University of Thi-Qar Journal of agricultural research

ISSN Onlin:2708-9347, ISSN Print: 2708-9339 Volume 14, Issue 2 (2025) PP 645-655

https://iasj.rdd.edu.iq/journals/journal/issue/18682 https://doi.org/10.54174/utjagr.v13i1.323

Comparative morphometrical and morphol ogical studies of Esophagus in adult males and females Lovebird (Agapornis).

Zaineb Mohammed Abded Marzouk Abdul Jabber Rasmi Huwait. Nadhim Azeez Shehan.

Anatomy and Histology department, Veterinary Medicine College, University of Basra.

Abstract:

The purpose of this study was carried out on five males and five females of Lovebirds, morphologically, this study was demonstrated that the crop was oval shape in both sexes and located out of the body cavity in neck region before the entrance to the thoracic region. The results were showed that the esophagus was a muscular tube extend on right side of neck and composed two parts, cervical and thoracical parts with crop.

Also the mean total length of males esophagus was larger than females in addition this study was recorded that the cervical part of males was larger than the female

Keyword: Esophagus, Crop, Lovebird.

I. Introduction:

The native habitat of Lovebirds is Africa and Southeast America, it's lovebird (Agapornis) reaches sexual maturity at ten months,.The basic nutrition of bird on seed, fruits, nuts and vegetables. (1), Some pieces of birds can be kept as pets, and several colored mutations have been selectivity breed in aviculture. The average lifespan of bird is about 10 to 20 years (2).Returns the birds classification as follows:

Domain: Eukaryote
Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Psittaciformes
Family: Psittaculidae
Subfamily: Agapornithinae
Genus: Agapornis. (3).

The avian digestive system consists of beak, mouth cavity, Esophagus, crop, stomach (proventriculus, Gizzard), small intestine and large intestine (4,5,13).

The Esophagus of birds have two parts, cervical and thoracic (6,7).

Geese Esophagus are tubular in position and located at right side of the body. It was divided to cervical and thoracic part as well as that the cervical part longer than thoracic (8,9,14).

The crop is situated in entrance of thorax. Its structure with function is vary according to the species and diet also the crop in some bird was absent such as gull and pengium so the food passed directly in tubular esophagus (10,11).

(12), they pointed out in their study on carnivorous, herbivorous and grainvorous that the crop was larager in the last two categories than the carnivorous.

Due to little studies on Lovebirds we have studied the comparison of the appearance of the Esophagus.

II. Materials and Methods:

ISSN Onlin:2708-9347, ISSN Print: 2708-9339 Volume 14, Issue 2 (2025) PP 645-655

https://iasj.rdd.edu.iq/journals/journal/issue/18682 https://doi.org/10.54174/utjagr.v13i1.323

The collected 10 adult Lovebirds (Five males and Five females) from Basra market, after ensuring that the clinically healthy.

The Birds were anesthetized with chloramphenicol by inhalation, after which an incision was made in the neck and abdominal to determine the location of esophagus and adjacent to it.

The esophagus was then removed from the bird's body. After that, the parts of the esophagus in the bird were identified.

We took measurements of both the length and width of esophagus parts(cervical, crop and thoracic parts) in the both sexes (male and female) using an electronic colipe (vernia) to determine the differences between two sexes.

The sensitive balance was also used to measure the weights of parts of esophagus in the birds.

III. Results:

The current study found that esophagus is tubular organ extends on the right side of neck, before entrance of the thoracic to form organ called crop, after that passes in front of chest, forming the thoracic esophagus which continues until connected by the true stomach also the esophagus composed of three parts cervical, crop and thoracic part figure (1) and (2)

Showed that cervical part is elastic muscular tubular shape and extend from oropharynx in to the entrance the chest to form in both sex

The length, width and weight of male cervical part is recorded (3.4±0.206 cm), (2.87±0.238mm), ((0.0612±0.091gm) while in female recorded (2.611±0.1cm), (3.866±0.7mm), (0.33±0.75gm) resequentially table( ) also this study revealed that the thoracic part in both sexes was elastic tubular located behind the crop and extend connected with the first stomach (proventriculus) figure (3) and (4).

