ANATOMICAL AND HISTOLOGICAL STUDY OF CEREBRAL IN STURNUS VULGARIS .

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ABSTRACT

The sturnus vulgaris is migrate bird to Iraq in (Junwary-April) from all year -

The anatomical study of cerebral sturnus vulgaris showed that the oval shape with smooth surface due to the absence of gyrus and sulcus, also it is consist of two cerebral hemispheres ,right and left which separated by medium fissure, another fissure situated between cerebral and cerebellum called transverse fissure.

The weight of right cerebral hemispheres was 2.297±0.0116 g while in the left cerebral hemispheres 2.282±0.0078 g .The length of right part of cerebral hemispheres recorded 14.220±0.759 cm while the left cerebral hemispheres was 12.810±1.767 cm .The interior width of right cerebral hemispheres was 5.930±0.346 cm while in the left cerebral hemispheres 5.920±0.304 cm .the posterior width of right cerebral hemispheres recorded 8.930±0.221 cm while in the left cerebral hemispheres 8.13±0.163 cm. these measures lead to different between right part and left part from cerebral .

The histological results revealed that the cerebral consit of cortex and medulla .The cortex constituted the gray matter which has six layers, molecular layer, external granular layer, pyramidal layer, internal granular layer, internal pyramidal layer and multiform layer .In the cortex showed have larg number of pyramid and satellite cells which is importance of vital or activity in migratory bird due to live in various environment .

The medulla constituted white matter was located internal which has increase number of dens bundles fibers and galial nerve cells.

INTRODUCTION

Sturnus vulgaris is migratory birds, migrate to south of Iraq (1).The study of brain in birds is very important because it control physiology gesturing ,maintenance of of organism , regulation of muscle tension and function(2).

The brain consist of three main parts are cerebral, cerebellum and medulla oblongata .the cerebral hemispheres are large relative and have large optic lobes and smaller olfactory bulbs (3).

The avain cerebral hemispheres are pear shape.it have two olfactory bulbs are situated at the anterior part of the cerebral hemispheres ,right and left hemispheres were separated by a medium fissure. Cerebral hemispheres were separated from cerebellum by transverse fissure(4)

The avain cerebral consist of two materials, gray matter and white matter ,the gray matter situated externally while the white matter situated internally(5)

The cerebral is composed of sex layers ,molecular layer, external granular layer ,external pyramidal layer, internal granular layer ,internal pyramidal layerand multiform layer (6)

Because very little studies of the anatomy and histology of sturnus vulgaris cerebral in Iraq special in Basra we do this work.

MATERIAL AND METHOD

The birds were collected in January month ,ten adult strunus vulgaris were used in the present study ,the slaughter birds were washed with distil water and dissected .the length and width of cerebral measured by vernier instruments whil the weight is measured by electronic balance .the specimen was fixed in 10%formalin for 3 days ,washed by tap water to removed fixative ,dehydration by alcoholic concentration (ethanol) 70%,80%,90"%,100%,clearing by xylene then paraffin infliterated and embedded in paraffin block. the section were cut a 5-6 thick by rotary microtome and then stained with hemotoxylin and eosin. The examined and pictured by light microscope(8),(9).

RESULTS

Anatomical result revealed that brain of the sturnus vulgaris situated in cranial cavity ,covered by meninges ,it consist of three basic parts ,cerebral ,cerebellum and medulla oblongata. The cerebral consist of two hemispheres ,which oval in shape and its smooth surface due to the absent of gray and sulcus ,there are two fissures ,longitudinal

