

Comparison of Two Techniques for Laparoscopic Abomasopexy for Correction of Left Displaced Abomasum in Dairy Cows

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Introduction

Laparoscopic abomasopexy has been described to reduce the incidence of complications associated with traditional laparotomy and the blind, roll-and-tack corrective techniques for left-displaced abomasum in cattle. As originally described, this surgical technique involved left paralumbar fossa laparoscopy in standing cattle for placement of the abomasopexy suture, followed by right paramedian laparoscopy for suture retrieval. We hypothesized that laparoscopic abomasopexy could be performed successfully in cattle through a right paramedian laparoscopy alone. The purpose of this study was to compare the "two-step" procedure to a "one-step" procedure for laparoscopic abomasopexy.

Materials and Methods

The two-step laparoscopic abomasopexy consisted of aseptic preparation of the left paralumbar fossa. Two laparoscopic portals were created by stab skin incisions. An instrument portal was created in the intercostal space between the last two ribs. A laparoscopic viewing portal was made 10 centimeters (cm) ventral to the transverse processes and 10 cm caudal to the last rib. The laparoscope was used to identify the abomasum and direct insertion (by triangulation) of the trocar and cannula into the lumen along the greater curvature. A steel toggle pin was inserted via the cannula into the abomasal lumen, and the abomasum deflated. The suture attached to the toggle pin was completely inserted into the abdominal cavity. The instruments were withdrawn, and the incisions closed with a simple interrupted suture. Then the cow was placed in dorsal recumbency.

After aseptic preparation of the ventral abdomen, two more laparoscopic portals were created by stab skin incisions. First, a viewing portal was made in the right paramedian area 5 cm from midline and 20 cm distal to the xiphoid process. The abomasum and suture material were visualized. A second portal was made in the right paramedian area 5 cm lateral and 10 cm distal to the xiphoid, and a 30 cm long grasping forcep was used to retrieve the suture material. The excess suture material was withdrawn up to a preset marker on the suture, positioning the abomasum adjacent to the body wall, and the suture tied using 4" x 4" gauze as a stent. The incisions were closed with a simple interrupted suture, and the cow returned to a standing posture. The one-step procedure was done similarly to the ventral approach of the two-step method. The laparoscope was used to guide trocarization of the abomasum. The toggle suture was passed through the cannula into the lumen of the abomasum and the excess suture material kept exteriorized. This eliminated the 30 cm grasping forcep requirement. The abomasum was deflated, and the excess suture material was withdrawn up to a preset marker on the suture.

Results and Conclusions

Five cows had laparoscopic abomasopexy (3 using the two-step, 2 using the one-step). The two-step procedure required 45 minutes surgical time compared with 20 minutes for the one-step procedure. No post-operative complications were observed. The one-step technique was a simpler, more efficient technique of laparoscopic abomasopexy.