Approach to the acute abdomen lamb

Sarah Clews

Background

With the rise of lifestyle blocks in New Zealand, an increased demand for improved animal welfare, and a growing appreciation for the individual, demand on veterinarian is increasing, to provide improved treatment options for once traditional production species.

The field of lifestyle block medicine and surgery is still limited by a lack of evidence-based research. However, the increased demand on veterinarians means conversation should still be had, to improve the approach. 'Lamb bloat' is one such presentation that lacks an evidence-based approach to treatment. Research into aetiology, pathogenesis, treatment as well as drug choices, is lacking.

'Lamb bloat' is a term given to any lamb presenting with a distended abdomen. The causes of abdominal distension in any species can vary widely, and lambs are no exception.

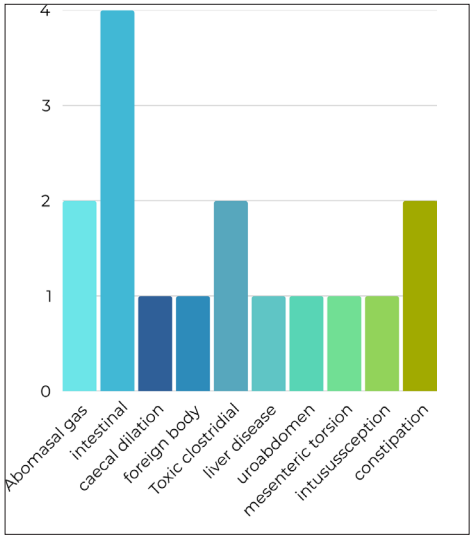
Unfortunately, the term 'lamb bloat' is often described as a diagnosis and treated as such, with attempted decompression with a large gauge needle. Expected mortality rates are generally accepted to be well above 90%.

This author would argue the current conventional approach to 'lamb bloat' lacks even the basics of an appropriate diagnostic pathway and treatment. With dedication to truly attempting to diagnose the underlying cause of abdominal distension, treatment can be more accurately tailored, and the chance of a successful outcome greatly increased.

The following data is the author's own records and observations. Data was collected across a single lambing season and incorporates 16 cases. The intent of this discussion is to exemplify the wide variety of causes to present as Acute Abdomen, as well as what can be achieved with appropriate diagnostics and tailored treatments.

Results of cross section

Table 1. Diagnosed causes of cases presenting as 'abdominal distensions' in lambs.



Conclusions

As demonstrated, a wide variety of causes occurred, described as 'lamb bloat'. Since the season where data was collected, my experience continues to suggest this is a well representative cross section, with the exception of Milk Rumenitis, which has since been diagnosed frequently in small ruminants, and very often in co-morbidity with other primary diseases. Other honourable mentions diagnosed since this initial season include maladjustment syndrome of neonates, and atresia ani. Very often we find the underlying cause is easily identified with a good clinical exam and basic ultrasound, The exception being gastrointestinal (GIT) gas bloats, which can be nuanced and complex.

Basic diagnostic process

1. Good clinical exam.
    a. Head-to-toe.
    b. TPR, MMs, Faeces.
    c. Abdominal palpation, “ping” the abdomen.
    d. Any signs of trauma.
    e. Welfare, pain?
2. FAST U/S!! +/- xray if required.
    a. Know where GIT organs sit in a one week old vs six- or 12-week-old.
    b. Identify chambers based on lining, as displacement is very common.
    c. Rule out any red flags, such as toxic effects, severe ulceration, perforation, obstruction.
3. Abdominocintesis of free fluid + cyto etc.
4. Blood work
    a. Time is of the essence.
    b. Is it likely to show much that you wouldn’t pick up on, on U/S?
    c. May help with more obscure diagnoses and help to guide treatment.

Gas bloat treatment - back to basics

Simple gas bloats (no red flags)

1. A combination of Metoclopramide at 0.5mg/kg + Buscopan at 0.3mg/kg IM. A second dose given 4-6 hours later. They won’t all need a second dose, but if you’re treating as an outpatient then the second dose was sent home with the owner. Additionally, a single shot of selenium SQ. (This combination was used successfully in a study by Kajouri (2004), where he claims 100% success treating 21 goat kids for gas bloat)
2. Five days of oral TMPS and five days of injectable penicillin at standard doses.
3. Meloxicam (consider Ranitidine IV for gastroprotection? (Duran *et al.* 1993).
4. No more milk for 12-24 hours (depending on age), while the first batch of milk is yogurtising. Thereafter the lamb will only ever have yogurtised milk until weaning. This lamb is forever now lactose free.
5. IV fluids for rehydration +/- Dextrose CRI if requiredAll simple gas bloats (intestinal or abomasal) in the studied data set were treated successfully with the above regime. Which element of treatment was particularly successful is, of course, unclear, but addressing the basics of GIT distension is crucial (such as rehydrating and reducing inflammation, to assist resolution of normal peristalsis).

However, over and above these supportive measures, it is perfectly possible that simply withholding any further lactose from the lambs and moving them promptly to a lactose-free diet made the greatest impact.

Prevention of abomasal bloat

Lambs are followers; they remain by the mother’s side throughout the day and night, drinking very small amounts frequently. Behavioural studies suggest an average of 36 times across 24 hours in 1- to 2-week-old lambs, reducing to around 14 times a day by 6–7 weeks old (Gordon and Siegmann 1991), an age where most of our bottle reared lambs are on three very large milk feeds a day and considering weaning. In comparison, goats and calves are hiders, and drink 3–5 large milk feeds from their dams from very early on, hence bottle reared lambs are at exceptionally high risk. Prevention of abomasal bloat and other GIT issues should be prevented by:

- Feeding 10–15% of the bodyweight, across 6+ regular feeds a day. If absolutely necessary to feed less frequently, use yogurtised milk.
- Ensure appropriate hygiene, milk warmth, and dilution of milk powder. Use an appropriately sized teat that does not flow without active sucking.
- Vaccinate bottle reared lambs young, at two weeks old, with a 10-in-1 that covers all four *clostridium perfringens* strains as well as *clostridium sordelii*.
- Wean appropriately (as below)
- Add a probiotic (e.g. *bifidobacterium animalis*) to milk bottles. Note that *acidophilus* bacteria are gas producing and hence not an effective probiotic for the prevention of abomasal bloat. Acidophilus yogurt is used to yogurtise milk prior to feeding, but adding a 'dollop' at the time of feeding simply adds more gas-producing bacteria to the abomasum; standing to reason to increase the risk of abomasal bloat.
- Whey-based milk powders. These are not lactose free, but rather are casein free, therefore non-clotting and emptying from the abomasum faster. This would, in theory, reduce the risk of abomasal bloat, but does also leave the animal feeling hungrier, so be sure to have creep feed and pasture on offer at all times.

Safe weaning

Wean at a minimum of eight weeks old, unless guided by medical reasons. Weigh and adjust milk volumes until 3–4 weeks old, then hold volume steady. Wean by slowly reducing the volumes of the feeds, then removing feeds one at a time. Beware labels that suggest dropping a feed in exchange for increasing the volume of the remaining feeds.

Ensure creep feed and pasture available from very young. Lambs should have a pear-shaped abdomen and be chewing their cud to signal a well-developed rumen, be fully vaccinated against *perfringens* strains and *sordelli*, and ideally have had a healthy probiotic of a non-gas producing bacteria added to their milk during milk feeds.

References

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