



Tapeworms of Ruminants

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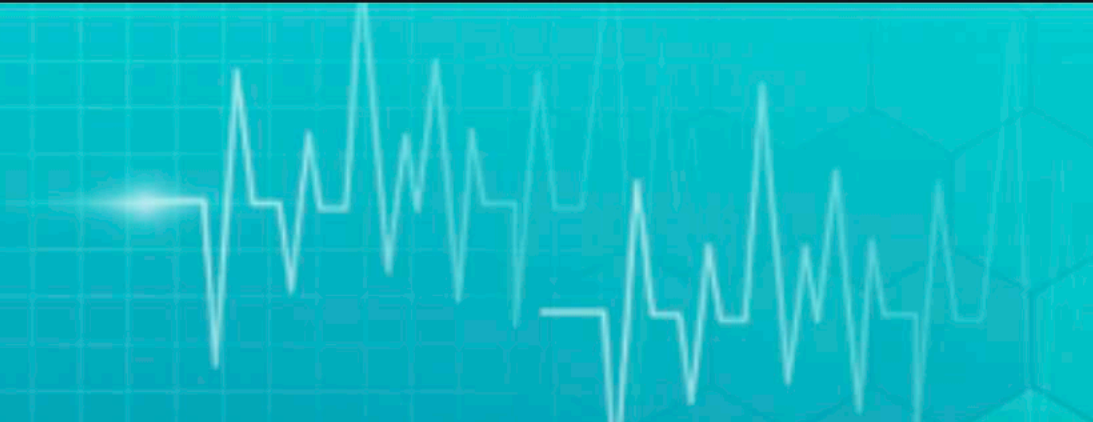
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TAPEWORMS OF RUMINANTS

- ▶ ***Moniezia expansa***
- ▶ ***Moniezia benedeni***
- ▶ ***Avitellina lahorea***
- ▶ ***Stilesia globipunctata***



MONIEZIA Spp.

(*Moniezia expansa* and *Moniezia benedini*)

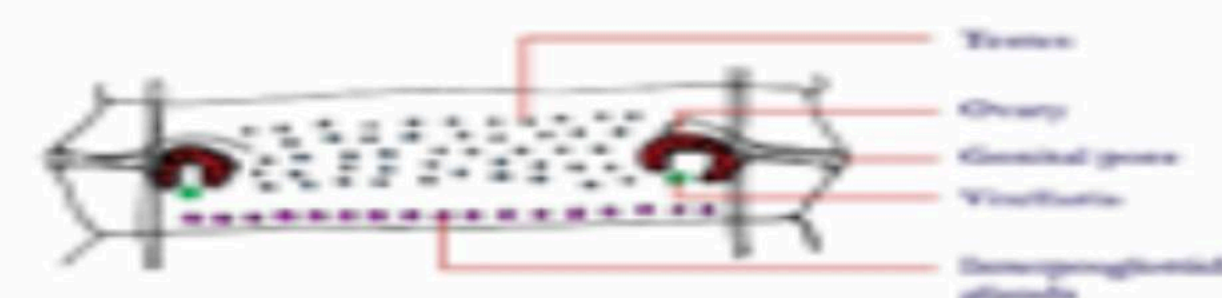
Moniezia expansa

- ▶ Adults are up to 6 m in length. Scolex is wide and have prominent suckers.
- ▶ Segments are wider than long.
- ▶ It has double sets of reproductive organs, so it is known as “double pored ruminant tapeworm”.
- ▶ Vitelline glands and ovary from a ring on either side.
- ▶ Genital pore is marginal. Testes are numerous and distributed in the central field of the segment.
- ▶ At the posterior border of each segment a row of rosette like interproglottidal glands are present.
- ▶ The function of these glands are not known.
- ▶ The glands are extended along the full width of segments.
- ▶ Triangular in shape contains *oncosphere* or *hexacanth embryo* and has *pyriform apparatus*.

