Diagnostic Approach to the Acute Abdomen

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KEYWORDS

• Bovine • Abdomen • Colic • Pain • Ancillary tests

KEY POINTS

- Whether to cut or to wait is not an easy decision and remains a challenge for most food animal practitioners.
- Optimal management depends of multiple factors, some of which are under the direct control of the veterinarian, whereas others are totally independent.
- Complete physical examination and judicious use of ancillary tests remains the best ally.
- It is important to keep in mind that exploratory laparotomy is sometimes an economical option.

BACKGROUND INFORMATION

This description of the acute abdomen and the proposed diagnostic and therapeutic approach are the result of clinical experience and interaction between clinicians specializing in surgery and in medicine. Although the authors realize that many concepts presented apply better in a teaching hospital, we think that many hints and tips remain relevant for the bovine practitioner confronted everyday with the field reality.

One of the most challenging situations in bovine medicine, the acute abdomen may evolve into a critical situation in which the client becomes nervous, especially if a valuable animal is involved. In some species, the cost and risk associated with abdominal surgery justifies completing the medical workup to avoid surgery if possible. In the bovine, the cost and risk associated to a standing laparotomy is such that, in many situations, it seems more economical to perform a diagnostic exploratory laparotomy and institute the appropriate treatment instead of adding the cost of diagnostic tests and procedures before surgery. Is this a reasonable approach? Is it always without negative consequences?

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DEFINITION

The acute abdomen is a general term often used to characterize an animal presented as an emergency, in a more or less severe critical state, and for which medical and possibly surgical treatment will be necessary. The term is often used to describe cases in which some degree of uncertainty remains in regard to the diagnosis.

INTRODUCTION

The clinician should use a systematic approach based on adequate signalment and history, complete physical examination, and judicious choice of ancillary tests. An excellent knowledge of the bovine abdominal anatomy and a good understanding of the pathophysiology of abdominal pain are additional tools often useful in difficult cases. Good clinical judgment, critical analysis, and good client communication skills are competencies that often make a difference in the outcome of a particular case.

ABDOMINAL PAIN IN RUMINANTS

Abdominal pain may be a consequence of excess distension of a hollow viscus, spasm of intestinal smooth muscle, stretching of the mesenteric supporting structure, intestinal ischemia, or chemical irritation of the visceral or parietal peritoneum. Abdominal pain may be classified into visceral pain (hollow viscus and solid organs) and parietal pain (parietal peritoneum, abdominal muscles, rib cage). Pain sensation from the parietal peritoneum travels through the peripheral spinal nerves and usually localizes over the affected area. Because parietal pain is exacerbated by pressure and tension modification, the patient is reluctant to move and have a tonic reflex contraction of the abdominal muscles. In most cases, no active clinical signs of colic are recognized. Some pain fiber endings are located in the submucosa and muscle layers of hollow viscus (intestines, bladder), and in the capsule of solid organs (kidney, liver). Consequently, distention, forceful contraction, or traction will produce pain. Capsule stretching will also create pain. Visceral pain is most often associated with active manifestation of colic: kicking at the abdomen, treading with the rear feet, lying down or standing, and stretching out. Visceral pain is transmitted via sensory fibers in the autonomic nerves and is often diffuse and difficult to localize.

Differential diagnosis for colic in ruminants may be first categorized into abdominal or extraabdominal origin. Extraabdominal causes include thoracic pain, laminitis, and myopathy. Although not truly related to abdominal diseases, animals affected by those conditions can mimic clinical signs of colic. The abdominal causes can then be subcategorized into digestive or nondigestive origin. The nondigestive causes include pyelonephritis and uterine torsion, whereas the classic abdominal digestive causes include abomasal volvulus, intussusception, and ileus.

RAPID EVALUATION OF THE PATIENT

Some patients need immediate medical assistance and the primary objective is to buy time to allow a better examination. Several abdominal emergencies are associated with either hypovolemic or septic shock. Hypovolemic shock is characterized by increased heart rate, pale mucous membranes, slow capillary refill time, and dehydration. Increased heart rate and dehydration are also observed in case of septic shock, but mucous membranes are hyperemic or bluish in color, and scleral vessels are engorged and dark. Intensive fluid therapy is the treatment of choice for both hypovolemic and septic shock.[1] Consequently, an intravenous (IV) catheter should be placed and fluid therapy instituted immediately. IV administration of hypertonic saline