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Lecture title: SIMPLE INDIGESTION

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Summary:

Simple indigestion is a minor disturbance in ruminant gastrointestinal tract function that occurs most commonly in cattle and rarely in sheep and goats. Simple indigestion is typically related to sudden change in the quality or quantity of the diet.

ETIOLOGY

- Indigestion is common in dairy cattle and stall-fed beef cattle because of the variability in quality and the large amounts of feed consumed. It is not common in pastured beef cattle or sheep because they are less heavily fed.
- Cases are usually attributed to overfeeding with grain or a sudden change in feed. A sudden change to a new source of grain, especially from oats to wheat or barley, may have the same effect.
- Prolonged or heavy oral dosing with antimicrobials may cause indigestion from inhibition of the normal ruminal flora.

PATHOGENESIS

- Overeating of grain or feed presented to ruminal in which they are metabolically less adopted or diet containing inhibitory substances will result in changes in the pH which lead to imbalance microflora fermentation and markedly affect the motility of the rumen.
- High protein diets, including the feeding of excessively large quantities of legumes or urea, also depress motility because of the sharp increase in alkalinity.
- The simple accumulation of indigestible food may physically impede ruminal activity.
- Marked fall in milk yield occurs, caused probably by the sharp decrease in volatile fatty acid production in a hypotonic reticulorumen.

CLINICAL FINDINGS

1. A reduction in appetite is the first clinical finding, followed closely in milking cows by a slight drop in milk production.
2. The animal's posture is unaffected but there is mild depression and dullness.
3. Rumination ceases and the ruminal movements are depressed in frequency and amplitude and sometimes are almost absent.
4. There may be moderate tympany, but the usual finding is a firm, doughy rumen without obvious distension.
5. The feces are usually reduced in quantity and are drier than normal on the first day.
6. However, 24 to 48 hours later the animal is commonly diarrheic; the feces are softer than normal, voluminous, and commonly malodorous.

7. There is no systemic reaction and the heart rate, temperature, and respiration are usually within normal ranges.
8. Most cases recover spontaneously or with simple treatments in about 48 hours.

CLINICAL PATHOLOGY

1. Two simple laboratory tests have been introduced to assess the activity of the ruminal microflora (the sediment activity test and the cellulose digestion test).
2. The rumen fluid can be examined for pH using wide-range indicator paper.

NECROPSY FINDINGS

Simple indigestion is not fatal.

DIFFERENTIAL DIAGNOSIS

Simple indigestion must be differentiated from all the diseases of the forestomachs in which ruminal atony is a common clinical finding, and from diseases of other body systems that cause secondary ruminal atony.

1. **Acetonemia**: the appetite and milk production decrease over a few days, there is ketonuria and the rumen contractions are present but weaker than normal.
2. **Traumatic reticuloperitonitis**: there is a sudden onset of anorexia and agalactia, a mild fever, a painful grunt on deep palpation of the xiphoid sternum, and the rumen is static.
3. **Carbohydrate engorgement**: characterized by depression, dehydration, tachycardia, recumbency, diarrhea, and ruminal stasis, and the pH of the ruminal fluid is usually below 6 and commonly down to 5.
4. **Left displaced abomasum (LDA):** usually occurs within a few days after parturition and the rumen is usually smaller than normal, the contractions are usually reduced, there is a ping on percussion over the lower left flank, and ketonuria.
5. **Right displaced abomasum**: is most common in dairy cows 2–4 weeks postpartum, there is inappetence, reduced feces, ruminal atony, reduced milk production and a ping over the right flank.
6. **Ruminal atony with mild bloat**: is common in the early stages of hypocalcemia, which may last for 6–18 hours, and is usually accompanied by anorexia and a decreased amount of feces. The ruminal motility and appetite return to normal following treatment with calcium borogluconate.

TREATMENT

1. Spontaneous Recovery

Most cases of simple indigestion recover spontaneously. Small quantities of fresh, good-quality, palatable hay should be provided several times daily to encourage eating and to stimulate reticulorumen motility.

2. Rumenatorics

- ✓ A wide variety of oral preparations containing rumenatorics were available to "stimulate" reticulorumen motility and to stimulate appetite.
- ✓ These preparations contained nux vomica, ginger, and tartar emetic in powder form to be added to water and pumped into the rumen.

3. Alkalinizing and Acidifying Agents

- ✓ If an excessive quantity of grain is the cause of the simple indigestion, the use of alkalinizers, such as magnesium hydroxide, at the rate of 400 g per adult cow (450 kg BW), is recommended when the rumen contents are excessively acid.
- ✓ Acetic acid or vinegar, 5 to 10 L, is used when the rumen contents are alkaline as a result of the ingestion of high-protein concentrates.

4. Reconstitution of Ruminal Microflora (Rumen Transfaunation)

- ✓ In cases of indigestion that have run a course of more than a few days, and in animals that have been anorexic for prolonged periods, there will be significant loss of ruminal microflora, especially if there have been marked changes in pH.
- ✓ Reconstitution of the flora by the use of rumen fluid transfers from healthy cows is highly effective. An abattoir is the best source of rumen contents (especially rumen fluid).
- ✓ Commercial products comprising dried rumen solids are available and provide some bacteria and substrate for their activity when reconstituted with warm water at 37°C.