Letter to the Editor: The Suckling–Micturition Reflex in Cows

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In our years of observation, confirmed over a large population of cows, suckling of the udder by the calf invariably leads to micturition in the cow, especially during the early postpartum period. We undertook a study to explain this suckling–micturition reflex. In our study, we monitored 30 cows for the suckling–micturition reflex without a local anesthesia to the udder, 10 cows with a local anesthesia to the udder, and 50 lactating women (after breastfeeding their infants) via a questionnaire.

Our results showed that 27 of the 30 cows without local anesthesia urinated upon suckling, whereas the 10 cows under local anesthesia never urinated. Lactating women never reported having a sensation to urinate during breastfeeding. It could not be a hormonal (oxytocin)-mediated response because the reflex is absent in humans. Because the reflex disappears in cows under local anesthesia to the udder, we attribute this to a nerve-mediated response. Hence, we propose that the anatomical location of the micturition center is in the lumbo-sacral segments (Swenson, 1984), and that lumbo-sacral nerve innervations of the udder of the

cow (Dyce et al., 2002) hold the key to understanding this reflex.

It is our conclusion that suckling of the mammary gland by the calf during the early postpartum period leads to stimulation of the lumbo-sacral micturition center through the mammary branches of the genito-femoral and pudendal nerves coming from the lumbar and sacral regions, leading to reflex micturition. However, the frequency of micturition observed during machine milking did not support the hypothesis that the micturition reflex can result from tactile stimulation of the mammary gland. Indeed, micturition and defecation observed in some behavioral studies were associated with stress during milking (Rushen et al., 2001). If this brief communication stimulates veterinary researchers to engage in further research in neurology, it will amply serve its purpose.

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Received September 21, 2005.

Accepted June 21, 2006.

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