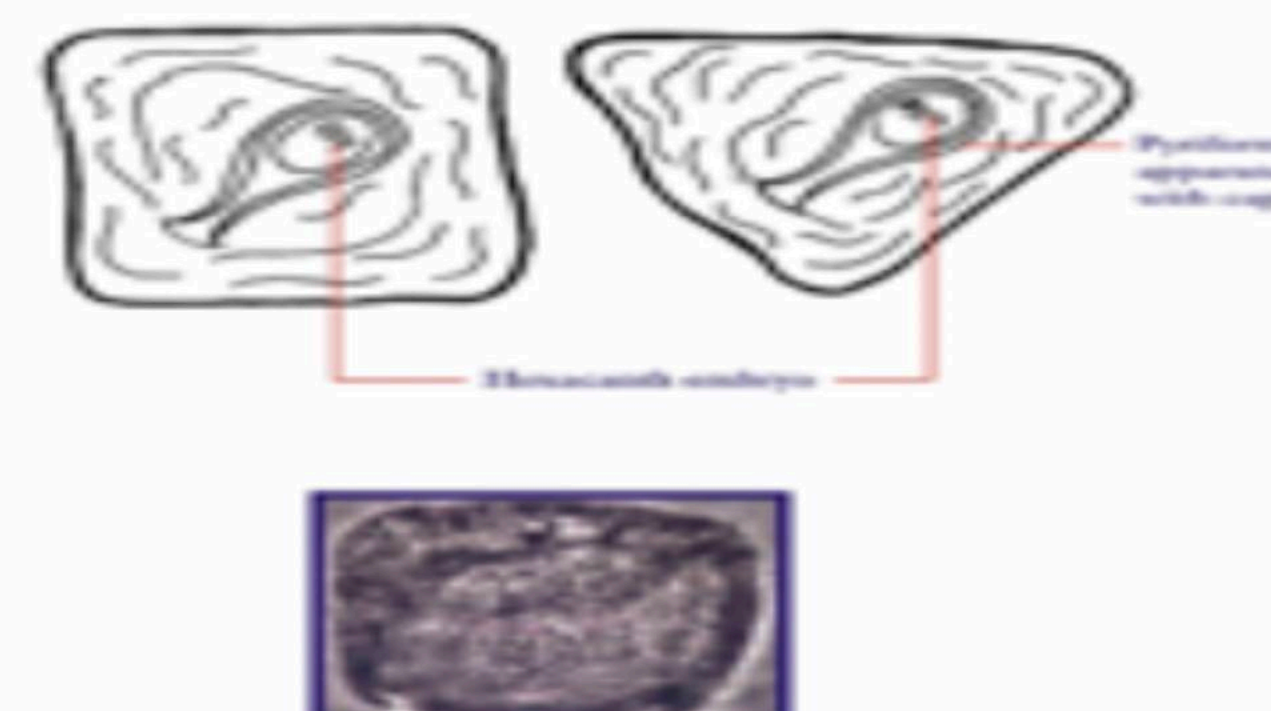


Moniezia Scolex

Moniezia expansa (Mature segment)



