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K Jayalakshmi

Veterinary Clinical Complex,
Veterinary College and Research
Institute, Orathanadu,
TANUVAS, Chennai, Tamil
Nadu, India

M Venkatesan

Department of Veterinary
Medicine, Veterinary College and
Research Institute, Salem,
TANUVAS, Chennai, Tamil
Nadu, India

D Sumathi

Department of Veterinary
Clinical Medicine, Veterinary
College and Research Institute,
Namakkal, TANUVAS, Chennai,
Tamil Nadu, India

S Kathirvel

Department of Veterinary
Surgery and Radiology,
Veterinary College and Research
Institute, Namakkal,
TANUVAS, Chennai, Tamil
Nadu, India

Corresponding Author:

K Jayalakshmi

Veterinary Clinical Complex,
Veterinary College and Research
Institute, Orathanadu,
TANUVAS, Chennai, Tamil
Nadu, India

Perireticular abscess associated vagal indigestion in dairy cow: A case report

K Jayalakshmi, M Venkatesan, D Sumathi and S Kathirvel

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Abstract

A 7-year old recently calved Crossbred jersey cow was presented to Large Animal Medicine Unit, Veterinary College and Research Institute, Namakkal with a history of anorexia, agalactia and not voiding dung for 10 days. On physical examination, slight elevated body temperature and hypermotility of rumen was observed. Rectal examination revealed severely distended rumen. During ultrasound examination, a circumscribed mass with heterogenous echogenicity at right 6th intercostal space between reticulum and omasum was observed. Ultrasound guided centesis was performed at lower 1/3rd of thorax and foul smelling yellow coloured pus (600 ml) was aspirated. Gram staining of pus smear revealed numerous gram-negative rods and few cocci. The abscess cavity was lavaged with normal saline and metronidazole. The animal was treated with Inj. Streptopenicillin @ 20mg/Kg IM, Tylosin @ 10mg/Kg, Meloxicam @ 0.5 mg/Kg IM for 7 days. The post treatment ultrasonography was performed on 10th day, the size of the abscess cavity and quantity of pus was reduced, the antibiotic treatment was continued upto 15 days and supportive therapy was followed for 5 days. The animal had good appetite after 15 days and improved weight gain after one month.

Keywords: Perireticular abscess, ultrasound, vagal indigestion

Introduction

Vagal indigestion is a most common gastrointestinal disorder in ruminants especially in adult cattle. It is caused by dysfunction of vagus nerve due to injury to vagus nerve in traumatic reticuloperitonitis (TRP) or mechanical obstruction (Radostitis *et al.*, 2000; Hussain *et al.*, 2017) [11, 7]. The mechanical obstruction of gastrointestinal tract in cattle may be either intraluminal or extra luminal. The intraluminal causes are sand gravel, cloth (Hussain *et al.*, 2014) [8], foreign materials such as a piece of rope or placenta (Braun, 2022) [2], coarse feed material or indigestible fibres, presence of neoplasia such as lymphosarcoma or fibropapilloma adjacent to stomach (Gordon, 1997) [6] and fibromyoma in cardia leads to obstruction (Movassaghi *et al.*, 2013) [10]. Extraluminal mechanical obstruction such as abscess, reticular adhesions in TRP (Marchionatti, 2021) [9] and liver abscess (Fubini *et al.*, 1985) [3] interfere the stomach motility. The impairment in the transport of ingesta across the reticulo-omasal orifice and or the pylorus leads to accumulation of ingesta in the fore stomach or abomasums results in decreased appetite, anorexia, scanty faeces, decreased milk production, acid base abnormalities, dehydration, weight loss, weakness and recumbency. The clinical signs of extra luminal obstruction resemble that of type II and IV vagal indigestion. The present article describes the vagal indigestion due to extraluminal perireticular abscess and its successful management in cattle.

Materials and methods

A 7 year old recently calved crossbred jersey cow was presented to Large Animal Medicine unit, Veterinary College and Research Institute hospital, Namakkal with a history of anorexia, agalactia and not voiding dung for 10 days. The case was already treated with laxatives and purgatives by field veterinarian. On physical examination, pink conjunctival mucous membrane, rectal temperature (39.8°C) heart rate (82/min), respiratory rate (30/min), slight

distension of abdomen with hypermotility of rumen was observed. On rectal examination, rumen was severely distended with gas and extends to right side of abdomen and scanty faeces in the rectum was observed. Whole blood and serum were collected for haemato-biochemical analysis. Radiographic examination was performed to rule out traumatic reticuloperitonitis due to foreign body penetration in the reticulum. Ultrasound examination of thorax and abdomen was performed using convex transducer 5 MHz frequency in real time B mode (Fig. 1). The circumscribed cavity with heterogenous echogenic pattern was observed above the reticulum, and ultrasound guided centesis was performed under aseptic condition with local infiltration of lignocaine (2%) at lower 1/3rd of right thorax 6th intercostal space and aspirated foul smelling yellow coloured pus 600 ml (Fig. 2 & 3). The smear was prepared from pus and stained with gram stain. The abscess cavity was lavaged with normal saline (500 ml) and antibiotic metronidazole (200 ml) (Fig 4). The animal was treated with antibiotics Inj. Streptopenicillin @ 20 mg/Kg IM, Tylosin @ 10 mg/Kg IM, and anti-inflammatory drug Meloxicam @ 0.5 mg/Kg IV for 7 days. Post treatment ultrasound examination was done on 10th day, and ultrasound guided centesis was performed and aspirated about 100 ml of pus, and then abscess cavity was lavaged with normal saline 100 ml and metronidazole 100 ml and parenteral antibiotic treatment was continued upto 15 days and supportive therapy like probiotics 10g/day and Bolus containing serratiopeptidase, paracetamol and meloxicam (Serakind plus) @ 2 nos/day for 5 days were followed.