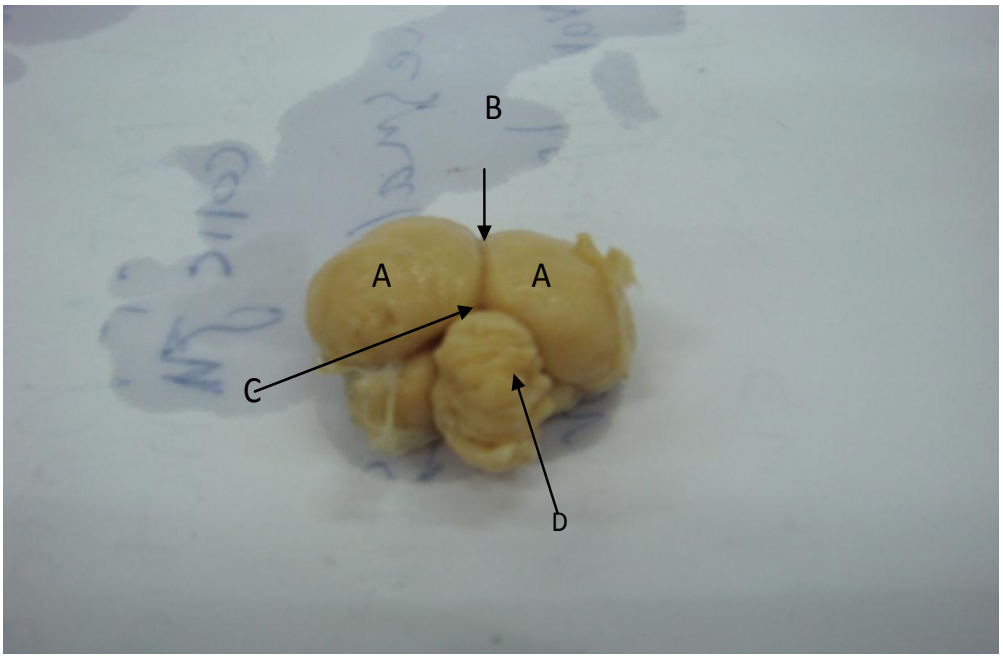
fissure was situated between the cerebral hemispheres ,the other fissure called transverse fissure was situated between the cerebral and cerebellum.fig(1),fig(2).

vulgaris Table of cerebral measures in sturnus

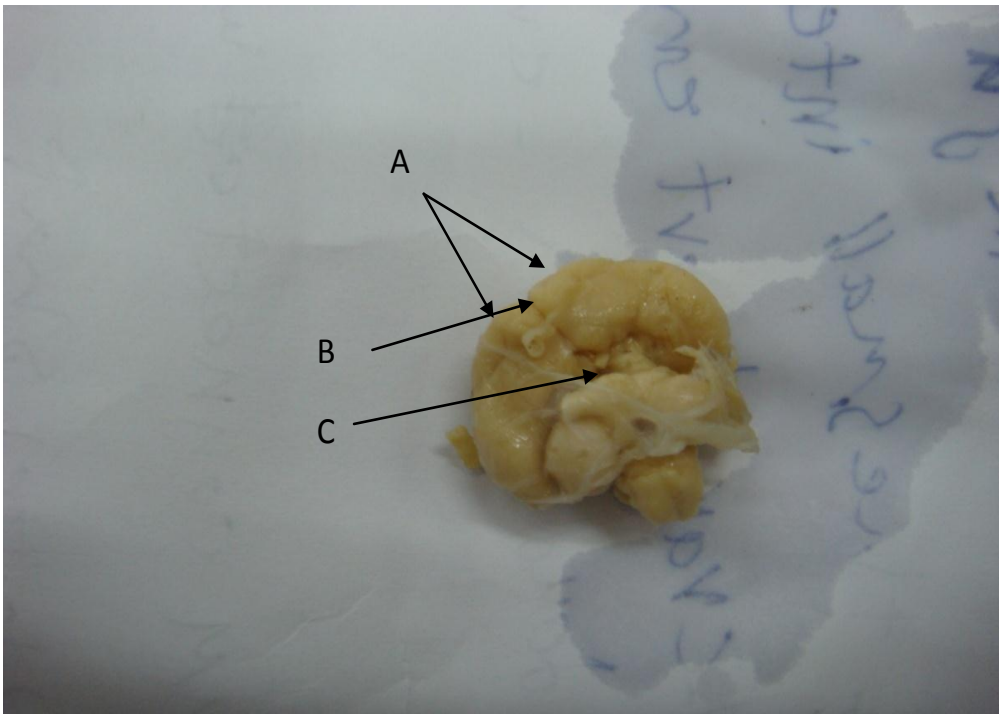
Part	Weight g	Length cm	Width of enterior partcm	Width of posterior part cm
Right cerebral hemispher	2.297±0,0116	14.220±0.759 *	5.930±0.346	8.930±0.221 *
Left cerebral hemispher	2.282±0.007	12.816±1.767	5.920±0.304	8.13

