

MEDICAL MANAGEMENT OF CAECAL DILATATION IN A JERSEY CROSSBRED COW: A CASE REPORT

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ABSTRACT

Recently calved Jersey crossbred primiparous cow was presented with history of in appetite and scanty voiding of dung for past 3 days. On physical examination vital parameters were within normal range. On per rectal examination, there was distended caecum from the pelvic inlet which extended cranially. Per rectal examination revealed distension of caecum which was extended cranially. Simultaneous auscultation and percussion on the right upper flank revealed clear metallic ping sound which extended up to 11th intercostal space on first day. Transabdominal ultrasonographic examination revealed thick semicircular echogenic caecal wall and contents on mid upper flank, extended up to 11th intercostal space. Bethanechol 0.07 mg/kg SID orally along with parenteral fluid therapy was given for 3 days. On fourth day after initiation of therapy the animal voided dung normally and recovered uneventfully.

Keywords: Bethanechol, Cow, Caecal dilatation, Ultrasonography

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Rectal examination, swinging percussion and auscultation are crucial diagnostic techniques in cattle with caecal dilatation (Braun *et al.*, 2012). Recently calved

Jersey crossbred primiparous cow, weighing 300 kg was presented with a history of in appetite and voiding of scanty dung for three days was brought to the Veterinary Clinical Complex of the Veterinary College and Research Institute in Orathanadu, Thanjavur, Tamil Nadu. Upon clinical examination, vital parameters were within the normal range. Conjunctival mucous membrane was slightly

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congested, rumen consistency was doughy indicating mild impaction and right upper flank showed mild distention. Rectal examination revealed cranially extended enlarged caecum. On second day of examination blind sac of the caecum was distended and extended up to the 13th rib cranially.

Simultaneous auscultation and percussion on the right upper flank revealed clear metallic ping sound which extended up to 11th intercostal space on first day, from 11th and 10th intercostal spaces on the 2nd day (Fig.1). To differentially diagnose the present condition from right side displacement of abomasums (RDA), Liptak test was performed and the pH of collected fluid was not acidic, excluding the chance of RDA. Also, the Rothera's test for ketonurea was negative, indicating the absence of secondary ketosis. Then the animal was subjected to transabdominal ultrasonographic examination (Braun *et al.*, 2012; Braun *et al.*, 2002; Khalphallah *et al.*, 2016; Venkatesan *et al.*, 2018) using Esaote My lab.1 ultrasound machine with 2.5 to 5 MHz curvilinear array transducer while the animal was on standing posture. Dorsal and ventral parts of right flank and last three right ICSs were examined by using Ultrasonography for diagnosing caecal pathology. Other organs like heart, reticulum, spleen, rumen, right kidney, Liver, Gall bladder and small intestine were also scanned for any disorders.

Transabdominal ultrasonographic examination revealed thick semicircular echogenic caecal wall without any visible contents on mid upper flank and extending

up to 11th intercostal space on the day of presentation. On second day which the organ was extended cranially up to 10th intercostal space (Fig.2). On transabdominal ultrasonography, Venkatesan *et al.* (2018) observed dilated caecum on the right flank with echogenic to hyperechoic intestinal contents and the organ had a diameter of 3.5 ± 0.22 cm in 11 cross breed cows and 4.16 ± 0.41 cm in 3 bulls. Ranjithkumar *et al.* (2017) also reported that cow with caecal dilatation had enlarged caecum filled with fluid and gas. In the present case, thick semicircular echogenic caecum wall without visualization of contents made on the metallic ping area on right side. This indicated severe distension of caecum or proximal colon filled with gas. Venkatesan *et al.* (2020) reported transabdominal ultrasonography along with per rectal manual positioning of the palpable mass in the abdominal cavity could be a valuable diagnostic tool in cows with intestinal obstruction (i.e. Intussusception). In this present case, liver parenchyma and distended anechoic gall bladder was visualized on the right-side mid abdomen below the costo-chondral region, this might be due to the compensatory organ displacement consequent to caecal dilatation. This was in accordance with Steiner (2002), who observed that caecal torsion along with dilatation caused tension, movement or retroflexion of other abdominal organs.

Haematology and serum biochemistry values are given in table 1. Haematology showed moderate anaemia. Khalphallah *et al.* (2016) reported that buffalo with caecal dilatation showed lymphocytic leucocytosis.

