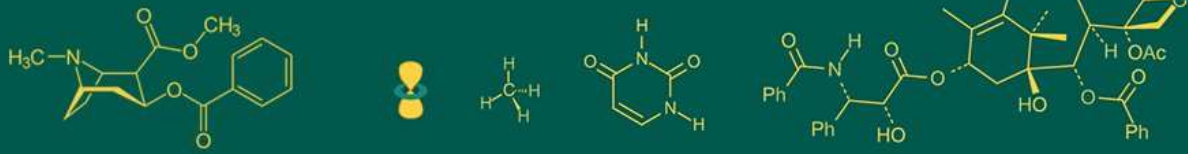


International Journal of Advanced Biochemistry Research



ISSN Print: 2617-4693
 ISSN Online: 2617-4707
 IJABR 2024; SP-8(1): 563-566
www.biochemjournal.com
 Received: 02-10-2023
 Accepted: 08-11-2023

Indu Bala
 PG Scholar, Department of
 Veterinary Pathology, College of
 Veterinary and Animal Science,
 Rajasthan University of Veterinary
 and Animal Sciences, Bikaner,
 Rajasthan, India

Goverdhan Singh
 Assistant Professor, Department of
 Veterinary Pathology, College of
 Veterinary and Animal Science,
 Rajasthan University of Veterinary
 and Animal Sciences, Bikaner,
 Rajasthan, India

Mamta
 Assistant Professor, Department of
 Veterinary Pathology, College of
 Veterinary and Animal Science,
 Rajasthan University of Veterinary
 and Animal Sciences, Bikaner,
 Rajasthan, India

Kamal Purohit
 Assistant Professor, Department of
 Veterinary Pathology, College of
 Veterinary and Animal Science,
 Rajasthan University of Veterinary
 and Animal Sciences, Bikaner,
 Rajasthan, India

Bhavana Kanwar Rathor
 Department of Animal Nutrition,
 College of Veterinary and Animal
 Science, Rajasthan University of
 Veterinary and Animal Sciences,
 Bikaner, Rajasthan, India

Mamta Kumari
 PG Scholar, Department of
 Veterinary Pathology, College of
 Veterinary and Animal Science,
 Rajasthan University of Veterinary
 and Animal Sciences, Bikaner,
 Rajasthan, India

Pankaj Kanwar
 PG Scholar, Department of
 Livestock Production and
 Technology, College of Veterinary
 and Animal Science, Rajasthan
 University of Veterinary and
 Animal Sciences, Bikaner,
 Rajasthan, India

Corresponding Author:
Indu Bala
 PG Scholar, Department of
 Veterinary Pathology, College of
 Veterinary and Animal Science,
 Rajasthan University of Veterinary
 and Animal Sciences, Bikaner,
 Rajasthan, India

Idiopathic chronic hepatitis in a buffalo calf: A postmortem study

Indu Bala, Goverdhan Singh, Mamta, Kamal Purohit, Bhavana Kanwar Rathor, Mamta Kumari and Pankaj Kanwar

DOI: <https://doi.org/10.33545/26174693.2024.v8.i1Sh.411>

Abstract

A one-year-old Buffalo male calf carcass was brought to the Department of Veterinary Pathology, CVAS, Navania, Udaipur for postmortem examination, died with a history of anorexia, emaciation, and chronic illness. External examination of carcass revealed severe debilitation, pale mucous membranes and absence of rigor mortis. Gross examination of the organs of buffalo calf carcass revealed severe congestion in viscera, smaller and nodular liver with an enlarged distended gallbladder filled with watery consistency fluid, smaller size spleen with wrinkled capsule and gelatinization of fat was observed in fat depots and visceral organ. Microscopic examination of the liver revealed heavy infiltration of chronic inflammatory cells such as lymphocytes and macrophages, as well as an increase in fibrous tissue proliferation within and around the hepatic lobules. Pseudolobulation and in some areas eccentric position of central vein were also noted. Additionally, kidney showed degeneration of tubular epithelium, hyaline cast formation in tubules and chronic infiltration of cells and sarcocyst were observed in the myocardium of the heart, while the lungs exhibited interstitial pneumonia with congestion. Based on the findings case was identified as idiopathic chronic hepatitis.

