ANTOMICAL AND HISTOLOGICAL STUDY OF ESOPHAGUS IN GEESE (*Anser anser demesticus*)

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ABSTRACT

Esophagus of geese was tubular organ situated at right side of the body. it was divided into, cervical and thoracic part, the cervical part longer than thoracic part.
The length of cervical part ,crop, thoracic part were recorded and the mean and S.D. was founded: 16. 4,1 .35cm;7.3,1.06cm;3.83,0.57cm respectively.
The crop was merely enlargement fusiform in shape which located at the entrance of the thorax. The esophagus parts showed that composed of four layer, the mucosa, sub mucosa, muscular and serosa. The mucosal layer was thickened in the thoracic part than the crop and constituted by thick nonkertenized stratified squamous epithelium, lamina propria and mucous glandsThe mucous glands and nodular lymphatic tissues in was rich in thoracic part. The sub mucous layer was no evidence and composed of loose connective tissues, the muscular layer constituted by circular inner and longitudinal extra.Serosa layer composed of connective tissue, collagen and elastic fibrous.

INTRODUCTION

The esophagus in birds was passage for the food (1). (2) observed that the avian esophagus is on the right side of neck (mammal present it was on left side) and it was placed between the pharynx and stomach glandular portion ,it was thin and dilatable walls with a diameter relatively larger than of mammals. According to (3; 4) the avian esophagus consist of two parts,

cervical and thoracic, while in mammals there was three parts, cervical, thoracic and abdominal.

(5) observed during has study of esophagus in partridge Rhynchotus rufescens (Tiramidae)the cervical part longer than thoracic, while in duck and goose the cervical part is larger than thoracic part (6) but(2)verified that the chicken cervical part is shorter than thoracic. (7) recorded that the crop is the extensive part of the cranial esophagus to the entrance of thorax. Its structure and function vary according to the species and the diet The crop is absent in the gulls and penguin so food passe directly or it is stored in the tubular esophagus (8). The crop in duck and goose as in most birds is merely a fusiform enlargement of the esophagus (9).

The pigeon crop is symmetrically bilateral and the esophagus and crop internal surface present longitudinal fold and they are lined for stratified squamous epithelium (10), in which several mucous gland open up (2).

(11) found that the esophagus and the crop epithelia in fowl are stratified squamous and in species such as the pigeon it is stratified squamous epithelium no keratinized. The lamina propria is formed by loose connective tissue and some lymphatic nodules is especially evident in the crop(11). The lamina propria contain the simple or branch tubular mucous gland(12), while (13) observed during his study that the muscularis mucosa of chickens esophagus consist of longitudinal bundler of smooth muscles fibers .while the submucousa in pigeon composed of loose connective tissue(10). (14) reported that the tunica muscularis with inner circular and outer longitudinal layers, the latter is coverd by the adventitia which is composed of loose connective tissue with elastic and collagen fibers. (15) observed during his study on the bird the wall of crop made up of four layers, mucosa, submucousa, muscular and serosa.

According to (11)the epithelium of the crop in general is denser than that of esophagus ;simple tubular mucous glands are present in duck while absent in chicken and pigeon. (5)observed during study that the muscularis crop of pattered Rhynchotus composed of two wider layers of longitudinal and circular .the serosa layer made up of loose connective tissue which contain blood vessels(16).

Because a very little studies in anatomy and histology of geese esophagus in Iraq as general and Basrah city as specific this work was done .

MATERIALS AND METHODS

-Collecting samples :

A total of (20)local goose were bring from local market in Basrah city after

examined their healthy clinically.

-**Anatomical-Study**:

For anatomical studies (10)adult goose were used in the present study, after birds slaughter. The esophagus and crop were washed with distilled water and dissected. the length of esophagus and crop measured by caliber vernier instrument.

-Histological- Study:

(10) specimens were then kept in 10%formalin for 72 Hours, The histological section were made and stained with Haematoxyline and eosin ,van gienson for collagen fibers and weigert for elastic fibers and examined by light microscope to examine histological structures of esophagus and crop. according to the method(17).

RESULTS

The esophagus in goose is an organ located to right side of the neck and composed of two parts. cervical part is longer than thoracic part, and extend from the pharynx to proventiculer, while The crop is merely a fusiform enlargement of esophagus (Fig.1).

