

MJF COLLEGE OF VETERINARY & ANIMAL SCIENCES,
CHOMU, JAIPUR



GENUS - OESOPHAGOSTOMUM

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Species

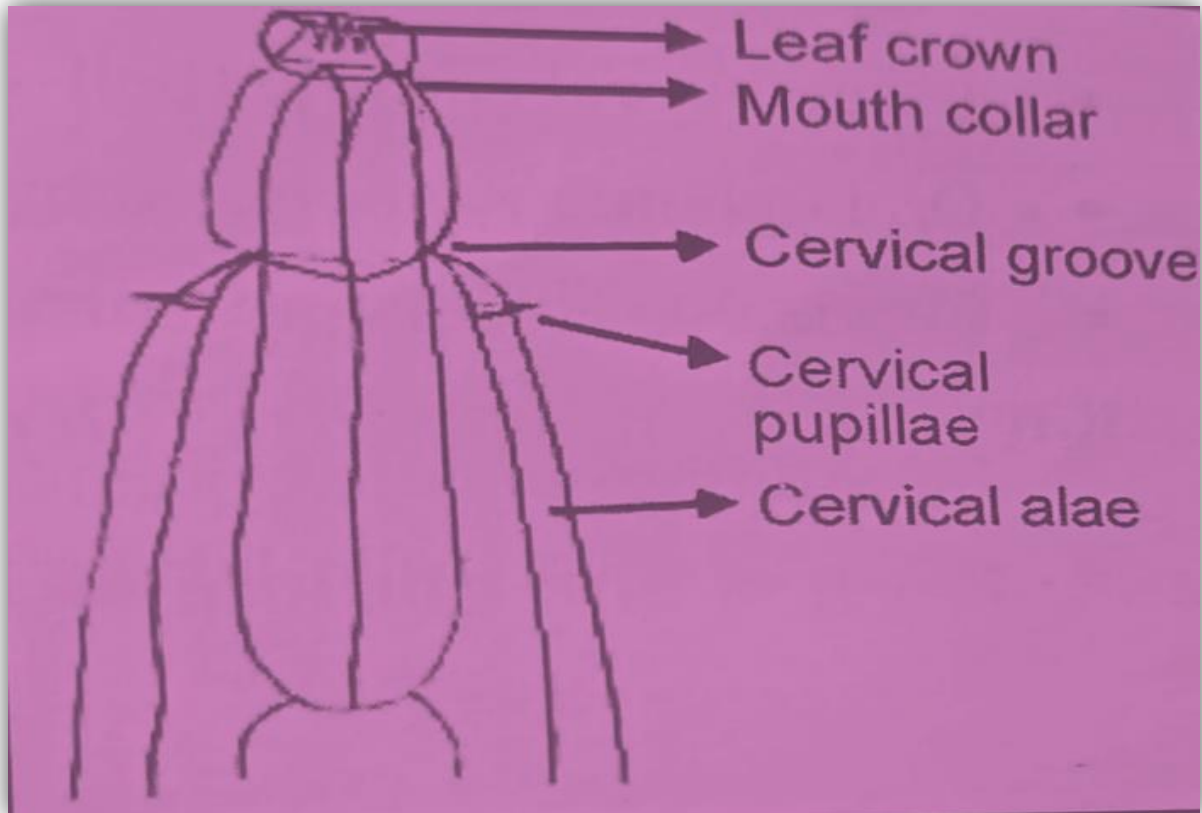
- ❖ *O. columbianum* : Sheep, goat
- ❖ *O. venulosum* : Sheep, goat
- ❖ *O. radiatum* : Cattle, buffalo
- ❖ *O. dentatum* : Pig

Location

: Large intestine

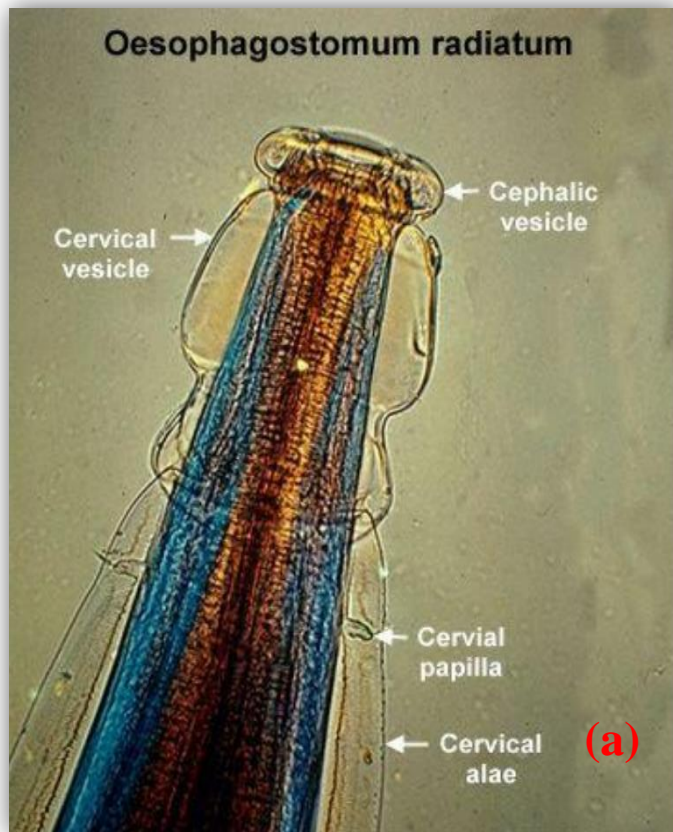
**Common name: 'nodular worm disease' or
'knotty gut' or 'pimply gut'**

