

# Genus : Oesophagostomum

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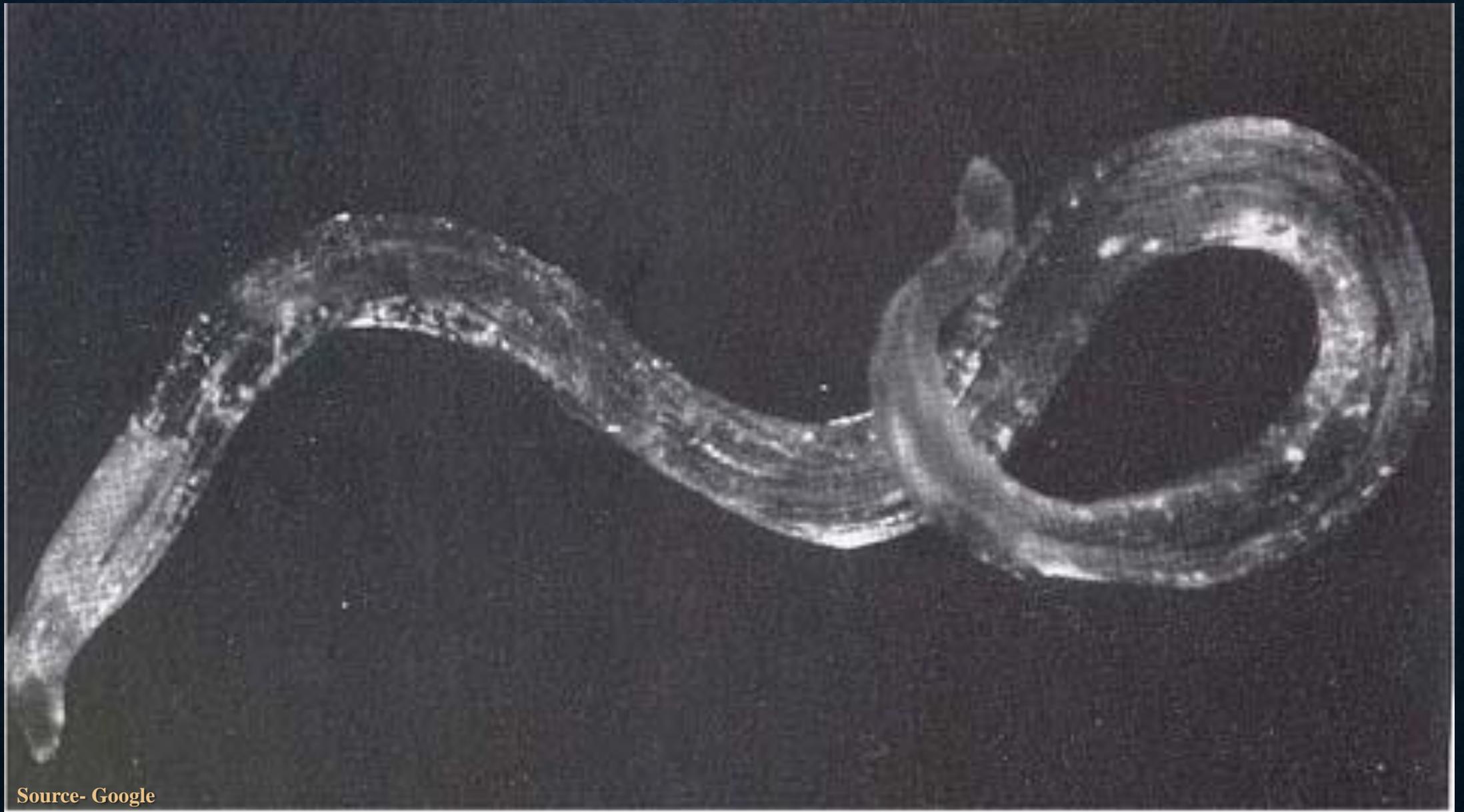
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# Oesophagostomum : Morphology

- The adult worms are 15 to 20 mm long,
- The females are larger than males.
- The head of *Oesophagostomum* worms has a prominent cephalic vesicle, which may be constricted at several points depending on the species.
- The body of worms is covered with a cuticle, which is flexible but rather tough.
- The worms have no external signs of segmentation.
- They have a tubular digestive system with two openings.
- They also have a nervous system but no excretory organs and no circulatory system, i.e. neither a heart nor blood vessels.
- Males have two long rodlike spicules for attaching to the female during copulation.

