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www.ufaw.org.uk

Animal Welfare 2020, 29: 419-432
ISSN 0962-7286
doi: 10.7120/09627286.29.4.419

Scratch the surface: Histopathology of foot-pad dermatitis in turkeys (*Meleagris gallopavo*)

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Abstract

Foot-pad dermatitis (FPD) is an important indicator of animal welfare in turkeys (Meleagris gallopavo). The present study aimed to evaluate the reliability and validity of a commonly used five-point visual score (VC), assessing FPD based on lesion size by implementing histopathological analysis. In 100 turkey feet (20 per scale scored by the VC), the size of both the foot-pad and the alteration were measured. Subsequently, a histopathological analysis was performed, examining the occurrence and severity grade of different parameters. The study addressed three main goals: (i) examining the reliability of the scoring system concerning the evaluated size of FPD; (ii) assessing histopathological parameters to analyse patterns, reflecting the categories of the scoring system; and (iii) finding threshold values to avoid the occurrence of ulcerations. The study found good observer reliabilities for the VC, but measuring the relative size of alterations resulted in divergent values according to the original specifications. With regard to the histopathological parameters, no clear patterns were found in the respective VC scoring levels. However, ulcerations revealed a significant effect on the size of the alteration, showing a greater grade of severity with increasing lesion size. Regarding the occurrence of ulcerations, optimum threshold values could be identified even in very small lesions. This study helps contribute to a better understanding of the pathophysiology of FPD. It also raises the question as to whether, in light of animal welfare concerns, threshold values of visual systems should be adjusted to avoid ulcerations, considering the outcome of our histopathological assessment.

Keywords: animal welfare, foot-pad dermatitis, FPD, histopathology, scoring systems, turkeys