PANCREATIC PATHOLOGY IN POULTRY DISEASES WITH SPECIAL REFERENCE TO HISTOCHEMISTRY IN CHABRO AND VANRAJA CHICKEN

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ABSTRACT : The aim of the present study was to unravel the pivotal role of pancreatic pathology in disease diagnosis during avian necropsy. The extent of pancreatic pathology in different poultry diseases of economic importance at different age groups and breeds particularly in Chabro and Vanaraja breeds of poultry has been studied to evaluate the lesions of pancreas in different pathological conditions and its correlation with various poultry diseases. An aggregate of 240 pancreases were gathered from chicken affected from different viral, bacterial, protozoal, fungal, metabolic, and toxicological diseases. The disease was confirmed by necropsy findings and further analysed by histochemistry with special staining like Gomori’s and Heidenhain’s Iron Haematoxylin staining techniques. The major histopathological changes in pancreas in decreasing order of frequency were interstitial fibrosis, congestion, individualization of acinar cells, pancreatic fat necrosis in exocrine pancreas, periductular fibrosis and capsular thickening. However, no direct correlation was found between gross pathology and histopathological findings. It has been observed that significant pancreatic pathology and their dysfunctions are an important contributory factor in chronic disease of known or idiopathic origin. Supplementation of pancreatic enzymes in poultry ration in case of disease outbreak/poor growth performance are suggestive for optimal functioning of pancreas and in turn assurance of healthy poultry flock.

Key words : Pancreatic pathology, Heidenhain’s Iron Haematoxylin, histochemistry, Vanaraja and Chabro.

INTRODUCTION

The pancreas is a highly specialized multitasking organ, which plays a pivotal role in poultry production. In poultry, the cells of the islets of Langerhans are less defined than those in mammals. The main functions of the pancreas are to produce pancreatic juice which is a mixture of digestive enzymes and to produce the hormones insulin and glucagon that are involved in the metabolism of carbohydrate. However, the avian pancreas has numerous features in contrast with the exocrine function of mammals. For example, the activity of pancreatic enzymes is much higher in birds than in mammals, with the secret rate of the avian pancreas exceeding the activity of mammal enzymes per one kilogram of live weight several times over.

Since, the viscera of poultry is not compartmentalized, it is easy for the infection to spread in the entire organ system of birds in conditions like mushy chick disease, chick edema disease, egg peritonitis, visceral gout, air sacculitis etc. to name a few. Curving of duodenal loop (J-like appearance) and pancreatic atrophy, has been reported during Postmortem examinations of broiler chicken infected with parvovirus (Nunez et al, 2016) and zinc toxicosis in ostrich as well. Prolonged caloric deficiency in birds will lead to pancreatic atrophy. Grossly, the change may not be significant; but histologically, there
References


