



E-ISSN: 2320-7078

P-ISSN: 2349-6800

JEZS 2019; 7(1): 634-636

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Received: 16-11-2018

Accepted: 19-12-2018

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Concurrent endo and ecto parasitic infections in deccani sheep

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Abstract

A carcass of Deccani sheep belonging to College Instructional Farm was presented to Department of Veterinary Pathology, College of Veterinary & Animal Sciences, Parbhani for conduct of postmortem examination. Externally, animal was emaciated with pale mucous membrane and rough hair coat. The detailed post mortem examination revealed hydropericardium, hydrothorax and hydroperitoneum. The abomasum was with full of *Haemonchus contortus* worms while caecal contents with full of *Trichuris* worms. The respiratory passage was filled with *Oestrus ovis* larvae of all stages. Considering the gross lesions noted in exposed sheep, death due to asphyxia resulted from lodgment of *Oestrus ovis* larvae.

Keywords: deccani sheep, *Haemonchus contortus*, *Trichuris*, *Oestrus ovis* larvae

Introduction

Sheep is considered as museum of parasites. Along with many ecto-endo parasites, *Oestrus ovis* is one of the important parasites. Larvae of the sheep nasal bot fly, *Oestrus ovis* are well known parasites in the nasal cavities and frontal sinuses, sometimes also in the maxillary sinuses of domestic sheep, goats and some wild ruminants worldwide, causing the clinical disease [1]. The gravid *Oestrus ovis* female fly deposits the immature larvae from the distance into the nostrils of sheep. Deposited young larvae then migrate into the nasal cavities and the paranasal sinuses where they develop. The duration of development in the host varies considerably from a few weeks to several months, depending on the season and climatic conditions [2].

A case of Deccani sheep died due to multi-parasitism and more particularly due to *Oestrus ovis* infection along with gastro-intestinal helminth parasites is reported. Haemonchosis are extremely important parasites of abomasum and are prevalent in India as common stomach worms. Trichuriasis, also known as whipworm infection is another prevalent parasitism affecting Sheep. *Trichuris ovis* is found in caecum of cattle, sheep and goats. Light to moderate infection of same could produce little visible effects.

In the Marathwada region of Maharashtra State, deaths due to *Oestrus ovis* infection in 3 sheeps and 8 lambs have been reported by Narladkar *et al.* [3].

Materials and Methods

Detailed post mortem of Deccani sheep belonging to College Instructional Farm was conducted. The parasites particularly from abomasum and cecum were collected. Similarly, after resection of skull, larval stages present in the nasopharyngeal areas, maxillary sinuses and trachea were collected.

Collected parasites were processed in the Parasitology department. Larva of each stage collected from different locations were processed and mounted for further identification. The mounted larvae were observed under zoom-stereoscopic microscope for observing every minute detail present on dorsal and ventral aspect of the larval cadaver. Based on the morphological features such as dark bands on their dorsal surface and spines on the ventral aspect, the larvae were identified as third stage larvae of *O. ovis* as per the description given by Soulsby [4]. Similarly, based on morphological features exhibited by the parasites observed in abomasum and caecum of sheep, they were diagnosed as haemonchosis and trichuriasis.

Results and Discussion

Externally, carcass appeared to be dehydrated with rough hair coat. Detailed postmortem examination revealed severe parasitic infection. During postmortem examination, abomasums appeared to be with full of either attached or free twisted stomach worms. On their counting, 1988 *Haemonchus contortus* worms were collected (Fig.1). The eye mucous membranes were with intense whiteness and paleness (Fig.2) indicating a severe grade of anaemic condition due to *Haemonchus contortus* infection. Adult *Haemonchus contortus* worms suck blood by attaching them to mucosa of abomasum thereby which it causes anemia and hypoproteinemia.

Further, the examination of carcass revealed that there were 62 *Oestrus ovis* larvae of all stages in the respiratory passage. In the trachea 1st and 2nd stage larvae (Fig.3) were noticed while nasopharyngeal areas and maxillary sinuses contained the large number of larvae (Figs. 4 and 5). Young larvae are white or slightly yellow. When they become mature; dark transverse bands develop on the dorsal aspect of the segments. The full grown larvae were about 3 cm long which appeared to be tapering anteriorly and posteriorly they were ending with flat surface. There are large, black, oral hooks, connected to an internal cephalopharyngeal skeleton. The ventral surface bears rose of small spines and the black stigmal plates are conspicuous on the posterior surface [4].

In India prevalence of *Oestrus ovis* has been reported many authors [5-10]. Shahardar *et al.* [8] have recovered larvae of *O. ovis* from an unusual site i.e. trachea and bronchi of sheep in Kashmir Valley. In the present case too, *Oestrus ovis* larvae were recovered from trachea. Clinical respiratory signs such as seromucous or purulent nasal discharge, frequent sneezing, and dyspnoea may severely impair the health of affected animals [11]. Similar pathogenesis have also been happened in the present case which resulted into death of sheep from asphyxia.

In addition, carcass showed pale musculature, there was moderate hydropericardium (Fig.6), hydrothorax and hydroperitoneum (Fig.7) which supports haemonchosis as noted in present case. Lungs were pale with focal consolidation. Liver was enlarged, hard to cut and also was with sizable cyst. Mesenteric lymph nodes were dull and swollen indicating severe enteropathy (Fig.8). The caecal contents were full of parasites of whom one part of body was thick with rest as thin indicative of *Trichuriasis*. The larvae penetrates mucosa of caecum and colon leading to typhlitis and colitis. During draught period, whipworm infection may be found in large numbers.

Considering the gross observations and laboratory findings, the death of sheep could be ascertained due to asphyxia as a result of lodgment of *Oestrus ovis* larvae in respiratory passage. Also, anemia and hypoproteinemia as evidenced by gross lesions noted due to *Haemonchus contortus* infection would have supported the death of sheep.



Fig 1: Abomasum of sheep with of *Haemonchus contortus* worms



Fig 2: Note intensely white and pale mucus membranes of eyes of sheep



Fig 3: Note immature and mature staged larvae of *Oestrus ovis* in a trachea of sheep



Fig 4: Note immature and mature staged larvae of *Oestrus ovis* in the nasopharyngeal area



Fig 5: Note immature and mature staged larvae of *Oestrus ovis* in the nasopharyngeal area of sheep



Fig 6: Photograph showing hydropericardium in sheep



Fig 7: Photograph showing hydroperitonium in sheep



Fig 8: Marked lymphadenopathy (mesenteric) in a sheep

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