The cerebral cortex has sex cellular layers, molecular layer , external granular layer, pyramidal layer, internal granular layer, glandular or internal pyramidal layer and multiform layer .fig(3), fig(4).

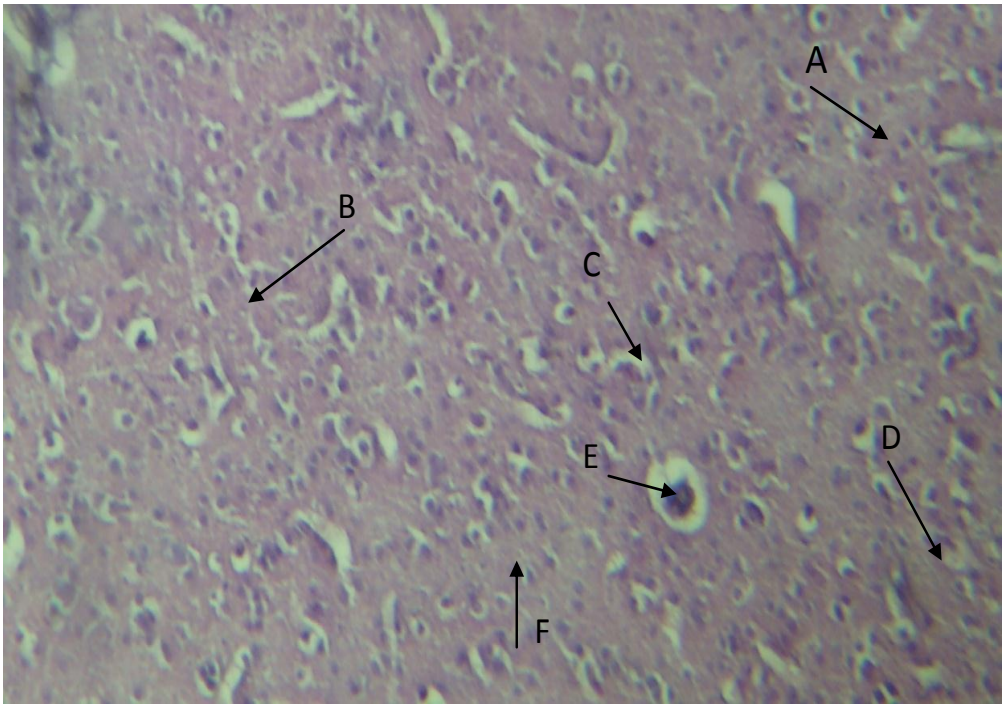
The cerebral cortex was characterized by the presence of number and size of pyramidal cells which have pale large nuclei ,also contain large number of satellite cells which were characterized by small bodies and large nucleus . The medulla constituted the white matter which is situated internally and consisted of large number of dense bundles of fibers and large number of glia cell mostly ostrocytes , oligodendrocytes and satellites cells ,these cells important for nutrients and minerals for neurons. The neuroglia cells in white matter were characterized by small bodies and dark small nucleus ,fig(4)



