

Surgical Management of Abomasal and Small Intestinal Disease

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KEYWORDS

• Bovine • Surgery • Abomasum • Duodenum • Jejunum • Ileum • Caecum • Colon

KEY POINTS

- The right para-lumbar fossa is not always the ideal surgical approach to treat abomasal problems, such as ulcer and impaction.
- Minimally invasive procedures have the advantage of decreasing the need for perioperative antibiotics.
- The sigmoid flexure of the duodenum should be systematically evaluated in case of proximal intestinal obstruction.
- Hemorrhagic bowel syndrome remains a difficult condition to treat.
- Partial cecal amputation should be considered in cases of recurrent dislocation/dilatation.

INTRODUCTION

A bovine practitioner should master abdominal exploratory surgery (laparotomy). Several gastrointestinal (GI) problems require surgical correction to save the animal's life and to keep it in production. Time, from the onset of the clinical signs to the surgery, is a key factor in the success of the procedure. Clients need to be educated to rapidly recognize clinical signs of GI obstruction anorexia, colic, decreased fecal output, change in color of feces (melena, fresh blood, mucus). The veterinarian should evaluate cows presenting such signs as early as possible. At the farm, the tools described in Gilles Fecteau and colleagues' article, "[Diagnostic Approach to the Acute Abdomen](#)," in this issue, should be used to determine if surgery is needed (surgical abdomen). Depending on the most probable diagnosis, the attending veterinarian should then quickly decide whether or not the surgery can be performed at the farm, if he or she needs to call for help (assistant or a more experienced surgeon), or if the cow has to be euthanized because of the poor prognosis.

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This article first reviews the surgical preparation of the abdomen and the preoperative treatments. The following part is divided in 2 sections: abomasal and intestinal surgery. For the abomasal surgery, the different surgical approaches according to suspected problems will be presented. Finally, postoperative care, including management of postoperative ileus, is presented.

PREOPERATIVE TREATMENTS

Cattle in shock should be stabilized before the surgery (fluids and blood transfusion). Preoperative antibiotics (beta-lactam) are needed when the abdomen is manually explored in a field setting. When the GI tract is open, a broad-spectrum antibiotic effective against gram-negative bacteria should be given. A nonsteroidal antiinflammatory drug (NSAID) (flunixin meglumine or meloxicam), if not already given by the owner, should be given before the surgery with the exception of when an abomasal ulcer is suspected.

Depending on the procedure, the cattle remains standing (most procedures) or is placed in dorsal, lateral, or sternal recumbency. The authors have come to prefer sternal recumbency when it is highly probable that the animal will go down during the procedure (pain or weakness). A key element when choosing this position is to provide enough padding for the down leg to avoid peroneal paresis (seen even more frequently in hypotensive animals). The upper leg should be pulled back and secured to clear the para-lumbar fossa ([Fig. 1](#)). Compared with the left lateral recumbency position, sternal recumbency allows better exteriorization of the jejunum and the exploratory seems easier to perform.

If a recumbent position is required, the animal will most likely need to be sedated. A ketamine stun given intravenously (IV) (butorphanol 0.025 mg/kg, xylazine 0.05 mg/kg, ketamine 0.5 mg/kg) combined with casting ropes ([Fig. 2](#)) is usually sufficient to get the cow to lay down safely without significantly compromising the cardiovascular system.^{1,2} For the more frantic cattle, the dose of ketamine can be increased to 1.1 to 2.2 mg/kg.

PRINCIPLES OF SURGICAL PREPARATION AND ANESTHESIA

Patient (Cattle)

After identifying a clean area with appropriate lighting to perform the surgery, the animal should be brushed to remove dirt and hairs from the back and flank. Then, the



Fig. 1. Adult cow in sternal recumbency. The upper leg is pulled backward to expose the para-lumbar fossa. (Courtesy of Sylvain Nichols, Université de Montréal, Saint-Hyacinthe, Québec, Canada.)

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