



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(7): 3741-3743
© 2022 TPI
www.thepharmajournal.com
Received: 14-04-2022
Accepted: 18-05-2022

Manish Kumar
Rajasthan University of
Veterinary and Animal Sciences
(RAJUVAS), Bikaner,
Rajasthan, India

Rajkumar Berwal
Rajasthan University of
Veterinary and Animal Sciences
(RAJUVAS), Bikaner,
Rajasthan, India

Indu Vyas
Rajasthan University of
Veterinary and Animal Sciences
(RAJUVAS), Bikaner,
Rajasthan, India

Renu
Rajasthan University of
Veterinary and Animal Sciences
(RAJUVAS), Bikaner,
Rajasthan, India

Shobha Burdak
Rajasthan University of
Veterinary and Animal Sciences
(RAJUVAS), Bikaner,
Rajasthan, India

Rajesh Mohta
Rajasthan University of
Veterinary and Animal Sciences
(RAJUVAS), Bikaner,
Rajasthan, India

Corresponding Author
Rajkumar Berwal
Rajasthan University of
Veterinary and Animal Sciences
(RAJUVAS), Bikaner,
Rajasthan, India

Occurrence and pathology of lymphatic system in goat

Manish Kumar, Rajkumar Berwal, Indu Vyas, Renu, Shobha Burdak and Rajesh Mohta

Abstract

The present study was undertaken to elucidate the different pathological changes in Lymphatic System of Goat in North-Western, Rajasthan, and majority of the goats included in this study had died of natural causes. The pathological conditions of Lymphatic System mainly were comprised of lymphadenitis 2.02% cases reported. The gross findings observed lymph node enlargement microscopically, the sections showed the lymphoid depletion along with lymphocytic infiltration and haemorrhages. And second condition was lymph node congestion 4.05% cases reported in present study. Grossly, revealed the lymph node intense dark to reddish coloured and microscopically, the sections showed the lymph node congested and dilated blood vessels.

Keywords: Goat, lymphadenitis, lymphatic system, lymph node congestion

Introduction

The Goat (*Capra hircus*) is an important multipurpose livestock species and uniquely adapted to harsh environment. Goat is the poor man's cow, (MacHugh and Bradley 2001) [9], because goat rearing has been recommended as the best choice for rural people in developing countries due to wider adaptability, low investment, high fertility and fecundity, low feed and management needs, high feed conversion efficiency, quick pay off and low risk involved. Being small-sized animal the goats can easily be managed by women and children Goat milk and meat also contribute to human nutrition (Casey 1992) [4]. Heart is one of the important part of cardiovascular system. Its comprises heart, arteries, veins, lymphatic channels. In the cardiovascular system heart is a muscular pump that sends oxygenated, nutrient-rich arterial blood throughout the body via systemic circulation. It also helps in distribution of respiratory gases such as oxygen and carbon-dioxide apart from those hormones excretory products. The heart is enclosed in the fibro-serous pericardial sac, and cardiac wall mainly consist of three layers epicardium, myocardium, endocardium. Cardiovascular system also maintains body temperature and pH and homeostasis.

Collection of samples

Source and collection of samples

For the proposed investigation, samples of Lymphatic System of goats (*Capra hircus*) irrespective of age, sex and breed were collected from slaughter houses of Bikaner, Nagaur, Jodhpur and adjoining areas of these districts. The tissue specimens were also collected from the carcasses of goats submitted to the department of Veterinary Pathology, College of Veterinary and Animal Sciences, Bikaner for post mortem examination. The samples received from the field veterinarians at the department of Veterinary Pathology were also included in this study. During post-mortem examination, the samples were thoroughly examined grossly for alteration in morphology in terms of shape, size, color, consistency, location and presence of cysts and abscesses etc. lesions in individual parts of cardiovascular system. During present investigation total 6.08% specimens of Lymphatic System of goats were examined showing gross lesions were collected for further histopathological examination.