Keywords: Buffalo calf, chronic hepatitis, histopathology

1. Introduction

Buffalo species possesses significant value in terms of its draft power, biological performances, and high ecological potential on productivity (Latif, 1994) [5]. The liver, being the largest organ in the body of herbivores, constitutes approximately 1% of their body weight. The liver plays a crucial role in various functions, including the metabolism of bilirubin, carbohydrates, xenobiotics, protein production, and immune function (Cullen *et al.*, 2012) [2]. Furthermore, research has indicated that buffalo liver can also be commercially utilized in the preparation of acceptable comminuted meat products within the food industry (Naveena *et al.*, 2014) [8]. Pathological conditions affecting the liver can arise from a variety of causes, such as parasites, viruses, mycoses, bacteria, genetic factors, immunological factors, and idiopathic factors, resulting in significant economic losses (Ahmed *et al.*, 2013) [1]. Chronic hepatitis, also known as cirrhosis, is an inflammatory and necrotizing liver disease (Sterczer *et al.*, 2001) [10]. It is characterized by fibrosis, degeneration, and hyperplasia of hepatic cells. Therefore, the present study aims to identify the pathological conditions of the liver in buffalo calf carcasses through gross and histopathological studies.

2. Materials and Methods

A buffalo calf carcass, one-year-old received in the Department of Veterinary Pathology at CVAS, Navania, Udaipur for postmortem examination. Following the gross examination of the entire carcass, representative tissue specimens were collected from the liver and other organs. These specimens were then fixed in 10% neutral buffered formalin for a minimum of 24-48 hours and subsequently subjected to routine processing, as described by Salmo *et al.* in 2014. The fixed tissue samples, measuring 3-5 mm in thickness, were further processed using the acetone and benzene technique for paraffin embedding, as outlined by Lillie in 1965. Bacteriological samples were also taken from liver and heart blood, processed as per routine.

3. Results and Discussion

Upon gross examination, the conjunctival and oral mucous membranes exhibited a pale appearance (Fig 1), while congestion was evident in most of the organs. The liver displayed congestion and appeared small and nodular, with the presence of necrotic foci (Fig 2 & 3). The gallbladder was enlarged, distended, and contained fluid with a watery consistency (Fig 3). Additionally, thinning of the gallbladder wall was observed (Fig 4). The spleen appeared smaller in size and had a wrinkled capsule (Fig 5). Gelatinization of fat was observed in fat depots and on the visceral organs. Histopathological examination of liver tissues revealed varying degrees of degeneration, necrosis, and fibrous tissue proliferation (Fig 6). These findings align with the research conducted by Talukder *et al.* (2010) [11] and MacGavin *et al.* (2001) [7]. In the liver tissues, there was a significant presence of chronic inflammatory cells, including Macrophages and lymphocytes, as well as an increase in fibrous tissue growth within and around the hepatic lobules (Fig 7 & 8). These findings align with the research conducted by Doy *et al.* (1984) [3] and Wiedosari *et al.* (1991) [12]. Additionally, certain areas of the liver lobules exhibited neovascularization and an excessive growth of bile ducts. Faccin *et al.* (2016) [4] also observed bile duct hyperplasia in their study. Furthermore, there were instances of pseudolobulation and an eccentric positioning of central veins in certain areas. Upon microscopic examination of the kidney, degeneration of the tubular epithelium was observed (Fig 9). The tubules also displayed the formation of hyaline casts and infiltration of chronic inflammatory cells (Fig 9 & 10). Sarcocysts were identified in the myocardium of the heart (Fig 11). Bacteriological analysis of the samples did not yield any growth on culture media. Based on all these findings, the case was diagnosed as idiopathic chronic hepatitis.



Fig 3: Gross picture of small nodular liver and enlarge distended gallbladder



Fig 4: Gross picture of distended gallbladder with thinning of wall.



Fig 1: Gross pic of oral cavity of buffalo calf showing Pale mucous membranes.