Moniezia spp. (Egg)

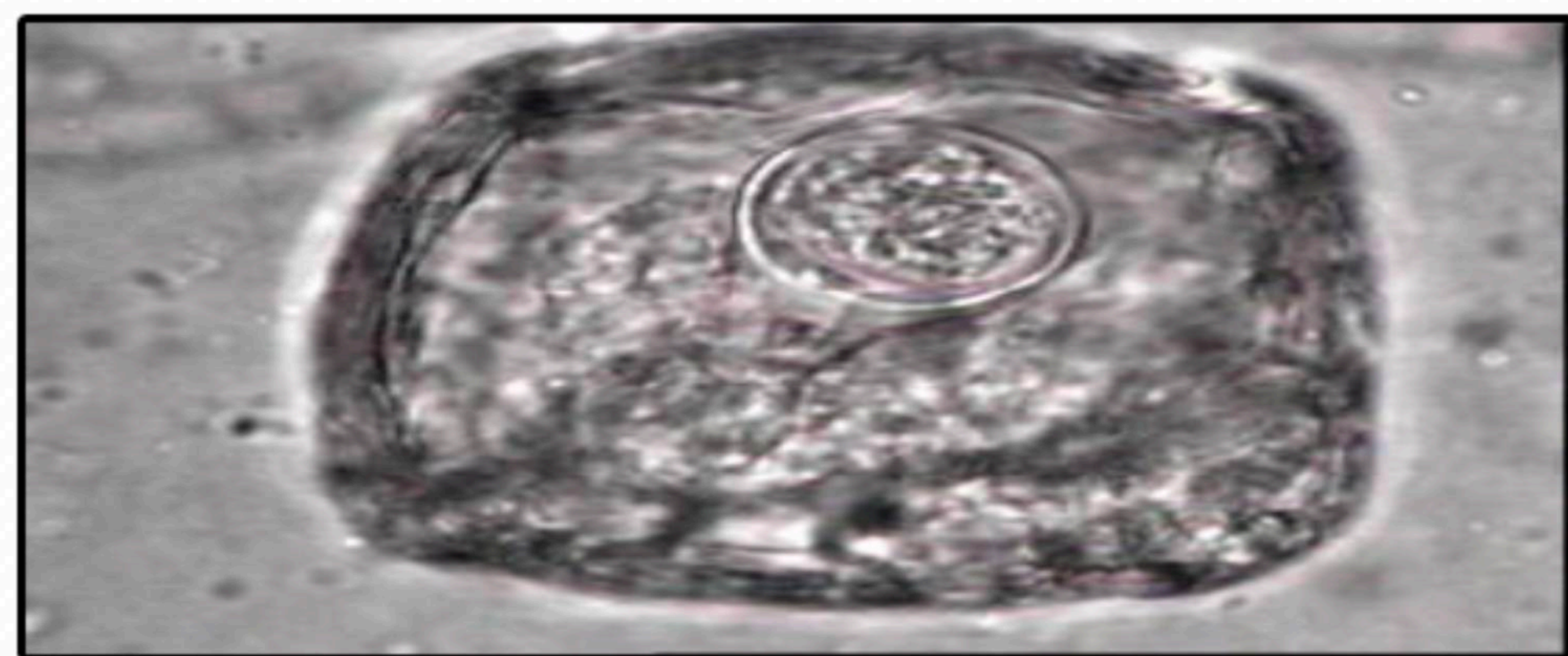
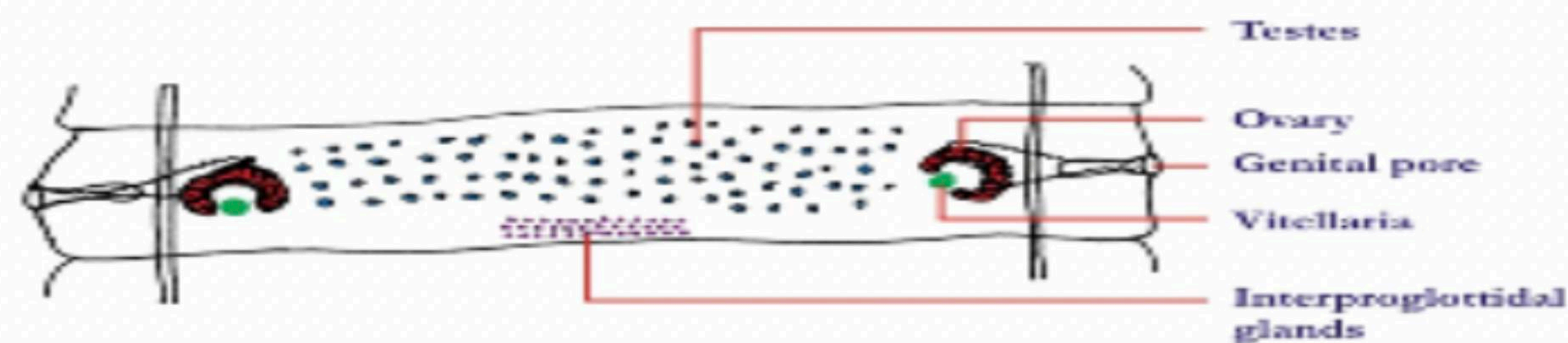




