

OUTBREAK OF ACUTE RUMEN IMPACTION IN A BUFFALO HERD AND ITS CLINICAL MANAGEMENT

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ABSTRACT

Rumen impaction in buffaloes is commonly associated with ingestion of fibrous feed material, coarse grain, polythene and jute bags and ropes. The present paper describes the clinical findings haematological alteration in an outbreak of acute rumen impaction in Murrah buffaloes of Punjab associated with feeding of mature bajra (*Pennisetum typhoideum*). The prominent clinical signs were sudden anorexia and loss of defecation, abdominal pain, dehydration, abdominal distension and tympany. Hematological alterations were neutrophilia and reversal of neutrophil to lymphocyte ratio. All the animals recovered uneventfully within a period of three days after aggressive fluid therapy, oral purgative and lubricant and electrolyte therapy, and other supportive care.

Keywords: *Bubalus bubalis*, buffaloes, pearl millet, rumen impaction, fluid therapy

INTRODUCTION

Bovine rumen impaction has been reported to occur due to feeding of poor quality hay, straw or roughages deficient in protein, overeating of young grasses, ingestion of mouldy or decomposed feed, polythene bags, ropes and other plastic materials, and exposure to hot and dry weather conditions (Nwity and Chaudhary 1995; Kohli *et al.*, 1998; Radostits *et al.*, 2007). In Indian water buffalo, rumen impaction is mainly encountered during the months of fodder scarcity (May to July) and is associated with feeding of wheat straw with prevalence of 7.51% (Hussain *et al.*, 2012). This paper describes acute outbreak of rumen impaction in a buffalo herd associated with feeding of late cut/mature bajra (*Pennisetum typhoideum*).

MATERIALS AND METHODS

The present study was conducted on six buffaloes presented at Large Animal Clinics of Veterinary Teaching Hospital, Guru Angad Dev Veterinary and Animal Sciences University,

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Ludhiana during the year 2011. The diagnosis of rumen impaction was on the basis of typical clinical signs and hard consistency of rumen on palpation or per rectal examination (Hussain *et al.*, 2012). Data related to age, sex, duration of illness, history of feed intake, change in feed, water intake, rumination status, defecation, tympany, fever, pain were noted. Each animal was evaluated for its general condition and hydration status. The physical parameters (rectal temperature, heart rate, respiration rate, colour of mucous membrane, rumen consistency and rumen motility) and findings of rectal examination were recorded. Blood samples were collected for hematological analysis. Abdominocentesis was done as described by Hussain and Uppal, 2014.

RESULTS AND DISCUSSIONS

All the six animals were presented with similar history of sudden loss of defecation and anorexia, suspended rumination, reduced water intake, abdominal pain and ruminal tympany/distension, from last two days. The feed had been recently (four days) changed from berseem to mature bajra (*Pennisetum typhoideum*). There was no history of fever. Various signalment and physical examination parameters are presented in table 1. There was gradual reduction in milk yield in animal no. 3 and 5, other animals were not in milk. Buffalo no. 1 was 8.5 months pregnant and other animals were non pregnant. Physical examination revealed mild to moderate dehydration, congested conjunctival mucous membranes, and hard amotile and distended rumen in all the animals. No abnormal sounds were heard on auscultation of lung and heart. Per rectal examination revealed doughy to hard faecal matter in rectum in all animals

except animal no. 3 (rectal examination was not carried out due to small size of the animal). After evacuating the rectum, the rumen was palpable as hard and distended in all the animals. Intestines were not palpable. Hematological analysis revealed neutrophilia with left shift and toxic changes in neutrophils in all except animal no. 3 (Table 1). Abdominocentesis did not yield any peritoneal fluid in all of the six buffaloes. Radiography of reticular area was negative for metallic foreign bodies.

The primary treatment was intravenous fluid therapy and oral lubricants (linseed oil) and laxative (magnesium sulphate). The fluid therapy in all the animals was intravenous administration of 10 to 15 L of normal saline over 24 h (5 L for young animals) for three days and calcium borogluconate (1 ml/Kg, IV once only) in all the animals. Supportive therapy consisted of oral sodium chloride, potassium chloride and Yeasac bolus. All animals received injectable antibiotics (Enrofloxacin and procaine penicillin), meloxicam and Liver tonics, as per their body weight. On second day of treatment, four animals showed uneventful recovery. These four animals passed faeces during the night hours of first day and morning hours of second day and feed intake started in these four animals by the second day. In animal no. 2 and 4, the rumen contents had softened but did not defecate. Per rectal examination of animal no. 2 and 4, on second day, revealed slightly harder rumen and scanty semisolid faeces were present in rectum. On the second day all the animals again received fluid, antibiotic and multivitamin injections. The two animals (no. 2 and 4) passed scanty faeces during the evening hours of second day. By the third day defecation was almost normal in all the animals. Feed and water intake increased significantly except in animal no. 2 and 4. On 3rd

Table 1. Clinical and hematological parameters in buffaloes with rumen impaction.