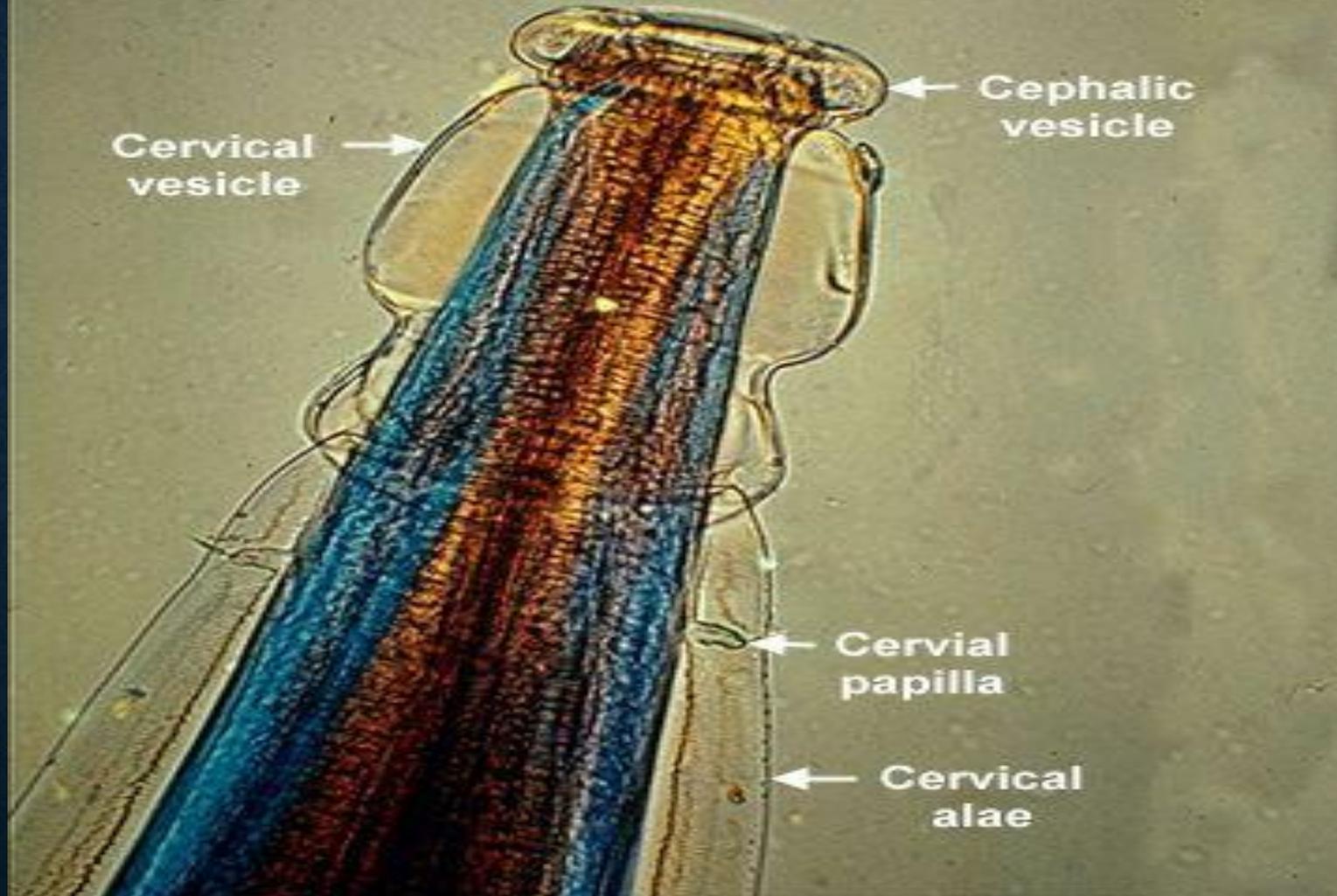


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# Oesophagostomum radiatum

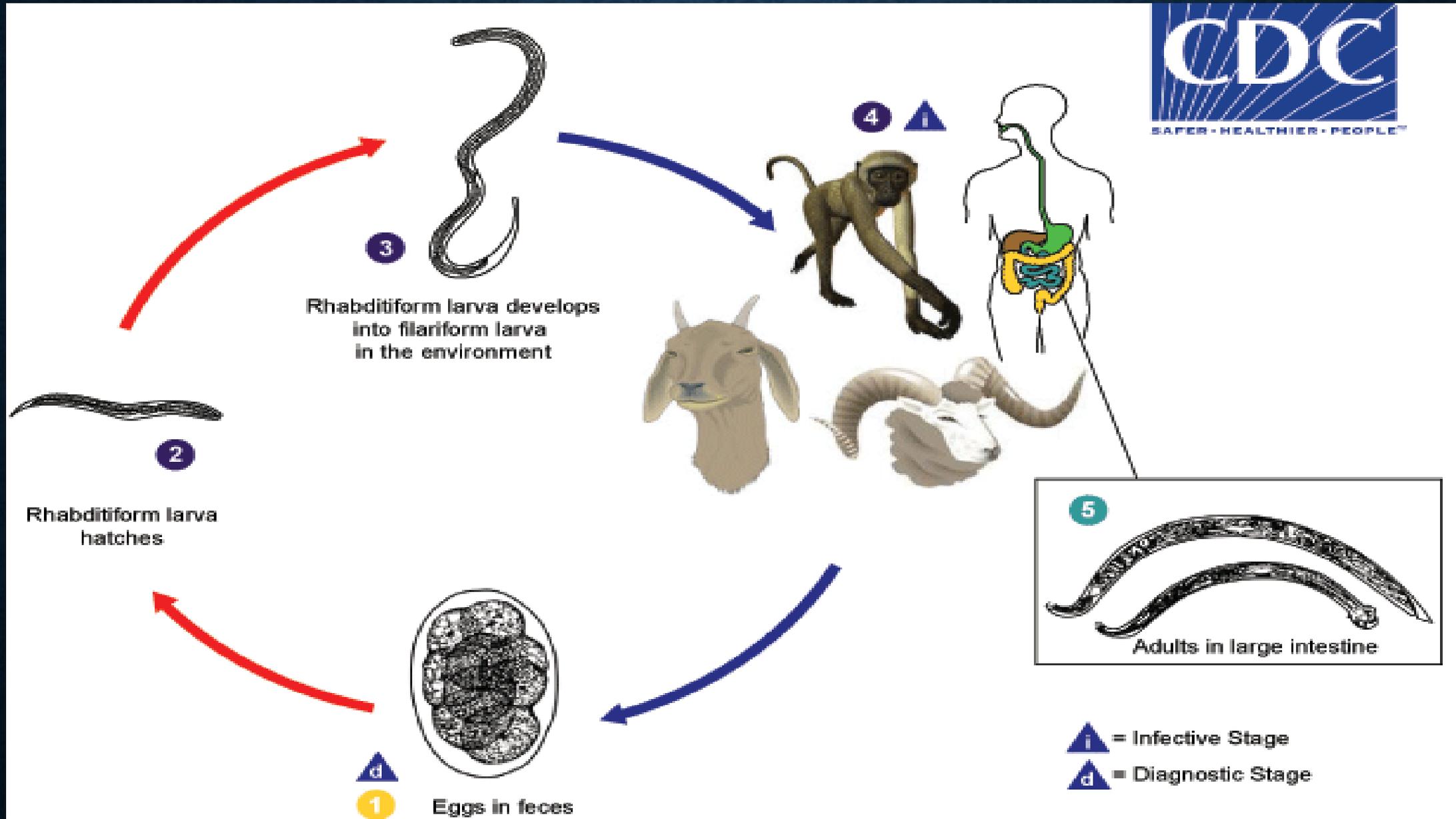


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# Oesophagostomum

# Oesophagostomum : Life cycle

- They have a direct life cycle.
- Adult females lay eggs in the large intestine of the host which expelled out through the feces.
- In the environment the eggs release the L1-larvae, which develop to infective L3-larvae in about 1 week.
- The eggs are susceptible to dryness and extreme temperatures, but can survive up to 3 months on pasture.
- Livestock becomes infected after ingesting such larvae while grazing .
- Ingested larvae penetrate into the intestinal mucosa and form nodules.
- About a week later they escape from the nodules and migrate to the colon, where they develop to adults and reproduce.



