

PARAMPHISTOMOSIS IN A 3-YEAR- OLD YANKASA EWE

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Abstract

An adult female Yankasa sheep breed was reported dead overnight in its pen in an institutional farm, Shika-Zaria. The animal was found dead in the early hours of the morning at 6:00 AM, on March 12, 2015, with previous signs of persistent diarrhea, emaciation, anorexia, unthriftiness, pale mucous membrane, ascites, bottle jaw. Postmortem examination reveals emaciated, pale carcass, watery blood, presence of large mass of worm in the rumen and reticulum, ruminal mucosal erosion and petechiation in the duoddenal mucosa. Sample taken to Laboratory (Faeces, rumen reticulum and duodenum) show the presence of severe Paramphistomes infection.

Key words: Yankasa ewe, Zaria, Laboratory, Paramphistomes

Introduction

Small ruminants particularly sheep and goats contribute significantly to the economy of farmers in Mediterranean as well as African and Southeast Asian countries (Ralf *et al.*, 1994). These small ruminants are valuable assets because of their significant contribution to meat, milk, and wool production, and potential to replicate and grow rapidly. Helminthes infections are important causes of lost productivity and economic losses in live stock system worldwide often necessitating anthelmintic treatment (Vercruysse and Claere, 2001). Amphistomosis is still a neglected helminthes infection in many countries and the parasites are sometimes considered to have no effect on animals (Dinnik, 1964; Ronde and Dreyfuss, 2002; Keyyu *et al.*, 2004). The disease is often reported in cattle where they are not thought to be pathogenic and to the best of my knowledge, has not been reported to be a cause of death in sheep. Most reports in Nigeria are those of Njoku and Nwoke 2010; Dube *et al.*, 2010; Bui and Olufunmilayo 2004 on the prevalence studies in abattoir slaughtered sheep.

P. cervi are plug feeders Melaku and Addis (2012) and cause serious disease by burying themselves into the sub mucosa of the duodenum and feeding on the epithelial cells of the Brunner's gland resulting in anorexia, profuse fetid diarrhea, drop in plasma protein concentration and anemia, which weaken the host Dube and Aisien (2010). Mature Paramphistomes are also responsible for rumenitis, irregular rumination, un-thriftiness,

lower nutrition conversion and loss of body condition, resulting in considerable economic loss Melaku and Addis (2012).

This communication describes a case of Paramphistomosis in an ewe in at an Institutional farm.

Case report

An adult female Yankasa sheep breed was reported dead overnight in its pen in an institutional farm, shika-Zaria. The animal was found dead in the early hours of the morning at 6:00 AM, on March 12, 2015, with previous signs of persistent diarrhea, emaciation, anorexia, unthriftiness, pale mucous membrane, ascites, bottle jaw, had been previously treated with Albenadazole, mltivitamine, rehydrated with normal saline and had parturited 7-weeks before it was found dead. The farm housed about 50 sheep of different ages and sex in different pens. The entire flock was housed in pen and allowed to graze on pasture during the day, but also supplemented with concentrate and adequate water were provided. Post mortem examination was carried out on the dead carcass and samples submitted to the Helminthology Laboratory, Department of Parasitology, Faculty of Veterinary medicine, Zaria, for laboratory diagnostic evaluation.

Pathology

On examination, the animal was emaciated (Figure 1), pale carcass, watery blood, presence of large mass of worm in the rumen and reticulum, ruminal mucosal erosion (Figure 3), and petechiation in the duoddenal mucosa.

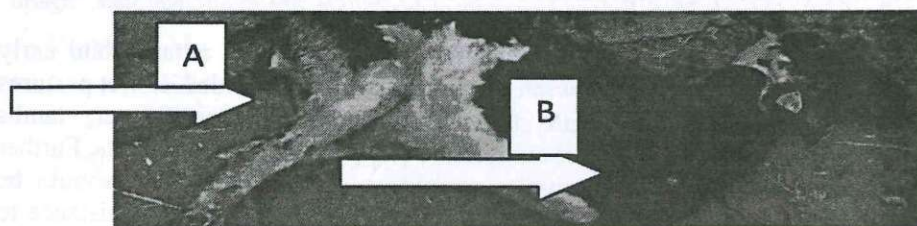


Figure 1: Emaciated carcass (B) with sign of diarrhea (A) matted tail and perineum

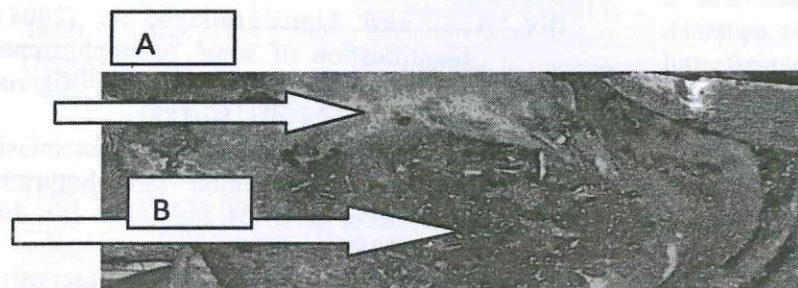


Figure 2: Rumen showing area of ruminal mucosal erosion (A) and adult paramphistome (B)

Adult worm samples were gotten from the rumen and reticulum, while duodenal section was taken for immature sample and fecal sample collected from the large intestine during the post mortem examination and were processed for identification of the helminth parasite.

