



MORPHOFUNCTION ASPECTS OF THE DIGESTIVE ORGANS OF THE ANTERIOR COMPARTMENT OF CHICKENS

(Literature data analysis)

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Abstract

This article provides information on the scientific work of scientists on the postnatal morphogenesis of the digestive organs of chickens. The analysis of the literature shows that the morphofunctional features of the structure of the glandular and muscular stomach from the organs of the front part of the digestive system of birds, as well as their formation and development, are influenced by factors. Knowing the morphological characteristics of the structure of the digestive tract of chickens creates a basis for rational and effective use of feed, prevention and treatment of gastrointestinal diseases in poultry. In this regard, it is of great importance to study the macro- and micromorphological features of the structural components of the foregut of birds.

Keywords: postnatal, morphogenesis, esophagus, glandular stomach, muscular stomach, cuticle, mucous membrane.

Introduction

Relevance of the topic. In most countries of the world, poultry farming takes a leading place among other branches of agricultural production, providing the population with valuable dietary food products and raw materials for processing industry. The basis for increasing the efficiency of poultry farming is the improvement of production technology, the preservation and improvement of the quality of breeding and productivity of specialized lines, separate populations and promising breeds.

The organism of chickens is somewhat different from that of farm animals, and researching the specific morphofunctional properties of their organs, especially the dynamics of changes in different physiological stages of postnatal ontogenesis, is of great scientific and practical importance.

Level of study of the topic. Although the structure of the digestive organs of birds is somewhat different from that of mammals, most of them are similar and are divided into four important sections.

A number of authors prefer to consider the anatomical structure of the anterior part of the avian digestive system by its separate structures and divide the avian digestive system into the oral cavity, larynx, upper esophagus, jaw. They are divided into sputum, lower esophagus, glandular stomach, muscular stomach, small intestine, colon, rectum and cloaca.

[3, 7].

The digestive tract of birds starts from the oropharynx and ends with the pharynx of the digestive system in mammals, which is a continuation of the oral cavity. The bottom of the larynx begins behind the base of the tongue and continues to the beginning of the esophagus. This part covers the transverse rows of the pharyngeal teats and is a characteristic feature of birds, the tip of the teats is directed towards the esophagus. The entrance to the larynx opens along the middle line of the bottom of the larynx. The lid of the larynx is bordered by a number of laryngeal suckers from the esophagus [1, 13].

According to the authors, the foregut of birds occupies the area of the alimentary canal from the beginning of the esophagus to the beginning of the duodenum and includes the esophagus, gizzard, glandular and muscular parts of the stomach. includes. Some authors include the esophagus and two-chambered stomach, combining the esophagus with the esophagus, because the larynx is a local expansion of the larynx in the foregut of birds [12]. According to the researchers, the swallowing process is initiated by a rapid movement of the tongue towards the larynx, and this continues with a lot of movement of the head. As a result of such actions, the pressure in the larynx increases and peristalsis of the esophagus occurs. The contraction of the esophagus causes food to be pushed into the jejunum, and saliva and serum fluid are also deposited there [8].

According to the researchers, the hen's gills have an average capacity of 70-100 ml, and this volume may vary slightly depending on the breed of chickens. Food can be kept in the refrigerator from 3 to 8 hours. Mucous secretion produced by the alveolar-tubular glands does not contain enzymes, it only helps to soften and soften the food. Special microflora present there - bacteria and simple aerobic microorganisms, lactobacilli, Escherichia coli, enterococci and yeast cells enable the process of food digestion. The front and back edges of the sphincter are bounded by a sphincter. Mechanical crushing of food mass in chickens is carried out with the help of solid objects swallowed by birds [6, 14, 16].

According to the information of the researcher, the process of food digestion is carried out in two ways, i.e. peristaltic and tonic contraction. They are intricately coordinated and ensure that food first falls into the left part of the stomach and then into the right part. The movement of the spine is ensured by the contraction of circular and longitudinal smooth muscles. Slowing down or stopping contractions occurs when the placenta is full of food, and this period lasts on average 35-40 minutes. Small pieces of food are quickly pushed to the lower part of the esophagus, and large pieces can be held in the stomach for a long time. The author says that in chickens, it is also possible to have a hunger reduction [10].