Source- Google

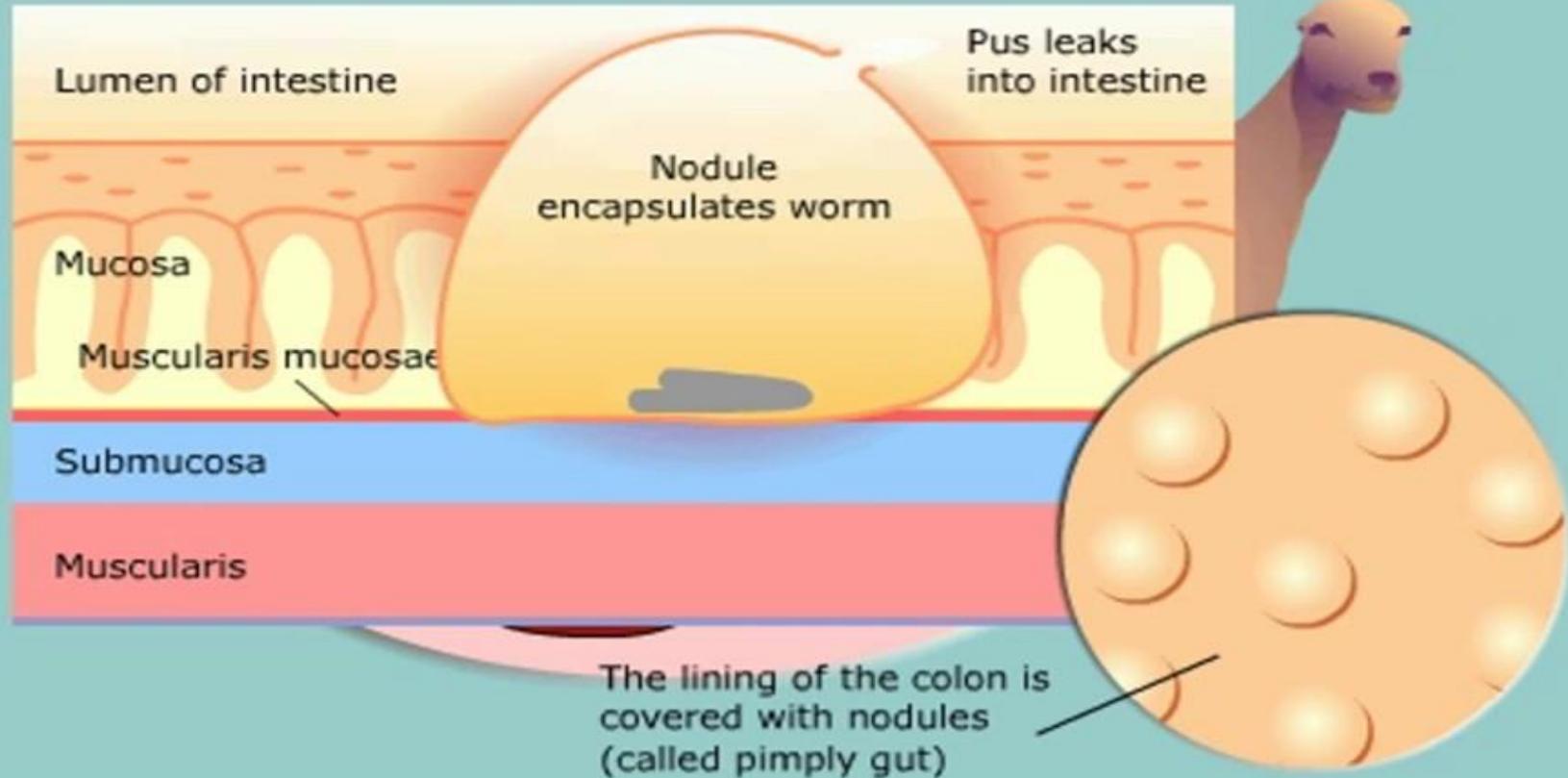
# Oesophagostomum

## Nodule Worm



Oocyte, thin-shelled,  
80  $\mu\text{m}$  long by 40  $\mu\text{m}$   
wide  
At 8 to 16 cell -  
stage when passed  
with feces

In some cases, such as second-time infections, the immune system reacts to the larvae causing inflammation and encapsulation of the worm in nodules which become infected with cheesy tissue (caseation).



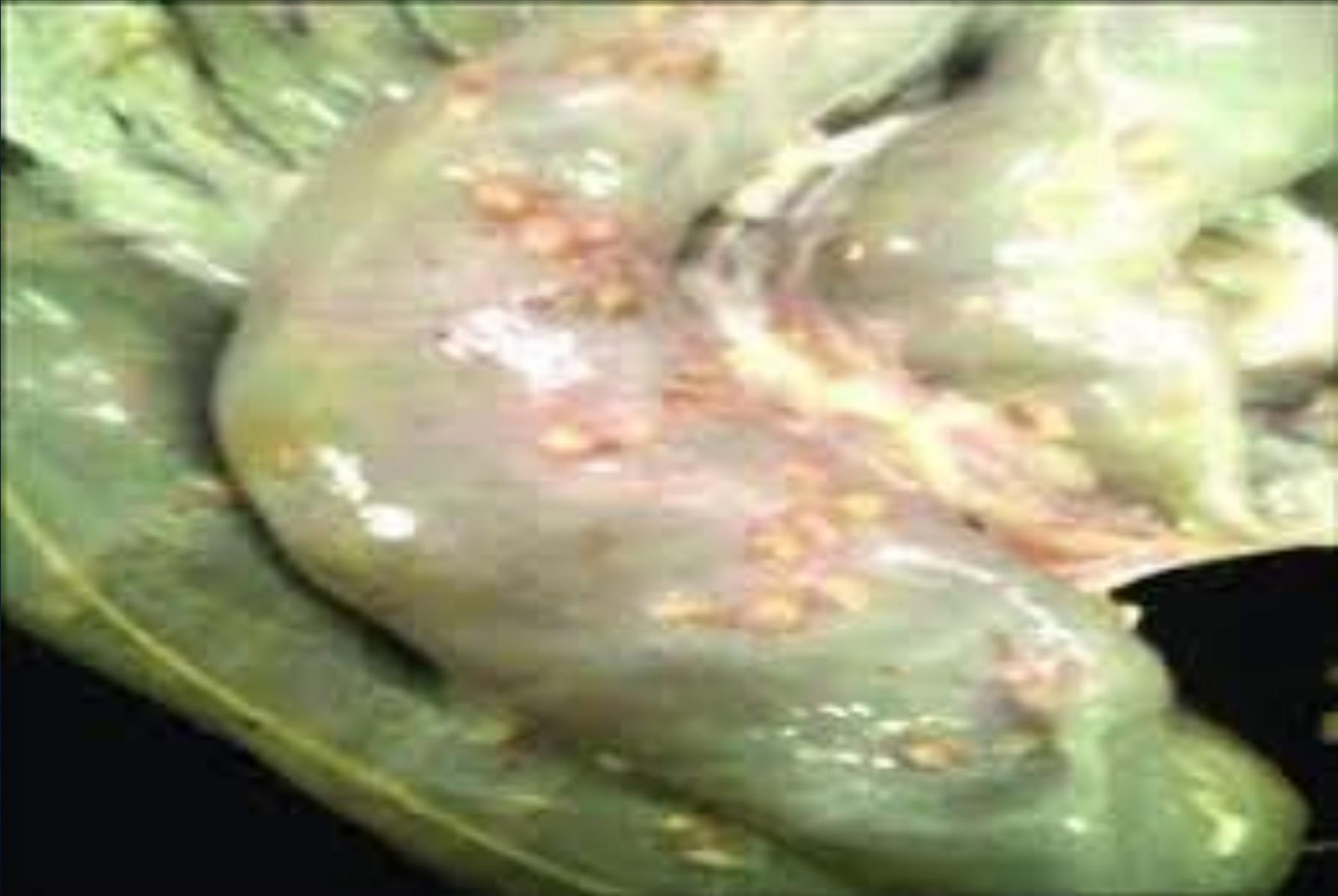
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# Oesophagostomum : Pathogenesis

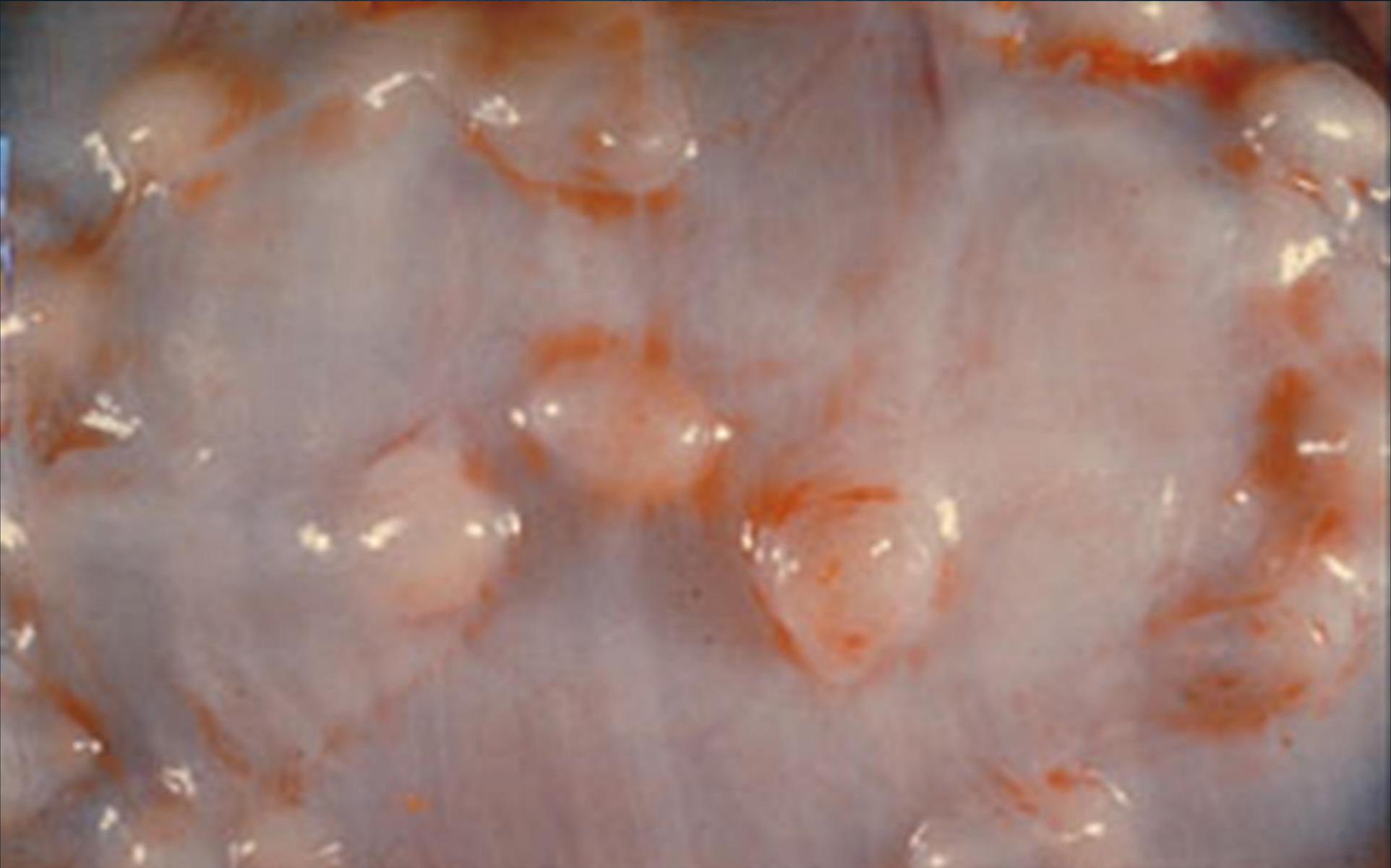
- The worms are very harmful for young cattle, lambs and piglets.
- The massive infections can be fatal.
- The infective larvae penetrate the intestinal wall, react and form pea-shaped nodules.
- They disturb the physiology of the gut, cause diarrhea with mucus (green or dark). Disturbed peristaltic movements affect digestion and defecation, which leads to enteritis.
- Secondary bacterial infections also occur when the larvae migrate across the liver or when nodules burst towards the abdominal cavity.
- Acute infections cause fever, loss of appetite and weight, colitis.
- Chronic infections cause anemia and swellings (Oedema), in addition to diarrhea, which considerably weakens the animals.