Results and Discussion

The haematological and biochemical values are within the normal range (Table 1). Radiography revealed no radio-opaque foreign body. During ultrasound examination, a circumscribed mass with heterogenous echogenicity at right 6th intercostals space above the reticulum, below the left lobe of liver and adjacent to omasal wall suggestive of abscess (Fig. 1 & 2) was observed. This similar finding was reported by Fubini and Ducharme (2004) [5], who observed the perireticular abscess at or above the ventral floor of the reticulum. The cows with cranial abdominal abscess impair the stomach motility and showed symptoms of vagal indigestion (Saini *et al.*, 2005) [12]. The hypermotility of rumen observed in the study coincided with the report of (Barbosa *et al.*, 2023) [1], who reported 4-5 rumen contraction / 2 minutes in buffalo suffered from vagal indigestion. Severe gaseous distension of dorsal and ventral sac of rumen in rectal palpation was similar to that of Fubini *et al.* (1985) [3]. The extraluminal mechanical obstruction of the reticulo-omasal groove by abscess impairs the omasal transport of ingesta from reticulum to abomasum, which was also observed in adhesions caused by traumatic reticuloperitonitis (Marchionatti, 2021) [9]. Gram staining of pus smear revealed numerous gram-negative rods and few cocci. The animal was treated with combined antibiotic therapy for 7 days. The animal was started to void dung from 2nd day of treatment, resumed feed intake, but at reduced level, the animal resumed milk production after 7 days of treatment. Post treatment ultrasound examination of right thorax on 10th day; the size of abscess cavity and quantum of pus was reduced, but the contents were hyperechoic with small amount of anechoic fluid was observed (Fig. 5) were observed. The animal had good appetite after 15 days and the improvement in weight gain was observed after one month (Fig. 6). The animal was followed upto 4 months which revealed there was no further complication. Fubini, *et al.*

(1989) [4] diagnosed the perireticular abscess in 29 cows during exploratory celiotomy and rumenotomy and at necropsy examination, and also reported that perireticular abscess was responsible for failure of omasal transport leads to bilateral abdominal distension in cattle. The abscess was surgically drained in 25 cows (86%). Out of 25 cows, 24 (83%) animals were survived at the time of discharge from hospital and 20 (69%) survived for at least 1 year. The better survival rate was reported in vagal indigestion type II due to extraluminal mechanical obstruction (abscess) than other causes of vagal indigestion.

Table 1: Haemato-biochemical analysis

Haematology		Serum biochemistry	
Parameters	Value	Parameters	Value
Haemoglobin (g/dl)	10.5	Total protein (g/dl)	7.7
Packed cell volume (%)	37.0	Albumin (g/dl)	2.8
Total erythrocyte count (10 ⁶ /μL)	6.8	Aspartate transaminase (U/L)	82
Total leukocyte count (10 ³ /μL)	5.5	Alkaline phosphatase (U/L)	40
Platelet count (10 ⁵ /μL)	7.9	Blood urea nitrogen (mg/dl)	39
Neutrophils (%)	59	Creatinine (mg/dl)	1.2
Lymphocyte (%)	37	Calcium (mg/dl)	9.0
Monocyte (%)	4	Phosphorus (mg/dl)	6.3
		Glucose (mg/dl)	102
		Potassium (mmol/L)	3.0



Fig 1: Ultrasound examination and USG guided centesis of perireticular abscess

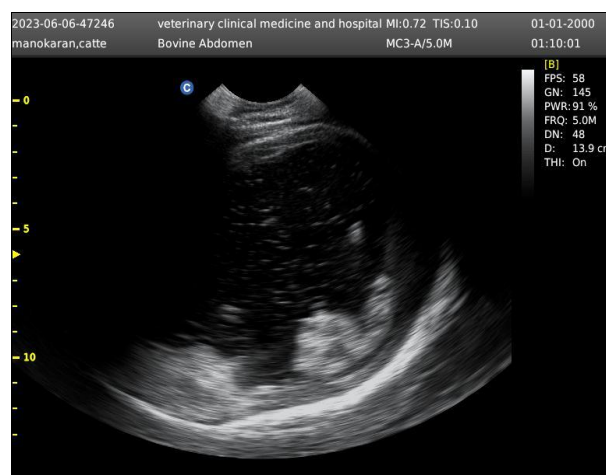


Fig 2: Abscess- Circumscribed echogenic capsule with heterogenous contents



Fig 3: Foul smelling yellow coloured pus



Fig 4: Lavage of abscess cavity with normal saline and metronidazole



Fig 5: Post treatment USG review on 10th day-Reduction in the size of abscess cavity with hyperechoic contents



Fig 6: Post treatment review after one month-animal had good appetite and improved weight gain

Conclusion

Transabdominal ultrasonography is the best diagnostic tool for diagnosis of perireticular abscess in vagal indigestion in cattle. The combination of antibiotics Streptopenicillin and

Tylosin was effective for the management of intraabdominal abscess in this case.

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