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Gross and histo-pathological changes in experimental haemonchosis in goat

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Abstract
In our study 24 numbers of goats were experimentally infected with L_3 *Haemonchus contortus* larvae. During the research work four numbers of infected goats were sacrificed after 25th day of infection. Numerous *Haemonchus contortus* parasite were observed in abomasal wall even in between abomasal folds with pin point ulcers oedematous swelling and redness due to biting by *Haemonchus contortus* were recorded as grossly. Histo-pathologically changes were observed like the mucosal lining epithelium of the abomasum of infected animals was partially lost in some of the sections and glandular structure of the epithelium was also damaged. There were infiltrations of mononuclear cells predominantly with eosinophils in the biting lesion along with necrosis of epithelium and glandular lumens filled with homogenous masses.

Keywords: haemonchosis, histopathology, ulcer, goat

Introduction
Caprine haemonchosis is of great economic importance as it causes extensive financial losses by way of mortalities, stunted growth, decreased production, productivity and additional financial inputs on preventive and control measures. The present paper documents studies on experimental haemonchosis in goats and its changes in respect of gross histo-pathological aspects.

Materials and Methods
In the present experimental haemonchosis in goats at total of 24 numbers of goats were infected with L_3 *Haemonchus contortus* larvae @ 5000 numbers approximately to each experimental goats orally [1]. After development of haemonchosis in experimentally infected goats, one representative infected goat from each group was sacrificed on 25th day post-infection. On post-mortem examination gross lesions in the abomasum were noticed and recorded. The affected tissue pieces from different regions of abomasums were collected in 10% formol saline. Paraffin embedded sections of the tissues were cut at 5µm thickness and stained with Haris Haematoxylin and Eosin (H & E) and subsequently all the slides were examined for any histological changes [2].

Results and Discussion
The goats were emaciated, anaemic and showed hide bound condition after getting peak infection with *Haemonchus contortus*. During the present study examination of the abomasal content of the sacrificed goat after 25th day of infection numerous *Haemonchus contortus* parasite were observed in abomasal wall (Fig. 1). The *Haemonchus contortus* were found in between abomasal folds. The gross changes in the abomasum infected with *Haemonchus contortus* in the present study have been presented in Fig. 2. The gross changes due to *Haemonchus contortus* infection over abomasal mucosa were recorded as pin point ulcers, oedematous swellings (Fig. 2) and redness due to biting by *Haemonchus contortus.*
The histopathological findings in the sacrificed goats after 25th day of infection have been presented in Fig. 3, 4, 5a, 5b and Fig. 6. The mucosal lining epithelium of the abomasum of infected animals was partially lost in some of the sections (Fig. 3). Glandular structures of the epithelium was also damaged (Fig. 4) which evidenced the site of attachment of the parasite and the biting injuries by the parasite.
There were infiltrations of mononuclear cells predominantly with eosinophils in the biting lesion (Fig. 5a, 5b and Fig. 6). At places the epithelium underwent necrosis. Glandular lumens were filled with homogenous masses (Fig. 6)

The present findings were comparable with the finding of other several workers [3, 4 & 5].

The present study revealed that goats are highly susceptible to haemonchosis. It can be mitigated with effective anthelmintic dosing may help in better management of the disease.

Fig 1: Abomasum of an experimental goat showing presence of *Haemonchus contortus* Parasites

Fig 2: Abomasum of an experimental goat showing edematous swelling and pin point Haemorrhage indicating the bite lesions of *Haemonchus contortus*

Fig 3: Photomicrograph of a section of abomasum of a goat showing biting lesions in the mucosal epithelium due to haemonchus contorus in experimental haemonchosis. Note the loss of glandular structures (arrow) indicating the site of attachment of the parasite. (Inset is shown in fig. 4.33) H&e, 10x.

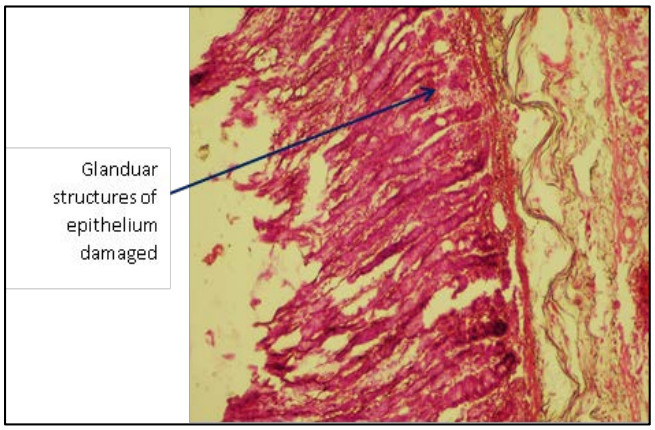

Fig 4: Photomicrograph of the inset shown in fig.1 enlarged. Mucosal surface is lost with disappearance of mucosal glandular structures. Submucosal elements are intact. H&e, 40x

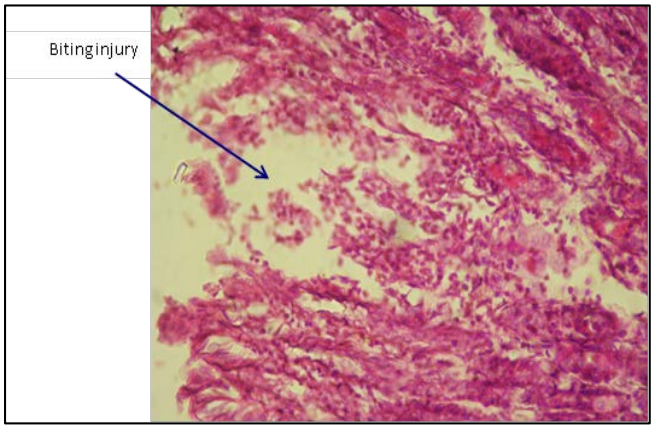

Fig 5a: Part of a lining epithelium of abomasum of an experimental goat shwoing biting lesion. H & e, 40x.

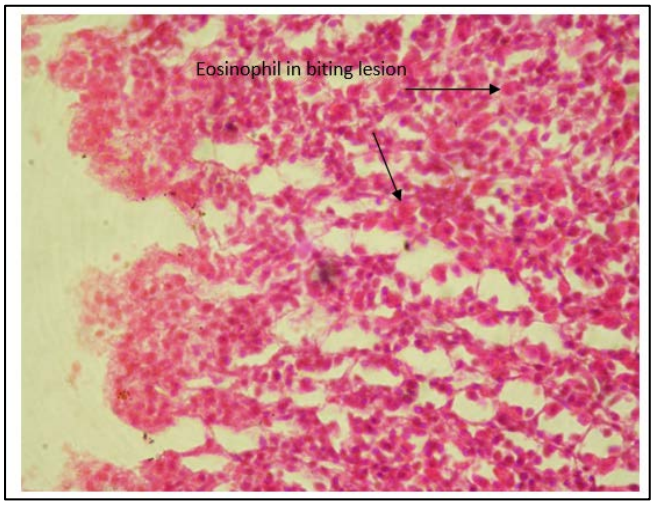

Fig 5b: Abomasum of an experimentally infected goat showing biting lesion due to haemonchus contortus with infiltration of esosinophils (arrows). H&e, 40x.

Fig 6: Part of abomasum of an experimentally infected goat showing homogenous masses filling the glandular lumen. H&E, 40X

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