

Colorado State Veterinary Diagnostic Laboratories



Ruminant Bloat



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Veterinary Diagnostic
Laboratory
Rocky Ford, Colorado

Gene Niles DVM, MS, DABVT

Owned and operated Niles Animal Clinic for 35 years

- rural predominantly large animal mixed practice

Konawa, Oklahoma

Director – Centralia Animal Disease Laboratory

Centralia, Illinois 2002 – 2012

Director Colorado State Veterinary Diagnostic Laboratory

Rocky Ford Branch Laboratory

Rocky Ford, Colorado 2012 - present

Ruminant Bloat



Ruminant Bloat (Tympany) Hoven

Bloat –

Over distention of the rumen and reticulum with persistent (stable) foam or gas

Types: 1. Frothy

2. Free Gas

1. Frothy – (primary bloat) gas trapped in stable foam that can't be eructated

legume-small grain pasture – rapidly digestible plants

bacteria attach to chloroplasts to form small particles

- produce gas and slime forming a stable foam

Ruminant Bloat (Tympany)

Bloat – frothy continued

Types: 1. Frothy; cereal grains (corn, milo, oats, barley, wheat)

bloat is directly related to the total surface area of the grain

smaller particle size increases incidence of bloat

finely ground grain couple with insoluble slime

produced by bacteria trap gas bubbles

the bacteria also produce polysaccharides that

increased rumen viscosity

Pathogenesis - Frothy Bloat

Stable Froth trapped by small particles in rumen fluid

Highly digestible forages reduce salivary mucin which is an antifoaming agent that breaks down stable froth

Froth near cardia reflex receptors prevent relaxation of the cardia leading to eructation

Cardia may become plugged by viscous froth

Ruminant Bloat (Tympany)

Types of Bloat:

2. Free Gas – (secondary bloat)

overconsumption of fermentable feeds/rumen overload

rapid fermentation leads to formation of free gas, low pH,
rumen distention and decreased rumen contractibility

animal can't eructate

Ruminant Bloat (Tympany)

Free Gas Bloat continued:

2. Free Gas – (secondary bloat)

Esophageal obstruction:

- masses-foreign bodies (choke), tumors, abscesses

- injuries to the vagus nerve (eructation reflex),

- infectious diseases: tetanus, botulism, pneumonia with enlarged mediastinal lymph nodes

