

Surgery of the bovine rumen: indications and factors relating to outcomes in cattle in Ohio and Kansas

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Introduction

Rumenotomy and rumenostomy are commonly performed surgical procedures in cattle to relieve a variety of conditions affecting the bovine forestomachs, including hardware disease, foreign body ingestion, choke, and bloat. The location of the rumen against the left body wall makes it a convenient access point for proximal GI structures in the bovid, including the reticulum, the reticulo-omasal orifice, and the rumen itself. Although rumen surgery is commonly performed by veterinarians in both referral settings and in the field, few studies have focused on surgery of the rumen. In particular, long-term outcomes of rumen surgery in cattle have not been examined. The last retrospective study on rumen surgery, published in 1950, suggested a short-term success rate of 35/50 (70%), with 12/50 (24%) of animals dying within one month of the surgical procedure. The primary objectives of this study were to evaluate indications and outcomes (both short- and long-term) of rumenotomy and rumenostomy in cattle.

Materials and Methods

Records were analyzed for 95 cattle that had either a rumenostomy or rumenotomy performed at Kansas State University Veterinary Medical Center (n=28) or The Ohio State University Veterinary Medical Center (67) between 1999 and 2011. Data collected included age, breed, sex, presenting complaint, presence of concurrent disease, additional diagnostics, duration of hospitalization, complications, antimicrobials and anti-inflammatory drugs, and short- and long-term outcome. Long-term outcome was determined from a telephone interview with the owner.

Results

Rumenostomy was performed in 42/95 (44%) animals and rumenotomy was performed in 53/95 (56%) animals. Of the 42 animals that underwent the rumenostomy procedure, 18 were having elective rumen cannulas placed. Other indications for rumenostomy included bloat (n = 20), choke (1), grain overload (1), and enteral nutrition (2). Indications for rumenotomy included hard-

ware disease (n = 31), bloat (9), foreign body (6), choke (5), and other (2). Of the 53 animals that underwent a rumenotomy procedure, 52 (98%) received antimicrobial drugs. Anti-inflammatory drugs were administered to 35 of 53 (66%) animals undergoing a rumenotomy procedure. Antimicrobial and anti-inflammatory drugs were used less frequently for the rumenostomy procedure; antimicrobial drugs were administered to 36 of 42 (86%) animals and anti-inflammatory drugs were administered to 23 of 42 (55%) animals. Follow up information was available for the majority of the animals presenting for rumenostomy or rumenotomy. Complications of both rumenotomy and rumenostomy in the short-term consisted primarily of incisional complications such as infection, subcutaneous emphysema, swelling, or seroma. Long-term follow-up was available for 38 of 53 (72%) animals that underwent rumenotomy, of which 13 (34%) were still in the herd, 14 (37%) had been culled, and 11 (29%) had died or been euthanized. Long-term follow-up data was obtained months to years after initial presentation. Similarly, long-term follow-up data was available for 31 of 42 (74%) animals that underwent rumenostomy, of which 17 (55%) were still in the herd, four (13%) had been culled, and 10 (32%) had died. Of the animals that died or were euthanatized (n = 21), cause of death included complications of hardware disease, bloat, abomasal ulceration, and peritonitis. Owners' opinions of both procedures were favorable.

Significance

Data from this study indicated that rumen surgery is associated with few immediate postoperative complications. Of the animals that died during the postoperative period, many of them were reported to have died due to causes unrelated to the rumen surgery, and some did not die until years after the surgery. Several animals died due to complications from their presenting condition, rather than complications from the surgery itself. Following rumen surgery, many animals returned to production or were able to be salvaged. Clients seemed satisfied with the results of the surgical procedures, and surgery of the rumen appears to have a favorable prognosis for survival and potential return to production.