The mean and S.D of length in cervical part, crop and thoracic part was recorded 16.4,1.35 cm ; 7.3,1.o6cm;3.83,0.57cm respectively (Fig. 2).

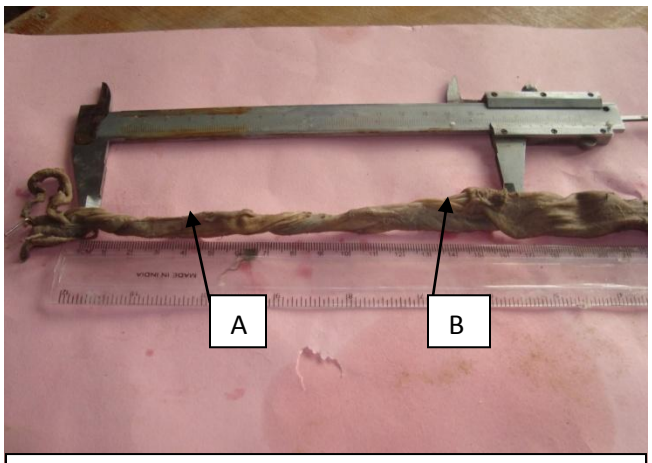
The histological results of cervical part in esophagus shows four layers: mucosa, submucousa, muscular and serosa (Fig 3).

Mucosa constituted with no keratinized stratified squamous epithelium and few mucous gland ,nodular lymphatic tissue are promined within the Connective tissue of lamina propria (Fig. 4).

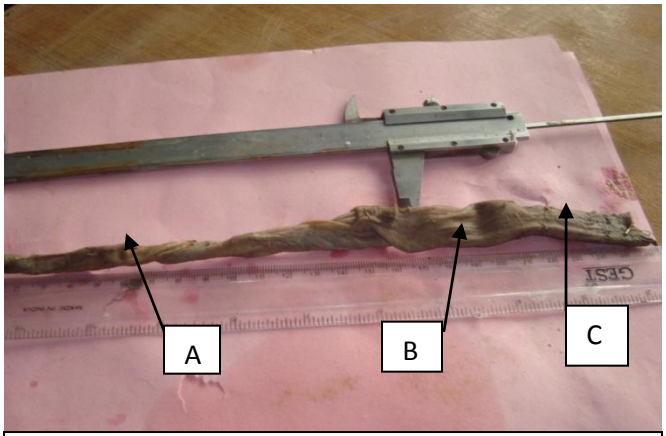
The submucousa was contain of fibrous tissue. The muscular tunica consist of two layers smooth muscles, an inner circular and outer longitudinal, while, the serosa showed thin of loose connective tissue and collagen and elastic fibrous (Fig 5).

The histological structure of crop was similar with cervical part except of the mucosa shows thinner than cervical part and constituted with non keratinized stratified squamous epithelium, few mucous glands and nodular lymphatic tissue (Fig. 6), the lamina propria with loose connective tissues, collagen and elastic fibrous .The muscular constituted two layers of smooth muscles, an inner circular and an outer longitudinal. the serosa layer composed of loose connective tissue with collagen and elastic fibrous (Fig. 7). The mucosa layer of thoraces portion shows thicker than mucosa of crop ,mucous glands are few and rich with nodular lymphatic tissues (Fig. 8).

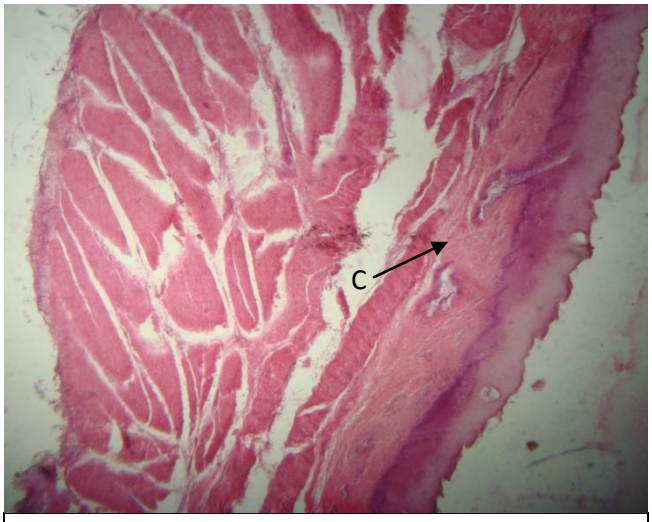
The submucousa layer no evident and composed of loose connective tissue. The muscular layer consist of two layers, an inner and outer longitudinal layer, the serosal tunica showed constituted of loose connective ,collagen and elastic fibrous (Figs. 9, 10, 11).