The measurement of length, width and weight in male thoracic part was (3.68±0.12cm),(3.0±0.235mm) and (0.027±0.0037gm) while in female is(1.85±0.124cm),(3.22±0.222mm) and (0.111±0.053gm) respectively table ( ).

The present study was recorded the crop is oval shape in both sex (male and female) and positioned out the body cavity in neck region before the entrance the thoracic region figure ( ).

The measurement of length, width and weight of male crop is (2.22±0.128cm),(6.66±1.29mm) and (0.183±0.022gm) but in female recorded (6.60±1.129cm),(4.244±0.829mm) and (0.176±0.0120gm) table ( ).

University of Thi-Qar Journal of agricultural research

ISSN Onlin:2708-9347, ISSN Print: 2708-9339 Volume 14, Issue 2 (2025) PP 645-655

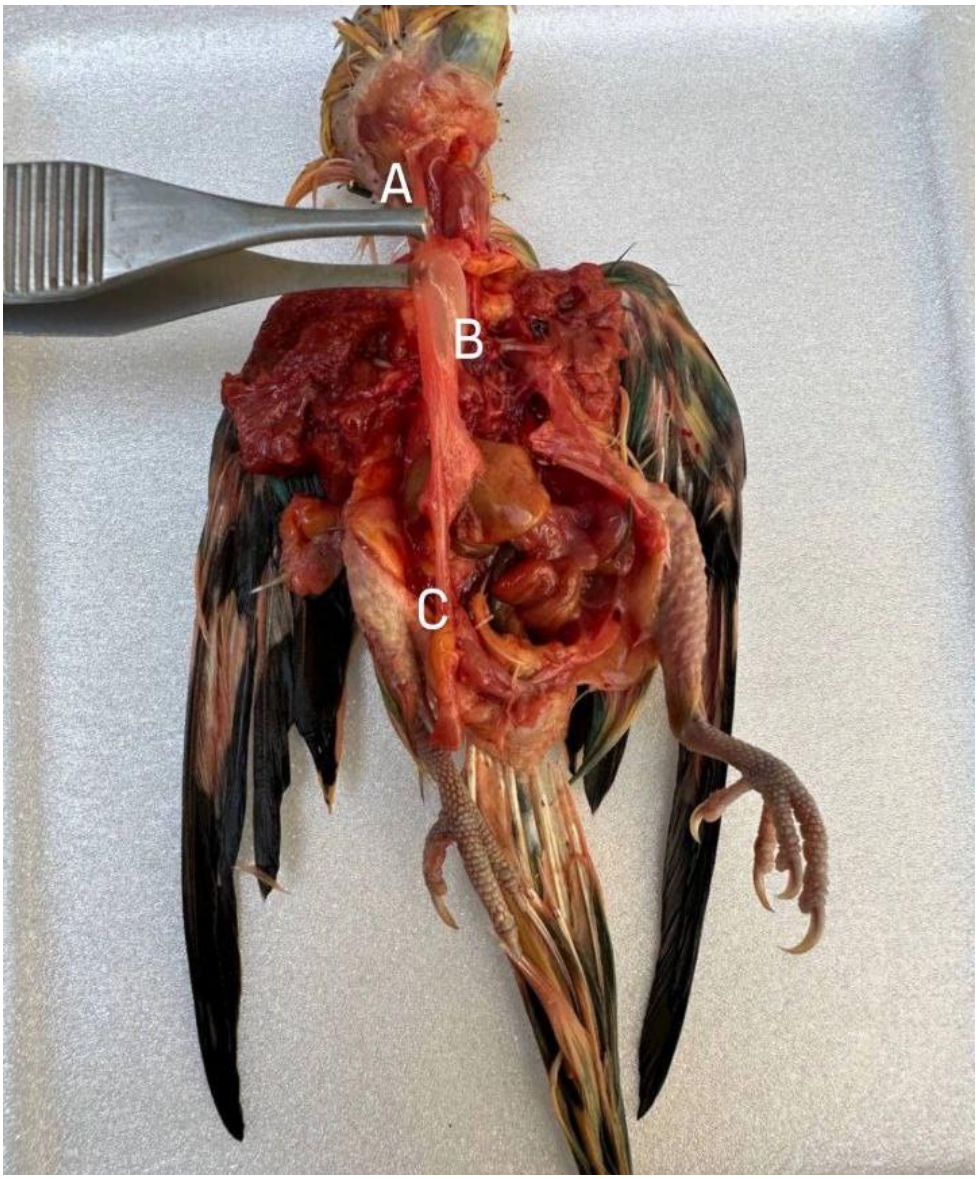
https://iasj.rdd.edu.iq/journals/journal/issue/18682 https://doi.org/10.54174/utjagr.v13i1.323