Processing of tissues

Following collection all the samples were properly preserved in 10 percent formalin. The part of affected tissues measured 2-5 mm thickness and presenting the lesions with normal tissue, were used for fixation and further histopathological examination. For histopathological examination, processing of tissues was done by paraffin embedding using acetone and benzene technique (Lille, 1965) [7].

The section of 4-6 micron thickness were cut and stained with routine staining methods by hematoxylin and eosin. results were recorded by gross observations and microphotographs.

Staining of tissue section

The lymph node tissue sections were using haematoxylin and eosin method for histopathological evaluation (Luna G 1960)^[8], (Bancroft JD, Suvana, SK, Layton C. Bancroft s 2013)^[2]. Following deparaffinization the sections were dehydrated using serial changes in ethanol and stained using Harris haematoxylin. After differentiation and follow up staining with Eosin, the slides were dehydrated and then permanently mounted using DPX as far as possible, results recorded by microscopic examination.

Result and Discussion

The pathological conditions of Lymphatic System mainly were comprised of lymphadenitis 2.02% cases. The gross findings observed lymph node enlargement was in accordance with the reports of Nieberle and cohers (1966)^[11]. Microscopically, the sections showed the lymphoid depletion along with lymphocytic infiltration and hemorrhages were in accordance with Kumar *et al.*, (2004)^[6], Gupta (2012)^[5], Asopa (2012)^[1]. And second condition was lymph node congestion 4.05%.cases reported in present study. Grossly, revealed the lymph node intense dark to reddish colored was in close conformity with the earlier report of Vegad (2007)^[13]. Microscopically, the sections showed the lymph node congested and dilated blood vessels are in close conformity with the earlier report of Vegad (2007)^[13], Soundararajan *et al.*,(2006)^[12]. Lymphadinitis caused by some infectious conditions like viral disease pest des petitis ruminant (Goat plague). Kumar *et al.*, (2004)^[6]. In the present study lymphadinitis might be associated with several chronic subclinical infections and toxic changes and Lymph node congestion caused by some infectious agents such as viral infection pest des petitis Bundza *et al.*, (1988)^[3] generalized congestion generally may be associated with circulatory failure due to systemic infectious disease or valvular insufficiency the mechanism of congestion involved generally accumulation of venous blood and dilated capillaries and veins due to poor oxygenation.



Fig 1: Gross photograph of lymph node showing enlargement

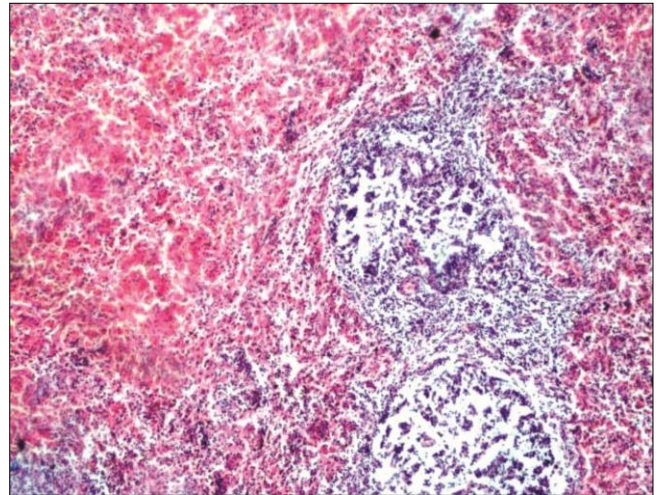


Fig 2: Microphotograph of lymph node showing lymphocytic infiltration along with lymphoid depletion and hemorrhages



