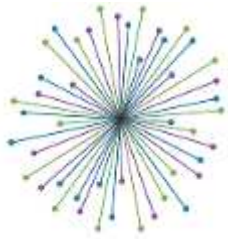

BestBETs for Vets

Supporting veterinary clinicians in making evidence-based decisions

Roll and toggle versus right pyloro-omentopexy in cattle with an LDA

Clinical Scenario

One of your clients, Mr Bradford, rings up and states that he thinks he might have a cow with a left displaced abomasum (LDA). You visit the farm, perform an examination and congratulate Mr Bradford on his deduction. Mr Bradford is keen for a correction to be performed as the cow is one of his best milkers and he would like to give her the best chance possible. You discuss the risks and benefits associated with either a roll and toggle or a right pyloro-omentopexy procedure (you have had experience with both of these). Mr Bradford's main concern is how many more lactations she will have following the procedure. You wonder if there is any evidence to support increased post-operative longevity with either approach.

3-Part Question (PICO)

In [cattle with a left displaced abomasum] does [roll and toggle correction compared to right pyloro-omentopexy] affect [survival in the herd]?

Search Strategy

MEDLINE(R) In-Process & Other Non-Indexed Citations and MEDLINE(R) 1946 to Present using the OVID interface

(cow.mp. OR cows.mp. OR cattle.mp. OR exp Cattle/ OR bovine.mp. OR bovines.mp. OR bos.mp.)

AND

(LDA.mp. OR LDAs.mp. OR abomasum.mp. OR exp Abomasum/ OR abomasums.mp. OR abomasal.mp. OR DA.mp. OR DAs.mp.)

AND

(toggle.mp. OR toggling.mp. OR conservative treatment.mp. OR conservative therapy.mp. OR conservative technique.mp. OR closed suture technique.mp. OR closed technique.mp. OR R&T.mp. OR Sterner-Grymer.mp. OR Grymer-Sterner.mp. OR TPS.mp. OR bar suture.mp. OR pin suture.mp. OR laparotomy.mp. OR exp Laparotomy/ OR omentopexy.mp. OR pyloro omentopexy.mp. OR OM.mp. OR PLOM.mp. OR Hannover.mp.)

CAB Abstracts 1910 to Present using the OVID interface

(cow.mp. OR cows.mp. OR exp cows/ OR cattle.mp. OR exp cattle/ OR bovine.mp. OR bovines.mp. OR bos.mp OR exp Bos/)

AND

(LDA.mp. OR LDAs.mp. OR abomasum.mp. OR exp abomasum/ OR abomasums.mp. OR abomasal.mp. OR DA.mp. OR DAs.mp.)

AND

(toggle.mp. OR toggling.mp. OR conservative treatment.mp. OR conservative therapy.mp. OR conservative technique.mp. OR closed suture technique.mp. OR closed technique.mp. OR R&T.mp. OR Sterner-Grymer.mp. OR Grymer-Sterner.mp. OR TPS.mp. OR bar suture.mp. OR pin suture.mp. OR laparotomy.mp. OR exp laparotomy/ OR omentopexy.mp. OR pyloro omentopexy.mp. OR OM.mp. OR PLOM.mp. OR Hannover.mp.)

Search Outcome

MEDLINE

- **166** papers found in MEDLINE search
- **161** papers excluded as they don't meet the PICO question
- **0** papers excluded as they are in a foreign language
- **3** papers excluded as they are review articles/in vitro research/conference proceedings
- **2 total relevant papers from MEDLINE**

CAB Abstracts

- **503** papers found in CAB search
- **496** papers excluded as they don't meet the PICO question
- **1** papers excluded as they are in a foreign language
- **4** papers excluded as they are review articles/in vitro research/conference proceedings
- **2 total relevant papers from CAB**

Total relevant papers

2 relevant papers from both MEDLINE and CAB Abstracts

Summary of Evidence

Bartlett et al. (1995) Michigan, USA

Title:	Economic comparison of the pyloro-omentopexy vs the roll-and-toggle procedure for treatment of left displacement of the abomasum in dairy cattle.
Patient group:	72 Holstein cows with LDA on one farm in USA
Study Type:	Randomised controlled trial

Outcomes:

- Number of cows culled post-surgery
- Number of cows that died
- Daily milk production (milk weights) for 120 days after correction
- Value of lost milk production (compared with herd mates –'controls')
- Estimated cost of cows removed from the herd
- Estimated total economic impact of LDA

Key Results:

- Livestock loss (died or removed from herd) was not statistically compared between the pyloro-omentopexy and roll and toggle groups in the paper.
- No significant differences were found between the pyloro-omentopexy and roll and toggle groups in relation to culling (BestBET author's own statistical analysis).

