Diagnosis:

**Morphologic Diagnosis:** Diffuse subacute necrotizing, fibrinohemorrhagic, and emphysematous abomasitis

**Two possible causes:** *Sarcina ventriculi* (this case), *Clostridium perfringens*, type A

Typical Gross findings:

- Abdominal bloat
- Emphysema and edema of the abomasal wall
- Mucosal hyperemia and hemorrhage, fibrinous exudation, necrosis, ulceration, and rupture (mostly abomasum but occasionally proximal small intestine)

Typical microscopic findings:

- Abomasitis and, to a lesser extent, enteritis
- Necrosis of the superficial mucosa, congestion, hemorrhage, emphysema, and edema
Intralesional gram-positive bacteria, arranged in peculiar cubical packets of 4-8 cells along the mucosal surface

H&E, 100x

Discussion:

*Sarcina* spp. are fastidious gram-positive, anaerobic, carbohydrate-fermenting, CO2 and ethanol producing bacteria that are able to grow at a pH as low as 2.3. Sarcinae cluster in peculiar packets of four to eight cells (“tetramers and octamers”), which in turn can combine in more complex even-numbered arrangements (see picture above). These organisms are known to be conspicuous in the environment.

This gas-producing organism has been associated with emphysematous abomasitis in calves and lambs2, emphysematous gastritis in humans3, and related to gastric dilatation in goats1, dogs, and horses4. Even though the pathogenesis of *Sarcina ventriculi* abomasitis has not been fully elucidated, a predisposing gastric environment and individual susceptibility factors are thought to play a role.

*S. ventriculi* represents an important differential for clostridial emphysematous abomasitis in young ruminants, mainly bovine and ovine. In this case, a clostridial etiology was ruled out by negative anaerobic culture of the abomasum and absence of bacteria compatible with Clostridium on H&E.

References and Recommended literature:


Please send your comments/questions to (Vinicius.carreira@mpiresearch.com).