- malposition

- surgery – withhold feed 12-24 hours

Malposition – back down hill or in rut



Choke



Bloat - Genetic Basis

Animal/Breed Differences

Volume of rumen

Ratio of specific salivary proteins that break down froth

Different levels of production of salivary mucin

Clinical Signs

Abdominal enlargement



Bloat – Clinical Signs

colic

anorexia

reluctance to move

dyspnea -cyanosis

extended head and neck

open mouth breathing

tongue protruding

salivation

ataxia

collapse

death



Bloat – Pathology

enlarged abdomen

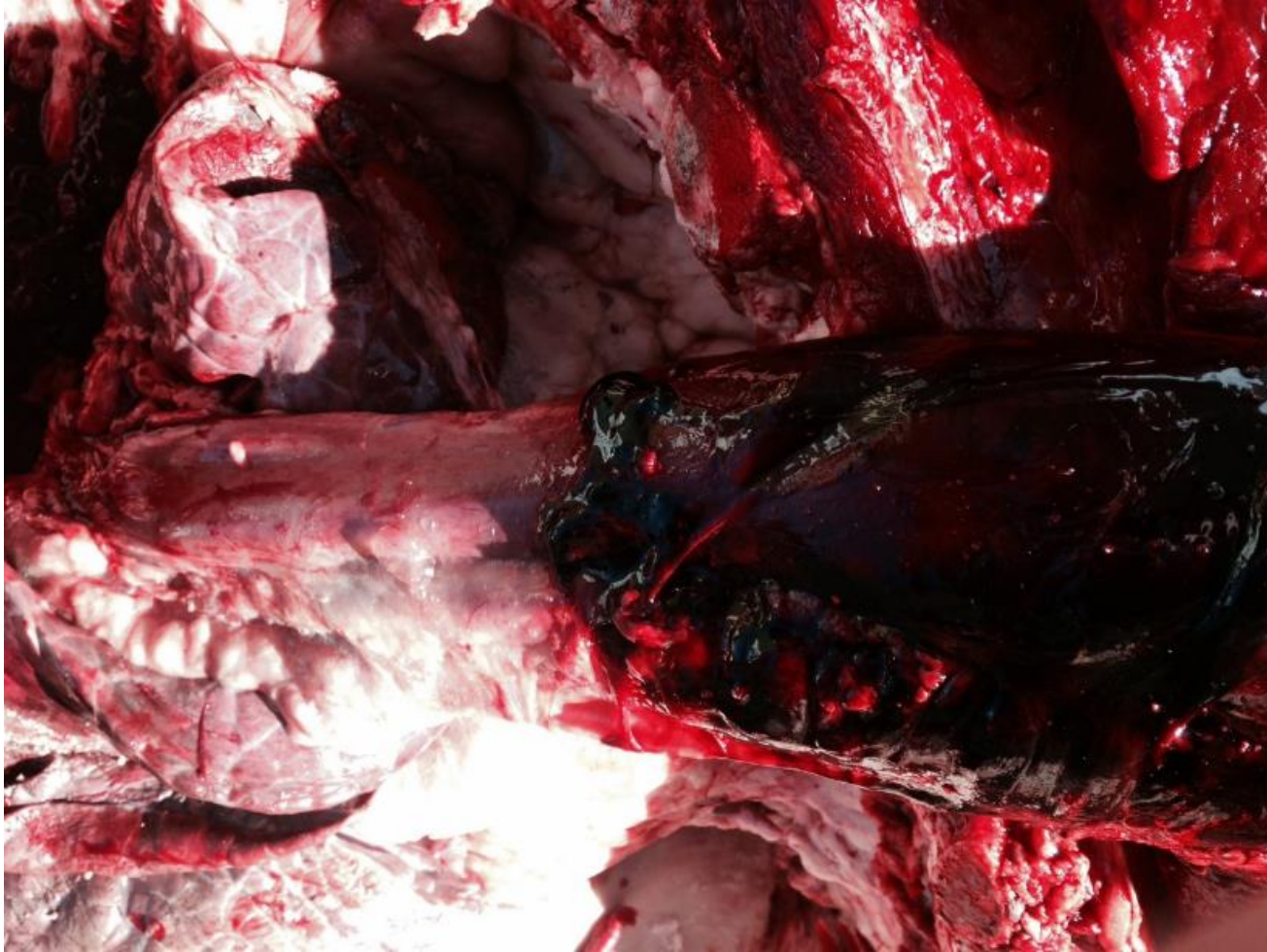


Pathology – gas filled rumen



Bloat – Pathology

emphysema and hemorrhage muscle around thoracic inlet,
neck and heavy muscles of the hind quarters

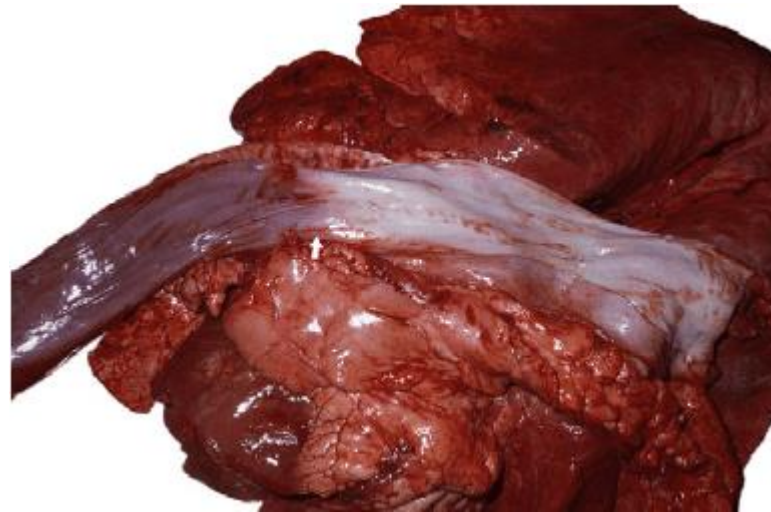
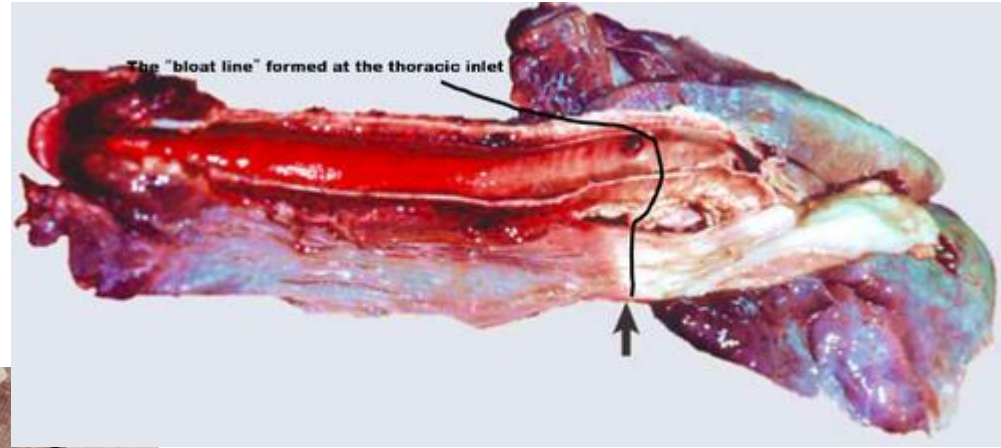