CHARACTER



Anterior end of Oesophagostomum

- They are stout, white worms and 1-2 cm long.
- The mouth collar is like a truncated one or cone shaped.
- The cephalic vesicle is slightly inflated.
- The cervical groove is present behind the cephalic vesicle.
- Both internal and external leaf crowns are present.
- Cervical alae is present (absent in *O. venulosum* and *O. dentatum*).
- The cervical papillae (one on either side) are also present but the location is different in different species. In *O. columbianum* and *O. radiatum*, it is at anterior end while towards the posterior end of oesophagus in *O. dentatum* and behind the level of oesophagus in *O. venulosum*.
- In female, a kidney shaped pars-ejectrix" is found next to vagina.



Head or anterior end of (a) *O. radiatum* & (b) *O. columbianum*

LIFE CYCLE

- Eggs are passed in the faeces of host.
- L1 emerges from the eggs in about 20 hrs and L1 to L2 in about 3 days. Infective stage is reached in about 6 to 7 days of time.
- Infection of final host by ingestion of infective larvae along with herbage.
- Exsheathment occurs in small intestine.
- L3 penetrate the intestinal mucosa and form a nodule in which the L3 moult to become L4.
- Then the L4 enters into the lumen of the intestine and pass to the colon where L4 moult to become L5 and reach maturity in 41 days.
- Eggs are strongyle type.

PATHOGENESIS

- ⊙ The disease is called '**nodular worm disease**' or '**knotty gut**' or '**pimply gut**' .
- ⊙ In young animal which are exposed for the first time, no nodules are seen on the wall of the intestine. The larvae develop into adult worms in the lumen of the intestine cause small ulcers and mucosal bleeding.
- ⊙ In older and re - infected animals, a strong host immune reaction is occurred. There may be the induction of antigen-antibody reaction in the gut followed by infiltration of leucocytes especially eosinophils, foreign body giant cells and encapsulation by fibroblasts which results into the formation of nodules (about 2cm in diameter). Hence, the gut is called as '**knotty gut**' or '**pimply gut**'

- Few larvae develop directly to adult but most are arrested in the nodules for long time. They remain alive up to 1 year but most of them are destroyed due to host response. When the immunity is lowered the larvae leave the nodules and become adult.
- The nodules are generally caseated and calcified and cause interference with intestinal motility. The nodules may cause pain and result in an arched back and stilted gait. The infected intestine becomes use-less for preparing sausage and suture materials and hence causes economic losses.



Pimply gut in intestine



Pimply gut in intestine

CLINICAL SIGNS

- ◉ Faeces are dark green in color mixed with mucous and sometime with blood.
- ◉ Diarrhoeic syndrome occurs in about 6 days of infection and coincides with the time when the larvae leave the nodule.
- ◉ Anorexia, loss of condition, emaciation, anaemia.
- ◉ Sometimes, sub mandibular oedema is found.

POST MORTEM LESIONS

- ◉ Marked emaciation, complete absence of fat and intestinal walls studded with nodules. Worms are embedded in the mucosa and covered with mucus.

DIAGNOSIS

- Clinical signs
- Faecal examination followed by faecal culture and identification of larvae will give a definite diagnosis.
- Rectal palpation may reveal presence of large number of nodules.
- The nodule can also be seen in large intestine during post-mortem examination.



TREATMENT

- ⦿ Fenbendazole – 7.5mg/Kg b wt.
- ⦿ Thiabendazole – 44mg/Kg b wt
- ⦿ Albendazole – 5 to 10mg/Kg b wt
- ⦿ Piperazine compounds - 5 to 15mg/Kg b wt.
- ⦿ Levamisole – 7.5mg/Kg b wt.
- ⦿ Supportive medication may be necessary for severe case of diarrhoea.

CONTROL

- Clean pasture and periodical deworming.