Figuer(1) show the abdominal cavity in male lovebirds ,
A-Cervical ,B-Crop ,C-Thoracic.

University of Thi-Qar Journal of agricultural research

ISSN Onlin:2708-9347, ISSN Print: 2708-9339 Volume 14, Issue 2 (2025) PP 645-655

https://iasj.rdd.edu.iq/journals/journal/issue/18682 https://doi.org/10.54174/utjagr.v13i1.323

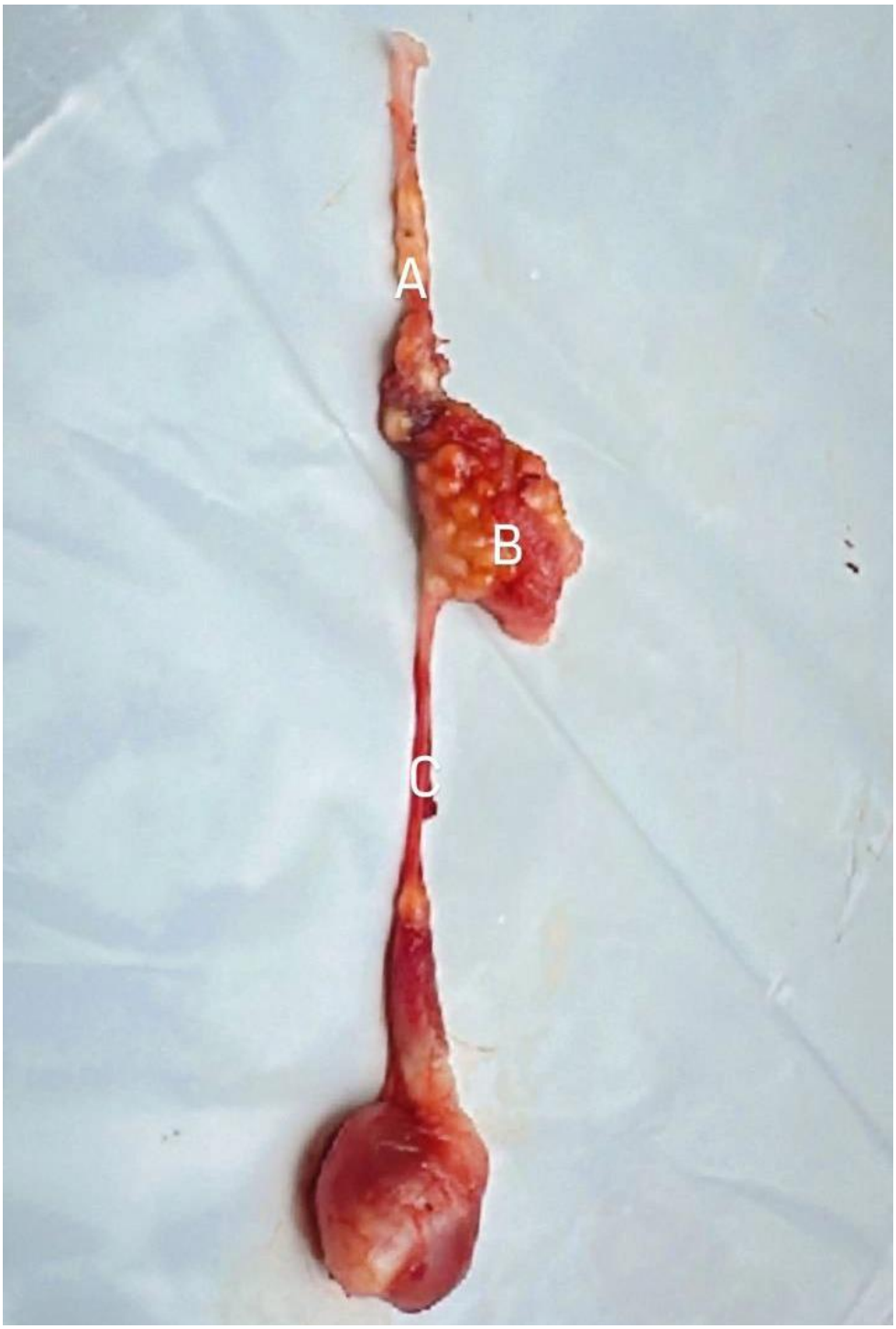


Figuer(2) show the abdominal cavity in female lovebirds ,
A-Cervical ,B-Crop ,C-Thoracic.

University of Thi-Qar Journal of agricultural research

ISSN Onlin:2708-9347, ISSN Print: 2708-9339 Volume 14, Issue 2 (2025) PP 645-655

https://iasj.rdd.edu.iq/journals/journal/issue/18682 https://doi.org/10.54174/utjagr.v13i1.323



Figuer(3) show the A-Cervical ,B-Crop ,C-Thoracic in male lovebirds.

University of Thi-Qar Journal of agricultural research

ISSN Onlin:2708-9347, ISSN Print: 2708-9339 Volume 14, Issue 2 (2025) PP 645-655

https://iasj.rdd.edu.iq/journals/journal/issue/18682 https://doi.org/10.54174/utjagr.v13i1.323

Figuer(4) show the A-Cervical ,B-Crop ,C-Thoracic in female lovebirds.

ISSN Onlin:2708-9347, ISSN Print: 2708-9339 Volume 14, Issue 2 (2025) PP 645-655

https://iasj.rdd.edu.iq/journals/journal/issue/18682 https://doi.org/10.54174/utjagr.v13i1.323

IV. Discussion:

The present study was revealed the esophagus of Lovebird ( ) is long muscular tube positioned in right side of the neck between the oropharynx and extend to proventriculus, this result agree with (5,6,11) when they study on esophagus in captive bustards, duck and bean goose respectively.

