

RESUMO - HELMINTOLOGIA

HISTOPATHOLOGICAL CHARACTERIZATION OF THE LOCAL IMMUNE RESPONSE TO HAEMONCHUS CONTORTUS INFECTION IN LAMBS OF DIFFERENT BREEDS AND B-GLOBIN HAPLOTYPES

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The pathogenesis of *Haemonchus contortus* infection involves a complex host–parasite interaction in which the local immune response in the abomasal mucosa plays a central role in resistance to infection. The response to parasitism may vary among individuals and is influenced by genetic factors, including polymorphisms in the β -globin gene. These polymorphisms give rise to different haplotypes (Hb-AA, Hb-AB, and Hb-BB), which reflect inherited allelic combinations and are associated with the animals' ability to better tolerate the effects of *H. contortus* infection, especially anemia, thereby directly impacting resilience and clinical performance. The aim of this study was to characterize the local immune response in the abomasal mucosa of lambs from the Santa Inês (SI), Texel (TX), and White Dorper (WD) breeds, carrying different β -globin

haplotypes, in response to *H. contortus* infection through histopathological analysis. A total of 36 male lambs (6–7 months old), previously genotyped for β -globin haplotypes (AA, AB, and BB), were experimentally infected with 4,000 L3 of *H. contortus* and monitored for 28 days. After slaughter, abomasal tissue samples were collected, processed, and stained with H&E for microscopic evaluation. The results showed that all animals presented a marked, diffuse, mixed inflammatory infiltrate, predominantly composed of lymphocytes, plasma cells, and eosinophils, often extending into the submucosa. Consistent findings included moderate to marked edema, pronounced deepening of the gastric crypts, and mucosal hypertrophy, generally mild to moderate. Alterations such as mucosal denudation, severe architectural distortion, and ulceration occurred with variable frequency. No marked differences were observed in the inflammatory pattern among haplotypes or breeds, indicating a largely conserved local immune response. However, subtle differences were identified: Hb-AB animals showed greater variability and a higher frequency of more severe structural lesions; Hb-BB animals exhibited a more consistent response, with greater evidence of glandular remodeling; whereas Hb-AA animals showed lower intensity mainly in structural mucosal lesions, rather than in the inflammatory infiltrate. Among breeds, WD animals displayed a more homogeneous response with greater glandular distortion, TX animals showed greater individual variability, and SI animals tended to present less structural damage. In conclusion, although the inflammatory pattern is similar among groups, genetic factors influence the magnitude of lesions and tissue remodeling, potentially contributing to differences in the response to *H. contortus* infection.

Palavras-chave: genetic resistance; haemonchosis; histology; resistant sheep.