linear score post-calving. No effect of treatment and adherence could be determined using bacteriological outcomes, due to the low number of new intramammary infections observed over the dry periods in this study.

Conclusions

The results from this investigation suggest that the use of dry cow teat sealant has a beneficial impact on the level of infection at calving if a durable seal is formed and remains on the teat-end for a prolonged period of time at drying-off. However, since dry-cow teat sealants do not eliminate any existing infections, appropriate strategies aimed at identifying infected quarters must be applied so that appropriate measures are taken to ensure they do not remain infected over the dry period.

Prognosis for Survival after an Open Abomasal Surgery Following an Unsuccessful Toggle-Pin Fixation in Dairy Cows

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Displaced abomasums are among the most common production-limiting conditions needing veterinary medical and surgical attention. Randomized clinical trials have shown an equally good prognosis for open surgical correction and toggle-pin fixation. Both procedures have advantages and disadvantages, complications and failures. There has been a perception that cows that have had toggle-pin fixation with bad outcomes may not be salvageable. The purpose of this study was to investigate the outcome of surgical correction following a failed roll-and-toggle procedure, and to identify prognostic indicators.

A retrospective study of cows admitted to the Cornell University Hospital for Animals with a history of a toggle-pin fixation performed from January 2000 to December 2002 was performed (n=53). Only cows that had been toggled during the present lactation were included. Data collected included the signalment, history, physical examination, packed cell volume, total protein, ultrasonographic examination, abdominocentesis, findings during laporotomy and necropsy examination, treatments and duration of hospitalization. Herd managers were contacted for cows that were discharged alive for follow-up data concerning long-term survival. Chi-square and t-tests were used to compare survivors versus non-survivors. A $p<0.05$ was considered statistically significant.

Fifty-two Holstein and one Jersey cow with a mean age of three years (range) were included in the study. Most of the cows (88%) were less than 60 days in milk, and 75% were admitted to the hospital less than 7 days since the toggle procedure had been done. Only 10 cows had external abnormalities at the toggle site. An abdominocentesis was performed in the right paramedian region in four cows, revealing a modified transudate. Ultrasonographic examination of the right paramedian region was done in 13 cows, 10 of which revealed abnormalities including peritoneal fluid and fibrin, subcutaneous edema and a thrombus in the milk vein. Forty-five cows had a right paramedian abomasopexy (RPA) and two had a right flank pyloropexy performed. Following the RPA, 11 cows were euthanized because of findings at surgery and two died. One of the cows that had a right flank pyloropexy was euthanized. Six cows were euthanized or died without having surgery. The mean length of hospital stay was two days (range 0.5-9 days). There was a trend towards a higher proportion of cows that were discharged alive from the hospital 62% (33/53) than those that died or were euthanized 38% (20/53) ($p=0.07$). However, when looking at the proportion of cows that survived or were in the herd 60 days post-discharge, 59% (27/46) were no longer in the herd and 41% (19/46) were present. These proportions were not significantly different.

The pulse and packed cell volume were significantly higher in cows that did not survive to

discharge ($p<0.05$) or 60 days later ($p<0.03$). The presence of peritonitis and/or a perforated abomasum at surgery was significantly associated with failure to discharge the cow from the hospital ($p<0.02$). The time elapsed since the cow had been toggled to our initial evaluation was longer in cows surviving 60 days post-operatively ($p=0.05$). Cows treated with continuous intravenous fluids were more likely to die ($p=0.001$), whereas treatment with penicillin or oxytetracycline was associated with discharge from the hospital ($p<0.05$).

Only 40% of cows that had been toggled and then had a right ventral paramedian abomasopexy or right flank pyloropexy survived 60 days post-operatively. Cows with evidence of a systemic disturbance (tachycardia and dehydration) requiring intravenous fluids are less likely to survive. Ultrasound and belly tap was not routinely performed in our patients, but they may help determine the prognosis for surgical correction.

Risk Factors for Intramammary Infection at First Calving in Ontario Dairy Heifers

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Introduction

It has been established that a significant number of heifers are infected prior to, and at calving, with both minor and major mastitis pathogens. Ontario is no exception, and has a significant proportion of heifers calving with quarters infected with mastitis pathogens including *Staphylococcus aureus*, coliform bacteria, environmental streptococci and coagulase-negative staphylococci. Because of the negative impact such infections may have on future milk production and udder health, it is important to identify risk factors for these intramammary infections (IMI) so that attempts can be made to control them. It is particularly important to investigate risk factors for *S. aureus* IMI, since infected heifers must experience a mode of transmission other than spread at milking time.

Materials and Methods

From July 1997 to December 1998, a group of 60 dairy producers participated in the Sentinel Herd Project. Composite milk samples were collected from all heifers calving during the study period, within three days post-calving. These samples were cultured using standard bacteriological methods. Based on the results of the milk cultures, heifers were classified as infected with *S. aureus* or not, and infected with environmental pathogens (environmental streptococci or coliform bacteria) or not. Additionally, cow level data such as breed and age at calving were obtained from the Ontario Dairy Herd Improvement Corporation. Farm-specific management practices were determined by administering a survey to herd owners/managers. Two separate backwards elimination, multivariable logistic regression analyses were performed to identify whether there were cow or herd-level factors associated with the risk of calving with an IMI caused by *S. aureus* or environmental pathogens.

Results and Conclusions

The results of this study indicate that increased age at calving is a significant risk factor for both *S. aureus* IMI and environmental pathogen IMI. The risk of *S. aureus* IMI at calving is also affected by the amount of time heifers spend housed with adult cows, and the number of *S. aureus*-positive cows in the herd during the period prior to calving. It is likely that the *S. aureus*-infected udders of adult cows represent the most impor-