Association between teat-end hyperkeratosis and mastitis

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What is the relationship between hyperkeratosis and mastitis in dairy cows? Teat-end hyperkeratosis (THK) is a highly prevalent teat pathology affecting dairy cows. It is characterized by a hyperplasia of the keratin layer of the teat orifice as a response to chronic stimuli. Using a severity score from 1 (less severe) to 4 (most severe), studies have found a prevalence between 21% and 46% for grade 3 and between 12% and 19% for grade 4.

Anatomical and physiological mechanisms at the teat orifice play a fundamental role in protecting the mammary gland from pathogens. The stratified squamous cell epithelium acts as a physical barrier, fatty acids have bacteriostatic effects and the muscular layer keeps the teat orifice closed in between milking.
Is hyperkeratosis a risk factor for clinical mastitis?

Different factors at the cow level such as teat shape and position, stage of lactation, parity, ... have been associated with the development of THK. Factors at the herd level such as milking management and equipment settings, have also been linked to THK.