**Lecture No. 16 PARASITOLOGY DR.Raad H.H.**

**Family Anoplocephalidae**.

**Genus** **Anoplocephal**a

**Identification** :

1. 1 set of reproductive system in mature proglottid.
2. 1 genital pore on one side .
3. Eggs triangle with pyriform apparatus .
4. Infects equine intestine .
5. Intermediate host the oribatid mite
6. Three species of tapeworms (***Anoplocephala perfoliata*, *Anoplocephala magna*).**

|  |  |  |
| --- | --- | --- |
| Character  | *Anoplocephala perfoliata* | *Anoplocephala magna* |
| Site |  ileocecal junction. | Small intestine |
| Length | 8x1-2cm. | 8ox1-2cm. |
| scolex | Flaps as LAPPETS | Without LAPPETS |





**Note the "pyriform apparatus" around the oncosphere in the center of the egg.**

1. Clinical signs for which *A. perfoliata* should be considered as a possible cause are colic, poor growth, and unthriftiness. *A. magna* have been associated with enteritis.
2. **Treatment:**

Copper sulfate / phenothiazine / Copper sulfate / nicotine sulfate / phenothiazine , Albendazole ,Fenbendazole ,Cambendazole, Oxfendazole /Bithionol /Niclosamid

### Control:

### Treat animals in the late spring or early summer. If necessary, treat again in the autumn. Infected mites on pasture can be controlled by plowing and reseeding pasture or by rotating pastures.

 **Genus Moniezia**

Identification:

1. 2 sets of reproductive system in mature proglottid , one on each side.
2. Eggs more square , triangle with pyriform apparatus .
3. Rosette-like Interproglottid glands between each segment with unknown function .
4. Numerous testis ; ovary had horse shoe shape.





 **Egg; note square shape**

1. Species differentiation:
2. ***M.expansa*** :1.5cm. x1-6 m. ; sheep ,goat ,cattle ,camel; Interproglottid glands as circular spots .
3. ***M.benedeni*** : 2.5 cm.x1-4 m.; cattle ; Interproglottid glands as thin wide line.
4. ***M. denticulate*** : 1.5cm. x 0.5m. ; ruminants ; without Interproglottid glands.
5. ***M. trigonophore*** : like ***M.expansa***.
6. ***M.pallida*** : hrses ; ; Interproglottid glands as thin long line.
7. **Pathogenesis and Clinical Signs**

Moniezia is quite prevalent in lambs, and calves under six months of age. Light infections with Moniezia spp. are of little importance. Workers in the US have not been able to detect any serious effects even from heavy burdens. One may observe that the intestine is a solid mass of tapeworms. They may cause diarrhea and unthriftiness. Obstruction of the intestine has been reported.

 **Genus Avitellina**

Identification:

1. 1 set of reproductive system in mature proglottid .
2. Eggs oval pointed without pyriform apparatus .
3. No **vitelline** **gland**.
4. Genital pore changed without order between proglottids .
5. 4 sets of testis
6. Gravid proglottid contain Par-uterine organ.
7. 2-4 m. length.



 **Genus** **Stilesia**

Identification:

1. 2 sets of testis
2. Gravid proglottid contain pair of Par-uterine organ.
3. Eggs oval without pyriform apparatus .
4. Infects ruminants small intestine except ***S***.***hepatica*** in gall bladder.
5. Length about 70cm.



 **Family Thysanosomatidae**

**Genus *Thysaniezia***

1. 1sets of testis
2. Genital pore on one side changed without order between proglottids.
3. Eggs oval without pyriform apparatus .
4. Gravid proglottid contain pair of Par-uterine organ.
5. Length more than 2m.
6. Species ***Thysaniezia giardi*** :

occurs in the **small intestine of sheep, goat and cattle**. Appears to be of little pathogenic significance. **Called also *Helictometra giardi*.**

1. *Thysaniezia giardi*, a milky-white organism that measures as much as 5 m in length and 10 mm in width; the organism consists of a head, neck, and numerous segments. The life cycle of the parasite has not been studied.
2. Thysanieziasis occurs in the countries of the eastern hemisphere that have a moderate or warm climate, including the USSR, where it affects sheep more than one year old are particularly susceptible to infection. Sluggishness, salivation, and loss of coordination are the main symptoms of the disease. Epizootics usually occur among sheep in winter and fall.
3. *Thysaniezia giardi*, heteroxenous, is accomplished with the participation of intermediate hosts, grass mites consist of the families: *Scheloribatidae*, *Galumnidae*, *Liacaridae*.



 **Family** **Davaineidae**

Members of the [family](http://www.answers.com/topic/family) are characterized by the presence of a crown of [**rostellum**](http://www.answers.com/topic/rostellum-1) at the tip of the [scolex](http://www.answers.com/topic/tapeworm), and the [rostellum](http://www.answers.com/topic/rostellum-1) is made up of mattock- or [**hammer**](http://www.answers.com/topic/hammer)-shaped [**hooks**](http://www.answers.com/topic/hooks-3). The [rostellum](http://www.answers.com/topic/rostellum-1) is surrounded by [suckers](http://www.answers.com/topic/sucker) which are armed with spines. **Uterus in gravid segment contain egg capsule** .These tapeworms are most commonly found in [**birds**](http://www.answers.com/topic/bird), and in **few** cases, [**mammals**](http://www.answers.com/topic/mammal), which are the **definitive** **hosts**. **Intermediate** **hosts** are small [**insects**](http://www.answers.com/topic/insect) such as [**ants**](http://www.answers.com/topic/ant).

