

2 Internal Parasites:-

1 Nematodes:-

A) Nematode of the upper Digestive tract:-

- 1-Capillaria annulata.
- 2-Ascaridia galli.
- 3-Capillaria obsignata.
- 4-Heterakis gallinarium .

B) Nematode of respiratory tract.

- ***Syngamus trachea.**

2 Cestodes:-

- 1-Davainea proglottina.
- 2-Raillietina spp.

2 Internal Parasites:-

1 Nematode:-

There are three main genera (Capillaria spp, Heterakis and Ascaridia).

A) Nematode of the upper Digestive tract:-

(which can distinguished by gross differences in size).

1-Capillaria annulata.

***Susceptible host:-**

Chicken, turkey, goose, pheasant and quail.

***Location:-**

It is found in the mucosa of the esophagus and the crop.

***Mophology:-**

Cylindrical, cuticular swelling at the back of the head.

***Life cycle:-** two species of earthworms.

***Pathogenicity:-**

1-Thickening of mucosa of the crop and enlargement of glands.

2-Inflammation of the crop and esophageal walls.

2-Ascaridia galli

***Susceptible host:-**

Chicken, turkey, doves, duck and geeze.

***Location:-**

Lumen of intestine, crop, esophagus, gizzard and in **oviduct, egg.**

***Mophology:-**

The worms are large,thick,yellowish **white** color, their head has three large lips.

***Life cycle:-**

It has direct life cycle (one earth worm).

***Pathogenicity:-**

1-Loss of weight, **retarded growth**, in severe infections, **intestinal blockage** can occur.

2-Chicken infected with a large number of this Ascardia suffer from **loss of Blood.**

3-Capillaria obsignata

***Susceptible host:-**

Chicken, turkey, Pigeon, quail.

***Location:-**

Small intestine.

***Morphology:-**

It is hairlike.

***Pathogenicity:-**

1-Birds heavily infected, suffer **emaciation**, diarrhea, **hemorrhagic enteritis**.

2-Lowered feed efficiency, fluid and metabolite losses, and **sometimes death**.

3-In other cases, infections of 100-1000 worms cause no weight changes.

4-Heterakis gallinarium

***Susceptible host:-**

Chicken, turkey, duck, geese and pheasant.

***Location:-**

Larvae and adult inhabit the ceca.

***Morphology:-**

The adult worms are **small** and **white** in **color**, the mouth is surrounded by three small, equal-sized lips.

*The chief importance of the cecal worm lies in its role as a **carrier of the blackhead organism Histomonas meleagridis**.

***Pathogenicity:-**

- 1-The **ceca** show marked **inflammation** and thickening of the walls.
- 2-In heavy infections, **nodules form** in the mucosa and submucosa.
- 3-Hepatic granulomas.

B) Nematode of respiratory tract.

Syngamus trachea

***Susceptible host:-**

Chicken, turkey, pheasant and quail.

***Location:-**

In trachea, bronchi and bronchioles.

***Morphology:-**

S. trachea are called “**redworms**” because of their prominent color, “**forked worms**” because the male and female are always locked in copulation to form a “Y” and “**gapeworms**” because birds tend to gasp or “gape” with heavy infection.

***Pathogenicity:-**

- 1-**Young birds** are the most seriously affected by gapeworms.
- 2-The rapidly growing worms soon **obstruct** the lumen of the trachea and cause the birds to **suffocate**.
- 3-The trachea of infected birds becomes irritated with inflamed mucous membranes, resulting in **coughing**.
- 4-These lesions or nodules result from an inflammatory reaction at the site of permanent **attachment of the male worms**.

2 Cestodes:-

- 1- Most birds are hosts to some species of cestodes or tapeworms (phylum Platyhelminthes/class Cestoda).
- 2-More than **1400 species** of tapeworms have been described from **wild and domestic birds**.
- 3- These parasites are found more frequently in **warmer seasons**, when intermediate hosts are abundant (increase).
- 4- Many species of tapeworms are now considered **rare** in intensive poultry-rearing regions because the birds do **not come in contact** with **intermediate hosts**.
- 5- **Beetles** and **houseflies** inhabiting poultry houses still act as intermediate hosts for the 2 large chicken tapeworms known only by the scientific names *Raillietina cesticillus* and *Choanotaenia infundibulum*.

