The Efficacy of Topical Treatment with Lincomycin HCl for Papillomatous Digital Dermatitis: Gross and Histological Evaluation

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Twenty-five cows were allotted to 3 groups: 1) treated with 10 g Lincomix® Soluble Powder (n=11), 2) treated with Terramycin-343® Soluble Powder (n=11), or 3) no treatment (n=3). Cows were placed on a hydraulic tilt-table at enrollment (d 1) and feet were examined. Cows with papillomatous digital dermatitis (PDD) on one or both rear feet were enrolled in the study. Photographs of lesions were taken with a 100 mm macro lens at 1:4 magnification. Lesions were anesthetized with 2% Lidocaine and 4 mm punch biopsies were taken, placed in formalin and examined for histopathology at the conclusion of the study. For treated cows, Lincomix® Soluble Powder or Terramycin-343® Soluble Powder was mixed with sufficient deionized water to make a paste, applied to a 4X4 gauze, placed on the lesion, and held in place with a bandage. Control cows were bandaged after biopsy but received no topical antibiotic. Cows were restrained on the tilt-table again at approximately days 14 and 30, and lesions were examined and photographed. At the d 30 examination, biopsies were taken adjacent to the site of the first biopsy and submitted for histopathology. The pathologist had no knowledge of treatment groups when he examined the samples submitted. Based on gross examination at d 14, 20/22 of the treated lesions appeared to be healed (improved lesion score, no pain and no activity). Based on gross examination at d 30, 18/22 treated lesions appeared to be resolved and 4/22 lesions appeared to be not healed. Two of the 3 control cow lesions appeared active and were painful, the 3rd lesion appeared to be healing but histopathology was unreadable. Of the 18/22 lesions that appeared to be healed, 10/18 had classified histologically as either active or incipient. Histologic evaluation of activity of PDD lesions was based on the degree to which there was: 1) loss of the epidermal barrier, 2) invasion of the stratum spinosum and papillary dermis by profuse numbers of slender, spiral organisms, and 3) reactive inflammation of invaded epidermis and papillary dermis. The clinical implications of this study are that we can accurately diagnose active, painful PDD lesions but we cannot be certain when lesions appear to be healed that they are healed. We could not distinguish between a non-ulcerated, incompletely healed lesions and incipient, recurrent lesions.