DOI: 10.22055/ivj.2025.542208.2838

A study of the Histogenesis and development of the pancreas of the Pheasant (*Phasianus colchicus*) embryos

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Received: 19.08.2025 Accepted: 15.10.2025

Abstract

The main objective of this study was to investigate the histogenesis and development of the pheasant's pancreas during embryonic stages. Twenty-five fertilized pheasant eggs were placed in an incubator at 37.5°C and a humidity of 58 to 62%. Three pheasant embryos at ages 13, 15, 17, 19, 21 as well as three one-day-old chicks were collected. After tissue processing including dehydration, clearing and impregnation with melted paraffin samples were sectioned (5 micrometer) and stained with Hematoxylin and Eosin, Masson's Trichrome and Gomori᾿s trichrome stains. The pheasant's pancreas began to form between days 13 and 15 days of the embryonic period. In the 17-day-old pheasant embryo, in addition to the dorsal lobe, the formation of the ventral lobe had also begun. Similar to the 15-day-old pheasant embryo, the pancreas of the 17-day-old embryo consisted of undifferentiated epithelial cells, connective tissue, and underdeveloped ducts, but the number of acinar cells had increased. In the 19-day-old embryos, the acinus was formed and mainly organized. Also, the Langerhans islands were observed at this age. In the 21-day-old embryo, the interlobular ducts were identified, and the formation of the Langerhans Islands had increased. In the 1-day-old pheasant chick, the exocrine part of the pancreas, the acinus, was more developed. The islets of Langerhans were also clearly visible, as these islands in the splenic lobe were more numerous than in the other lobes. In conclusion, the histogenesis of the pheasant (*Phasianus colchicus*) pancreas begins to form between days 13 and 15 days of the embryonic period, and continues until after hatch. The dorsal lobe demonstrated primary by initiating development first. The definitive pancreatic architecture was established through the sequential differentiation of key components. The endocrine islets of Langerhans emerged on day 19, followed by the maturation of the exocrine acinar tissue and the ductal system on day 21, marking the culmination of embryonic organogenesis.

Key words: Pheasant embryo, Pancreas, Histogenesis, Development

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