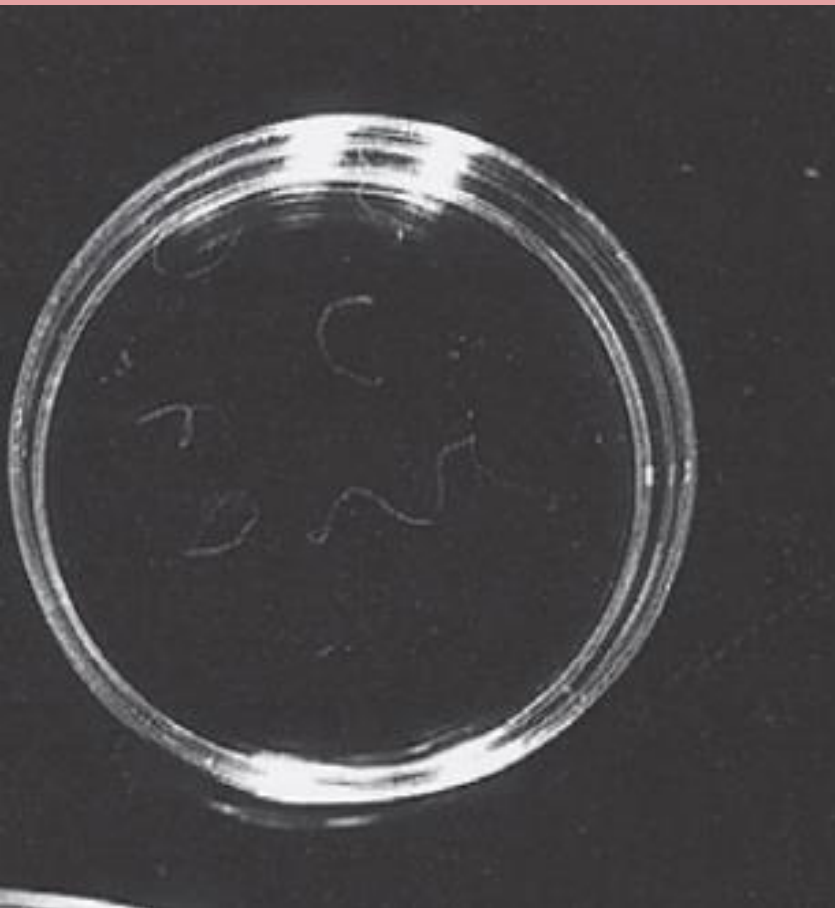
Post-mortem, worms are found by careful examination of mucosal washings under a dissecting microscope.

The adult male worms have a single spicule enclosed by a spicule sheath, and the eggs are distinctive.



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Heterakis gallinarum

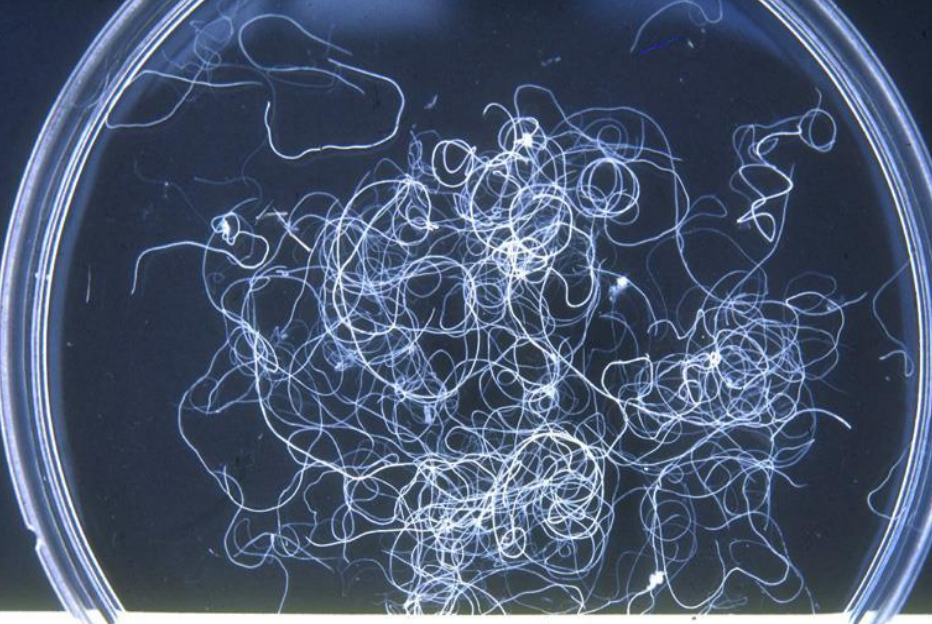
It is found in the caecum of chickens, turkeys and many other species.

It is probably never pathogenic but is important because of its role in the transmission of Histomoniasis.

Thickening & congestion of the caecum , some times cause nodular lesions.

Heterakis isolonche invades the caecal mucosa of pheasants and can cause a severe or fatal nodular typhlitis.

((*Heterakis* spp. have a direct life cycle)).