Fig 5: Gross picture of smaller sized spleen and its wrinkled capsule



Fig 2: Gross picture of Liver showing severe congestion along with necrotic foci

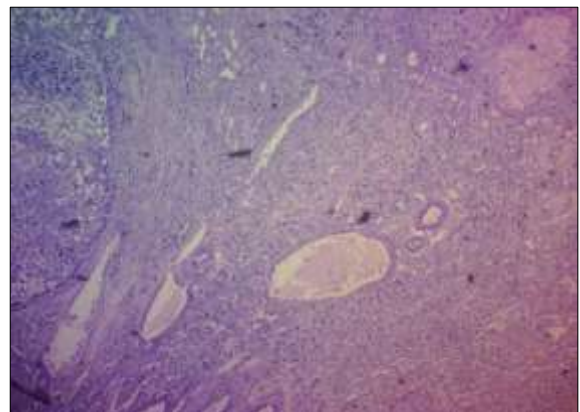


Fig 6: Microphotograph of liver showing chronic hepatitis, severe atrophic changes, necrosis and proliferation of fibrotic tissue in liver parenchyma. H&E-4X

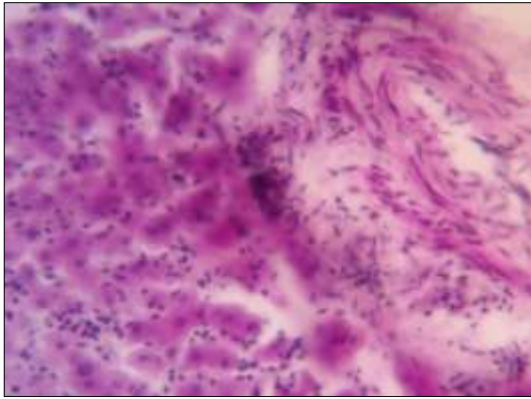


Fig 7: Photomicrograph of liver tissue showing, infiltration of chronic inflammatory cells around the hepatocyte and fibrous tissue proliferation. H&E, 40X

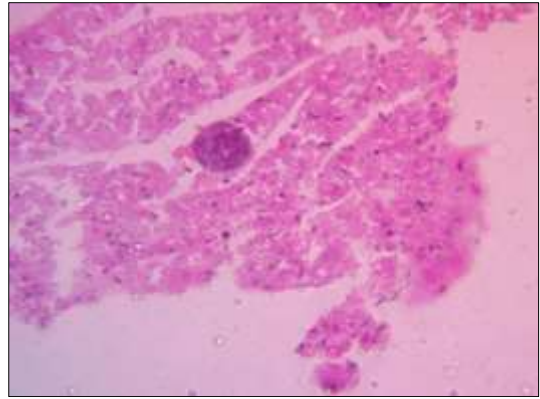


Fig 11: Photomicrograph of heart tissue showing presence of sarcocyst, H&E, 40X

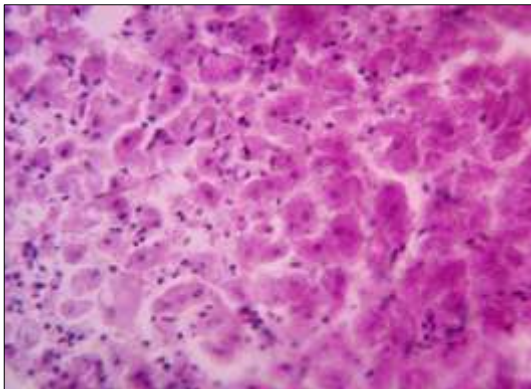


Fig 8: Photomicrograph of liver tissue showing, degeneration of hepatic cells infiltration of chronic inflammatory Cell. H&E, 40X

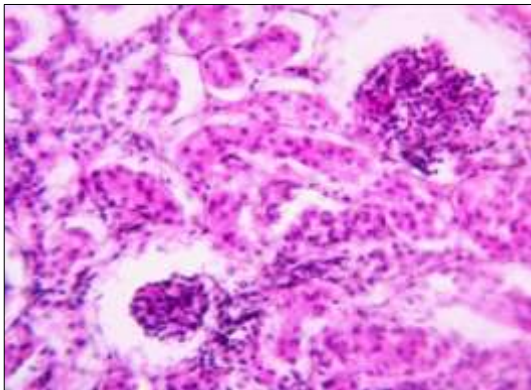


Fig 9: Photomicrograph of kidney tissue showing, infiltration of chronic inflammatory cells in glomeruli and in tubules. H&E, 40X

