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Popular Article

Bloat - An Overview

Dr. J. Shashank*, Dr. N. Rajanna, Dr. G. Ganesh, Dr.J. Saikiran, Dr. A. Raju
Krishi Vigyan Kendra, P.V. Narsimha Rao Telangana Veterinary University, Mamnoon,
Warangal-506 166.

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Abstract

Bloat or excessive gas production is one of the common digestive disorders that affect ruminants. This is most commonly found in high yielding cross bred animals. It is most prevalent in periparturient or transition period. Due to sudden change in feeding practices of the animals, this disease may occur leading to high mortality in animals. Emergency treatment is usually practiced by the veterinarian to cure the disease and save the life of the animals. Nutritional management is one of the important tools in preventing the disease in field condition. Bloat can be avoided by techniques like balanced feeding, controlled grazing, use of ionophore antibiotics, etc., which can benefit farmers financially.

Introduction

Bloat is a complex disease that is difficult to predict under field conditions. It is solely a disease of ruminants (Cattle, Buffalo, Goat and Sheep). It results either excessive production of gas or physical obstruction of the processes of eructation of gas. Bloat is a clinical condition where rumen and reticulum are filled with gases of fermentation due to excessive intake of easily fermented food. If gas bubbles remain intimately adhered with ingesta the condition is referred as frothy bloat as there is lot of production of foam with in rumen. It is a continuing hazard to cattlemen due to its unpredictable occurrence. Cattle may have no bloat for a period of years and then unexpectedly have a significant death loss before appropriate preventive or therapeutic measures can be applied. Bloat often occurs when cattlemen aim for high productivity. Thus, the fear of bloat often presents a limitation to the level of production. Several investigations have shown the bloat reduces animal productivity, primarily by



reducing feed intake. Skillful management is a key element in bloat prevention and one often hears the opinions that bloat occur when management is poor. Good management reduces the chances for occurrence of bloat but in view of the complex nature of the condition it is impossible to predict when bloat will occur and even with the best management, bloat presents a danger at high levels of productivity (Baraka, 2000; Saber, 2016)^[1, 2].

Types of bloats:

There are basically two types of bloats found in ruminants

1. **Frothy bloat:** It is caused due to:

- Excessive intake fermentable soluble carbohydrate.
- Feeding of excessive immature plant.
- Grazing in lush green pasture.
- Excessive intake of soluble carbohydrate.
- Lack of fibrous food in the ration.
- Fodder containing more calcium, protein, magnesium.
- Excessive feeding of bloat causing plants like alfa alfa, red cloves and white clover *etc.*

In primary or frothy bloat, eructation does not occur. Excessive intake of highly fermentable rapidly digestible leguminous plants is the most important cause of frothy bloat (Fig.1 and 2).

2. **Free-gas bloat:** it is caused by physical obstruction of eructation process due to:

- Choke of oesophagus
- Stenosis of oesophagus
- Pressure on oesophagus from outside due to enlarged lymph node, neoplasia, tubercular growth and papilloma *etc.*
- Vagus indigestion
- Traumatic reticulo peritonitis
- Hydatid cyst
- Rumenitis and oesophagitis
- Diaphragmatic hernia
- Hypocalcemia
- Nervous disorder preventing normal contraction of rumen wall.



Clinical findings of bloat

- Generalized enlargement of abdomen, It is more obvious in left paralumbar fossa.
- Sign of colic manifested by kicking at the belly, looking at the flank or rolling on the ground.
- Continuous champing of mouth and grinding of teeth.
- Tympanic or drum like sounds on percussion of left paralumbar fossa, Crepitating sounds may be heard on palpation.
- Extension of head and neck and protrusion of tongue.
- Marked dyspnoea embraced with mouth breathing salivation and abducted elbow.
- Tachycardia (more than 120 per minute).
- Ruminal motility goes high initially followed by hypomotility later on atony.
- pH of ruminal fluid is acidic in nature.
- Thoracic type respiration.
- Mostly incomplete anorexia.

Haemato-biochemical changes in bloat

Frothy bloat causes decreased in packed cell volume and total red blood cell counts. Increased Total white blood cells *i.e.*, Increased neutrophils, monocytes and decreased lymphocytes and eosinophils (Baraka, 2000; Saber, 2016) ^[1, 2]. Similarly, Frothy bloat increases serum total protein and decreased sodium and potassium levels (Kamal, 2008; Baraka, 2000) ^[3, 1].



Fig.1 and 2: Frothy bloat in Dairy cows



Nutritional Management of Bloat

Selection of forages

Cultivation and feeding of cereal and legume grass mixture is the most economical method of reduction of bloat in ruminants. In a grass mixture the content of legume should be less than 50%. If cattle choose only legumes the chance of occurrence of bloat increases, so proper chaffing of the grass mixture can prevent bloat in ruminants.

Field and grazing management

Controlled grazing and application of fertilizer may be one approach for reduction of bloat in animals. Grazing of animals in both cereals and legume grasses reduces the occurrence of bloat than legumes alone. Similarly, grasses grown in sandy soil and drought prone soil causes less bloat in ruminants. Dew management in growing fodder can be used as a tool for reduction of bloat. Dry of dew spread on legumes is a common practice in prevention of bloat. Exposure of animals to grazing land during afternoon time reduces the chance of bloat than morning.

Anti-foaming agents

Addition of oil and detergent in the diet of animals prevents bloat due to reduction of frothy condition. Commonly used vegetable oil like soya oil prevents in bloat in grazing animals. Similarly, bloat guard containing detergent like poloxalene is helpful for preventing bloat in animals.

Antibiotics:

Monensin, lasalocid and other ionophore antibiotics prevents bloat due to alternation of rumen microbial system. They disturb the permeability of the rumen microbes causing disruption in normal cellular metabolism of microbes, thereby preventing the gas production. Monensin @ 300mg/head/day for 100 days may be fed to prevent bloat in susceptible animals.

Common nutritional practices for bloat:

- Ration should contain at least 10-15% chopped roughages.
- Grain should be cracked or rolled but never be pulverised or finely ground.
- Tallow may be added in the ration @ 3-5% of the ration.
- Lasalocid may be added in the ration @ 0.66-0.99mg/kg ration.
- Addition of hay upto to 15% of ration dry matter may be useful in prevention of bloat.



Treatment

Emergency treatment:

- Trocarisation should be made with wide long needle or with trocar cannula. Cannula should be retained for some time to release the gas and upon to relief from gaseous pressure. It is done in the centre of paralumbar fossa. Stomach tube or probang can be used to remove excess gas from the rumen coarse grinding of concentrate is an important tool for prevention of bloat than fine grounded concentrates.

Medicinal treatment:

- Carminative mixture or antacid preparation
- Turpentine oil and linseed oil
- Aqueous preparations of Sodium bicarbonate:15- 30 ml (large ruminants), 2-5 ml (small ruminants)
- 500 ml to 1 litre of liquid paraffin orally in adult cattle or buffalo.
- Dimethicone suspension (bloatosil, bloatonil).
- Antibiotics

Conclusion

Bloat is a commonly occurring clinical disease in ruminants which can be prevented with appropriate feeding methods along with various nutritional managements.

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