Infected part of the rumen, reticulum and duodenum were brought to the laboratory of Department of Veterinary Parasitology, where they were washed thoroughly. The duodenal mucosa was examined using light microscope (Figure 3). The paramphistomes of each rumen and reticulum were collected with fine forceps. Rumen flukes were preliminarily identified under microscope using low power magnification. The

flucks were placed in plastic beakers containing 0.7 % saline solution and were labeled. The collected paramphistomes were counted (>1500) and preserved in 70 % alcohol. Some of them were flattened, fixed in 10 % buffered formalin and stained with borax carmine for the preparation of permanent mounts and taxonomic identification according to the morphological features of the flukes; its shape, anterior sucker, posterior sucker (acetabulum), terminal genitalium and tegumental papillae, following the standard guidelines given by Urquhart *et al.* (1996).

The faecal samples were preserved in sterile polythene bag. Each sample was examined for egg using standard sedimentation technique described by Urquhart *et al.* (1996).

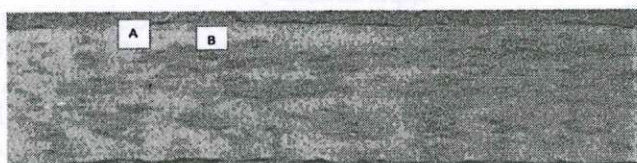


Figure 3: duodenum showing the immature flukes (A and B) under light microscope x100

Discussion

Trematode parasitism is one of the major problems lowering ruminant productivity around the world (Vercruysse and Claere, 2001). In Nigeria, the rich potential from livestock sector has not been efficiently and fully exploited due to several constraints like malnutrition, traditional management practice, parasitism, poor genetic makeup and prevailing diseases. Among the prevailing diseases in the country, trematodes are reported to be one of the main parasitic problems

of sheep, cattle and other ruminants (FAO, 1994). Paramphistomum belongs to the family Paramphistomatidae parasitising the rumen of ruminants

Worldwide. Infections are confined to warmer tropical and sub-tropical areas of the world (Horak *et al.*, 1971). *Paramphistomum cervi* is one of the common parasites in the rumen and reticulum of sheep, goats, cattle and water buffaloes (Rangel Ruiz *et al.*, 2000). The occurrence of paramphistomosis in an area is influence by a

multifactorial system that is composed of hosts, parasitic agents, transmission process and environmental factors. The life cycle of Paramphistomes involves freshwater snails (intermediate hosts) in this present case report the infection may have been due the presence of Planorbid snails which must be present in the local environment to complete the stomach fluke life cycle. This limits outbreaks of infection to areas where the snail is found (Rolfe *et al.*, 1991). These snails are found in permanent and temporary watercourses, irrigation channels, swamps, dam edges and depressions. They are normally found attached to vegetation in these habitats.

Paramphistomosis is highly prevalent in tropical and subtropical countries (Singh *et al.*, 1984; Rangel-Ruiz *et al.*, 2003; Phiri *et al.*, 2007). where it causes high morbidity, mainly in animals raised by use of traditional husbandry systems, in which periods of nutritional stress occur.

Mature members of the family Paramphistomidae Fiscoeder, 1901 are especially prevalent in the reticulum and rumen of ruminants where they rarely produce any clinical symptoms (Horak, 1971; Dube *et al.*, 2003). This could account for the erosive ruminitis and reticulitis seen in this present case. Immature migrating forms of some species have been reported to cause serious disease and even deaths of their hosts by burying themselves into the sub mucosa of the duodenum and feeding on the epithelial cells of the Brunner's gland resulting in anorexia, polydypsia, profuse foetid diarrhea, drop in plasma protein concentration and anemia (Boray, 1969; Rolfe *et al.*, 1994). This form of the parasite may be the cause of duodenal mucosal petechiation and severe persistent diarrhea seen in this present case.

The country's ecosystem has changed due to human resettlements, oil drilling, use of fertilizers, pesticides and dam constructions this necessitates a new investigation to provide the farmers and veterinarians the current status of paramphistomes sheep. Not all paramphistome species are responsible for disease sheep, it is therefore important to have accurate information about existing species so that where pathogenic ones occur preventive control measures can be taken in order to avoid outbreaks (Rolfe *et al.*, 1994). There adequate preventive measure can be adopted and include: Drainage of affected areas, Fencing off affected areas, Provision of alternative water sources and Treatment of stock with drenches effective against stomach flukes (Rolfe and Boray, 1988). In Nigeria serious outbreaks may be prevented if pastures with a natural water supply are grazed only in spring and

early summer. Late summer, autumn and early winter grazing should be avoided. If wet pastures are grazed continuously, young weaner lambs should not be grazed together with adults. Further studies should on the chemotherapy should be carried out to minimize helminthes resistance to drugs.

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