Tail of an adult male *Heterakis gallinarum*
from the cecum of a duck

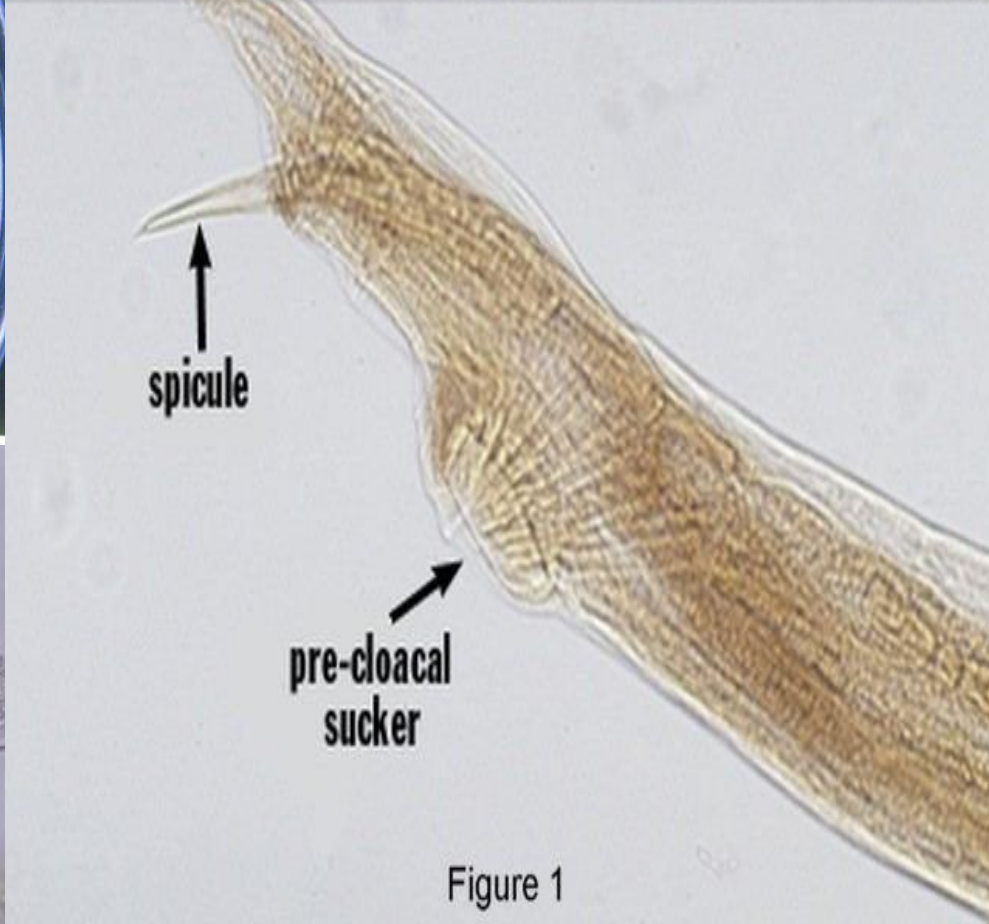


Figure 1



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Ascaridia

Ascaridia are the largest nematodes of birds. The adults live in the lumen of the small intestine but the larval stages invade the mucosa.

Ascaridia galli may cause ill-thrift, enteritis or intestinal impaction, the degree of effect being related to the number of worms present.

The life cycle is direct, so debilitating infestations can occasionally occur in birds on litter, especially if the litter is reused in the case of broilers.



ascarids



ascarids

Ascaridia galli





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CESTODES AND TREMATODES

A large number of cestodes and trematodes have been described in birds. Most are of low pathogenicity.

All require intermediate hosts and are of negligible importance in modern poultry operations.

Trematodes utilize molluscan intermediate hosts and are especially prevalent in free-ranging waterfowl.

Cestodes utilize arthropod and other invertebrate intermediate hosts..

They parasitize the digestive or reproductive tracts. the commonest to occur in modern poultry operations is *Railletina cesticillus*.

Table 39.5 | Some tapeworms and trematodes of poultry

TAPEWORMS	PRINCIPAL DEFINITIVE HOST	INTERMEDIATE HOSTS	LENGTH OF MATURE WORM (MM)
<i>Amoebotaenia cuneata</i>	Chicken	Earthworms	3
<i>Choanotaenia infundibulum</i>	Chicken	Housefly, beetles	50–200
<i>Davainea proglottina</i>	Chicken	Slugs, snails	4
<i>Echinostoma revolutum</i>	Duck, chicken, turkey	Various species of water snail	10–22
<i>Hymenolepis cantaniana</i>	Chicken	Beetles	20
<i>Hymenolepis carioca</i>	Chicken	Stable fly, dung beetles	40
<i>Prosthogonimus macrorchis</i>	Chicken, duck	Water snail and then dragonfly	5–7
<i>Raillietina cesticiillus</i>	Chicken	Beetles	50–150
<i>Raillietina tetragona</i>	Chicken	Ants	100–250
<i>Raillietina echinobothrida</i>	Chicken	Ants	200–340



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Diagnosis

- Post mortem examination of the intestinal contents will reveal round-worms, caecal worms, and tape worms without difficulty.
- Capillaria can usually be found when intestinal contents are washed through a fine mesh sieve.



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CONTROL OF HELMINTHIASES

- Management practices largely determine the extent and types of helminthiases.
- For species that produce highly resistant eggs (e.g. *Ascaridia*), the reuse of litter, or inadequate cleaning between crops, may allow a sequential build-up of potentially harmful parasite numbers.
- **Flubendazole** can be given in feed to chickens, geese, turkeys and game birds to control intestinal nematodes and *Syngamus trachea*.
- For cestodes and trematodes, control measures are best directed against the intermediate hosts.



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- Piperazine \ nontoxic.
Works by paralyzing worms long enough to be evacuated from the intestinal tract.
- Piperazine dihydrochloride
Most common - powder form for feed or water use.
- Piperazine sulfate .
Liquid for water use