Source- Google

Pea shaped nodule in colon of sheep

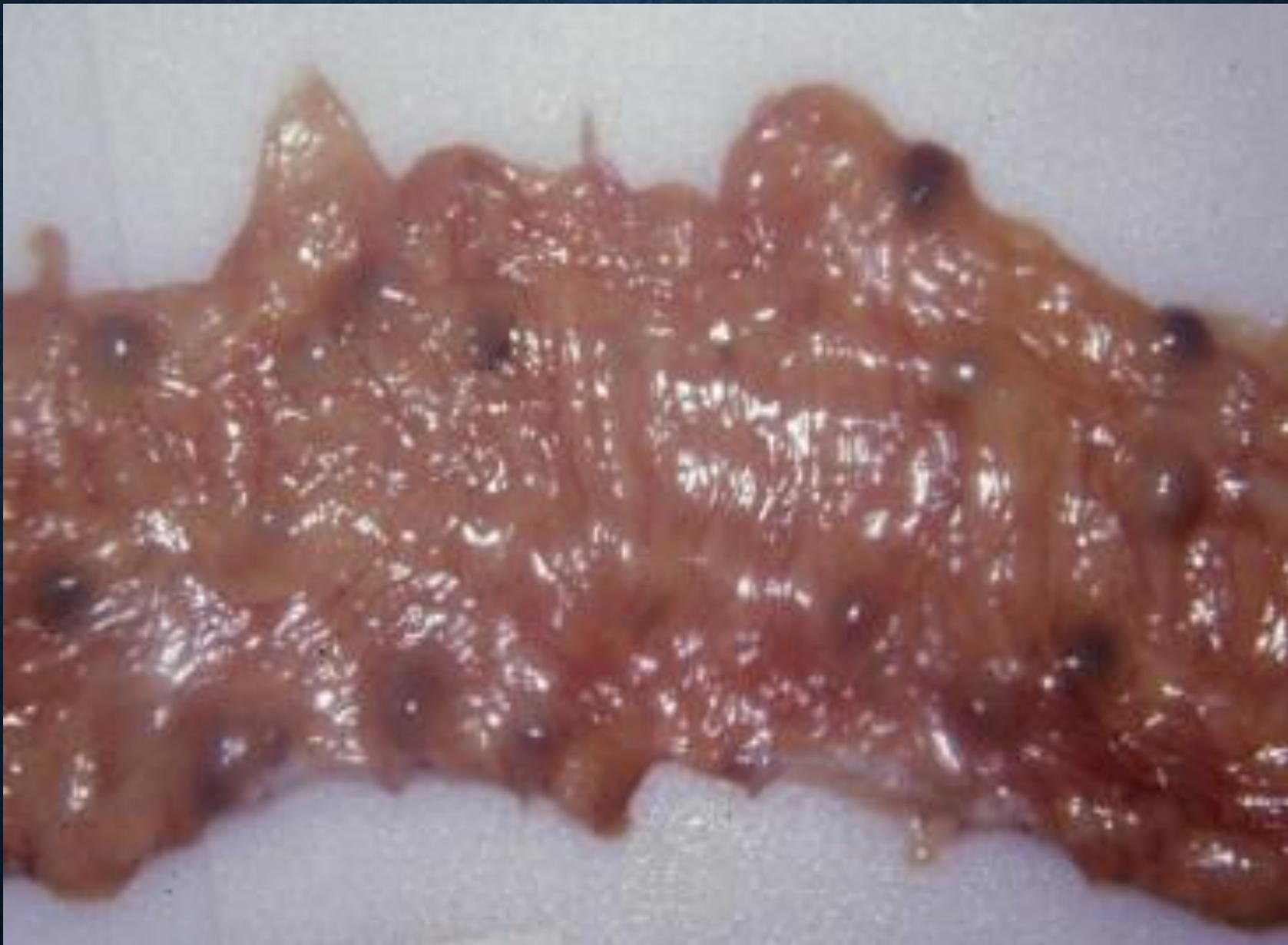
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Source- Google

Pimpily gut in intestine

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Source- Google

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Source- Google

Pimply gut in intestine

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# Oesophagostomum : Diagnosis

- Examination of faecal sample for detection of characteristic eggs.
- Clinical signs by per rectum palpation of nodule.
- The nodule can also be seen in large intestine during post-mortem examination



Source- Google

Pimpily gut in intestine

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# Oesophagostomum : Prevention & control

- Systematic and thorough removal of manure can reduce the risk of infection.
- Anthelmintics such as benzimidazoles (albendazole, fenbendazole, oxfendazole etc.), Levamisole, as well as several macrocyclic lactones (doramectin, Ivermectin) are very effective against adult worms,.
- There are so far no true vaccines against *oesophagostomum spp*
- Biological control is so far not feasible.