The Pharma Innovation Journal 2023; SP-12(7): 1411-1412

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; SP-12(7): 1411-1412

www.thepharmajournal.com
Received: 01-04-2023
Accepted: 06-05-2023

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Pathology of abomasum in diarrhoeic sheep in Southern Rajasthan

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Abstract
The present study was undertaken to investigate the pathology of abomasum of sheep affected with diarrhoea. Post-mortem was conducted in 22 sheep died with the history of diarrhoea and a total of 22 samples were taken for further histopathological examinations. Grossly, in abomasum congestion was noticed in 15 cases, in which, microscopically blood vessels were severely engorged in the submucosa and muscularis along with infiltration. On gross examination, acute abomasitis was noticed in 6 cases, microscopically abomasum showed infiltration of inflammatory cells, predominantly of neutrophils, congested blood vessels and hyperplasia of goblet cells.

Keywords: Sheep, histopathological examination, diarrhoea, acute abomasitis and congestion

Introduction
Sheep domestication estimated to fall between 11,000 and 9,000 B.C in Mesopotamia. They must have been very valuable to early human settlements, for that they quickly became ubiquitous across world cultures. Sheep plays an important role in the livelihood of rural, marginal, economically weaker and landless farmers in the remote areas where benefits of scientific research are slow to reach. No domestic or wild animals are capable of existing on more different sorts of food as the sheep do. Sheep are an important source of high-quality food products for human beings in many countries including India. India has livestock population of 536 million out of which the sheep population is approximately 61.5 million and in Rajasthan has 7.9 million (3rd rank in India) sheep (20th Indian livestock census, 2019) [5]. The sheep husbandry system has remained largely traditional in India and sheep grazing on the pastures are susceptible to various parasitic diseases of which gastrointestinal parasitism has been a major health constraint, the consequences of which range from reduced productivity to mortality. The alimentary tract is comparatively more prone to develop spontaneous pathological conditions due to parasitic and bacterial infection than any other single organ/system in the body of sheep and goat (Sharma, 1997) [8]. Despite improvements in management practices and prevention and treatment strategies, diarrhoea is still the most common and costly disease affecting neonatal small ruminants. A study in the Sheep showed that diarrhoea accounted for 46% of lamb mortality. Diarrhoea is a serious problem in sheep and goat farming, causing great economic losses. Most bacterial enteropathogens of diarrheic sheep isolated and identified were species, species. (Shabana, *et al*., 2017) [7]. The effective development of any livestock industry mostly depends upon prevention andcontrol of diseases among these animals. Diseases in animals cause heavy economic lossesin milk, meat and wool industry. (Carrigan and Seaman, 1990 and Doghaim, *et al*., 2000) [2, 3].

Material and Methods
Sample collection
A total of 22 sheep carcass were opened for gross- histopathological examinations. Samples for present study were collected from Various sheep farms and Veterinary clinics of southern region of Rajasthan. Sheep carcasses submitted to Department of Veterinary Pathology, College of veterinary and Animal Science, Navania, Udaipur died with the history of diarrhoea for post-mortem examination also included in the present study. A total of 22 samples were collected during the period from January 2020 to December 2020.

Histopathology examination

Formalin-fixed tissues were processed by routine acetone-xylene technique, impregnated and embedded in paraffin wax. Sections were cut at 4-5 µm thickness with the help of semi-automatic rotary microtome (Lillie, 1965) [4]. The sections were stained with haematoxylin and eosin (H&E) stain following conventional procedure (Luna, 1968) [6].

Results and Discussion

In abomasum major changes recorded were congestion and acute catarrhal abomasitis. On histopathological examination blood vessels were severely engorged in the submucosa & muscularis along with infiltration noticed. Acute abomasitis, microscopically abomasum showed infiltration of inflammatory cells, predominantly of neutrophils, congested blood vessels and hyperplasia of goblet cells indicated acute changes in abomasum. These finding are in agreement with earlier report of Tafti and Mansourian (2008) [9] and Al-Gaabary *et al*. (2012) [1].