Knots in this study the length of esophagus in male was longer than that the female this correspond with (15) when study for comparative anatomical study on esophagus in homing pigeon) and disagree with (16) when study on some internal organs in common pheasant.

The esophagus composed of two parts (cervical, thoracic) with the crop. Thi9s study similar with (8, 17) when study for esophagus on geese, esophagus of white stork (Ciconia ciconia) sequentially and this result different with session (18) when study on chicken esophagus investigation into the current study the length cervical part in male larger than the cervical part in the female. This consistent with (15) while this does not match by (9) when study on esophagus and crop pf partial Rhychotus references where he explained their study showed that the cervical part in female larger than the cervical part in male.

The cervical esophagus in each sex expanded to form the crop this result agree with(19, 17) while disagree with (20) when study of digestive apparatus in rheas.

The crop is oval shape in all sex (male and female) and positioned out the side the body cavity in neck region before the entrance the thoracic region, this different with (8, 21) also disagree with (22) when study of esophagus on Homer pigeon.

Ethical approval:

According to the approval (71/2024) the birds approved this study at the Laboratory of veterinary medicine college, Basra University.

V. Conclusion:

The crop was oval shape in both sexes of Lovebirds.

We found the esophagus length in males larger than females, also the length in cervical part of esophagus was larger than females.