Moniezia benedeni

- ▶ Interproglottidal glands are concentrate at the centre of the segment only.
- ▶ It commonly occurs in cattle than other animals.
- ▶ Eggs
- ▶ Square shaped.

Moniezia benedeni (Mature segment)



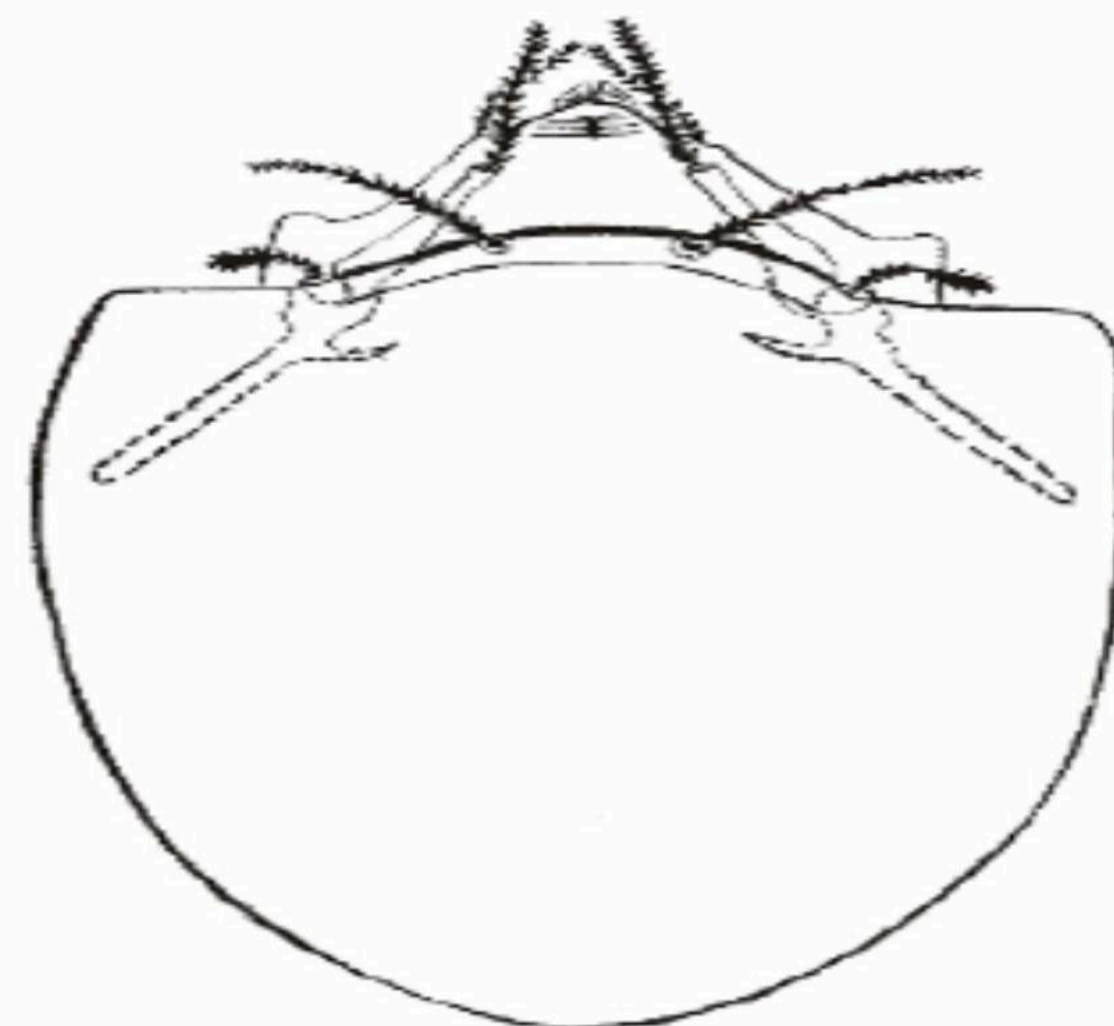
Moniezia Egg



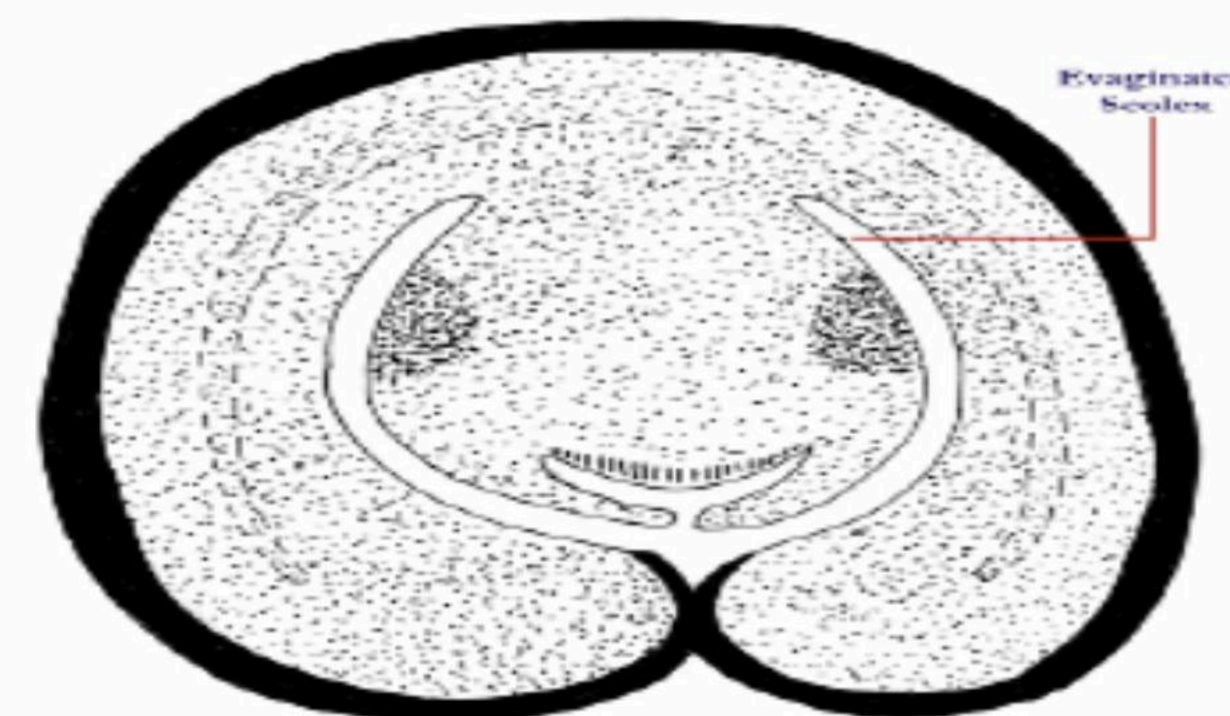
Life cycle

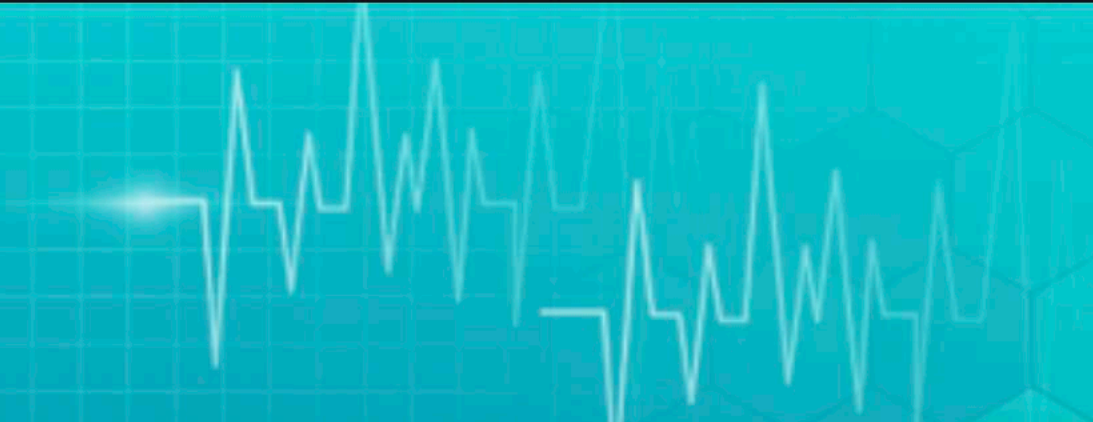
- ▶ Oribatid mite act as a I/H common species – *Scheloribates leavigatus* and *Scheloribates madrasensis* (Anantaraman).
- ▶ Eggs are passed in the dung of the host and are ingested by grass mite in which they develop into cysticeroid (four months).
- ▶ Final host acquire infection by ingestion of infected I/H.
- ▶ Prepatent period. 37 – 40 days.