clostridial diseases

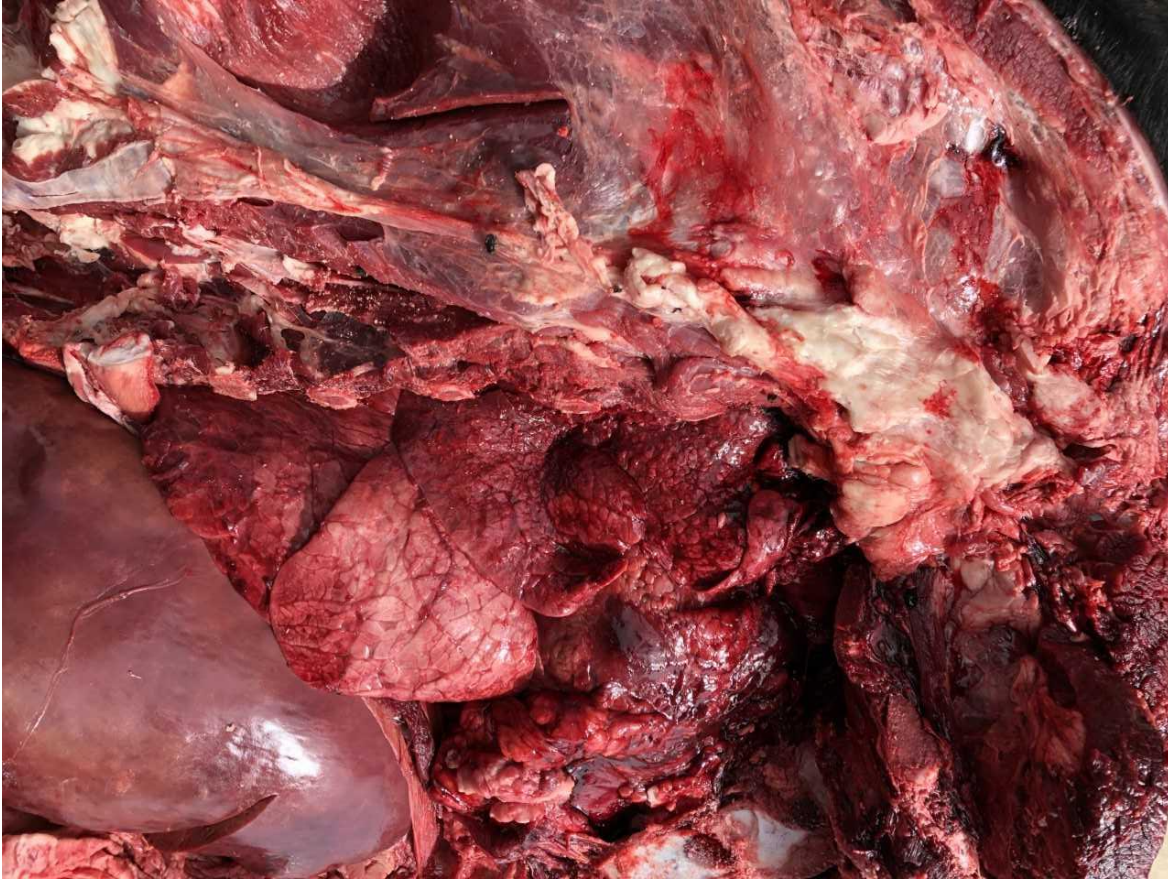


Pathology

esophageal bloat line



Pathology – compressed, collapsed lungs



Pathology

paleness and edema of the muscles of the hindquarters



Bloat Treatment

immediate relief of rumen distention
stomach tube

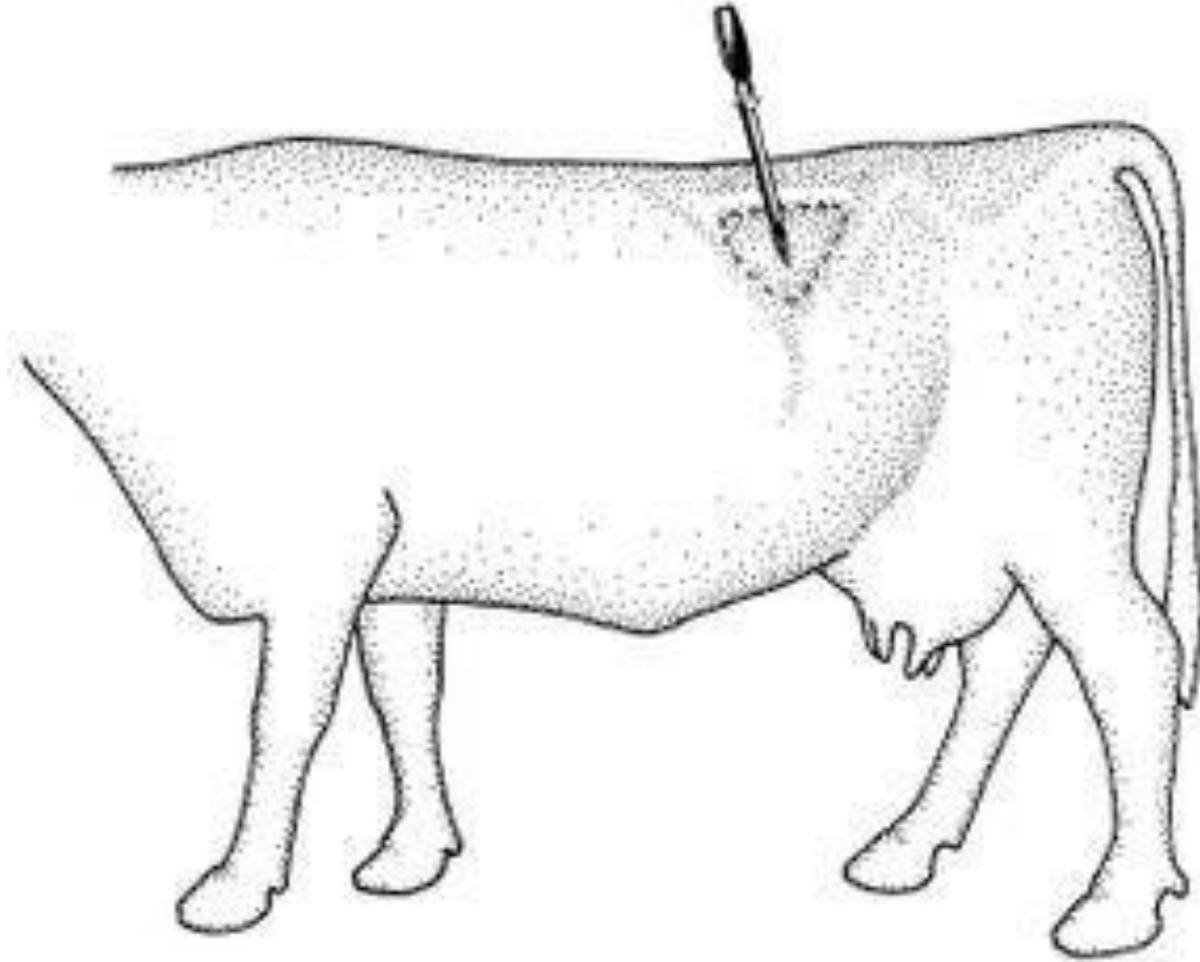


Bloat Treatment

Immediate relief of rumen distention
trocarization



Bloat - trocharization





OTOS BY CARL DAHLEN



Surgery – Esophagostomy Vet. World, 2012, Vol.5(1): 40-41

Choke in a Cow - A Case Report B Vishwanatha, L Ranganath, V Mahesh*, Ramesh Rathod Department of Veterinary Surgery and Radiology, Veterinary College, KVAFS University, Bangalore-24, India. * Corresponding author email: dr.vmahesh@gmail.com Received: 24-08-2011, Accepted: 18-09-2011, Published Online



Bloat Treatment

Antifoaming agents – 250-500 ml

- vegetable oil (250-500ml)

- mineral oil (250-500 ml)

- hand soap (10 ml)

Surfactant

- Poloxalene – 44 mg/kg (25-50g PO) – legume

 - Bloat Guard/Therabloat - polyethylene-polypropylene;

- Dioctyl sodium sulfosuccinate (DSS) (28 ml – 1 oz)

