www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(5): 1638-1640

www.thepharmajournal.com
Received: 22-03-2022
Accepted: 26-04-2022

Raj Kumar
Ph.D. Scholar, Department of Veterinary Surgery and Radiology, College of Veterinary & Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Anita Kumari
Teaching Associate, Department of Veterinary Surgery and Radiology, College of Veterinary & Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Richa Chourasia
Ph.D. Scholar, Department of Veterinary Surgery and Radiology, College of Veterinary & Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Shivangi Diwedi
Ph.D. Scholar, Professor, Department of Veterinary Surgery and Radiology, College of Veterinary & Animal Science, RAJUVAS, Bikaner, Rajasthan, India

P Bishnoi
Professor and Head,
Department of veterinary surgery and Radiology Bikaner, College of veterinary and animal sciences, Bikaner
RAJUVAS, Bikaner, Rajasthan, India

SK Jhirwal
Assistant Professor, Department of Veterinary Surgery and Radiology, College of Veterinary & Animal Science, RAJUVAS, Bikaner, Rajasthan, India

S Palecha
Assistant Professor, Department of Veterinary Surgery and Radiology, College of Veterinary & Animal Science, RAJUVAS, Bikaner, Rajasthan, India

AK Bishnoi
Assistant Professor, Department of Veterinary Surgery and Radiology, College of Veterinary & Animal Science, RAJUVAS, Bikaner, Rajasthan, India

M Tanwar
Assistant Professor, Department of Veterinary Surgery and Radiology, College of Veterinary & Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Corresponding Author
Raj Kumar
Ph.D. Scholar, Department of Veterinary Surgery and Radiology, College of Veterinary & Animal Science, RAJUVAS, Bikaner, Rajasthan, India

Clinico-haematological, radiographical and ultrasonographical studies on traumatic pericarditis in bovines

Raj Kumar, Anita Kumari, Richa Chourasia, Shivangi Diwedi, P Bishnoi, SK Jhirwal, S Palecha, AK Bishnoi and M Tanwar

Abstract
Present study carried out in 23 bovine to evaluate the efficacy of clinical, haematological, Radiographic and ultrasonographic finding in the diagnosis of traumatic pericarditis in bovine. History by animal owner anorexia, tympany, edema and diarrhea. Haemtological finding reveled that decreased haemoglobin, packed cell volume (PCV), lymphocyte count and monocyte count and increased mean values of leukocyte count and mean granulocyte count was found**.** In Left thorax Radiograph recognized Radio-opaque foreign bodies only in 60.21 percent of animals and ultrasonographic examination revealed mixed type of echogenicity in the pericardial cavity interspersed with fibrin deposition in presented animals. Post-mortam examination reveled thickening of pericardium with fibrinous and suppurative inflammation of pericardium and epicardium. This fibrin gives the appearance of "scramble egg". In presented animals distinct type of foreign body recovered. The entire presented animal die within 2 week of treatment. The prognosis of traumatic Pericarditis was guarded. Present study revealed that Clinical, haematological, radiographical, Ultrasonographic approach can be used effectively for the diagnosis of traumatic pericarditis.

Keywords: Traumatic pericarditis, bovines, radiography, fibrinous

1. Introduction
Pericarditis is usually caused by long, thin sharp foreign bodies like binding wire, needle and nails that penetrate the reticulum, diaphragm and pericardial sac resulting in traumatic reticulo-pericarditis (Braun, 2009) [2]. It is the most common pericardial disorder in cattle (Bexiga *et al.*, 2008) [5] and associated with progressive disturbances in heart function and almost always results in death of affected animals. Traumatic pericarditis is also recorded in the equine (Bertone and Dill, 1985) [4], lamb (AboShehada *et al.*, 1991) [1] dog and cat. Pericarditis presents in three general forms; effusive, fibrinous and constrictive although combinations of one or more of the three forms can occur (Radostits *et al.*, 2007) [9]. In the early stages, inflammation of the pericardium is accompanied by hyperemia and the deposition of fibrinous exudate which produces a friction sound when the pericardium and epicardium rub together during cardiac movement (Pekins *et al*., 2004) [8]. As effusion develops the inflamed surfaces are separated and friction sound is replaced by muffled heart sounds. Accumulation of fluid in pericardial sac compresses the atria and right ventricle, preventing their complete filling and congestive heart failure follows.

2. Materials and Methods
Twenty-three bovines (16 cattle and 7 buffaloes) with a common history of reduced appetite, swelling between for legs, chronic tympany, abduction of elbow, diarrhoea and arched back were presented at Veterinary Clinical Complex, CVAS, Bikaner from January 2019 to January 2021. Based on the clinical manifestation all the animals were suspected as traumatic pericarditis. All these animals were gone through detailed clinical examination included rectal temperature, respiratory rate, heart rate, ruminal motility, auscultation of the heart and lungs. For haematological parameters examination, blood sample of each animal was collected from jugular vein in EDTA containing vial. All the animals were exposed to lateral digital radiograph for the imaging of thorax and reticulum in standing position (Allengers®) with radiographic exposure of 90 kvp and 45 mAs. The ultrasonographic examination of thoracic cavity was also carried out in all animals in standing position (EDEN) using 3.5 MHz

transducer through 5th and 6th intercostal space. Eight apparently healthy animals were used for comparison of haematological parameters.

3. Result and Discussion

The principle clinical findings monitored in all the clinical cases suffering from traumatic pericarditis were brisket edema (fig-1) increased rectal temperature, enlarged jugular vein, tachycardia, tachypnoea, muffled heart sound, and increased capillary refill time (Table 1). Similar clinical findings were also observed by previous workers in traumatic pericarditis affected animals in their respective studies (Ward and Ducharme, 1994; Radostits *et al*., 2007; Divers and Peek, 2008) [13, 9, 6].

Haematological examination in traumatic pericarditis affected bovines revealed decrease in mean values of haemoglobin, packed cell volume (PCV), lymphocyte count and monocyte count whereas mean values mean leukocyte count and mean granulocyte count was found increased as compare to apparently healthy control animals. However, no significant difference was found in mean value of platelets count in traumatic pericarditis affected animals as compare to apparently healthy control animals. Findings of present study agreement with those of previous findings of Sharma *et al*., 2018 [12], Sharma *et al.,* 2012 [11] and Habasha and Yassein, 2014. Means±S.E. values of haematological parameters as presented in (Table 2).

In the present study, loss of detail in radiography was in 80.67 percent animals which may be due to the presence of large amounts of fibrinous exudates in the pericardial sac. Radio-opaque foreign bodies (fig-2) recognized radiographically only in 60.21 percent of animals. The possible reason for it may be low density foreign body and more width of thorax cavity of bovines. These finding was in agreement with that described by Sasikala *et al*., 2018. Radiography is the leading method for perception the metallic foreign bodies in thorax and analyzes the thoracic cavity condition (Braun *et al.,* 1994) [3].

In present study Ultrasonographic examination revealed mixed type of echogenicity (fig-3) in the pericardial cavity interspersed with fibrin deposition in presented clinical cases which found in agreement with finding of Sharma *et al*., 2018 [12].

4. Treatment

All the affected animals were treated with Inj.-Ceftriaxone @ 10-20 mg/kg body weight, bid for 5 days, Inj.-meloxicam @ 0.3mg/kg body weight, bid for 5 days, Inj.-furosemide @ 10 ml, oid for 3 days. All the animals die within two week of treatment. Reef and McGuirk 2009; Sharma *et al*., 2018 [10, 12] also reported that treatment of traumatic pericarditis was unappreciated. In contrast (Radostits *et al.,* 2007) [9] reported that Broad spectrum antibiotics, pericardiocentesis, pericardial lavage and non-steroidal anti-inflammatory drugs were effectively used for the management of traumatic reticulopericarditis.

In present study the post-mortam examination reveled thickening of pericardium with fibrinous and suppurative inflammation of pericardium and epicardium. This fibrin gives the appearance of "scramble egg". In all animal distinct type of foreign body recovered. The foreign bodies recovered were of metallic, combined needle, nail, all pin and Wire. Postmortem finding confirm the presented cases suffer from traumatic pericarditis.

Table 1: Clinical findings in traumatic pericarditis affected bovine

S. No.	Observed clinical finding	Number of affected animals (n=23)	Percentage
1	Abducted elbows	17	73.91
2	Anorexia	20	86.95
3	Arched back	12	52.17
4	Increased capillary refill time	20	95.65
5	Decreased Ruminal motility	18	78.26
6	Decreased milk production	21	91.30
7	Diarrhoea	6	26.08
8	Positive jugular pulse	21	91.30
9	Grunting	19	82.60
10	Oedma (Brisket, submanibular, ventral)	22	95.65
11	Increased rectal temperature	20	86.95
12	Muffled heart sounds	16	69.56
13	Recurrent tympany	8	34.78
14	Tachypnoea	22	95.65
15	Tachycardia	23	100
16	Teeth grinding	15	65.21

Table 2: Mean±SE values of hematological parameters in traumatic pericarditis affected bovines

S.N.	Parameters	Mean±SE values in affected animal	Apparently healthy control animals
1.	Hb (gm/dl)	8.85±1.2	11.74±024
2.	Packed cell volume (%)	26.87±0.8	35.15±0.59
3	TEC($x10^6$/µl)	5.30±0.30	7.55±0.25
4	TLC($x10^3$/µl)	25.73±1.4	8.12±0.47
5	Neutrophils (%)	31.11±0.98	33.11±1.18
6	Lymphocytes (%)	45.37±0.23	57.68±1.05
7	Monocytes (%)	0.72 ± 0.05	2.87±0.33
8	Eosinophils (%)	11.23 ± 0.23	4.98±0.44
9	Platelets ($x10^5$/µl)	4.55±0.23	4.58±0.15