- 6- Some infections of the **larger tapeworms** may appear to **block** completely the **intestine** of an infected bird, but **mortality** from cestodiasis or long-term effects are **rare**.
- 7- Tapeworms or cestodes are flattened, ribbon shaped, usually segmented worms.
- 8- The term **proglottid** is used to describe these individual segments.
- 9- **One to several gravid proglottids** are shed daily from the posterior end of the worm.
- 10- Each proglottid contains one or more sets of reproductive organs, which may become crowded with a **mass of eggs** as the maturing proglottid becomes a **gravid proglottid**.
- 11- Tapeworms are characterized by complete **absence** of a **digestive tract** and obtain their nourishment by **absorption from the gut contents** of the host.
- 12- Although the duodenum, jejunum, or ileum is the usual site for attachment, 1 species (*Hymenolepis megalops*) from **ducks** is found in the **cloaca** or **bursa of Fabricius**.
- 13- **Birds** become infected by **eating an intermediate host**, thus allowing the **larval stage** of the tapeworm access to **the intestine**. This larval tapeworm is known as a **cysticercoid**.
- 14- The **intermediate host** may be an insect, crustacean, earthworm, slug, snail, or leech depending upon the species of tapeworm.

1-Davainea proglottina.

***Diagnostic Characteristics:-**

1-This **microscopic tapeworm** may be recognized in the **duodenal** mucosa and gravid proglottids lie on above the **villi of intestine**.

2-Mature worms measure up to **4 mm long**; never with more than **9 proglottids**; suckers are armed with **3–6 rows of hooks**.

***Pathogenicity:-**

1-This parasite is one of the **more harmful** species in **young birds**.

2-It cause reduction in growth and **emaciation**, slow movements, **breathing difficulties**.

3-The gross lesion, there is thickened mucosal membranes that produce **hemorrhage** and fetid mucus.

4-leg weakness, paralysis, and death.

2-Raillietina spp

***Diagnostic Characteristics:-**

The parasite **large tapeworms** measuring between **(15-34 cm) long** and **(3-4mm) wide**, embeds in the mucosa of duodenum or jejunum.

***Pathogenicity:-**

A) **Raillietina cesticillus** cause **emaciation, inflammation of villi, reduced growth rate**.

B) **Raillietina echinobothrida**:-

1-***R. echinobothrida*** is usually listed as one of the **most pathogenic tapeworms**, because its presence has often been associated with **nodular disease** of chickens.

2-The condition was associated with **catarrhal hyperplastic enteritis** as well as lymphocytic, polymorphonuclear, and eosinophilic infiltration.

***Treatment of Internal Parasites:-**

1-Ascaridia galli.

***The treatment by:-**

1-Piperazine salts at dose levels that ranged from (50 to 400 mg/kg bw.) were tested, and very little efficacy was observed in either chickens or turkeys.

2-Fenbendazole.

3-Oxfendazole at dose (3.5mg/kg) of B.W for ascaid control.

4-Tetramisole (40 mg/kg) of B.W.

2-Capillaria obsignata.

***The treatment by:-**

1- Fenbendazole.

2-Albendazole at dose (20 mg/kg) of B.W.

3- Tetramisole (40 mg/kg) of B.W.

