

Summary:

Turkey can live and breed in different geographical parts of the world. This bird is important from an economic point of view (meat production). The blind intestines (ceca) are in the form of long and blind bags, each of them consists of a proximal or basal part, a long middle part or body, and finally a distal part or apex. In birds such as domestic chickens (*Gallus domesticus*), turkeys, and geese, cecum is important for digestion on the one hand and resistance to diseases on the other hand (due to the presence of large volume of lymphatic tissue). Therefore, this organ has anatomical, histological, physiological and immunological importances. Considering that, there is hardly any information about the histology and histochemistry of the cecum in the turkey, especially in the black turkey native to Azerbaijan. In this research, the histology of the different parts of the cecum in the male and female turkeys of this species was investigated. For this purpose, 10 pieces of male and female turkeys were prepared in equal number and weighing approximately 4 to 6 kg. After euthanizing the animals, their cecums were separated and placed in 10% buffered formalin solution. Tissue sections were prepared and after staining with hematoxylin-eosin for general study and histomorphometric examinations (measurement of thickness of mucousal layer, height of cecal folds, height of cecal villi, height of intestinal mucosal glands, thickness of cecal muscular layer and measurement of nodular and GALT (Gut-associated lymphoid tissues) lymph and lymphocyte cells) were performed in three parts (proximal, middle, distal) of the cecum in male and female turkeys. Also, PAS (Periodic Acid Schiff) staining was used to check the distribution of goblet cells in three parts of male and female turkey cecum, and Masson trichrome staining was used to evaluate collagen fibers in terms of histology and histochemistry. The results showed that cecums, like most of other birds, are connected to the short rectum at the junction of the ileum and cecum. The results of the histomorphometric study showed that the average thickness of the mucousal layer of the cecum, the height of the cecal folds, the height of the cecal villi, the height of intestinal glands, and the thickness of the muscular layer of the cecum in all three parts (proximal, middle, and distal) are higher in males than in females. Also, the mean diameter of lymph nodules in male turkeys was higher than in female. The distribution of lymph nodules in females was in the proximal and distal part, but in males the distribution of lymph nodules was only in the proximal part of the cecum. The distribution of goblet cells increased from the beginning to the end of the cecum of female turkeys compared to males. No significant difference was found between male and female in the examination of the density of collagen fibers. The present study showed that, average of histomorphometric parameters in males and females and different parts of the cecum has significant differences.

Keywords: cecum, turkey, histology, histochemistry, histomorphometry.