Pathology

489P  Complex hemograms in SPF chickens—An indication of cryptic infection? Paul F. Cotter*1 and E. D. Heller2, 1Cotter Laboratory, Arlington, MA, 2Hebrew University, Rehovot, Israel.

Hemograms or blood pictures provide information of health status. Those of normal cellularity and cytoarchitecture indicate the absence of frank disease and stress. Complex hemograms occur where the numbers of leukocytes are abnormal, or a high frequency of atypia (“sentinel cells”) exists. The purpose here is to describe complex hemograms of chickens raised under SPF conditions. Peripheral blood obtained at 6 wk spread on glass microscope slides was collected at the point of origin. Later, films were stained by a modified Wright’s-Giemsa method. A minimum of 400 leukocytes were counted per slide and sorted into categories: typical, variant, and classic heterophils, small and medium lymphocytes, NK cells, blasts, monocytes, basophils, and eosinophils. Cells having atypical cytoarchitecture were found in all categories except eosinophils. Among granulocytes, atypical basophils and heterophils were common. Early basophils, “meso” and “meta” myelocytes, and those with dysgranulosis (unstained granules) were detected. Atypical heterophils having either defective granules and/or nuclei were found. Blast cells of the granulocyte series were also found. Among the lymphocyte series were circulating plasmacytes, and Mott cells. Atypia were found in the context of normal total white blood counts (TWBC) and in leukocytosis (TWBC ≥50K) mean TWBC = 35K and SEM = ±3K; n = 12. Occasionally, free-swimming bacteria and phagocytosed bacteria were detected during the differential counts. In one case, cryptic bacteraemia was indicated by a sequence of Wright-Giemsa, decolorizing, and Gram-staining methods. H/L ratios calculated by 2 methods ranged from H/L 1 = 0.22 ±0.03) to H/L 2 = 0.2 ± (0.02), neither suggesting stress. In conclusion, complex hemograms can exist in the context of a normal TWBC and low H/L ratios. More important than those numerical hemogram indicators are sentinel cells, the presence of which are frankly remarkable and should be given considerable weight in welfare ascertainment.

Key Words: complex hemogram, sentinel cell, health, welfare

491P  Occurrence of white striping and wooden breast in broiler breast fillets slaughtered at 35 and 42 d of age. Liris Kindlein*1, Tamara Zinn Ferreira1, Renata Sesterhenn1, Rafael Fontana Abs Cruz1, Henrique Scherr Cemin1, Sérgio Luiz Vieira1, Vladimir Pinheiro Nascimento1, and Roberto Sainz2, 1Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil, 2University of California, Davis, CA.

The aim of this study was to evaluate the occurrence of the abnormalities—white striping (WS) and wooden breast (WB) of Cobb 500 broilers slaughtered at 35 and 42 d of age at Federal University of Rio Grande do Sul (Brazil) Poultry Processing Pilot Plant. Increased growth rate and breast muscle proportion of broilers has been associated with an increase in the incidence of pectoral myopathies, such as white striping (characterized by superficial white striations) and wooden breast (characterized by pale and bulged with substantial hardness). A total 1,008 broilers breast fillets were collected (504 at 35 d (2.622 BW); 504 at 42 d (3.367 BW)) and evaluated in 4 classes: moderate degree of white striping = <1-mm-thick striations (mWS); severe degree of white striping = >1-mm-thick striations (sWS); wooden breast (WB) and the both abnormalities: white striping/wooden breast (WS/WB). Individual birds were considered as the experimental unit for this analysis. At 35 d of age, 71.0% (358) broilers breast fillets were classified for WS (48.4% as mWS and 22.6% as sWS). On the other hand, at 42 d of age 94.3% of the fillets were classified for WS, with an increase on the occurrence of severe degree (65.08%) compared with mWS (29.17%), demonstrating an increase of 187.8% of breast fillets classified as sWS. The same trend was observed for the WB that presented 32.1% (162) at 35 d and 89.5% at 42 d (451- an increase of 178.4%). A correlation between the 2 myopathies was 0.43. At 35 d, 24.40% (123) of the breast fillets presented WB+WS and this relation increased to 84.72% (427) at 42 d. These results suggests that an increased of age of slaughtering results in increased occurrence of higher degrees of WS and in the presence of WB, and also that can exist an relation of this 2 abnormalities.

Key Words: abnormalities, broiler, myopathy, chicken breast, pectoralis major muscle

492P  Pathological changes associated with dorsal cranial myopathy (DCM) in broilers processed at 35 and 42 d in Brazil. Liris Kindlein*1, Renata Sesterhenn1, Tamara Zinn Ferreira1, Ana Carina Hamerski1, Laura Martins Lorscheitter1, Sérgio Luiz Vieira1, David Driemeier1, Annie King2, and Roberto Sainz2, 1Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil, 2University of California, Davis, CA.

A dorsal cranial lesion has been increasingly detected in broilers processed at different ages (dorsal cranial myopathy, DCM) typically characterized by an yellowish discoloration of the skin and swelling on the region of the anterior latissimus dorsi (ALD). This study aimed to histopathologically characterize the MDC and morphometric muscle fibers characteristics of Cobb × Cobb 500 broilers slaughtered at 35 and 42 d of age in southern Brazil. For this experiment, a total of 1,215...
Broiler carcasses were collected (24 samples at 35 d average body weight at 2,800 g) and at 42 d (average body weigh at 3,200 BW), in a total of 48 samples. Carcasses were rated for presence or absence of the DCM lesion. Skeletal muscle samples fixed in 10% buffered formalin. To identify and differentiate the histological changes, slides were prepared and stained using H&E and Masson’s Trichrome. A major histopathological changes observed in the DCM samples (35 and 42 d of age) consisted of loss of cross striations, variability in fiber size, multifocal areas of necrosis hyper-contracted muscle fibers and hypereosinophilic with rounded edges, necrotic cells interjacent with abundant fibrous connective tissue infiltrated moderate multifocal, predominantly of lymphocytes and macrophages and adipose tissue. The partial volume of muscle tissue (Vvm,%) showed that broilers with DCM at 35 and 42 d of age demonstrated lower mean muscle tissue (31.66 ± 10.10 e 38.49 ± 14.82, respectively) when compared with broilers with normal muscles (49.00 ± 13.35 e 53.96 ± 9.97, respectively) (P < 0.05). Measuring the connective tissue (Vvc,%), it was observed that broilers at 35 d of age with DCM showed higher connective tissue (37.53 ± 17.99) than the broilers with normal muscles at 35 d old (13.98 ± 8.66) (P < 0.05). Similarly, broilers with DCM to 42 d (17.36 ± 12.97) had higher mean scores compared with normal muscle broilers at 42 d of age (6.15 ± 5.70) (P < 0.05). According to the results, we can conclude that muscle fibers with DCM showed characteristics of a chronic degenerative myopathy.

**Key Words:** broiler, latissimus dorsi, myopathy, muscle injury, poultry