**** Genus Davainea**

***D. proglottina***

1. **Most pathogenic spp. poultry tape worm.**
2. Inhabitants **duodenum** of **birds**.
3. 3 x 0.5 mm.
4. Scolex with rostellum and hooks , 4-9 segments .
5. Gravid proglottid with **egg** **capsule** had **1 ova .**
6. Intermediate hosts **Oribatid** **mites**, slugs.
7. causes severe **enteritis** in fowls and other birds.

***Genus* Raillietina**

1. Inhabitants small **intestine** of **birds**.
2. Gravid proglottid with egg capsule **had 1or more ova** .
3. Number of testes and a **2** [**ovaries**](http://en.wikipedia.org/wiki/Ovaries) are present in each mature proglottid.
4. Genital **pore on one side**.



**Egg.**

|  |  |  |
| --- | --- | --- |
| ***Raillietina echinobothrida*** | ***R. tetragona*** | ***R. cesticillus*** |
| **25 cm** | **25 cm** | **13cm.**  |
| **Large scolex**  | **small scolex**  | **Large scolex**  |
| **Rostellum with 200 hooks** | **Rostellum with 100 hooks** | **Rostellum with 400 -500 hooks** |
| **Egg capsule**  | **Egg capsule with 6-12 ova** | **Egg capsule with 1 ova** |
| **Ants intermediate host** | **Musca and ant are intermediate host** | **Musca , beetles are intermediate host** |
| **Less pathogenic.** | **More Pathogenic**  | **More Pathogenic**  |

1. The symptom is termed “**nodular tapeworm disease**” in poultry. Intestinal nodules often result in degeneration and [necrosis](http://en.wikipedia.org/wiki/Necrosis) of [intestinal villi](http://en.wikipedia.org/wiki/Intestinal_villi), accompanied by [anaemia](http://en.wikipedia.org/wiki/Anaemia) with a significant increase of total [leukocyte](http://en.wikipedia.org/wiki/Leukocyte) counts and decrease of total [serum](http://en.wikipedia.org/wiki/Serum) [protein](http://en.wikipedia.org/wiki/Protein).

 **Genus** **Cotugnia**

1. **Number of testes and a 2** [**ovaries**](http://en.wikipedia.org/wiki/Ovaries) **are present in each proglottid.**
2. 10cm.
3. Large scolex
4. **Rostellum** with tiny **spines**
5. **Gravid proglottid with egg capsule had 1 ova .**
6. **Ants** intermediate host
7. ***C. digonopore*** **most** important spp.

 **Family Dilepididae**

**Uterus in gravid segment contain Transverse sac or egg capsule**

 **Genus Amoebotaenia**

1. ***sphenoides :***
2. Inhabitants small **intestine** of **birds**.
3. Body shape elongated triangle form ,24 segments ,about 4 mm.
4. Genital **pore on one side**.
5. Number of testes 12 are present in each mature proglottid.
6. **Uterus in gravid segment contain Transverse sac** filled by eggs.
7. **Earthworm** intermediate host.
8. Less pathogenic.

 **Genus Choanotaenia**

***C. infundibulum***

1. Inhabitants small **intestine** of **birds**.
2. Rostellum tith 20 hooks
3. **Uterus in gravid segment contain Transverse sac** filled by eggs.
4. Genital **pore exchanged without order on one side**.
5. **Egg** with **two** **hairs** on **lateral** sides.
6. Ants and beetles intermediate host.
7. Less pathogenic.



 **Genus Dipylidium**

***D.caninum***

1. **( dog tape worm )**
2. It is a common parasite of dogs & cats all over the world ; it is occasionally infect Human especially children ( human have solitary worm infection).
3. Intermediate host lice & fleas of pets (dogs & cats).
4. Its length average 15 cm. ( may be 80 cm.).
5. Scolex : bears 4 suckers & have a conical **retractile Rostellum armed** with 3-5 circles rows of small hooks.
6. mature proglottids have **2 sets Of genital organs & 2 genital pores ,** one on each Side .
7. gravid proglottids shape similar to **Cucumber** **seed**, size & color (or small, white**, rice like** bodies).
8. They have poly – gonal “**Egg capsule** “ (each with 5 – 30 eggs ). The segments passed through feces could be **motile** .





1. Larval stage is Crypto cysticercoid.
2. Pets , cat "*Ctenocephalides*" fleas & dog" *Trichodectes*" lice play great role in spread infection .
3. Zoonotic infection.
4. Fecal-oral transmission, more specifically ingestion of vector.
5. Children age group mostly infected and show GIT disorders.