FIG(1): The oesophagus in goose.A-cervical part,B-crop.

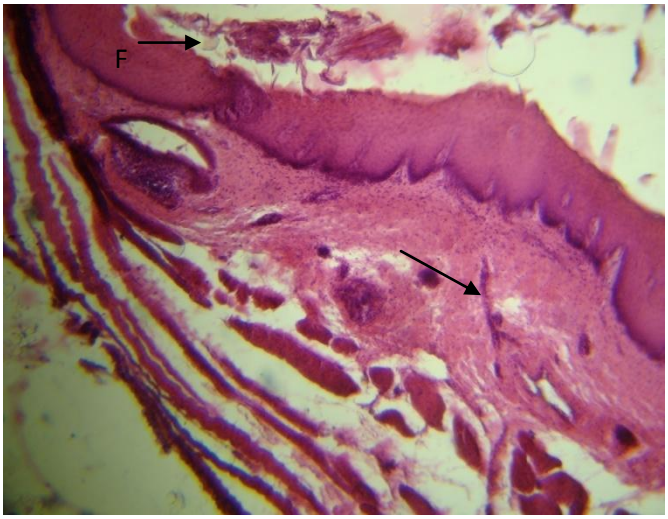


FIG(2): The esophagus of goose, A-cervical part ,B-crop ,C-thoraces part.

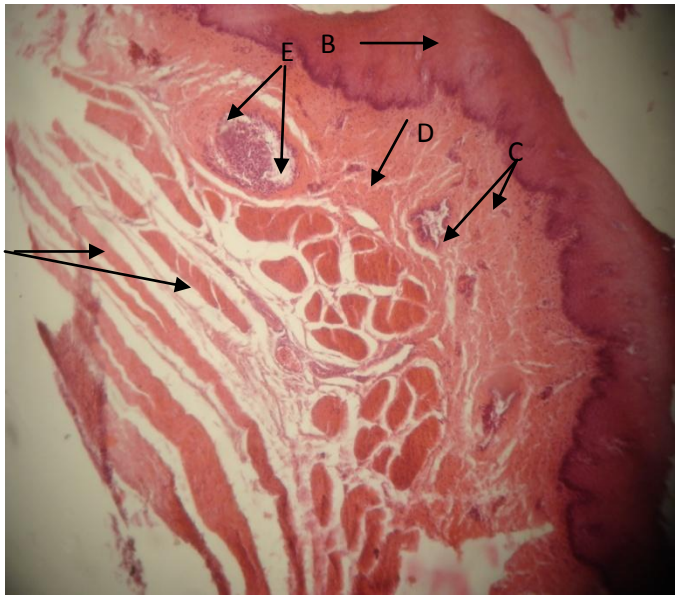


FIG(3) the layer of cervical part-A non keratinized epithelium tissue, B-lamina propria, C-submucousa, D-inner muscular, F-outer mascular, G-serosa. E&H,(100X).

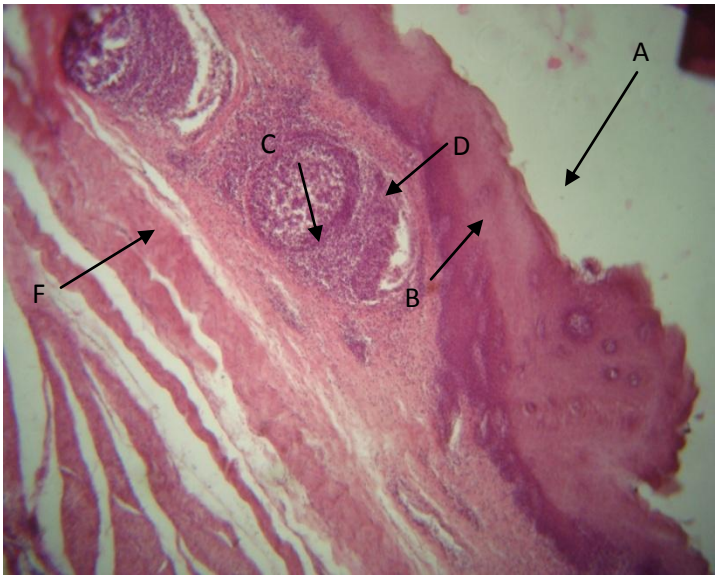
FIG (4) Cervical part, A=non keratinized stratified squamous epithelium, B-lamina propria, C-mucous glands, D-submucousa, E-lymphatic tissue. E&H (200X)