Fig 1: Oedema-Brisket, submandibular, ventral

Fig 2: Lateral thorax Radiograph- Radiopaque metallic foreign body piercing the heart (arrow)

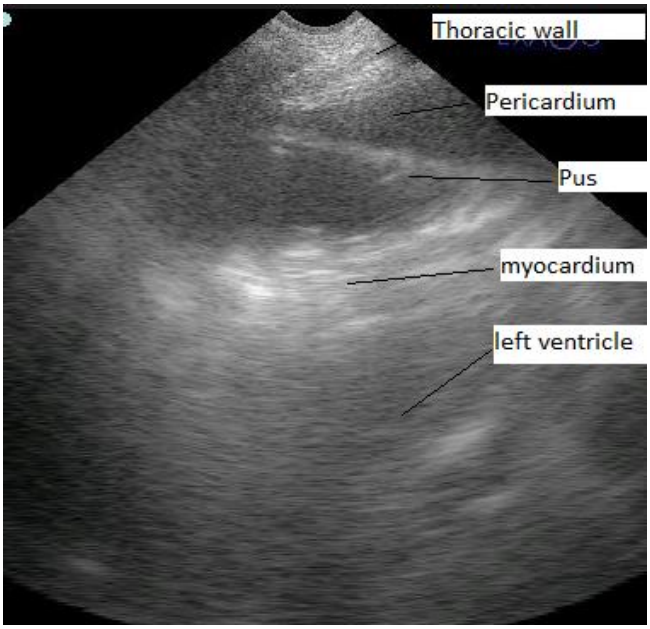

Fig 3: Ultrasonography image of heart affected with pericardial effusion

5. Conclusion

Present study revealed that Clinical, haematological, radiographical, Ultrasonographic approach can be used effectively for the diagnosis of traumatic pericarditis. The treatment of traumatic pericarditis generally guarded in bovines. For avoidance of traumatic pericarditis good management practices needed tracing of foreign body in fodder of animal, mineral mixture addition in diet.

6. References

1. Abo-Shehada MN, Al-Rawashdeh O, Al-Natour M. Traumatic pericarditis in an Awassi lamb. Br. Vet. J. 1991;147(1): 78-81.
2. Braun U. Pericarditis in cattle: Clinical, radiographic and ultrasonographic findings. Vet. J. 2009;182:176-186.
3. Braun U, Gotz M. Ultrasonography of the reticulum in cows. Am. J Vet. Res. 1994;55:325-332.
4. Bertone JJ, Dill SG. Traumatic gastro pericarditis in a horse. J. Am. Vet. Med. Assoc. (USA). 1985;187:742-743
5. Bexiga R, Mateus A, Philbey AW, Ellis K, Barrett DC, Mellor DJ. Clinicopathological Presentation of Cardiac Disease in Cattle and Its Impact on Decision Making. Vet Rec. 2008;162:575-80.
6. Divers TJ, Peek SP. Rebhun's Disease ofDairy Cattle (2th Ed). Elsevier Inc USA, 2008, 141-45.
7. Habasha FG, Yassein SN. Advance techniques in traumatic reticuloperitonitis diagnosis: A review. Al-Qadisiya J Vet. Med. Sci. 2014;13: 50-57.
8. Pekins SL, Magdesian KG, Thomas WP, Spier SJ. Pericarditis and Pleuritis Caused By C. Pseudotuberculosis in a Horse. J Am Vet Med Assoc. 2004;224:1133-1138.
9. Radostits OM, Gay CC, Hinchcliff KW, Constable PD. Veterinary Medicine. A textbook of the diseases of cattle, horses, sheep, pigs and goats. 10th edn., W.B. Saunders Elsevier, Philadelphia, 2007, 211-215
10. Reef VB, Mcguirk SM. Diseases of Cardiovascular System. In: Smith BP. Large Animals Internal Medicine, 4th Edn., Mosby Inc., Philadelphia, USA, 2009, 474-78.
11. Sharma S, Gosal NS, Varun. Idiopathic fibrinous pericarditis in a Nili-Ravi buffalo. Buffalo Bulletin 31, 2012, 171-175.
12. Sharma SK, Kumar K, Joshi M. Parmjeet Clinico-Haematological Studies of Traumatic Pericarditis in Buffaloes. Intas Polivet. 2018;19(I):19-21.
13. Ward JL, Ducharme NG. Traumatic reticuloperitonitis in dairy cows. J Vet. Med. Assoc. 1994;204:874-877.