Congestion (Fig. 1) was observed in 16 cases out of 22 examined during post-mortem in abomasum. Acute catarrhal abomasitis (Fig. 3) was observed in 6 cases. Abomasum showed congestion in infection of *E. coli*, Klebsiella spp. and coccidian. It showed catarrhal abomasitis in mixed infection of *E. coli* and Amphistomes.

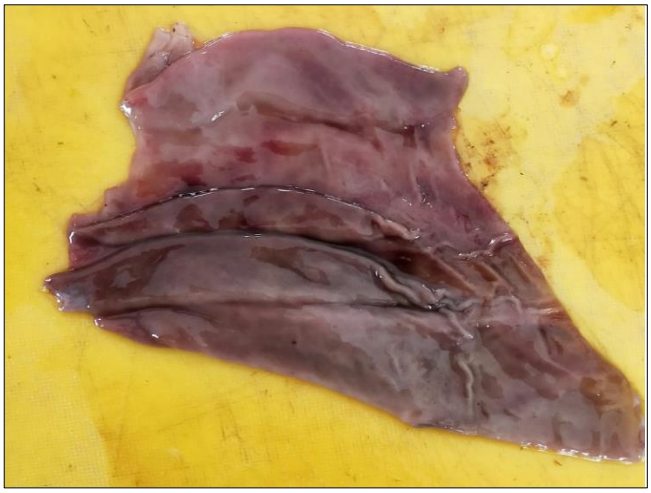

Fig. 1: Gross photograph of abomasum showing congestion, dark reddened Mucosa

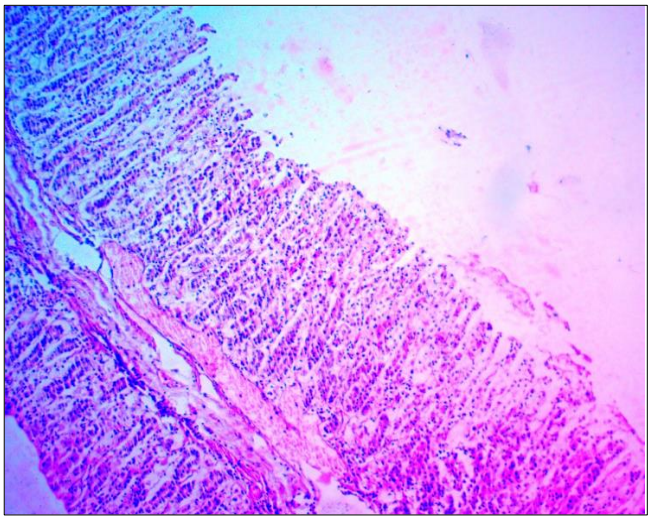

Fig 2: Microphotograph of abomasum showing Severe congestion H&E-100x

Fig 3: Gross photograph of abomasum showing, acute abomasitis

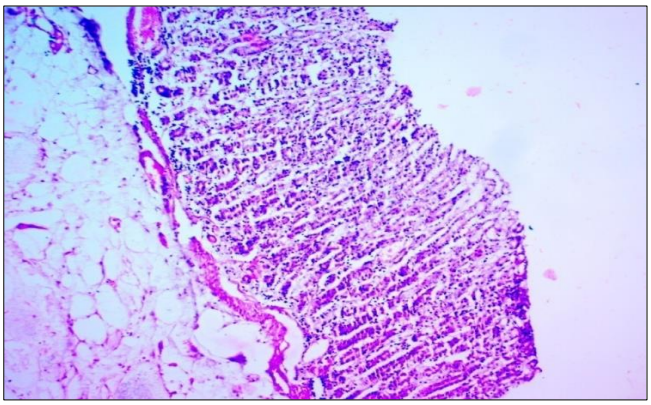

Fig 4: Microphotograph of abomasumshowing acute abomasitis H&E-100x

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