



**Wisconsin Veterinary
Diagnostic Laboratory**
UNIVERSITY OF WISCONSIN-MADISON

Prototheca species

Background

Prototheca sp are colorless algae that are found in a variety of environmental sources and can cause chronic mastitis in cows. Currently, there is no effective treatment for protothecal mastitis, resulting in significant economic losses for producers.

Source and Transmission

Prototheca sp are widespread in the environment of dairy cattle, whether or not there are cows infected with the organism. *Prototheca* are especially associated with wet areas containing decaying plant matter, such as manure, water tanks, water runoff from silage, milking parlor wash water, teat dip containers, milking machine liners, and feed troughs. Infections occur when the teat end is exposed to very high numbers of the environmental algae during the intervals between milkings. Although, spread during milking time is not considered significant, new infections can occur if poor milking techniques are being used to milk cows of which a high percentage are infected with *Prototheca*.

Disease

Most cases of protothecal mastitis are subclinical. Changes in the milk are observed only slightly abnormal, being discolored and often watery with flakes and clots. Cows typically exhibit no severe systemic signs. However, the infections persist and progressively decrease milk production. Cattle infected with *Prototheca* can have elevated somatic cell counts (SCC) that may exceed 1,000,000 cells/ml.

Treatment

There is no treatment for protothecal mastitis. Antibiotic treatment is NOT effective. Affected cows should be identified and milked last until they can be culled.

Prevention and Control

The best way to control protothecal mastitis is early detection and immediate culling of all positive cows to decrease the risk of spread throughout the herd. Bulk tank milk should be monitored routinely for the presence of *Prototheca* along with other contagious organisms. Milk from clinical mastitis cases should be submitted to a diagnostic lab for pathogen identification.

Optimal milking hygiene practices can prevent transmission of these organisms. As mentioned previously, wet environmental areas present a hot spot for growth of *Prototheca*. By keeping the environment these cows are exposed to as dry and as generally clean as possible is recommended to control this organism. These measures can help prevent significant growth and/or infection.

References

University of Minnesota College of Veterinary Medicine. *Prototheca* Mastitis.

John Kirk, Roger Mellenberger. Mastitis Control Program for *Prototheca* Mastitis in Dairy Cows.

Ruben N. Gonzalez. *Prototheca*, Yeast, and *Bacillus* as a Cause of Mastitis. 1996 National Mastitis Council Annual Meeting Proceedings.

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