

Closed Suturing Technique for Correction of Left Abomasal Displacement

by

Bruce L. Hull, D.V.M., M.S.*

Since last January (1972) we have been correcting left abomasal displacements (LDA) by the closed suturing technique. This technique was explained to me by Dr. Richard Boese of Springville, New York. Many surgical techniques for the correction of LDA have been described in the past and all seem to have a high degree of success when used by people familiar with the procedure.^{1,5,6,7,8,10,13,15,16} However, the economic situation will not always warrant an expensive surgical procedure. In these cases various medical and mechanical means of correction have been used with some success.^{2,3,4} The closed suturing technique offers a highly successful (93% on 44 cases), rapid, and inexpensive way to correct abomasal displacements.

The purpose of this paper is to review the diagnosis of abomasal displacement and to describe the closed suturing technique.

Signs

Typically LDA is seen in cows shortly

after parturition (1–3 weeks) although it may be seen at any time. The cow will be off in feed consumption, especially concentrates, and will have a decreased milk production. The decreased milk production is not drastic but rather a gradual decline (10–50 percent below normal).¹¹

Temperature, pulse and respiration are usually normal while rumen motility can range from normal to no motility. The left paralumbar fossa is usually sunken, (due to the rumen being pushed medially by the abomasum) however, in some cases the abomasum is large enough to distend the paralumbar fossa. Feces are generally normal but may show intermittent periods of diarrhea. Usually there is a slight ketone reaction on a urinalysis.

About 1/3 of the cases of abomasal displacement have a concurrent metritis.⁹ This of course may alter the typical signs and symptoms. Whenever one is called to see a recently post-parturient dairy cow that is off feed I feel one should check her for an abomasal displacement.

Diagnosis

Many methods have been described for

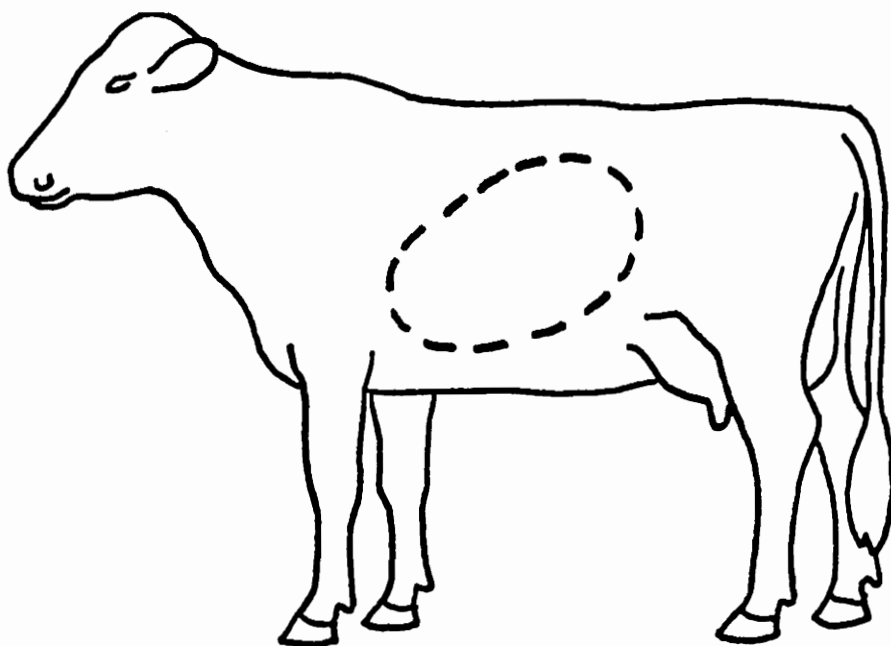
* Dr. Hull is an Assistant Professor in Veterinary Clinical Sciences at Iowa State University.

the diagnosis of LDA.^{11,12,14,15} Percussion and auscultation, however, is the easiest and most efficient. Using this technique the resonant "ping" can be heard when the gas filled abomasum is percussed (either with the finger or a suitable percussion instrument).

In percussing one should hit the body wall 6–8 inches from the stethoscope head. Otherwise the dull thud of the finger hitting the body wall may obscure the resonant "ping". One should check the area in an oval from the left paralumbar fossa to the olecranon (Fig. 1). In doing

this place the stethoscope and percuss around it. Then move the stethoscope and repeat the process until the entire area has been covered.

This "ping" has been described as sounding like a "penny in a well," an empty tin can rolling down the street or the sound of silver against crystal. It is essential that one is able to detect this sound not only for the diagnosis, but also because in the procedure to be described, the gas filled abomasum must be followed around to the ventral body wall before placing the sutures.



Surgical procedure

The only special instrument needed for this technique is a 4–6 inch curved upholstery needle (one used for leather work is preferable). Do not try to use a smaller needle and expect good results. To date I know of no veterinary supplier who handles a needle sufficient to do this job. Other equipment needed is extra heavy vetafil and a needle holder.