 - added to mineral or vegetable oil

Bloat Treatment Rumenotomy



Bloat Prevention

Maintain adequate fiber in the ration

Do not feed finely ground grain

Fill animals with hay before turning into lush pastures

Do not turn in on wet pastures

wait until amid day after dew evaporates

Overstock suspect pastures – limit exposure to lush pasture

strip/flash graze – forced to eat entire plant

Bloat Prevention

Bloat preventatives

poloxalene - legume bloat

detergents - alcoholethoxy sulfate (Tide[®] laundry detergent, Alfasure[®]),

Blocare 4511[®] -alcohols-c10-16, ethoxalated polyoxalene)

ionophores:

monensin 300 mg/hd/d cattle

15mg/h/d sheep

1 mg/hd

Differential Diagnosis

postmortem decomposition

displace abomasum

peritonitis

volvulus

hydrops

vagal indigestion

metabolic (hypocalcemia)

clostridial infections

lightening strike/electrocution

Bloat in Feedlot Calves – Case Study

pneumonia/bloat



Bloat in Feedlot Calves



Bloat in Feedlot Calves

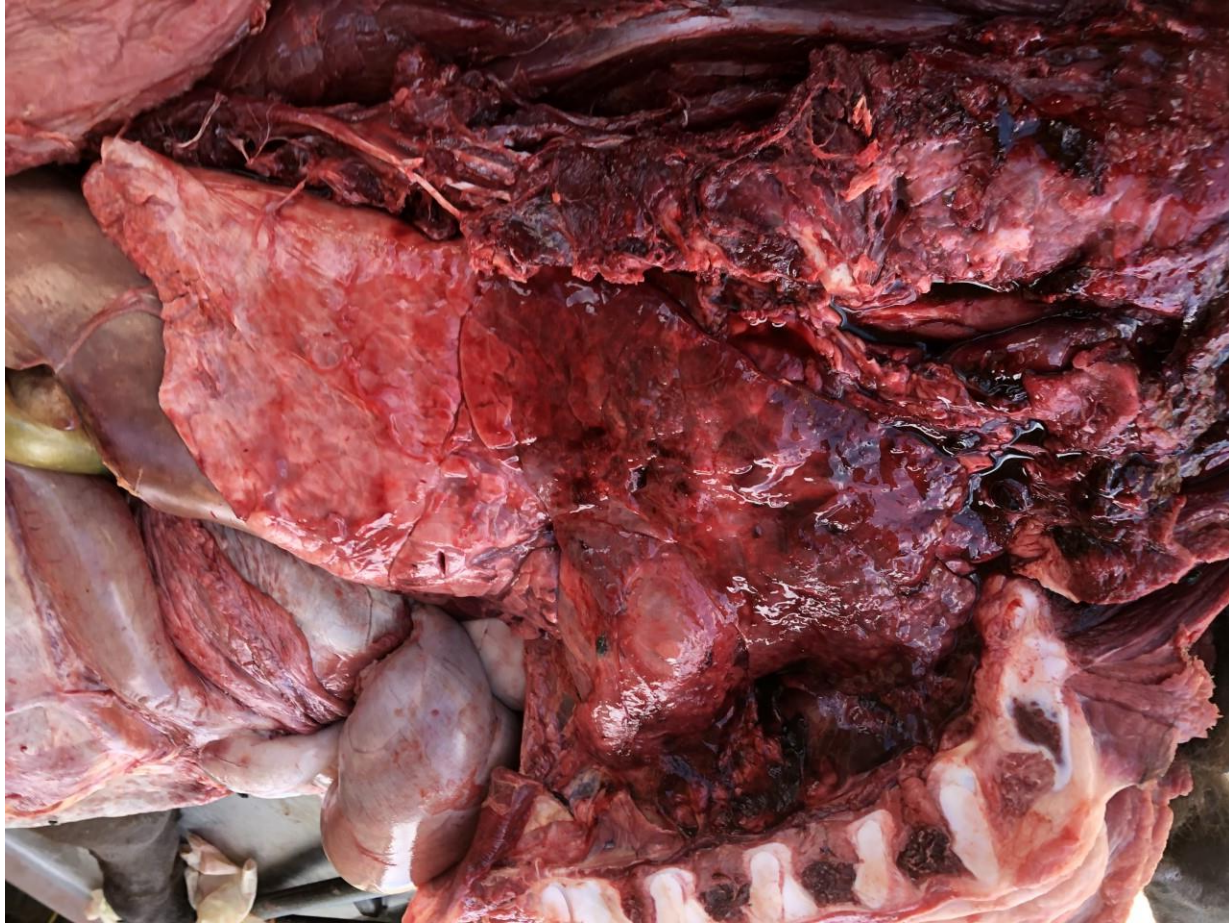




Bloat in Feedlot Calves



Bloat in Feedlot Calves



Bloat in Feedlot Calves



Bloat in Feedlot Calves