ORIBATID MITE
(GRASS MITE)



CYSTICERCOID





Life cycle

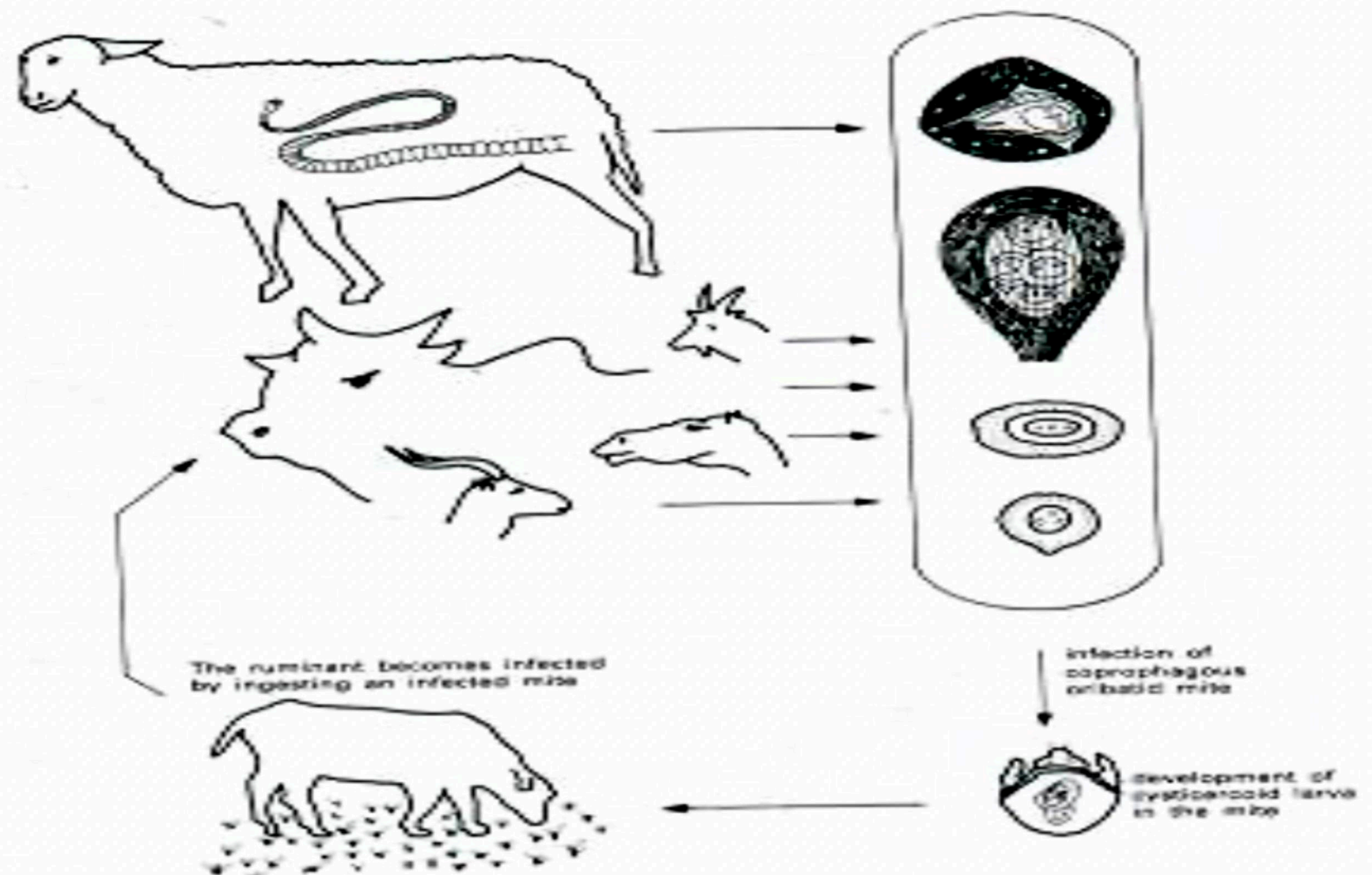
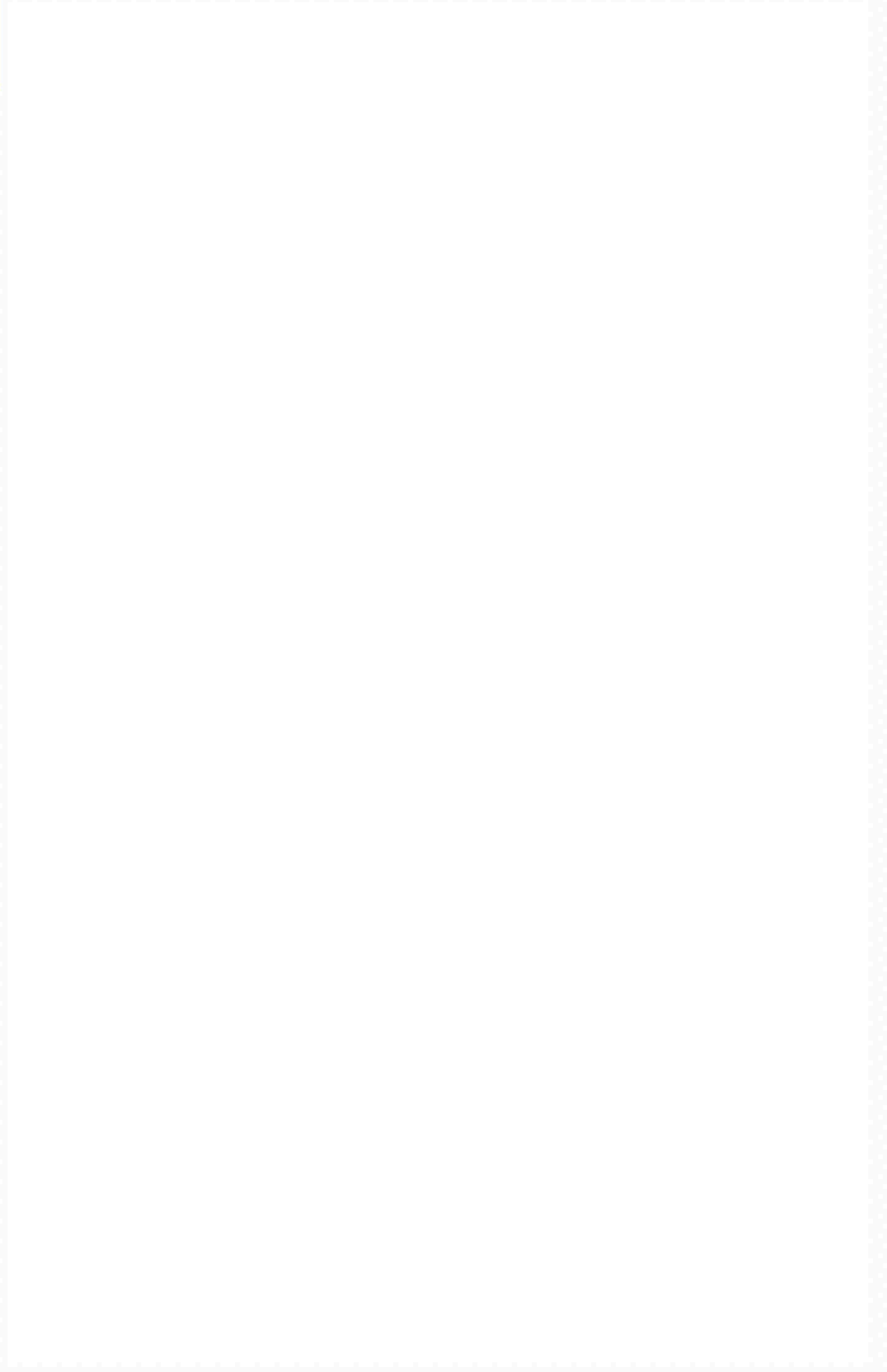


Fig. 9. Life cycle of the Anoplocephalids *Moxizita*, *Physocitria*, *Salaria*, and *Arachbia*.

Fig. 10. Oribatid mite.



Epidemiology and Pathogenesis

Epidemiology

- ▶ **Moniezia commonly occur during November and December and infection is common in young lambs and calves.**

Pathogenesis

- ▶ **In adult animals, the infection is mild pathogenic but highly pathogenic in young animals causes malnutrition leading to reduced wool and meat production.**
- ▶ **Moniezia predisposes the lambs to bacterial infection like Enterotoxaemia caused by *Clostridium perfringens* - type D.**



Diagnosis, Treatment and Control

Diagnosis

- ▶ Dung examination for presence of eggs.
- ▶ Gross examination of faeces for the presence of gravid segments which looks like “cooked rice grain”.



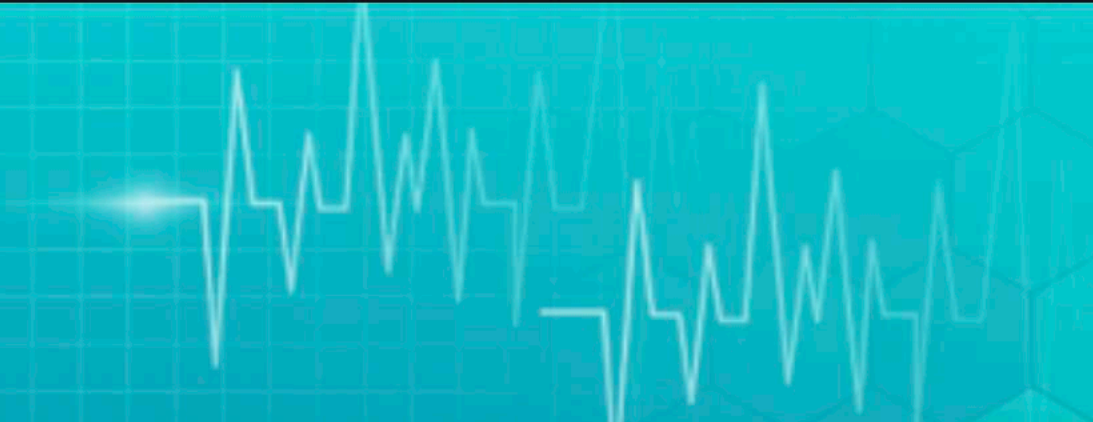
Treatment

- ▶ Praziquantel - 15mg/Kg b wt. (oral).
- ▶ Niclosamide - 75 mg to 150 mg/Kg b wt. (oral).

Control

- ▶ Elimination of grass mite on pasture by ploughing and cultivation.
- ▶ Deworming the animal in early summer.





AVITELLINA LAHOREA

Host

- Commonly occur in sheep and goats.

Location

- Small intestine.

Morphology

- 3 m in length. Segments are short and cylindrical and at the posterior end segmentation is not clear. Each proglottid contains single set of reproductive organ. The genital pore opens irregularly alternate.
- In the gravid segment eggs are passed into the par uterine organ (thick walled sac like organ).

- The par uterine organ resembles snail shell.
- Pyriform apparatus is absent.

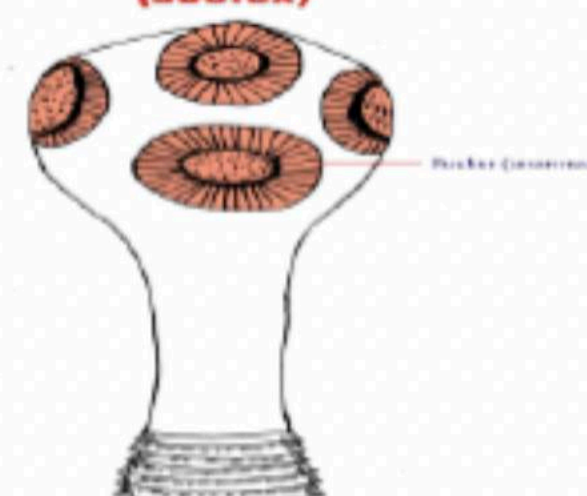
Life cycle

- Psocid (Book lice) act as a I/H.

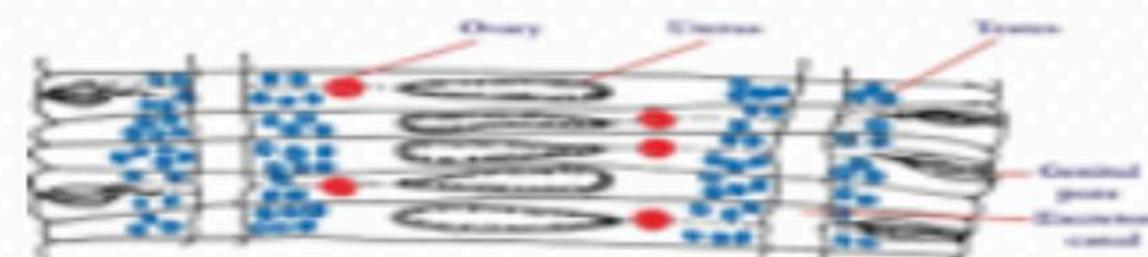
Pathogenesis and treatment

- Similar to Moniezia.