Parameters	Animal number					
	1	2	3	4	5	6
Age (years)	7	3	0.5	5	3.5	1
General condition	Alert	Alert	Alert	Depressed	Depressed	Alert
Dehydration	Mild	Mild	Mild	Mild	Mild	Moderate
Abdominal distension	Bilateral distension	Bilateral distension	Mild left dorsal distension	Moderate left dorsal distension	Mild left dorsal distension	Mild left dorsal distension
Temperature (°F)	103.8	102.8	102.6	102.8	101.6	101.2
Heart Rate (/min)	70	54	60	52	65	67
Respiration Rate (/min)	33	28	25	33	29	24
Hb (g/dl)	10.3	11.1	9.1	10.7	9.8	8.5
WBC (/μl)	10750	18820	9710	9090	7670	14890
Neutrophils (%)	51	43	55	72	81	40
Lymphocytes (%)	49	57	45	28	19	60
PCV (%)	33.9	36.9	33	35	32.4	31.7
Platelets (x10 ³)	247	204	471	350	410	281
Left shift	Present	Present	Absent	Present	Present	Present
Toxic changes in neutrophils	Present	Present	Absent	Present	Present	Absent

day all the six animals were discharged from the clinic. The owner was advised that the animals should be fed with green fodder atleast for a week and mature bajra, if needed, should be introduced gradually into the diet of these animals and other animals of the farm.

In Punjab, most of the studies on prevalence and biochemical alterations of different categories of gastrointestinal impaction have reported that impaction is primarily associated with feeding of wheat straw (Hussain *et al.*, 2012, 2013, 2015). However Athar *et al.* (2010) observed that three out of six bovines suffering from rumen impaction had a history of gradual change in diet from green bajra to mature bajra. Pearl millet (bajra) stalks have a low nutritive value that can be improved with urea treatment, which increases nitrogen content, DM intake and digestibility (Choudhary *et al.*, 2004). We assume that sudden introduction of low nutritive mature (late cut) bajra as the sole forage in diet of buffaloes resulted in rumen impaction in the present studied animals. Feeding of mature bajra as a cause of rumen impaction in bovines has also been reported by Turkar (2004). Rumen impaction is mainly encountered during the months of feed scarcity when dry feeds like wheat straw form a substantial part of the ration of buffaloes (Hussain *et al.*, 2012). However, we are of the opinion that outbreak of acute impaction of the rumen may occur throughout the year depending upon the weather conditions and fodder/feed offered to animals.

The important causes of abdominal pain and loss of defecation in bovines of Punjab, India include like traumatic reticuloperitonitis, omasal impaction, abomasal impaction, intestinal obstruction, caecal dilatation and late pregnancy indigestion (Hussain *et al.*, 2012, Hussain *et al.*, 2013a, 2013b, 2014, 2015, Hussain and Uppal 2014

and Shah, 2015). In order to establish the diagnosis of rumen impaction, these disorders were ruled out by clinical and laboratory evaluation as described by the previous authors. The clinical signs and physical examination parameters in present study resembled the earlier reported signs of rumen impaction in buffaloes except pain and tympany (Hussain *et al.*, 2012). Pain and tympany are not features of rumen impaction in buffaloes, however in this outbreak, abdominal pain and tympany were observed in all the affected animals. Neutrophilia or neutrophilic leukocytosis may be attributed to the fact that the impacted feed material leaves the stomach wall exposed to bacteria resulting into secondary inflammation (Hussain *et al.*, 2012, 2013).

Prasad and Rakieb (1979) treated rumen impaction by administration of rumenototics and antimony potassium tartarate along with liver tonics while Rao (1987) advocated the use of hot water enema, vigorous massage of abdomen, gastric stimulants such as magnesium sulphate and sodium chloride, physostigmine, calcium borogluconate, bitter stomachics with jiggery, antihistaminics, etc., for treatment of rumen impaction. We did not prescribe the prokinetic drugs because now a days these drugs are not advised for ruminants as they do not cause synchronous contraction of the complex gastrointestinal system in ruminants (Radostits *et al.*, 2007).

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