Digestion of nutrients is carried out due to the absence of enzyme-producing glands in chickens, due to the presence of salivary fluid, which contains food enzymes activated by secretions, as well as microorganisms, rich in mucin, and a small amount of amylase, glucosidase enzymes [19].

According to the authors, the glandular and muscular parts of the stomach of birds originate from the middle part of the single intestinal tube during embryogenesis, expand in 5-6 days of the incubation period of the egg, and form the glandular and muscular parts of the stomach in 9 days. Clear differentiation of the stomach into glandular and muscular sections occurs on the 15th day of embryonic development of chickens [5].



The glandular part of the stomach is a thick-walled, short, elongated part of the alimentary canal. In the glandular stomach, the upper, body and neck or intermediate zones are distinguished. The anterior part of the glandular stomach is located above the heart, between the air sacs, and the posterior or body part is located above the left lobe of the liver. The upper edge of the liver is connected to the glandular stomach through connective tissue, the right side touches the spleen and ileum, and the left side touches the cecum. The glandular part of the stomach narrows and then passes into the muscular part, this narrowing is in the form of a neck, the muscular layer unites with the myocytes of the submucosa and forms the ring-shaped sphincter. The muscular membrane of the glandular part of the stomach consists of an outer layer consisting of longitudinal muscle fibers and an inner layer consisting of somewhat advanced circular muscle fibers [2].

The muscular part of the stomach has a rounded concave shape, has a firm consistency, is voluminous, and has a reddish color with blue dots. In the muscular stomach, the body is well visible on its right and left sides; rounded corners formed by front and back blind bags; upper and lower ends formed by strong lateral muscles are distinguished. In the central part of the muscular stomach is a narrow slit-like space, the tip of which is expanded and forms a blind sac. The anterior blind sac passes to the upper side without a clear border, and the posterior blind sac is united with the lower end. The neck of the stomach with the anterior blind sac gland is opened. Next to the anterior cecum, a path opens from the muscular part of the stomach to the duodenum. The blind sac is not very well visible in chickens, the muscular stomach cavity has been found to be "S" shaped [4, 17].

According to the author's information, the muscular layer of the stomach consists of strong smooth muscle fibers, that is, the front and back general muscles, which pass into the upper and lower flat muscles. In roosters, these muscles are located on the upper and lower sides of the stomach, and in chickens, on the right and left sides. The mucous membrane of this part of the stomach consists of folded, single-layer glandular epithelial cells that produce a special liquid, which hardens the surface of the mucous membrane and forms a keratinoid cuticle, that is, a protective layer. This fluid contains hydrochloric acid, the cuticle is constantly eroded and renewed with new fluid. The stomach cuticle is thick, smooth and elastic in domestic chickens [11].

The myocytes of the muscular part of the stomach store a lot of hemoglobin, so it has a dark red color with purple dots. As a result of the rapid contraction of the muscular part of the stomach of chickens, the food mass is rubbed and crushed. Decomposition of nutrients occurs in this department due to the enzymes of the glandular stomach, self-produced fluid, pancreas, intestinal juice and bile fluid. They pass to this section through the sphincter between the stomach and the duodenum [9].

According to the researchers, the cuticle of the muscular part of the stomach of birds is made up of the glands and cells of the gastric epithelium, and in the section, the wall of the glandular part of the stomach is located between the thick muscular wall and the cuticular coating, elegant, somewhat a bright epithelial layer is clearly visible. In this case, each intermediate muscle of the stomach muscle department is located on a smaller blind tumor of the stomach [15, 18].

Summary

- The analysis of the literature shows that the morphofunctional features of the structure of the glandular and muscular stomach from the organs of the front part of the digestive system of birds, as well as their formation and development, are influenced by various factors;
- Knowing the morphological characteristics of the digestive tract structure of chickens creates a basis for rational and effective use of feed, prevention and treatment of gastrointestinal diseases in poultry. In this regard, it is of great importance to study the macro- and micromorphological features of the structural components of the foregut of birds.

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