

Effect of Paste or Wrap Oxytetracycline Treatment on Papillomatous Digital Dermatitis

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Introduction

Papillomatous digital dermatitis (PDD) is a contagious and painful foot lesion causing lameness in cattle. One of the common treatments for PDD is oxytetracycline powder held onto the hoof with a bandage wrap. The objective of this study was to determine if application of oxytetracycline in a topical paste without bandaging would be as effective as the wrap for the treatment of PDD.

Materials and Methods

Mature lactating Holstein cows diagnosed with PDD during routine trimming were randomly assigned to one of three treatments: oxytetracycline in a paste, oxytetracycline powder under a wrap, or a negative control. The paste treatment consisted of oxytetracycline 1000 mixed with glycol and vinegar to aid in adhesion, while the wrap treatment consisted of an equivalent amount of oxytetracycline 1000 powder held against the lesion with a wrap, which was removed three days post-treatment. Examination of the affected hooves was carried out at day 0 (Exam=1); days 3-7 post-treatment (Exam=2); and days 8-12 post-treatment (Exam=3). Data were analyzed using a generalized linear model with a binary outcome (lesion active or lesion healed). Lesions were considered active if the cow reacted to pressure from an algometer and tissue was still pink and/or inflamed, and *P*-values <0.05 were considered significant.

Results

A total of 173 cows have been enrolled in the trial. Of these, 46 and 54 cows were re-examined at days 3-7

and 8-12 post-treatment, respectively. Both *exam* and *treatment* were significant ($P < 0.05$) in the final model. Based on exams at days 8-12, 0%, 47.4%, and 57.1% of lesions were recorded as healed for no treatment, paste, and wrap, respectively. Cows receiving the paste treatment had 7.4 (1.49, 37.03) times greater odds of recovering from digital dermatitis over the study period than the no-treatment cows ($P = 0.01$). Similarly, cows receiving the wrap treatment had 16.6 (3.25, 84.60) times greater odds ($P = 0.0007$) of recovering from digital dermatitis over the study period than cows receiving no treatment. There was no statistically significant difference between the paste and wrap treatments ($P = 0.13$). There was also no significant difference in reoccurrence rates for the three treatments in the three months following treatment ($P > 0.05$), with rates of 38.9%, 50.0%, and 55.9% for no treatment, paste, and wrap, respectively.

Significance

Oxytetracycline is effective for the treatment of PDD, and the use of it in a paste form rather than a powder alone could eliminate the need for bandage application and subsequent removal. From an industry perspective, this is useful as it eliminates the need of the producer to remove a bandage three to five days post-treatment, and could make treating PDD less labor intensive.