I. References:

1) Oliphant, L.w (2015) Crystalline pteridines in the stromal pigment cells of the iris of the great horned owl. Cell and tissue PP: 387-395. Thin film optical filter, 2nd, Aam Hilger, Ltd, Bristol.
2) Al derton, David (2003) Comprehensive Encyclopedia of Caged and Ornamental Birds, London, England, Hemes Books, PP:216-219.
3) Selby, Brido Johan(1836) natural history of pugs, Nature world Library Volume 6 , Ebinburgh: WH Lizards PP:116-119.
4) Zaher M EL-Ghareeb A, Hamadi H, AbuAmod F (2012) anatomical and histological and histochemical adaptations of avian Alimantary channel to their food habits 1-Coturnixcoturnix Life Sci J 9(3).
5) Mclelland J (1979) Digestive system in form nd function in Birds (ed, King As Mclelland J) PP:69-181. London Academic press.
6) Mule. F (1991) the avain esophagi molar function and it nervous control some physiology pharmacological and comparative aspect comparative Biological physiology PP:99: 491-498.

ISSN Onlin:2708-9347, ISSN Print: 2708-9339 Volume 14, Issue 2 (2025) PP 645-655

https://iasj.rdd.edu.iq/journals/journal/issue/18682 https://doi.org/10.54174/utjagr.v13i1.323

7) Levin RJ. (1984) absorption from the Alimentary tract , in physiology and chemistry of demostic fowl(Ed) B.M Freeman Academic press, London(5) 1-9
8) Shehan N. Azeez (2012) anatomical and histological study of esophagus in geese (Anser Anser deremostics) Bas J vet Res vol.11 ,no.1,pp 13-22).
9) Rossi J.R, Artoni. M S, Daniela oliveria, Claudinc, dacruz, Alex sagula, moria Rita Pacheco and Marcos Lania de Araujo (2006) morphology of esophagus and crop of the partridge Rhynchotus rufescens, Acta sci. Bio/sci V28(2) pp 165-168.
10) Nickle R, A. Schummer(1977) anatomy of domestic Birds, Berlin, Verlagu paul parey.
11) Bortosz, Kieronezyk, Mateusz R, Jakub D, Sylwester S and Damin J (2016) avain crop function-ARVIEW, Ann, Anim, Sci., Vol 16 No.3 PP:653-678.
12) Steven C.E, Hume I.D (1998) Contributations of microbes in vertebrate gastrointestinal tract to production and conversion of nutrient physiol Rev 78:393-427.
13) Bailey T A, Mensah E P, Samour J H, Nald J, Lawrence P, Garner A (1997) comparative morphology of alimentary tract and its glandular derivatives of captive hustards. J Anta, Cambridge, V,191,:387-398.
14) Szczepan D E, wesolowak/ (2008) morphometric characteristics of esophagus and intestine tufted ducks (Aythya fuligula, wintering on the Baltic coastal areas in north western Poland, electronic J of polish Agricultural uni. 11 (4) 35-39.
15) Kadhim H. K, Mohammed A. Ahmed (2013) comparative anatomical and histological study of the esophagus in local adult male and female homing pigeon, AL-Qudisiya J of vet med sci. vol14. (1) pp 80-87.
16) Yovchev. D Dimitrov R. Kostov, Vladova D (2012) Age morphometry of some internal organs in common pheasant (Phaslonus colchicus) Trakia J of sci, 10(3) 48-52.
17) Rus V, miclaus V, Nadas G C , Cader D (2000) structural particularities of white stork (Ciconia Ciconia) esophagus, Annals of R SCB , V 14(1) :177-179.
18) Sisson S, Grossam J D (1986 Antomia dos animals domestic. 5ed, Rio de Jlanerio-Guanabara Koogan.
19) Dyce K M, sack WO wensing C J G (2010) textbook of veterinary anatomy, 4th ed. The anatomy of bird, W.B, Saunders Company Philadelphia pp:794-796.
20) Rodrigues M N, Olivetra G.B, Sliva R Tivan CT, Albugurerqer JFG. Mi-glino, M A oliveria MF(2012) Gross morphology and topography of digestive apparatus in rheas(Rhea Americana Americana), Pesquiss veteran riv Brasileira, 32(7): 681-686.
21) Dyce, K, sack WO wensing C JG (2002) anatomy of domestic birds, Berlin: Verlag paul parey.
22) Battah A.L(2012) Histological, Histochemical study for alimentary tract of Homer pigeon, Bas. J vet Res, vol11, No1, pp: 31-32.