Abomasitis/Abomasal Bloat in Calves

Van Kruiningen et al. 2009
Etiology

- *Clostridium perfringens* Type A has been isolated from lesions using anaerobic culture in many cases.
- Intraruminal inoculation of *C. perfringens* Type A has reproduced a similar syndrome in calves.
- *Sarcina ventriculi*? These bacteria (gram +ve anaerobes) have often been visible in histological sections of the stomach of affected calves, always restricted to the superficial mucosa and necrotic debris. Only rarely have they been recovered from cases (difficult to grow) Their role (if any) in this disease syndrome is currently unknown.
- Likely a multifactorial disease involving ingestion of rapidly fermentable substrate and several microbial species (*C. perfringens* appears most frequently implicated)
Epidemiology

- Predominantly seen in young, unweaned calves. Generally from several days to 6 wks of age (similar syndromes also reported in young lambs and goat kids)
- Associated with ad lib feeding systems, feeding large quantities at a single feeding, high starch milk replacers, ?failure of passive transfer?
Pathogenesis

- Excessive fermentation of intragastric substrate with gas and acid production.
- Production of alpha toxin by *C. perfringens*
Clinical Signs/PE findings

- Acute abdominal distention
- Colic
- Depression
- Anorexia
- Bruxism
- Splashing and metallic sounds on succussion of abdomen
- Dehydration
- Sudden death
- Sequelae include abomasal torsion and rupture, development of shock and metabolic acidosis
Clinical Pathology

- Hyperglycemia (189-516 mg/dL) and glucosuria (1000-2000 mg/dL) is a consistent finding?
Necropsy Findings

- Hemorrhage, edema, and necrosis of the abomasal and forestomach mucosa
- Abomasal tympany
- May be bullous emphysema of the abomasal wall (mural emphysema)
- May be segmental necrotic enteritis as well
Treatment

- Stomach tube usually fails to relieve distention
- Place calf in dorsal recumbency and insert a needle or catheter into the abomasum to relieve gas
- Point of entry at highest point between umbilicus and xiphoid.
- 14 gauge 5 cm needle
- Don’t attempt paracentesis through right flank (usually incomplete drainage and high risk of peritonitis)
- Parenteral or oral penicillin G procaine or other Beta-lactams to target Clostridium sp. (some isolates have demonstrated resistance to penicillin G)
- Right flank laparotomy to correct torsed abomasum
- IV fluids to treat shock and metabolic derangements
Prevention/Control

- Possible role of vaccination against *C. perfringens* (vaccinate pregnant cows and calves at 1 month). Commercially available Type A toxoid (novartis) results in antibody production against α-toxin
- Improve cleaning of milking and feeding utensils and improve hygiene in general
- Adding 0.05% formalin to the milk or milk replacer has reduced incidence in lambs.
References