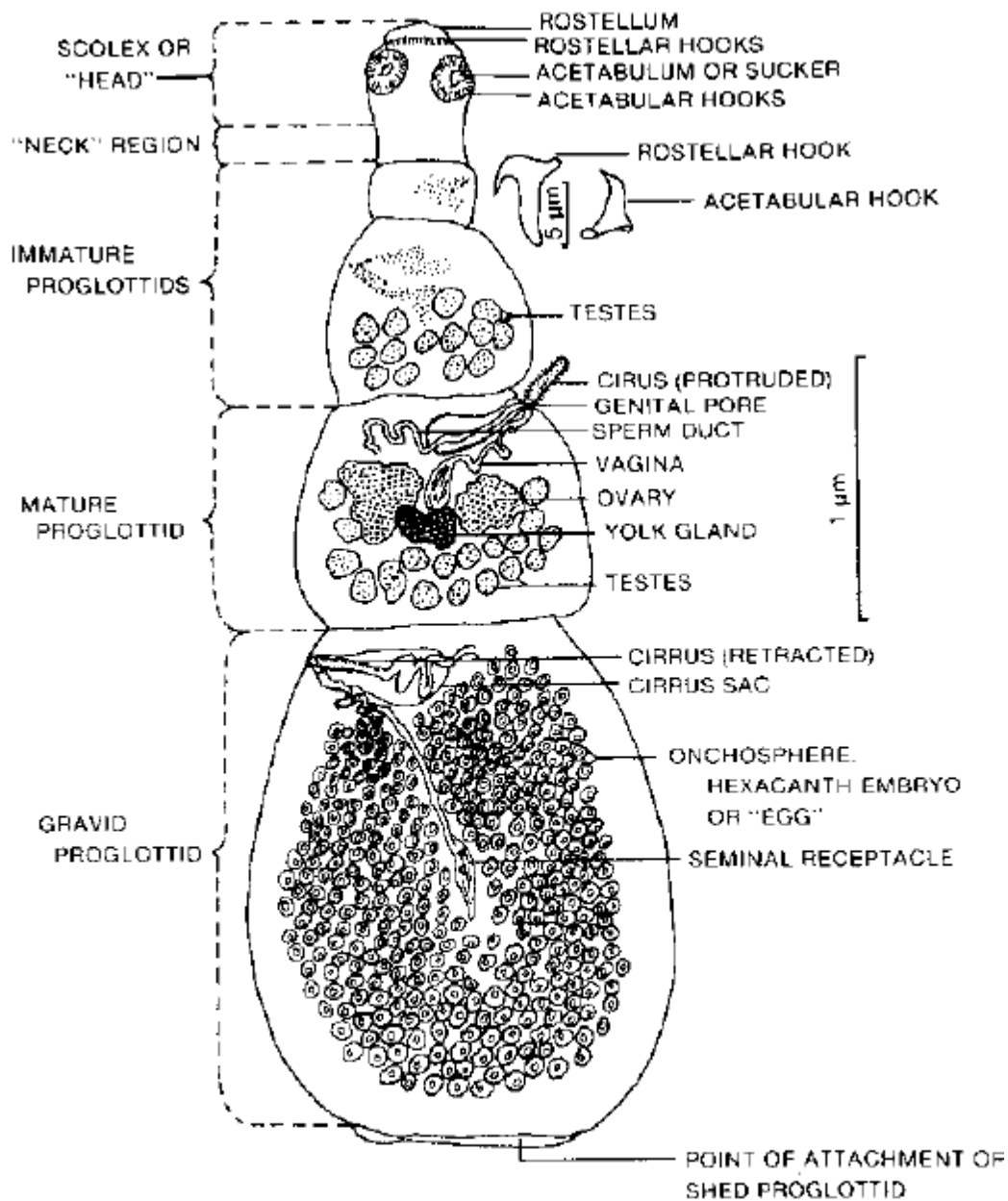
3-Heterakis gallinarium.

