Surgical tips for bovine surgeries

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Introduction

Teat surgeries

Laceration of the teats is a surgical emergency, and appropriate care should be provided as soon as possible to ensure the best prognosis for return to production. Wounds on the teat are always impressive for owners and caretakers; however, teat lacerations support an overall favorable prognosis in most cases. The key points to guarantee the best chances to return to function are:

- Absence of delay in the surgical repair
- Adequate restraint of the cow
- Careful débridement
- Anatomical reconstruction of the teat
  - Small diameter (#3-0) monofilament absorbable suture material (mucosa and connective layer)
  - Small diameter (#2-0) monofilament for the skin
- NO HAND MILKING during the initial post-operative period

Treating orthopedic infection

Even though cattle are resilient orthopedic patients, infection within the skeletal system represents a challenge. It is a race in which the clinician frequently starts late.

Initial aggressive débridement under general anesthesia or sedation in combination with local anesthesia allows for immediate reduction of the bacterial load by removal of dead, necrotic tissue or infected debris. Bacteriological culture from the infected bone or tissue at the time of surgery is recommended to readjust the empirical treatment initiated. Systemic antibiotics and pain management drugs (NSAID, +/- opioids) should be administered at the start of the process, and continue upon the progression of the case.

Treatment of orthopedic infection is a race that starts as a sprint and ends-up as a marathon. Re-evaluation of the wound on a regular basis is common, and repeated débridement/debris removal/curettage may be necessary. Antibiotics could also be administered locally either by intravenous regional limb perfusion under a tourniquet, or by the application of antibiotic-impregnated beads (PMMA or plaster of paris). While dealing with a fracture, strict immobilization of the fracture site is important. Early signs of control of infection are improved comfort of the animal and use of the injured leg. The presence of smooth granulation tissue covering the entire cavity associated with a contraction of the wound are surgical indications of infection control.

When the infection fails to respond to therapy, a second bacteriological culture is indicated as the bacterial population may have changed and the antibiotherapy may need to be readjusted.

Adjunct surgical solutions for treatment of orthopedic infection are honey-based bandages, use of sucrose, vacuum-assisted closure, and/or surgical maggots.

Cecal dilatation

Cecal diseases in cattle include simple dilatation, cecal torsion, and retroflexion of the cecum. The diagnosis is performed by the presence of a high-pitch "ping" on the dorsal aspect of the right paralumbar fossa, and is confirmed by rectal examination for the simple dilatation and the cecal torsion, and by the use of ultrasonography for cecal ventral retroflexion.

Medical management is possible for simple dilatation by administering pain management medication and correcting electrolyte imbalances commonly associated with the disease (hypocalcemia and hypokalemia). Surgical correction is indicated for cecal torsion and cecal retroflexion. The surgical approach is a right paralumbar fossa laparotomy. After exteriorization of the dilated cecum, a typhlotomy is performed at the cecal apex and the content is evacuated. At this stage it is important to palpate and empty the proximal loop of the ascending colon to reduce its dilatation. A recurrence rate of 10% has been reported for surgical correction of cecal dilatation.

Floating abomasum

Left-displaced abomasum is common in the first 30 days of lactation. Loss of appetite and sudden drop in milk production are the 2 red flags for farmers. On clinical evaluation, a high-pitch "ping" should be audible on simultaneous auscultation and percussion on the left side. However, for some cattle this clinical finding is either really subtle or absent.

Tests to confirm the left abomasal displacement are the Liptak test for pH determination of the gastric content, or oro-ruminal intubation and evaluation of the intensity of the auscultation of the air bubble insufflated. Those 2 tests are either invasive or require 2 persons, and their sensitivity is reduced if the distension of the abomasum is limited.

Ultrasonography of the abomasum can be performed on either the left or right side of the abdomen. The variation of the position of the abomasum has been studied in the first week of lactation (Wittek 2005; Van Winden 2002) using the margins of the body of the abomasum. The body of the

abomasum is identified by the hyperechoic mucosal folds and the echogenic stippling of its content. The position of the abomasum has been reported up to 25 cm laterally toward the left side of the cranial abdomen in the immediate postpartum period. The pylorus appears as a half-moon hyperechoic structure with a shadow effect deeper it. Its position in a normal cow is immediately ventral to the gallbladder at the 11th or 12th intercostal space, or immediately ventral to the costal arch. The pylorus should not lie ventral to the mammary vein, and finding it there is an indication that some tension is applied to the abomasum toward the left side of the abdomen and may be consistent with an LDA, even in the absence of a "ping" on auscultation. The decision to surgically explore the abdomen and pexy the abomasum can therefore be discussed with the owner, as medical management may also resolve the symptoms.

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