Browser's Bulletin in the Hunter

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Dietary Mismanagement

Last week I was contacted about a goat that had unfortunately consumed a large amount of grain (or pellets). The amount given was well above its normal daily allowance, and unfortunately it developed bloat with abdominal distension and frothy discharge from the nose and mouth, ruminal acidosis and death. Given that the Hunter has a number of small goat herds that require a daily concentrate feed, I thought it would be beneficial to discuss this condition and treatment strategies if you find yourself in the same situation. Severe ruminal acidosis requires veterinary assistance, but you can certainly assist the recovery of goats with mild to moderate indigestion.

Excessive ingestion of high energy feed results in rapid fermentation of carbohydrate in the feed and formation of large quantities of lactic acid. The lactic acid decreases the pH of the rumen creating a ruminal acidosis. With a ruminal acidosis the motility of the rumen decreases or a complete cessation of movement, bloat due to the production of a stable foam from the highly fermentable feed and an inability to eructate gases, the normal good ruminal bacteria are destroyed, and bad bacteria take over. Ruminal acidosis will also destroy the lining of the rumen and the degradation of the good bacteria produces a toxin that is absorbed into the blood stream.

In cases of mild-moderate overfeeding of concentrates, the goat may become mildly affected and sometimes spontaneously recover. Other clinical signs you could see include reduced appetite, constipation or occasional diarrhoea and signs of colic (pawing at the ground, looking at their abdomen, getting up and down frequently and grinding their teeth). If the concentration overload has created a ruminal acidosis, then clinical signs include lethargy, abdominal pain, subnormal temperature, absent ruminal movement, diarrhoea (loose faeces to a frank diarrhoea with undigested grains) and death. Undigested feed passing into the small intestine can also lead to an overgrowth of Clostridium perfringens type D and consequently enterotoxaemia.

First aid treatment for bloat

- Drench with 100-200ml of non-toxic vegetable oil and if possible, stand goat up on hind legs with front feet raised or place goat on rear end and massage their rumen to distribute the oil.
- Encourage chewing. Tie a 30cm stick through the mouth like a bridle and smear honey on the back of the tongue. Chewing encourages the production of saliva which contains phosphate and bicarbonate ions, that help buffer the rumen.
- Walking goat around can encourage the burping up of gasses.
- Stomach tube or trocharisation (left side of abdomen with 16g or 18g needle) may be required if the goat is showing signs of respiratory distress – this becomes medical emergency and urgent intervention required. (veterinary attention needed)

First aid treatment for ruminal acidosis

- Epsom (Mg SO4) salts 200g dissolved in 300ml of water as a drench on day 1, then 100g, 75g, 50g dissolved in water and drenched on successive days if necessary. Epsom salts work as a laxative, moving the grain or concentrate through the gastrointestinal tract faster and also helps to buffer the rumen. Epsom salts can be bought in bulk at your local produce store.
- + 100g of sodium bicarbonate will help reduce acidosis. Do not overdose sodium bicarbonate as it can create a ruminal alkalosis. Other antacids can also be used to neutralise the rumen.
- Dehydration needs to be corrected. If dehydration is mild, then oral rehydration will be effective but with severe ruminal acidosis, fluids would need to be administered via other routes such as into the vein by your veterinarian.
- Thiamine (Vitamin B1) should also be given to prevent Cerebrocortical necrosis (polioencephalomalacia- swelling of the brain). When the rumen is not functioning, then the production of

thiamine will decrease and potentially lead to Cerebrocortical necrosis (CCN). Goats affected by CNN will develop neurological signs such as star gazing, blindness, difficulty walking, head pressing, collapse and death. Thiamine can be given at 10mg/kg into the muscle or vein, every 6 hours for 24 hours. Thiamine can sometimes be purchased through your produce store either as Thiamine or otherwise as a multivitamin combination. Dose according to the thiamine concentration of the preparation.

- Penicillin will be required by your veterinarian to prevent bacterial rumenitis, post acidosis
- Probiotics given to reestablish good bacteria

It is important that all goats have long fibre in their ration. Long fibre stimulates eructation (burping), cud chewing and production of saliva. Saliva assists with buffering the rumen and maintain an ideal pH.

Pet goats can often be in a state of subacute- subclinical ruminal acidosis due to low fibre intake, overfeeding concentrate feeds, feeding inappropriate feeds such as supermarket waste, excessive amounts of supplements and lack of exercise. Goats in this state will have a reduced appetite, loose faeces or diarrhoea, colic symptoms and develop laminitis. Goats that have been on a high concentrate diet for a long period will develop a chronic laminitis, where the feet have a relatively normal shape, but they are extremely hard to trim and have a thick platform sole.

When increasing the concentrate feed in the diet of small ruminants it is important to increase in small increments over 2 weeks. This enables the rumen bacteria to adapt to the change in diet. Monitor carefully for any early signs of acidosis, such as decrease in appetite, reduced rumen movement and floppy faeces. If any of these signs are noticed, then immediately remove the concentrate diet.

If you have any further questions on rumen indigestion, rumen acidosis or bloat, please don't hesitate to drop me an email at kylie.greentree@lls.nsw.gov.au

References:

- Matthews, J; 2009. Diseases of the Goat

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