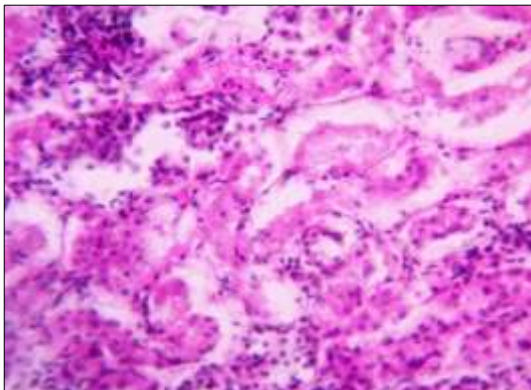


Fig 10: Photomicrograph of kidney tissue showing, degeneration of tubular epithelium & chronic infiltration of inflammatory cell. H&E, 40X

4. Conclusion

As per histopathological examination of tissue indicated a case of idiopathic chronic hepatitis.

5. Acknowledgement

The authors are highly grateful to the Dean, College of Veterinary and Animal Science, Navania, Udaipur (Rajasthan) for providing essential facilities for completing the study.

6. References

1. Ahmed AM, Ismail SAS, Dessouki AA. Pathological lesions survey and economic loss for male cattle slaughtered at Ismailia abattoir. *International Food Research Journal*. 2013;20:857-863.
2. Cullen JM, Brown DL. Pathologic basis of veterinary disease: Hepatobiliary system and exocrine pancreas. In: Zachary JF, McGavin MD, editors. Elsevier Mosby Ltd., Missouri, USA; c2012. p. 405-446.
3. Doy TG, Hughes DL. Early migration of immature *Fasciola hepatica* and associated liver pathology in cattle. *J Res Vet Sci*. 1984;37:219-22.
4. Faccin TC, Kommers GD, Galiza GJND, Pupin RC, Madureira RC, Lemos RAA. Chronic liver disease in cattle associated with ingestion of *Brachiaria* spp. *Ciencia rural*. 2016;46:2036-2042.
5. Latif MA. Buffalo production in Bangladesh problems and prospects. *Proceedings of 1st Asian Buffalo Association Congress*, January 17-21, Khon Kaen, Thailand; c1994.
6. Lillie RD. *Histopathological technique and practical histochemistry*. McGrawHill Book Co., New York and London; c1965.
7. MacGavin MD, Carlton WW, Zachary JF. *Thomson's Special Veterinary Pathology*. 3rd ed. St Louis: Mosby; c2001. P. 325-245.
8. Naveena BM, Kirant M. Buffalo meat quality, composition, and processing characteristics: Contribution to the global economy and nutritional security. *Animal Front*. 2014;4:18-24. <https://doi.org/10.2527/af.2014-0029>
9. Salmo NA, Hassan SM, Saeed AK. Histopathological study of chronic livers Fascioliasis of cattle in Sulaimani abattoir. *AL-Qadisiyah Journal of Veterinary Medicine Sciences*. 2014;13(2):71-80.
10. Sterczer A, Gaal T, Perge E, Rothuizen J. Endocrinology: Chronic hepatitis in the dog - a review. *Veterinary Quarterly*. 2001;23(4):148-152.

11. Talukder S, Bhuiyan MJ, Hossain MM, Uddin MM, Paul S, Howlader MMR. Pathological investigation of liver fluke infection of slaughtered black Bengal goat in a selected area of Bangladesh. *Bangl J Vet Med.* 2010;8(1):35-41.
12. Wiedosari E, Graydon R, Copeman DB. Comparative pathological study of hepatic changes induced by *Fasciola gigantica* and *Gigantocotyle explanatum* in Javanese thin-tailed sheep. *J Comp Path.* 1991;105:147-155.