Fig 3: Gross photograph of lymph node showing intense dark to reddish colour

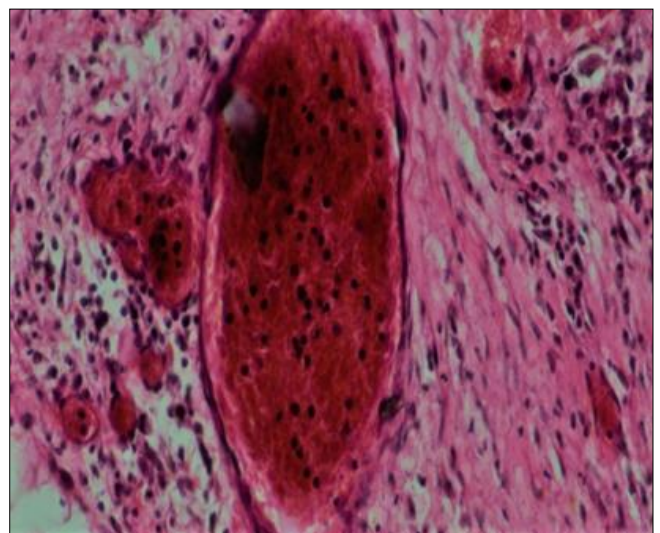


Fig 4: Microphotograph of lymph node showing congested and dilated blood vessels H&E 200X.

Conclusion

The study considering the severity of lymph tissue in the vital organ i.e., lymph nodes, lymph vessels and it can be concluded that this condition is serious pathological malady in domestic animals resulting in economic loss of the rural farmers.

Acknowledgement

We acknowledge the support and facilities provided by my major advisor, teaching faculty of the department of veterinary pathology and Dean (CVAS, Bikaner) college of veterinary science for providing necessary facilities to investigate out of this research work.

References

1. Asopa S. Occurrence and pathology of colibacillosis in buffalo (*Bubalus bubalis*). Doctoral dissertation, Rajasthan University of Veterinary and Animal Sciences, Bikaner-334001), 2012.
2. Bancroft JD, Suvarna SK, Layton C. Bancroft's Theory and practice of histological Techniques Edition 7th British, Churchill Livingstone Elsevier Ltd, 2013.
3. Bundza A, Afshar A, Dukes TW, Myers DJ, Dulac GC, Becker SA. Experimental peste des petits ruminants (goat plague) in goats and sheep. Canadian Journal of Veterinary Research. 1988;52(1):46.
4. Casey NH. Goat meat in human nutrition. In Proceedings V International Conference on Goats. Indian Council of Agricultural Research New Delhi. J Vet. Res. 1992 Mar;63(2):159-170.
5. Gupta A. Occurrence and pathology of colibacillosis in goat (*Capra hircus*) Thesis. Department of Veterinary Pathology College of Veterinary and Animal Science Rajasthan University of Veterinary and Animal Sciences, Bikaner – 334001, 2012.
6. Kumar P, Tripathi BN, Sharma AK, Kumar R, Sreenivasa BP, Singh RP, *et al.* Pathological and immunohistochemical study of experimental peste des petits ruminants virus infection in goats. Journal of Veterinary Medicine, Series B. 2004;51(4):153-159.
7. Lillie RD. Histopathological technique and practical histochemistry, Mc Graw Hill Book co., New York and London, 1965.
8. Luna G Manual of Histological Staining of the Armed forces Institute of pathology Edition 3rd New York Mc Graw Hill Book Co., 1960, 32(40).
9. MacHugh DE, Bradley DG. Livestock genetic origins: goats buck the trend. Proceedings of the National Academy of Sciences. 2001;98(10):5382-5384.
10. Maity SB, Deb P, Das R Som TL. Pathology of lymph nodes in cattle. Ind. J of vet Pathol. 2000;24:32-34.
11. Nieberle, Cohrs. The Blood Forming organs, Chapter: 2, In; Text book of the special pathological anatomy of domestic animals (1st ed), Pergamon press Ltd, 1966, 84.
12. Soundararajan C, Sivakumar SR, Muthukrishnan S, Palanidurai R. Goats in an organised farm in Tamil Nadu. Indian veterinary journal, 2006.
13. Vegad JL. Hemodynamic Disorders, Chapter-6 In; A Text Book of Veterinary General Pathology, (2nd Ed) Vikas Publishing House Pvt. Ltd., New Delhi, 2007.