

POSTPARTUM ENDOMETRIAL CYTOLOGY IN BEEF COWS

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Endometrial cytology has proved to be valuable for identifying subclinical endometritis in postpartum dairy cows. Dairy cows with subclinical endometritis have impaired reproductive performance. The aims of this study were to characterize postpartum endometrial cytology in beef cows, and to determine the prevalence of subclinical inflammation and its impact on reproduction in beef cows.

Samples for endometrial cytology were obtained from 137 Aberdeen Angus cows in northern Minnesota 26 days before the onset of the breeding season. Samples were obtained by aseptic infusion of 20 ml of sterile saline solution via a plastic infusion catheter, followed by gentle uterine agitation and aspiration of approximately 5 ml of fluid. Recovered fluid was processed within 6 h by brief vortexing and centrifugation onto a glass slide in a cytocentrifuge. Slides were air dried, stained with Diff-Quik[®], a cover slip was attached with Permount[®] and slides examined under 200 $\times$ and 400 $\times$. A subjective assessment of inflammation was made by two observers, then 200 cells were counted and categorized as polymorphonuclear, large mononuclear, small mononuclear and epithelial. Age of cow, date of previous calving, degree of calving difficulty, singleton or twin birth and clinical findings at the time of sample collection were recorded. Cows were bred by AI without reference to cytological findings.

Samples were obtained from 135 of 137 cows. Agreement between examiners in assignment of subjective inflammation score was very high ($\kappa = 0.971$). The correlation between subjective scores and PMN counts was high ($r = 0.83$; $P < 0.001$) and categorization appeared valid. The proportion of PMN and large mononuclear cells (principally macrophages) declined with days postpartum ($P < 0.001$). Small mononuclear cells were consistently present, in numbers independent of days postpartum. Overall pregnancy rate was 85%. None of the cell types influenced ultimate pregnancy status or day of breeding season on which conception occurred ($P > 0.10$). Because only inflammation later in the postpartum period impairs subsequent reproduction in dairy cows, we analyzed cows in this study beyond 50 days postpartum at sample collection separately. Once again, no cytological parameter significantly predicted pregnancy status at the end of the breeding season or the day of the season upon which conception occurred. (Previous twinning tended to depress probability of reconception; $P < 0.1$) In the early postpartum period, beef cows in this study showed similar patterns of inflammation to dairy cows, but the prevalence of inflammation after 50 days postpartum was low in beef cows (17%, subjectively characterized). However, the affected cows had reproductive success comparable with unaffected herdmates. We speculate that beef cows have a superior ability to rid the uterus of inflammation after ovulation.

Keywords: Beef cows; Endometritis; Inflammation; Postpartum; Uterus