

Microscopic Examination of the Pre-Hatching Development of the Chicken Ovary

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Abstract : The purpose of the current study was to investigate the development of the chicken ovary. One hundred fertilized egg of Alexandria breed of chicken used. The whole embryo has undergone the light microscopic examination at HH20 (E.3), HH21 (E.3.5), HH23 (E.4), HH29 (E.6) and HH34 (E.8). The ovary has undergone the light microscopic examination at HH38 (E.12) and HH42 (E.16), SEM at HH26 (E.5), HH29 (E.6), HH36 (E.10), HH38 (E.12), HH39 (E.13) and HH42 (E.16), TEM at HH38 (E.12) and HH42 (E.16). The genital ridge appeared by a thickening of the coelomic epithelium medioventral surface of the developing mesonephroi at HH20 (E.3). The boundaries of the undifferentiating gonads defined clearly separated from the mesonephroi. The undifferentiated gonads bulged as a distinct organ in the coelomic cavity at HH23 (E.4). At the initial stages of the gonadogenesis, the germinal epithelium was stratified squamous epithelium. The PGCs appeared at the genital ridge at HH21 (E.3.5). The PGCs observed at the dorsal mesentery with few microvilli and showed positive PAS reaction due to the glycogen content in their cytoplasm. The left-right gonadal asymmetry firstly detected by the number of PGCs migrating toward the left gonadal ridge more than the right at HH20 (E.3) and the macroscopic examination of gonadal asymmetry began at HH34 (E.8). The left ovary appeared a smooth rod-shape, its stroma showed lipid droplets, and its parenchyma showed an extensive arrangement of interstitial cords at HH42 (E.16).

Keywords : ovary, Alexandria chicken, light microscopy, SEM, TEM

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