

CASE REPORT

OESOPHAGOSTOMIASIS IN A BOER GOAT

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ABSTRACT. *Oesophagostomum* spp. are responsible for enteritis in ruminants and pigs. These parasites might be lesser in global importance compared to other parasites such as roundworms (*Ascaris* sp.), hookworms (*Ancylostoma* sp.), whipworms (*Trichuris* sp.) and liver fluke (*Fasciola* sp.). *Oesophagostomum radiatum* and *Oesophagostomum columbianum* infections are important parasitic diseases in cattle, sheep, goats and pigs. They are known as nodule worms and found worldwide. This paper describes a case of suspected *Oesophagostomum* sp. infestation in a female Boer goat that was found dead and sent to Makmal Veterinar Kawasan Kuantan for post-mortem and disease investigation. Post-mortem findings were moderate multifoci hepatic fibrosis, pulmonary emphysema, pulmonary oedema, mild ecchymotic haemorrhage on caecal mucosal layer and moderate multiple whitish nodules on large intestinal mucosal layer. The diagnostics in this case was based on faecal samples collected and sent for oocyst examination, faecal egg count and sedimentation test. Specimens of organs were taken and sent for bacteriology and histopathology examination. Parasitology results revealed positive for strongyle eggs and coccidian oocysts. Thus, the definitive diagnosis in this

case is oesophagostomiasis in a Boer goat based on post-mortem, parasitology and histopathology findings.

Keywords: nodule worm, goat, histopathology, faecal egg count

CASE HISTORY

Oesophagostomum is a genus of a parasitic nematode (round worms) belonging to the superfamily Strongyloidea. The more pathogenic species in ruminants occur in the subtropics and tropics which is associated with nodule formation in the intestine (Urquhart G.M. *et al.*, 1987). *Oesophagostomum* are stout white worms 1-2 cm long. The preparasitic phase is typically strongyloid and infection is by ingestion of L₃ (stage three larvae). The L₃ enter the mucosa layer of any part of the small or large intestine and become enclosed or encysted in obvious nodules in which they molt to L₄ (stage four larvae). The L₄ then return to the intestinal lumen where it reach maturity (Urquhart G.M. *et al.*, 1987).

This is a case of a female Boer goat sent to Makmal Veterinar Kawasan Kuantan, Department of Veterinary Services (DVS), Malaysia for post-mortem and disease investigation.

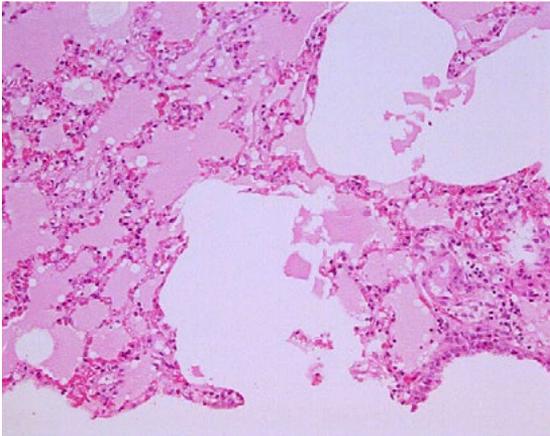


Figure 1. Presence of pinkish fluid inside alveolar space of lung (mild pulmonary oedema).



Figure 2. Presence of larvae in nodule of large intestinal mucosal layer (parasitic gastroenteritis).

Upon physical examination, the mucous membrane was pinkish. Post-mortem findings were moderate multifoci hepatic fibrosis, pulmonary emphysema, pulmonary oedema, mild ecchymotic haemorrhage on caecal mucosal layer and moderate multiple whitish nodules on large intestinal mucosal layer. The differential diagnoses for this case were oesophagostomiasis, coccidiosis and salmonellosis.

In the bacterial routine culture, the organ samples were fixed in 10% formalin and stained with haematoxylin and eosin (H&E) for detailed histopathology examination. Oocyst examination, faecal egg count and sedimentation tests were carried out on faecal and intestinal contents.

Klebsiella pneumoniae and *Escherichia coli* were isolated from all organs. Diagnosis of nodular worm infestation based on gross pathology and histopathology found multiple whitish nodules and transient inflammatory nodules with parasitic larvae on the large intestinal mucosal layer. The

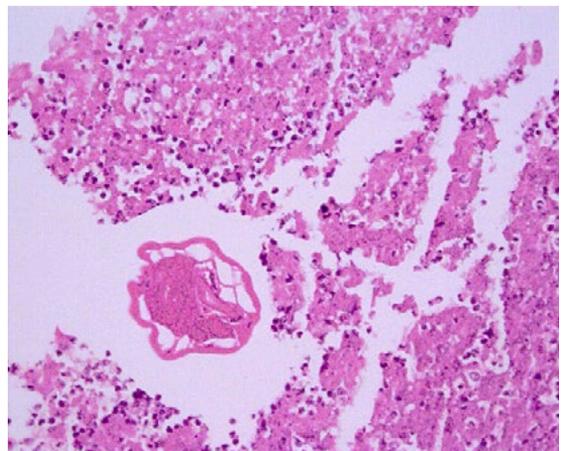


Figure 3. Transient inflammatory nodule with parasitic larvae (parasitic gastroenteritis).

findings were supported by positive results of strongyle eggs (6,600 epg in faeces, 2,800 epg in faeces of large intestine, 2,600 epg in faeces of caecum) and oocysts cocci (*Eimeria* spp.) in the faecal samples using the McMaster egg counting technique and floatation test.

DISCUSSION

The definitive diagnosis in this case is oesophagostomiasis accompanied with coccidia infestation in a Boer goat based on post-mortem, parasitology and histopathology findings.

The parasitic nodule worms, *Oesophagostomum radiatum* and *O. columbianum* are the cause of diseases in cattle, sheep and goats in many parts of the world. The most often observed signs in young animals are constant diarrhoea and the animals become emaciated and weak. Heavy infestation usually results in chronic diarrhoea, emaciation, cachexia, prostration and death. The lesion seen most on necropsy is a granulomatous nodule, 0.5 to 1.5 cm in diameter (Carlton W.W. *et al.*, 1995) and the nodules are often as big as a pea (Allen R. W., 1956), formed as a direct result of penetration of the intestinal wall by the larval worms. Microscopically, the nodules contain parasite fragments and central, caseous, necrotic material; eosinophils and

granulomatous encasement, complete with Langhans' giant (Carlton W.W. *et al.*, 1995).

The control of nodule worm infestation is important to impacted countries where the intestines were used for processing as sausage skins and surgical suture materials. Intestines containing nodules are unsuitable for such uses (Allen R.W., 1956).

Effective worm control cannot always be achieved by drugs alone (anthelmintics). Hygiene also plays an important role where the pen must be cleaned thoroughly and daily. Reducing pasture contamination by alternately grazing and cropping can help to minimise the parasite burden. Overstocking and overgrazing may invite helminthiasis (Allen R.W., 1956).

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