

Bovine Bloat and Choke

Extended Version

Classic Case: Bloat (Ruminal tympany)

Cow **BLOWN UP** like a Balloon on left side - **EMERGENCY!**

Presentation:

- Distension of upper/entire left side, no Paralumber (P/L) fossa visible
 - Gas is trapped in **stable foam**, **cow cannot eructate**
 - Rapid digestion
 - Small chloroplast particles trap gas in tiny bubbles, prevent coalescence
- **Onset**
 - **Acute** - Anxious, PAINFUL, very uncomfortable → colicky
 - Later – weakness due to dehydration, +/-acidosis, hypoxemia
 - Eventually mouth breathe - severe hypoventilation
 - Rumen hypo - or hypermotile
 - **Peracute dead** - from resp. & vascular compromise
 - **Chronic** – persistent or recurrent rumen distention
- Bloat is **seen most in Cattle** >>>Sheep>>Goats
 - More common in **beef breeds, feedlot cattle**
- **Choke** – Cows, Horses
 - Excessive salivation, repeated swallowing (ddx: rabies)
 - Stand with head/neck stretched out
 - Gorge on grain, swallow whole apple or a chunk



Steers 6 hrs after turnout onto alfalfa/clover pasture

Differential Dx:

Acute frothy bloat – distends FAST, **most DANGEROUS type**

- Gas trapped in **stable foam**, cow cannot eructate
 - Rapid digestion,
 - Lots of small chloroplast particles trap gas bubbles, prevent coalescence
 - **Froth is mixed with ingesta**
 - Some genetic lines predisposed
- Foods that predispose:
 - Lush pasture, other high protein sources
 - Alfalfa, clover, green cereal grain - rape, kale, etc
 - Substrates rapidly digested by rumen bacteria
 - High carbohydrate diets
 - Production of insoluble **SLIME**
 - Small particle size grain
 - Especially when not accustomed to grain

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Acute Free gas bloat - Gas is separate from ingesta, collects above rumen contents

1) **Excessive free gas production**- Sudden exposure/**excessive consumption grain**
PLUS

2) **Failure to eructate** – Many causes

- Ileus, rumen stasis, obstruction
- Inflammation-Endotoxemia, peritonitis, hardware, injury, neoplasia
- Mechanical obstruction-Choke, swollen lymph nodes; injury; neoplasia
- Metabolic - Hypocalcemia, pain
- Neurologic
 - Dysfunction CN X, listeriosis, tetanus, rabies
 - Pharyngeal injury – CN X damage
 - Drugs – atropine, scopolamine, xylazine
- Recumbency – anesthesia, cast in stall, ditch

Chronic bloat – calves most often

- Low fiber diets - see bloat soon after eating
 - Milk fed calves; pelleted diets post weaning
 - “Rumen drinkers” - milk into rumen
 - putrefaction, acidosis (D-lactate) & gas production
 - esophageal groove does not close; bucket feeding
- AB therapy = altered rumen flora
- Persistent LDA, abomasal impaction
- Pharyngeal injury (balling guns, esophageal feeders), CN X damage
- Esophageal motility disorders, ie, megaesophagus, etc
- Diaphragmatic hernia, reticulum is trapped
- Neoplasia – thymic lymphosarcoma, juvenile lymphosarcoma (pharyngeal, mediastinal LNs)

Chronic bloat – adults – many causes

- Most often associated with **vagal nerve damage**
- Similar to that seen in calves, and secondary to many systemic illnesses
- Forestomach neoplasia – lymphosarcoma; papillomas of esophagus, cardia

Choke

- Foreign bodies, poor quality hay/roughage, apples, potatoes, etc, etc.
- Esophageal injury/stricture, intra - or extraluminal masses, ie., enlarged mediastinal LNs



Cow w/ choke; Note salivation, distress, head/neck extension, mouth breathing



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Test(s) of choice:

- 1.) Physical examination
 - Auscultation and percussion – no PL fossa, PING over entire left side (+/- in frothy)
 - Rectal exam – confirm distention **is** from rumen, will extend to right, up and down
 - Wool/fur/fiber can obscure distention
- 2.) **Pass an orogastric tube CAREFULLY:** (Stress of it can kill a bloated cow)

Cannot pass tube?	Tube passes – no gas?	Tube passes - Lots of gas?	Cannot open mouth?	Difficulty passing tube (cow resists)?
Esophageal or pharyngeal obstruction Neuro disease (lack of swallow)	Suspect frothy bloat Check for froth in tube	Free gas bloat	Tetanus Injury to TMJ, jaw	Pharyngeal injury Esophageal injury

- 3.) Be mindful of signalment/history
 - Parturient dairy cow; bucket fed calves; recent use of balling gun, esophageal feeders
 - New arrivals to feedlot; recent turnout onto new pasture, spring growth

Rx of Choice:

Relieve gas pressure / administer medical therapy

- **Free gas bloat**-Mineral oil + Carmalax®
- **Frothy bloat – must destabilize foam**
 - Therabloat®/Bloatguard® (poloxalene-anti-foaming agent)
 - Dioctyl Sodium Sulfosuccinate (DSS)
 - Mineral oil better for froth from high grain
 - Vegetable oil or peanut oil, even hand soap in emergency
- **Trocarize only when respiratory distress severe**
 - Rumen trocar in cattle, large bore catheter in calves, goats, sheep
 - Antibiotics w/ trocarization
- Rumenotomy in severe cases, non-responsive to medical Tx
 - More commonly needed with frothy bloat
 - Temporary rumen fistula in selected cases, eg tetanus
- **Remove offending feed/take off pasture**
- Determine, treat primary cause, for example:
 - Calcium for milk fever
 - Useful to encourage motility in other etiologies also
 - Pneumonia– Abs, NSAIDs, pass tube as needed
- **CHOKe – carefully remove obstruction** manually or mechanically
 - Treat primary cause as needed, ie ABs for injury, NSAIDs
- Fluids for dehydration, electrolyte imbalance, acidosis





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Prevention:

Pasture/nutritional management

- Acclimate to legume pasture gradually over 2-3 weeks
 - Utilize pastures <50% legume
 - Avoid legumes during high growth phases
- Feed long stem hay prior to turnout
- Add poloxalene to feed
- Acclimate to high grain diets
 - Add ionophores to feed - monensin or lasalocid
 - Enhances production of propionic acid
 - Reduces methane production
 - Improves feed efficiency
- Avoid low fiber diets, complete pelleted feeds, bottle feed calves, etc

Prognosis:

Good when ID quickly and not severe, esp. if associated with feed mgt & readily corrected

Guarded if chronic, if due to vagal nerve damage, or secondary to severe systemic illness

Pearls:

Severely bloated patients can die when stressed by passage of tube – warn owners!

Severe metabolic acidosis sometimes seen in choke cases – **dehydration + loss of HCO_3 in saliva**

References: Divers and Peek, Rebhun's Diseases of Dairy Cattle, 2nd ed., pp. 135-41, Pasquini's Guide to Bovine Clinics 4th ed., p 15, 26-27, Pugh and Baird's Sheep and Goat Medicine 2nd ed., pp. 76-7, and the Merck Veterinary Manual, Cattle images courtesy Dr. Lisle George

My Notes: