

Tail-Biting and Tail-Chewing in Weaned Holstein Heifers

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1. Abstract

The objective of this case report was to present an abnormal socio-nutritional-psychological behavior or tail-biting/chewing in weaned Holstein heifers. Dairy heifers raised under commercial systems are separated from their dams and moved to individual or group housing systems which are different from their natural environment. Cross-suckling and non-nutritive behaviors are common in heifers reared artificially under intensive systems, especially those with restricted milk feeding programs. The behavior observed herein was different from suckling behavior. In this case, in a group of 60 heads Holstein heifers, there were at least two or three heifers that exhibited craving to bite and chew other heifers' tail. Bloody tail was the first sign that led to searching about its etiology. Factors including nutritional deficiencies, feed ingredients quality, and other management factors such as stocking density and feed bunk space were all checked. All nutritional routines were apparently normal. High stocking density and inadequate feed bunk space seemed to be major triggering factors. This phenomenon had not been seen before on these herds. This might represent an abnormal multi-factorial social-nutritional and psychological behavior in Holstein heifers.

2. Case Presentation and Discussion

Tail-biting occurs relatively more frequently in pigs but is rather rare in cattle [1, 2]. In two large dairy farms (>1000 milking dairy cows) in Tehran (Iran), these cases of tail biting associated with bloody and wounded tails were observed. In the first farm, two 3-month-old Holstein heifers were detected with bleeding at the tip of their tails. On the next day, three other new cases with similar signs (wounded bloody tail) were observed. Heifers were separated

and checked for any other abnormalities. The appetite was normal and the body temperature was within normal range (38-39°C), as well. The injured tail was bandaged using gauze after disinfection by iodine solution. After removing the affected heifers, the healthy pen mates were monitored for rooting the problem. Surprisingly, we observed some heifers that bite and chew others' tail stumps to the extent that bleeding occurs. In the second large dairy herd (over 1000 milking dairy cows), a similar scenario was detected, while in this case, the bloody-tail heifers were at 6-8 months of age. Tail injuries and hair loss resulting from biting and chewing of biters are presented in Figure 1.

Micronutrient deficiency (such as zinc, phosphorus, and iron) has been proposed as a cause of pica [2, 3]. Pica is defined as craving for consumption of non-nutritive materials such as ice, clay, hair and other materials. In our case, the herd routine nutritional program was checked out but the ration did not have any profound changes regarding micronutrient status. As a result, other management factors were monitored. Nonetheless, nutritional deficiencies for individual heifers may not be ruled out as a cause of the abnormal tail biting.

Investigating the stocking density and feed bunk space of calves revealed that feed bunk space was not adequate and some calves were not able to feed freely beside other pen mates. None of the invading heifers were eating feed. Instead, they were walking and standing behind the bitten heifers, biting and chewing the other heifers' tails (Please see the video). After moving some heifers to another pen, the stocking density was decreased and this behavior disappeared. It has been demonstrated that short-term increases in stocking density resulted in decreased lying behavior and in

creased aggressive social behaviors at feed bunk in lactating dairy cows [4]. Additionally, it can be hypothesized that lower bunk space itself can limit nutrients intake by some heifers and might

cause nutrient deficiency. It is important to note that since such behaviors are rarely observed and reported on commercial farms, more research is needed to mechanistically describe this rare phenomenon.



Figure 1: Bitten, chewed, and injured tails resulted from biting and chewing

3. Conclusion

Tail-biting/chewing was observed in few weaned Holstein heifers in two commercial large dairy herds in Tehran, Iran. High stocking density and possibly nutrient deficiency may cause some aggressive social and psychological behaviors in commercial Holstein heifers. It is not clear that such a behavior is specified to one or two heifers or can occur in any heifers during special conditions. Future studies are needed to determine and identify physiological and psychological mechanisms of such a rare phenomenon.

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