Table 1. Haemato-biochemical parameters in cow with caecal dilatation

Parameter	1 st day	6 th day	Reference value (Radostits <i>et al.</i> , 2010)
Hb (g/dl)	4.5	6.6	8-15
PCV (%)	20	31	24-46
RBC (mil/cmm)	1.91	3.03	5-10
WBC (/cmm)	7250	10088	4000-12000
Neutrophils (%)	41	38	15-45
Lymphocytes (%)	56	58	45-75
Monocytes (%)	3	4	2-7
Eosinophils (%)	0	0	2-20
Basophils (%)	0	0	0-2
Total protein (g/dl)	4.75	6.32	6-8
Glucose (mg/dl)	48	55	42-74
Albumin (g /dl)	2.62	3.1	2.8-3.9
AST (U/L)	86	97	45-110
ALP (U/L)	113	129	0-500
BUN (mg /dl)	18	25	7.8-24.6
Creatinine (mg/dl)	0.92	0.61	0.8 – 1.8
Phosphorus (mg/dl)	4.82	4.46	5.5-6.5
(cmm – Cubic milli meter)			

Table 2. Electrolyte parameters in cow with caecal dilatation

Parameters	1 st day	6 th day	Reference value (Radostits <i>et al.</i> , 2010)
Sodium (mmol /L)	140	143	132-152
Potassium (mmol /L)	4.1	4.8	3.9-5.8
Chloride (mmol /L)	103	105	95-110
Ionized calcium (mmol /L)	1.32	1.36	1.2-1.6
(mil- million, mmol – millimole ALT – Alanine transaminase, AST - Aspartate amino transferase, BUN – Blood Urea Nitrogen)			

But in the present case, lymphocytic leucocytosis was not observed. This indicated much inflammatory reaction had occurred in the present case. Blood serum biochemistry showed hypoproteinaemia, hypoalbuminemia and normal range of AST and ALP. This was in agreement with Khalphallah *et al.* (2016) who stated that buffalo with dilated caecum/colon showed a considerable rise in the serum activity of AST and ALP. Electrolytes showed no remarkable changes (Table 2). These changes indicated that the present case was presented at the onset of caecal dilatation itself.

Animal was given treatment on the first day, with fluids like dextrose, normal saline, ringer's lactate, and calcium borogluconate, as well as an oral purgative containing magnesium sulfate and sodium sulfate (Bovilax 500 g). No improvement was observed after the first day of treatment. Further animal was administered orally with Bethanechol 0.07 mg/kg SID along with fluids subsequently for 3 days. On third day morning animal started defecating pellet dung initially followed by diarrhea. Uneventful recovery was observed on fourth day onwards. Ranjithkumar *et al.* (2017) reported that neostigmine, purgatives, and polyionic fluids were helpful in treating a cow and a Kangeyam bull with caecal dilatation. Radostits *et al.* (2010) stated that Bethanechol was superior to neostigmine in treating cattle with caecal dilatation. In the present case, oral Bethanechol with parenteral fluids were proved to be successful in managing cattle with caecal dilatation.

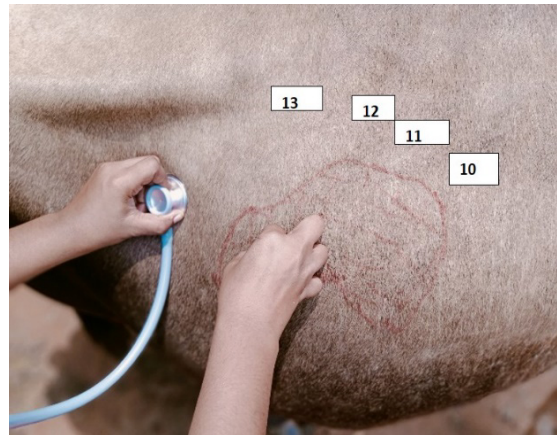


Fig 1. Simultaneous auscultation and percussion on right side abdomen. Clear metallic ping sound was heard on 12th ICS extending up to 10th ICS on second day of examination (Numbers are rib counts)

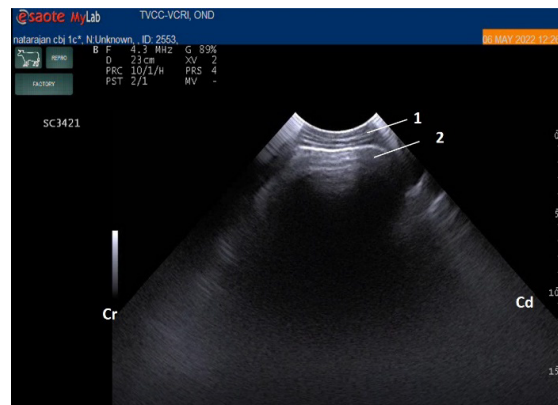


Fig 2. Ultrasonography in a 4 year old Jersey crossbred cow with caecal dilatation. Image from the right flank region showing echogenic line close to the abdominal wall. Cr: Cranial, Cd: Caudal, 1. Abdominal wall, 2. Caecum

CONCLUSION

The present case reported the clinical, laboratory, ultrasound findings and successful management of caecal dilatation with Bethanechol along with supportive therapies in a crossbred Jersey cow.

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