***The treatment by:-**

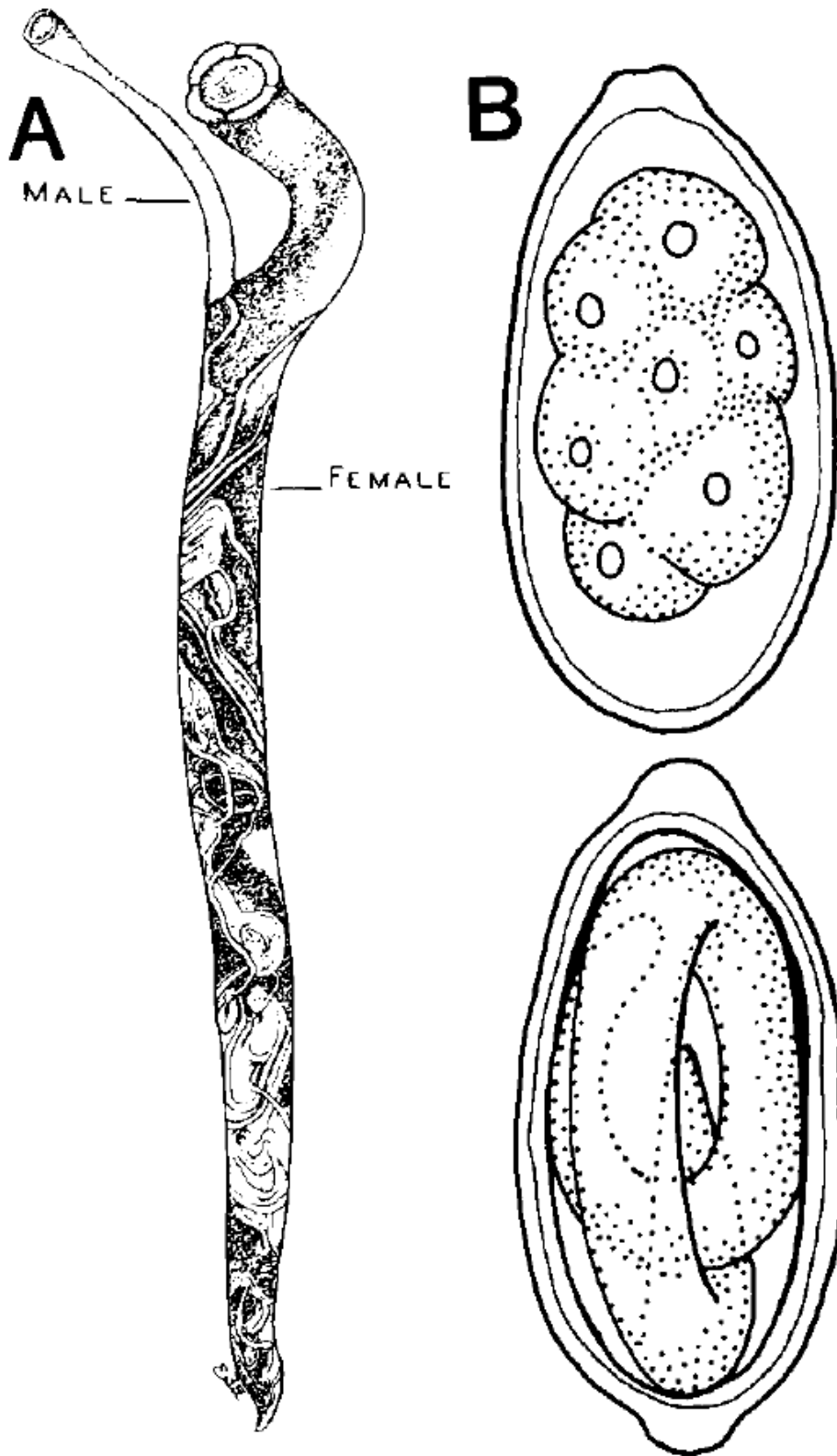
- 1-Fenbendazole** had 100% efficacy in turkeys.
- 2- Albendazole** at dose (5-20 mg/kg) of B.W.
- 3- Tetramisole** (40 mg/kg) of B.W.
- 4-Levamisole** 30mg/kg of B.W. in drinking water.

4-Syngamus trachea (Gape):-

- 1-Thiobendazole** 0.5%.
- 2-Mebendazole.**
- 3- Levamisole** at a dietary level of 0.04% for (2) days or in the drinking water with concentration of (2g/gal) for 1day each month.
- 4-Fenbendazole** at **20mg/kg** for (3-4days) is also effective.



27.33. Adult tapeworm (*Davainea proglottina*). Although readily seen with the naked eye, this species has been called a "microscopic tapeworm," because it is small and often overlooked.



27.25. *Syngamus trachea*. A. Male and female worms. (After Wehr)
B. Egg.