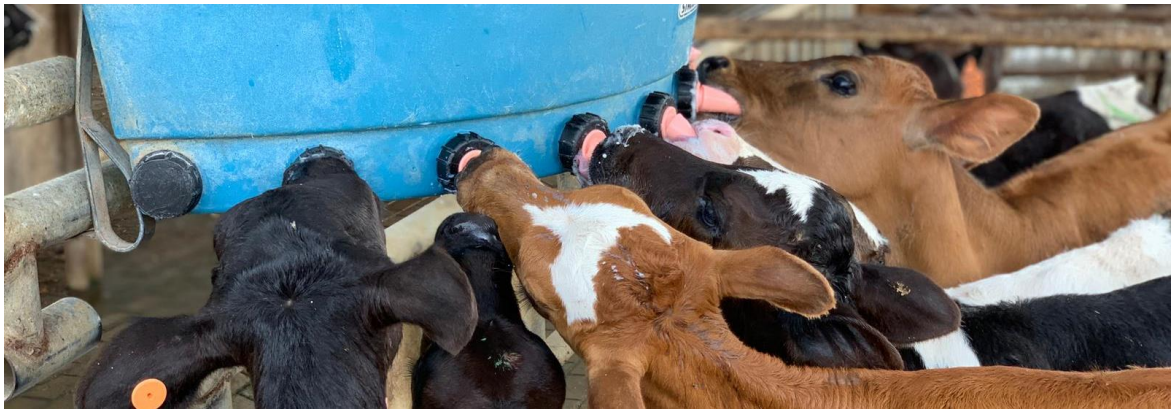
Joosten
young animal nutrition

We care for the little ones

Ruminal bloat in calves

What to do?

When all according to plan, milk bypasses the forestomach (rumen and reticulum) and enters into the abomasum via the oesophageal groove. However, when there is a disturbance, the milk can come into the rumen instead of the abomasum. Milk in the rumen will not be digested, but result in production of excess gases by microbial fermentation. This condition is fatal in new born calves if not treated early.



Ruminal bloat in young calves is caused by excessive gas accumulation in the rumen. Often this is caused by the phenomena where milk is coming into the rumen by dysfunction of the oesophageal groove or when milk is overflowing from the congested abomasum into the rumen. Milk cannot be digested in the rumen. Due to the rotting, pH will drop and digestion is disrupted. This phenomena has a swollen rumen and/or grey clayish diarrhea as a result.

Causation

The most common cause of bloating in calves that solely consume milk, is failure of the oesophageal groove closure. This can have multiple reasons:

- Incorrect mixing ratio (should be minimum 145 gram / L water or 125 gram / L milk)
- Contamination of milk due to dirty material
- Incorrect milk temperature at drinking (should be 41 °C)
- Divergent feeding times (e.g. 2x per day with interval of 8 and 16 hours)
- Incorrect drinking e.g. incorrect head position, bucket versus teat, teats giving too much milk
- Improper mixing of the calf milk replacer
- Over-crowding (no individual teat)
- Hungry calves

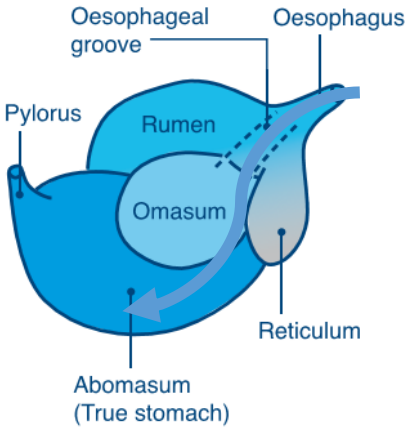


Figure 1. Schematic mode of action oesophageal groove.

Another cause could be the overflow of milk into the rumen. The abomasum has a certain capacity (which differs among different species). When the abomasum is full, it overflows. This can occur when the calf drinks too much milk in one time.

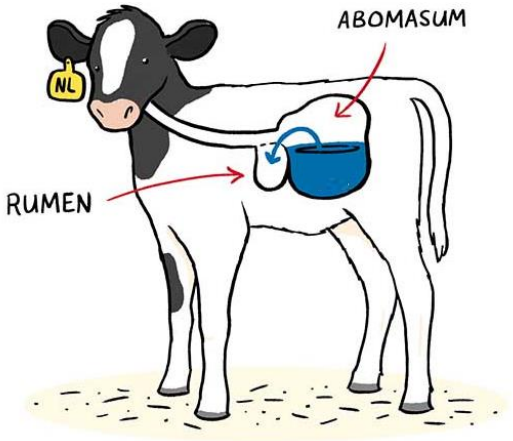


Figure 2. Overflow from abomasum to (undeveloped) rumen in calves.

However, starter feed can also be (part of) the cause when eaten at significant amounts. So, the calf's age at bloating is important to unravel the cause. When happening at 3 to 4 weeks of age, most likely milk into the rumen is the reason. When the calf is older, 5 to 8 weeks of age, chances are greater the reason lies with starter feed. Note that bloating is at higher risk when a calf suffers from a disease. And last but not least, bloating can also be caused by several bacterial infections.

Treatment

The rumen should be emptied by tubing via the mouth with lukewarm water to immediately decrease the symptoms. To decrease the impact of acidification drenching can be done with 50-100 gram bicarbonate in water solution. Push the head down and the rumen up to naturally eliminate the gases and fluid via the tube. Give the calf space to move around.

Feed water during the next feeding and start introducing milk gradually. Start with feeding 2 times per day 1 L milk. To stimulate the oesophageal groove reflex, calves can be offered a (new) teat. Place the teat bucket 80 to 100 cm above the ground. Furthermore, the introduction of fiber rich feed, like roughage, can help to prevent rumen acidification.

To prevent bloat from happening make sure protocols are structured. Calves should be fed on fixed times and avoid large feeding volumes per feeding. Make sure mixing protocols for calf milk replacer are consistent and according to the producer's advice. And as always, work in a hygienic way.