The area between the right subcutaneous abdominal vein (milk-vein) and the midline from the xiphoid to the umbilicus should be clipped and prepared for surgery

before casting the cow. The cow is then cast on her right side (left side and gas filled abomasum up) using a suitable rope squeeze. At this point the cow is rolled into dorsal recumbency and the ventral abdominal wall (between midline and right subcutaneous abdominal vein) is checked for the "ping" of the gas filled organ. Occasionally one must massage and ballot the abdomen to free the gas filled abomasum and allow it to "float" to the ventral abdomen.

Once the gas filled abomasum is properly positioned (between midline and right subcutaneous abdominal vein), the

4-6 inch curved needle threaded with double extra heavy vetafil is thrust through the body wall and into the abomasum. It is then curved and brought back through the body wall and the suture is tied (forming a large loop). If the gas filled organ can still be heard on percussion and auscultation a second suture should be placed.

The cow is then allowed to roll down into left lateral recumbency and rest for a short time before being encouraged to rise. Although not absolutely essential it is advisable that the cow should be maintained on antibiotics for three days after surgery.

Results

Between January, 1972, and July 1972, we corrected 44 cases of abomasal displacement by this procedure in the Veterinary Clinic at Iowa State University. In three cases we were either not able to return the abomasum to its normal position or were unable to hold it in position with our suture. Two of these three cases responded to conventional surgery while surgery on the third revealed the abomasum had numerous adhesions in its displaced position.

Four other cows (one "fat cow syndrome," one toxic mastitis, and two toxic metritis) died of causes unrelated to the surgical technique. All four of these cows on post mortem examination had good adhesions formed between the ventral abdominal wall and the abomasum or omentum.

The final failure in this series reserves the one word of caution I have regarding this procedure. This cow luxated her coxofemoral joint while being cast. We must remember that any time we cast a cow such accidents are possible and should consider this in deciding what procedure to use.

Conclusions

We are satisfied with this technique and are still using it at the present time. It is especially desirable because it can economically be used in the cow which would not warrant expensive surgery. We have also found that we can save many cows which would be a poor risk (ie. toxic metritis) due to the stress of other methods of surgical correction.

BIBLIOGRAPHY

1. Ames, Sherman, II, Repositioning Displaced Abomasum in the Cow. J.A.V.M.A., 153, 1470-1471, (1968).
2. Braun, Kenneth R., Non-surgical Correction of Left Abomasal Displacement in the Cow. Cornell Veterinarian, 58, 111-116, (1968).
3. Cote, J. F., Displaced Abomasum—a method of Correction. Canadian Veterinary Journal, 1, 58-60, (1960).
4. Fox, F. H., Non-surgical Treatment of Displaced Abomasum. Proceedings 4th American Association Bovine Practitioners, 186-188, (1972).
5. Gabel, Albert A., and Heath, Bruce R., Correction and Right-Sided Omentopexy in Treatment of Left-Sided Displacement of the Abomasum in Dairy Cattle. J.A.V.M.A., 155, 632-641, (1969).
6. Gertsen, Kenneth E., Surgical Correction of the Displaced Abomasum. Vet. Med./Small Animal Clin., 62, 679-682, (1967).
7. Gertsen, Kenneth E., Right-Side Omentopexy for Correction of Left Displacement of the Abomasum. Vet. Med./Small Animal Clin., 63, 867-871, (1968).
8. Hosseinion, M., and Jordan, W. J., The Surgical Correction of the Displacement of the Abomasum Without Suturing. Vet. Rec., 87, 69-70, 1970.
9. Hull, Bruce L., Hypocalcemia as a Contributing Causative Factor in the Development of Abomasal Displacement. Unpublished M.S. Thesis. Ames, Iowa, Library, Iowa State University. (1971).
10. Lowe, John E., Loomis, Wendell K., Kramer, Larry L., Abomasopexy for Repair of Left Abomasal Displacement in Dairy Cattle. J.A.V.M.A., 147, 389-393, (1965).
11. Mather, Foster M., and Dedrick, Robert S., Displacement of the Abomasum. Cornell Veterinarian, 56, 323-343, (1966).
12. Richmond, D. H., The Use of Percussion and Auscultation as a Diagnostic Aid in Abomasal Displacement of Dairy Cows. Canadian Veterinary Journal, 5, 5-7, (1964).
13. Robertson, J. M., and Boucher, W. B., Treatment of Left Displacement of the Bovine Abomasum. J.A.V.M.A., 149, 1423-1429, (1966).
14. Sippel, W. L., Diagnosis of Abomasal Displacement. Vet. Med., 54, 603-604, (1959).
15. Steere, J. H., and Nealy, J., Correcting the Displacement of the Bovine Abomasum. Mod. Vet. Pract., 39, 45-48, (1958).
16. Straiton, E. C., and McIntee, D. P., Correction of the Displaced Abomasum. Vet. Rec., 71, 871-872, (1959).