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# UNIT. HEALTH MANAGEMENT

## Sub-topic 2: Bloat in Ruminants (Ruminal Tympany)


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## Introduction

Ruminal tympany, also known as bloat, is a disease of ruminant animals, characterized by an excessive volume of gas in the rumen. Ruminal tympany may be primary, known as frothy bloat, or secondary, known as free-gas bloat. It is predominantly a disorder of cattle but may also be seen in sheep. In the rumen, food eaten by the ruminant is fermented by microbes. This fermentation process continually produces gas, the majority of which is expelled from the rumen by eructation. Ruminal tympany occurs when this gas becomes trapped in the rumen. There is also economic loss from depressed milk production in nonfatal cases and from suboptimal use of bloat-prone pastures. Bloat can be a significant cause of mortality in feedlot cattle.

**Etiology and Pathogenesis:**

1. **Primary ruminal tympany**, or **frothy bloat**,
    - It results when fermentation gases are trapped in stable, persistent foam which cannot be released by eructation.
    - Animal and plant both, influences the formation of a stable foam. Soluble leaf proteins, saponins, and hemicelluloses are believed to be the primary foaming agents and to form a monomolecular layer around gas rumen bubbles that has its greatest stability at about pH 6.
    - Salivary mucin is antifoaming, but saliva production is reduced with succulent forages.
    - Excessive intake of greens (pasture / leguminous bloat).
    - Feeding of large quantities of grains (feedlots / grains bloat). Fine particulate matter, such as in finely ground grain, can markedly affect foam stability.
    - Less intake of dry roughages i.e. lack of fibrous feed.
    - Sudden change of feed.
2. **Secondary ruminal tympany, or free-gas bloat**
    - Oesophageal obstruction (Choke): Physical obstruction of eructation of gas is caused by foreign body (eg, potatoes, apples, turnips, kiwifruit), stenosis, or pressure from enlargement outside the esophagus (as from lymphadenopathy or sporadic juvenile thymic lymphoma).
    - Interference with esophageal groove function in vagal indigestion and diaphragmatic hernia may cause chronic ruminal tympany.

- Tetanus may also cause this type of tympany due to spasm of oesophageal muscle.
- Tumors and other lesions, such as those caused by infection with *Actinomyces bovis,* of the esophageal groove or the reticular wall are less common causes of obstructive bloat.
- TRP (traumatic reticuloperitonotis) and reticular abscess.
- Unusual postures like lateral recumbency.
- Ruminal tympany also develops with hypocalcemia.

**Symptoms**

- Bloat is a common cause of sudden death when cattle are not observed closely.
- Enlargement of abdomen particularly in left flank.
- Dullness and depression.
- As the bloat progresses, the skin over the left flank becomes progressively more tight.
- Abdominal pain- grinding of teeth, kicking at belly, rolling on the ground.
- Dyspnea (difficult breathing)- extension of the head, protrusion of the tongue and
- Frequent urination, respiratory and heart rates increases.
- Eye mucous membrane become cyanotic (whitish).
- Rumen motility is initially increases but atony in later stages.
- If the tympany continues to worsen, the animal will collapse and die. Death may occur within 1 hr after grazing began but is more common ~3–4 hr after onset of clinical signs.
- There is tympanic resonance over the dorsal abdomen left flank. Free gas produces a higher pitched sound on percussion than frothy bloat.
- On stomach tube or trocarization only small amount of gas will be releases in frothy bloat and large quantities of gas passage in gaseous bloat.

**Treatment:**

- Withdrawal of food and water.
- Keep the animal's anterior portion elevated so that reduces the pressure on diaphragm.
- When the animal's life is not immediately threatened, passing a **stomach tube** of the largest bore possible is recommended.
- Give carminative mixture composing Turpentine oil 30-60 ml and sweet oil 400-500 ml orally as drench.

- A variety of **antifoaming agents** are effective, including vegetable oils (eg, peanut, corn, soybean) and mineral oils (paraffins), at doses of 250–500 mL. Dioctyl sodium sulfosuccinate, a surfactant, is commonly incorporated into one of the above oils and sold as a proprietary antibloat remedy, which is effective if administered early. Poloxalene (25–50 g, PO) is effective in treating legume bloat but not feedlot bloat.
- Trocarisation of rumen with **trocar and cannula or large bore needle** may be used for emergency relief from gaseous pressure. If the cannula fails to reduce the bloat and the animal's life is threatened, an emergency rumenotomy should be performed. If the cannula provides some relief, an antifoaming agent can be administered through the cannula, which can remain in place until the animal has returned to normal, usually within several hours.
- In serious cases, an emergency **rumenotomy** may be necessary; it is accompanied by an explosive release of ruminal contents and, thus, marked relief for the cow.

**Prevention and Control:**

- Dry roughages should be fed before going to grazing.
- Hay must included at least one-third of the diet to effectively reduce risk of bloat.
- Mature pastures are less likely to cause bloat than immature or rapidly growing pastures.
- The antifoaming agent can be added to the feed or water or incorporated into feed blocks.
- Ration should contain at least 10-15 % chopped roughages.
- Grains should be cracked or rolled but never be powdered.

**Reference:**


1. https://en.wikipedia.org/wiki/Ruminal_tympany
2. Bikane AU, Handbook for Veterinary clinicians (Third edition). Krishna publications.
3. Chakrabarti A, Text Book of Clinical Veterinary medicine (Third edition). Kalyani Publishers.