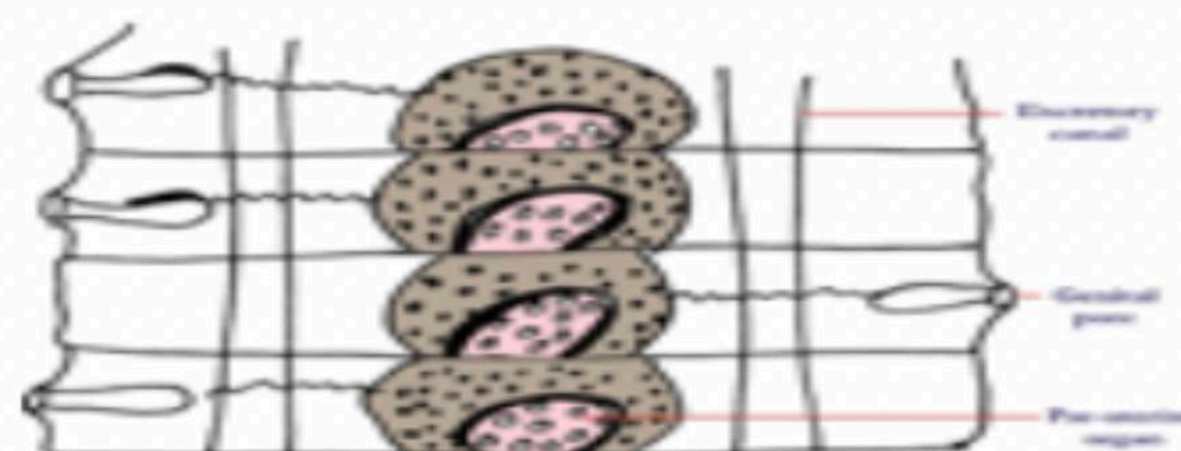
Avitellina lahorea
(scolex)



Avitellina lahorea
(Mature segment)



Avitellina lahorea
(Gravid segment)





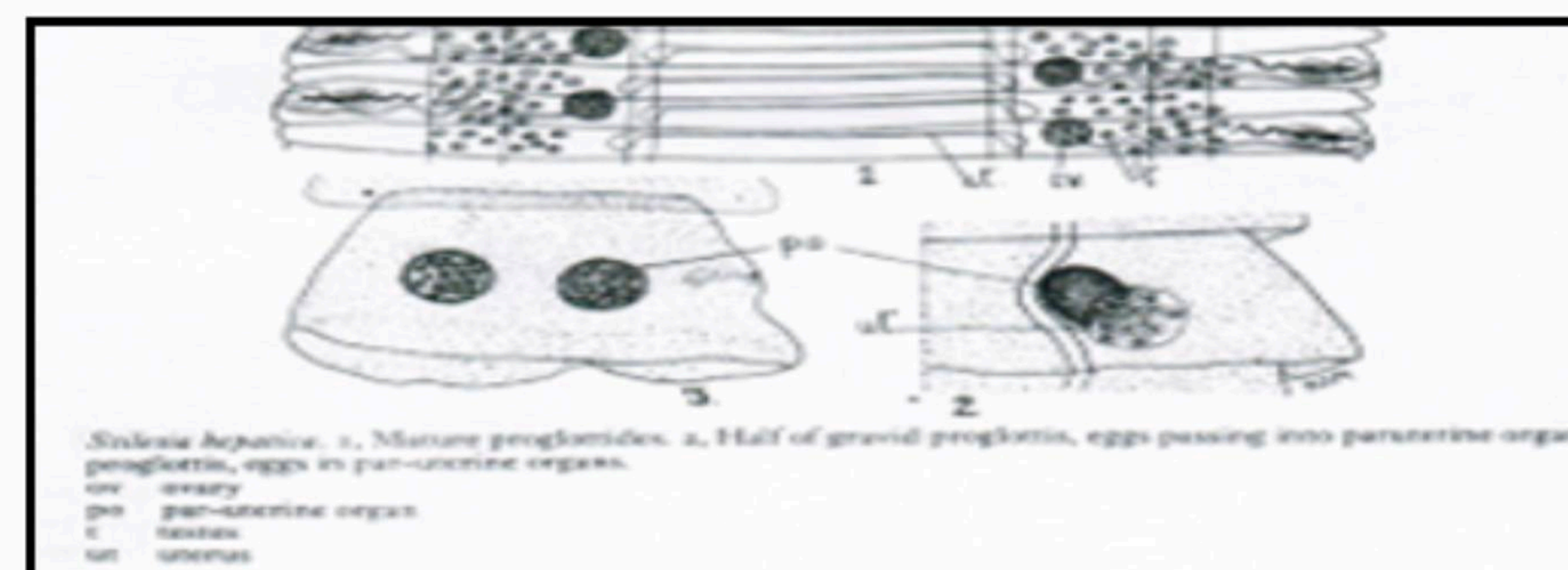
STILESIA GLOBIPUNCTATA

Host

- ▶ Commonly occurs in sheep, cattle and goat.

Location: Small intestine.

- ▶ Adults are 60 cm in length. Each segment contain single set of genital organ. Genital pore opens irregularly alternate. Uterus dump bell shaped.
- ▶ Eggs are passed into two par-uterine organ and eggs have no pyriform apparatus.



Stilesia-Scolex



STILESIA GLOBIPUNCTATA

I/H: Oribatid mite.

Pathogenesis

- ▶ **Worms are mainly attached at the junction duodenum and jejunum. The immature worm penetrates the mucous membrane and forms the nodule in the intestine.**
- ▶ **Scolex and anterior part embedded in the nodule and rest of the posterior portion is free in intestine. Heavy infection causes death.**

Treatment

- ▶ **Praziquantel – 150 mg / Kg b. wt.**



Thank you