Fig(5)the crop A-nonkertenized, B-lamina propria ,C-submucousa D-inner muscular .E-outer muscular. F-serosa. E&H.(200x).

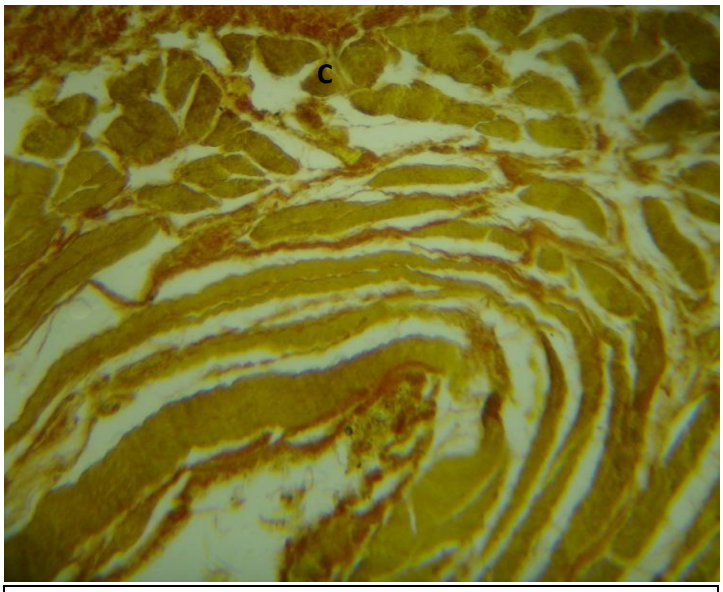


Fig(6)the crop A-nonkertenized stratified squamous epithelium B-lamina propria. C-mucous gland D-submucousa E-innermuscluer F-outer muscular. G-lymphatic nodular tissues. E&H(200X)

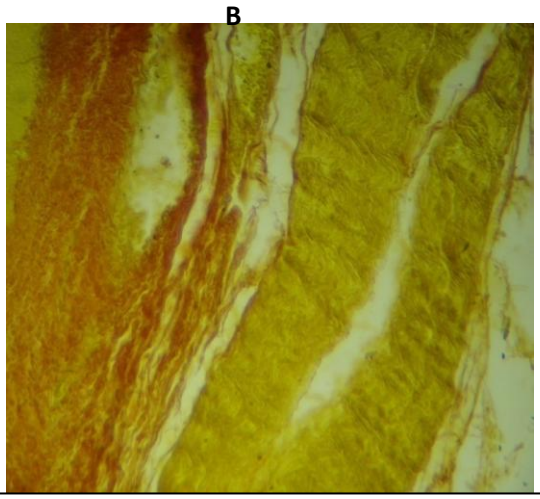


Fig(7) Thoraces A-nonkertenized B-lamina propria C-submucousa D-mucous gland E-lymphatic noduler tissuesF-musculer laver.E&H.(300x).

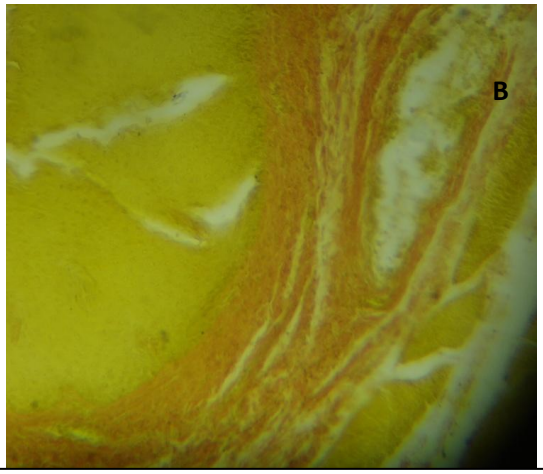
Fig(8)Thoraces part A-lamina propria B-submucousa C-inner muscular D-outer muscular E-serosa. E&H(200x)



Fig(9) distribution the collagen fibrous in A- lamina propria B-submucousa of cervical part oeophagus200x(van gison stain).



