

TITLE: HISTOPATHOLOGICAL EVALUATION OF SMALL INTESTINES OF BROILER CHICKENS NATURALLY INFECTED WITH AVIAN ROTAVIRUS AT THE WEST REGION OF PARANÁ, BRAZIL

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Enteric infections in poultry production affects directly the performance of the birds. The detection of avian rotavirus (AvRV) has been associated with enteritis in broiler chickens including Malabsorption Syndrome (MAS). Birds can be infected by rotavirus species A, D, F and G, the last three exclusively found in avian host. This study aimed to evaluate histologically the small intestines of naturally infected broiler chickens with avian rotavirus. Samples of small intestine were selected from 33 stunted, 7 to 14 day-old broiler chickens from 12 flocks with clinical signs of MAS in Palotina, Paraná. These animals were previously diagnosed as avian AvRV-positive by PAGE. Besides, 15 samples from healthy broilers were analyzed as controls. Three portions of each of these small intestines (P1 – middle of ascending loop of the duodenum; P2 – mid jejunum; P3 – jejunum adjacent to the yolk-sac remnant) were evaluated histologically in order to measure villi height and crypt depth. The relation between the PAGE results and histomorphometry of the small intestine was assessed by Dunnett test, considering a P-value of <0.05 as statistically significant. The evaluated lesions were compatible with MAS; with greater severity in cases associated with AvRV-A infection (09/33 – 27%). Lesions in the chicks infected with AvRV-D (09/33 – 27%) were most evident in the P3 portion, presenting crypt hyperplasia, severe villous atrophy and fusion of villous tips. In chicken infected with AvRV-F (15/33 – 45.5%), presence of granulocytes and inflammatory infiltrate in lamina propria characterized by mild-to-moderate in all evaluated portions, were noted. All chicks from the control flock had absent or mild histological changes, with predominance of villous atrophy and inflammatory infiltrate in lamina propria. In histomorphometry, the reduction of villi length and villous/crypt ratio in the most cranial portion of the small intestine were statistically significant in AvRV infected birds when compared to the control samples. The villus/crypt ratio decrease was statistically significant in the P1 section of naturally infected birds by AvRV-A e AvRV-F, P1 and P2 sections of avian infected with AvRV-D. This study shows the occurrence of species A, D and F in broiler chickens at commercial flocks and shows evidence of association of AvRV with MAS.

Keywords: rotavirus, broiler chicken, histopathological evaluation, histomorphometry, runting stunting syndrome

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