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A study on Abomasal Atony in buffalo calves

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Abstract

Gastrointestinal tract atony is one of the most common digestive tract disorders in ruminants. Present study was carried out to record the clinic-pathological studies of abomasal atony in buffalo calves. Buffalo calves with complaint of anorexia, loss of defecation and colic signs were included in the present study. Physical examination revealed distension of the abdomen, sunken eyeballs, congested mucous membranes, tachycardia, tachypnoea and normal rumen motility. Distension of the abomasum with anechoic fluid and atony were recorded on abdominal ultrasonography. On haemato-biochemical evaluation, reduced levels of haemoglobin and packed cell volume, neutrophilia, lymphopenia, hypocalcaemia, hypochloraemia, hypokalaemia and hyperglycemia with increased aspartate aminotransferase levels were observed. All the calves were successfully treated with metoclopramide, fluids and supportive therapy.

Keywords: Abomasum, Atony, buffaloes, therapy

Introduction

Gastrointestinal motility disorders are one of the most common digestive tract ailments among buffaloes which lead to great economic losses. Abomasal hypo motility is a prerequisite for abomasal displacement in cattle. Abomasal disorders of dairy cattle are mostly predisposed by metabolic disturbance, lactation stress and nutritional inadequacies (Constable *et al.*, 2017) [2]. Abomasal impaction describes a set of condition in which abomasal contents are partially or completely prevented from exiting the abomasum while the abomasum retains a normal location. In calves, displacement of the abomasum occurs rarely and clinically, the condition is characterized by depression, partial or complete anorexia, dehydration, weight loss, abdominal distension, abdominal discomfort, chronic bloat, and sometimes diarrhea (Yurdakul *et al.*, 2018) [8].

Material and Methods

The present study was conducted on the buffaloes presented to the Large Animal Medicine unit of Veterinary Clinical Complex, College of Veterinary Science, Proddatur, Andhra Pradesh. Buffalo calves with history of anorexia, loss of defecation and colic signs were included in the present study. Ultrasonography of the abdomen was carried out with the standard procedure on left and right side of abdomen. Ultrasonographic examination of the animals in standing position by using Esoate My Lab 40 Vet ultrasound system with 2.0 to 5.0 MHz transducer (Braun, 2009) [1]. Rumen fluid was collected and carried out the qualitative tests. The blood samples were collected in EDTA vials and processed for estimation of haemoglobin, packed cell volume, total leukocyte count and differential leucocyte count. The blood was collected in vials without anticoagulant for harvesting serum and the serum samples were analyzed for estimation of biochemical profile (Ronald *et al.*, 2014) [6]. Buffalo calves were treated with inj. metoclopramide @ 0.5 mg/kg body weight intramuscularly, calcium borogluconate @ 50 ml/day was given by slow intravenous route, ringers lactate and 5% dextrose normal saline @ 10 ml/kg body weight and inj. B complex vitamins as per need of the case. Same treatment was continued for 3 days (Reddy *et al.*, 2018) [4].

Results and Discussion

Clinically, affected calves were anorexic, lower abdominal distension, tachycardia (heart rate 108-146 beats/min), tachypnea (respiration rate 27-42 breaths/min), rectal temperature (100.2 – 100.8°F), moderate to severe dehydration (6-10%), and prolonged capillary refill time (>4 seconds) and normal rumen motility (2 – 4/ Minute). Abdominal auscultation and percussion did not revealed any ping sound on the mid-abdominal region. Rumen fluid examination

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revealed viscous fluid, aromatic smell, pH of 6.5 to 7.5 and moderate rumen protozoa with reduced motility.

Ultrasonography revealed distension of the abomasum with mixed echogenic contents, anechoic fluid and atony. Haemato-biochemical alterations in calves affected with abomasal atony were depicted in Table-1. In the present study, recorded the higher haemoglobin and packed cell volume levels in calves it might be due to dehydration in animals which lead to haemoconcentration. Recorded elevated creatinine levels could be attributed to decrease in renal blood flow as a part of compensatory mechanisms to maintain circulation in hypovolemia associated with dehydration (Youssef *et al.*, 2017) [7]. Hyponatraemia also could be due to compensatory mechanism for

hypochloreaemia. Changes in the sodium and chloride concentration might reflect fluid balance changes in response to ruminal fluid hyperosmolality (Reddy *et al.*, 2020) [5].

Metoclopramide elicits its prokinetic effect as a dopamine D2 receptor antagonist and serotonin (5HT) receptor type-4 agonist, and direct stimulation of stomach and small intestine smooth muscles. 5HT₄ receptor agonists increase gastro intestinal motility through the stimulation of cholinergic neural transmission (Guard *et al.*, 1988) [3]. In all the calves defecation was started after the second dose of prokinetic agent and complete recovery was noticed by the third day of therapy.

In conclusion, present study puts a record on abomasal atony in calves by ultrasonographic assessment.

Table 1: Haemato-biochemical changes in buffalo calves with abomasal atony (Mean \pm S.E.)

S. No	Parameters	Buffalo calves with abomasal atony	Reference range (Ronald <i>et al.</i> , 2014) [6].
1	Haemoglobin (g/dl)	13.27 \pm 0.17	8.5-12.2
2	PCV (%)	42.12 \pm 0.94	22-33
3	TEC $\times 10^6$ /cumm	6.05 \pm 0.13	5.1-7.6
4	TLC /cumm	9866.8 \pm 263.3	4.9-12.0
5	Neutrophils /cumm	4376.6 \pm 169.9	36.7 -52.5
6	Lymphocytes /cumm	5005.6 \pm 132.2	29.4-47
7	Monocytes /cumm	424.6 \pm 44.15	0-6.7
8	Eosinophils /cumm	220.5 \pm 31.24	0-7.5
9	Basophil /cumm	48.99 \pm 6.1	0-2.5
10	Total protein (g/dL)	6.38 \pm 1.16	5.67-7.14
11	Creatinine	2.51 \pm 0.89	0.58-1.03
12	Calcium (mg/dL)	7.46 \pm 0.89	9.5-11.2
13	Sodium (mEq/L)	114.8 \pm 0.89	136-146
14	Potassium (mEq/L)	2.28 \pm 0.89	3.4-4.9
15	Chloride (mEq/L)	78.6 \pm 0.89	94-104



Fig 1: Abomasal atony- Mixed echogenic contents with echogenic stiplings

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