Study Weaknesses:

- Cows from only one farm involved in the study
- Somewhat unclear how cows were assigned to the 3 different surgeons
- Not all the causes of cow death or reasons for culling are described
- Did not use referenced methods for measurements of all outcomes
- Not all statistics used were described in the methods; difficult to determine what type of analysis was carried out for all results given
- Significance level not stated in methods
- Sample size calculation not carried out
- Not stated if ethical approval was obtained
- Lack of basic data reported in results
- Null findings not really interpreted in the discussion
- Funding source not stated
- Survival in the herd is influenced by many factors which have not been measured or quantified in this study
- Comparing survival in the herd between 2 treatments for LDA (the outcome of interest for this BET) was not a primary aim of the study

Attachment:

Evidence appraisal (/soe_attachments/573/4141-Bartlett critical appraisal.pdf)

Melendez et al. (2017) Chile

Title:	Retrospective evaluation of milk production and culling risk following either surgical, toggle-pin suture or conservative treatment of left displaced abomasum in Chilean dairy cows.
Patient group:	Dairy cows of mixed parity and DIM from 4 high-producing, technologically advanced herds in Chile between 2010-2012
Study Type:	Retrospective cohort study

Outcomes:

- Days to LDA diagnosis
- Total milk yield at 300 DIM
- Mean daily milk yield for each month up to 5 months of lactation
- Mean daily milk yield for each week up to 4 weeks of lactation
- Culling up to 300 DIM
- Proportion of cows enrolled per herd

Key Results:

- Proportion of cows culled in the control group was significantly less than in the other treatment groups (p=0.001).
- The risk of culling, corrected for parity and herd, was higher for the conservatively treated cows than the pyloro-omentopexy or roll and toggle group (p=0.03).
- The risk of culling, corrected for parity and herd, did not differ between the pyloro-omentopexy and roll and toggle groups (p=0.78).

Study Weaknesses:

- Cases were not randomly allocated to treatment group as it was dependent on vet availability and management choice.
- The roll and toggle procedure was undertaken by herd personnel and the pyloro-omentopexy was carried out by a vet. This could introduce bias in the way interventions were allocated.
- The animals included were those operated on by one of the authors 'when scheduling and availability permitted', which could indicate that not all animals on the farm with an LDA were included in the study.
- Data obtained from only 4 herds.
- Small number of animals in roll and toggle group.
- No information on whether animals had more than one treatment option attempted.
- No information available on how decision to cull was made.
- Retrospective study, so there is no data on other factors that may influence culling risk e.g., mastitis, ketosis, milk fever, endometritis, history of previous LDA, management choice.
- Main purpose of study was to compare LDA cows undergoing 3 different correction approaches to healthy herd mates, so there is limited analysis of the roll and toggle technique compared to pyloro-omentopexy.
- If there was variation in disease severity and/or time of diagnosis in relation to onset of disease, this could confound results. The latter is less likely though, as the study reports high level of post-partum health checks and similar cow management.
- It is not common practice in all countries for herd personnel to perform the roll and toggle procedure so in some circumstances this will influence the generalisability of the results.

Attachment:

Evidence appraisal (/soe_attachments/573/4144-Melendez critical appraisal.pdf)

Comments

This is the second version of the BET originally published in March 2015 authored by Marnie Brennan and Hannah Doit.

This version adds a new paper (Melendez et al. 2017) and corresponding appraisal. The original BET included Bartlett et al. (1995); the corresponding appraisal sheet for this paper has now been added

Survival in the herd is determined by many cow and herd management factors so farmers and vets will also consider these when making decisions on treatment options.

Bottom line

The evidence suggests there is no difference between the use of the roll and toggle or pyloro-omentopexy technique to treat LDA in dairy cows in relation to survival time. Choice of technique should be based on the surgeon's/farmers' preferred approach and practice/farm management guidelines.

References

Bartlett PC, Kopcha M, Coe PH, Ames NK, Ruegg PL, Erskine RJ, (1995). Economic comparison of the pyloro-omentopexy vs the roll-and-toggle procedure for treatment of left displacement of the abomasum in dairy cattle. *Journal of the American Veterinary Medical Association* **206**: 1156-62.

Melendez P, Romero C, Pithua P, Marin MP, Pinedo P, Duchens M, (2017). Retrospective evaluation of milk production and culling risk following either surgical, toggle-pin suture or conservative treatment of left displaced abomasum in Chilean dairy cows. *New Zealand Veterinary Journal* **65**: 292-296. DOI: **10.1080/00480169.2017.1360162 (https://doi.org/10.1080/00480169.2017.1360162)**

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