Fig(10)distribution the collagen fibrous in A-submucousa B-between the muscular layer C-serosa of crop.200x(van gison stain).



Fig(11)distribution the elastic fibrous in A-lamina propria B-submucousa of thoraces part.300x(wighert stain).

DISSCUSSION

This study referred that the esophagus in goose is an organ located in right side of neck and situated between the pharynx and stomach glandular. this result agree with (2). It was composed of two parts, cervical and thoraces part ,as it was found by (18), cervical part longer than thoraces.

This result in agreement with(15) who study the esophagus in partied Rhynchotus rufescens, also in similar with (6) during his study on goose esophagus but disagreement with (2) which study the chicken esophagus. The crop is merely a fusiform enlargement on the esophagus .This description similar with (9) but different with (5), (10)during study on crop of pigeon.

The histological results of cervical portion in esophagus of goose esophagus showed that there are four layers, mucosa, submucousa, muscular and serosal layer.

The mucosa constituted non keratinized stratified squamous epithelium with few mucous glands, nodular lymphatic tissue are promined within the connective tissue of lamina propria .This result agree with(5) who studies the esophagus of partigde Rhynchotus. As all as similar with(3)during study of esophagus in bird.

The submucousa is no evidence and certain the fibrous tissue, this description agree with (19)who study the chicken esophagus. But the muscular Struma consist of two layer, an inner which is circular and an outer longitudinal layer. It was similar to that found by (16),(14) while disagreement with (5)which study the cervical part in partigde Raynchotus, that contain three layers, an inner longitudinal, a medium circular and outer longitudinal layers.

The serosa composed of loose connective tissue with collagen and elastic fibers and that agreed with other studies (16),(14).

The mucosal layer of the crop thinner than cervical part, and composed of constituted non keratinized stratified squamous epithelium with few simple mucous glands and nodular lymphatic tissue .This result agree with (19)which study the crop of chicken. The lamina propria contain the loose connective tissue and collagen ,elastic fibrous .this description agree with (8) when study on crop of chicken. the muscular tunica consist of two layers ,an inner circular and an outer longitudinal .the serosa tunica it's the external layer of crop. It was founded by (20)when study the crop of turkey.

The mucosal layer of thoracic part shows thicker than mucosal layer of crop with present, mucous glands rich lymphatic tissues called esophagus tonsil. This result identicalness (21)when study on thoraces esophagus in chicken.

The submucousa composed of loose connective tissue. The muscular layer consist of two layers, an inner circular, and outer longitudinal. The serosa non evidence, composed of connective tissue ,collagen and elastic fibrous.

These results similar with(20),(19).which study the thoracis part in chicken.

دراسه تشريحيه ونسيجيه في للمري البط المحلي

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الخلاصه

يعد المري في البط عضو انبوبي يقع عند الجانب الايمن من الجسم ويقسم الى جزئين هما العنقي والصدري الجزء العنقي اطول من الجزء الصدري, بلغ المعدل والانحراف المعياري للطول كل من الجزء العنقي والحوصلة (الجزء الصدري) لها 16,4سم،1,35؛7,3سم ،1,05:3,83سم،0,57سم.على التوالي , أظهرت الدراسه بان الحوصله في البط عباره عن تركيب مغزلي الشكل يقع في مقدمة الصدر..

الدراسة النسيجيه لمريء البط بينت بانه متكون من اربع طبقات هي المخاطيه،تحت المخاطية العضليه والمصليه.تكون الطبقه المخاطيه في الجزء الصدري اسمك من المخاطيه في الحوصله ،وتتكون من ظهاره حرشفيه متعدده غير متقرنه سميكه مع وجود الغدد المخاطيه والتي تكون غنية بالنسيج اللمفي العقيدي عند الجزء الصدري.

تكون الطبقه التحت المخاطيه غير واضحه ومكونة من النسيج الرابط الرخو، تقسم الطبقه العضلية الى داخلية دائرية الشكل وخارجية طولانية الشكل. تسمى الطبقة الاخيرة المصلية والتي تمتلك نسيج رابط والياف مرنة وغراوية.

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