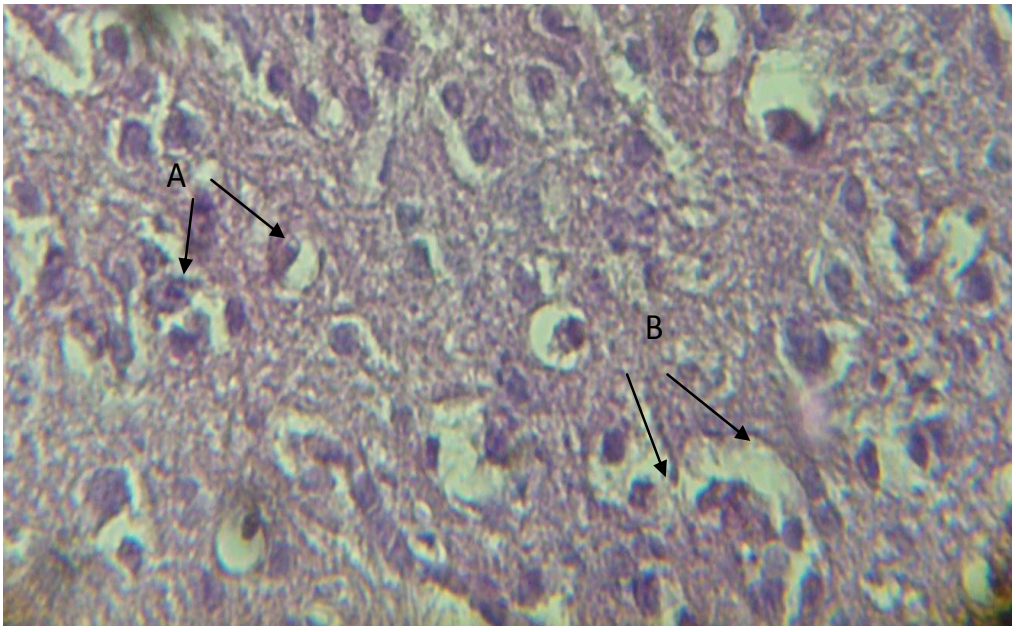
Fig(1)dorsal view of cerebral A-cerebral hemisphere B-longitudinal fissure C-transverse fissure D-cerebellum



FIG(2)ventral view of cerebral A-cerebral hemisphere B=longitudinal fissure C-transverse fissure,



FIG(3)Transverse section of cerebral A-molecular layer B-external granuler layer C-layer of medium pyramidal cell D-internal granuler layer E-internal layer of large pyramidal cell F-multiform layer 10x H&E



FIG(4)Transverse section of the cerebral A-pyramid cell B-intercelluler area (nerve fibers and neuroglia)100x H&E.

DISCUSSION

The brain of sturnus vulgaris composed of three main parts ,cerebral ,cerebellum and medulla oblongata. The cerebral consist of two cerebral hemispheres which oval shape .The study was similar with(9)during study on the cerebral of swifts and differed with (10)who reported that thecerebral hemispheres in African ostrich were triangular in shape also disagreement with (4)when study of cerebral hemispheres in avain were pear shape. The right and left cerebral hemispheres separated by a medium fissure ,also all cerebral hemispherse separated with cerebellum by transverse fissure . This study agree with (4)also with (11) during study on brain of chicken.

The result showed that the cerebral composed of two region gray matter and white matter situated internally . The cortex of cerebral consist sex layers ,molecular layer , external granular layer ,external pyramidal layer, internal granular layer, internal pyramidal layer and multiform layer . These studies similar with (6),(11),also agree with (12)study on birds brain .All these layers showed the number of pyramidal cell, satellites cell. The pyramidal cell characterized by pal large nuclei . The medulla of cerebral composed of dens bundles of nerve fibers and glia cell These studies agreement with (9) when study on brain of flyer birds (swifts and falacon).

دراسة تشريحية ونسجية للمخ في الزرزور الأوربي

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الخلاصة

الزر زور الأوربي من الطيور المهاجرة إلى العراق في (كانون الثاني-نيسان) من كل سنه

أظهرت الدراسة التشريحية في مخ الزر زور الأوربي انه بيضوي الشكل وذو سطح رقيق بسبب عدم وجود الثقوب والقمم، وكذلك يتكون من نصفي كره،أيمن وأيسر يفصلان بواسطة الشق الوسطي،الشق الاخر يتموضع بين المخ والمخيخ يدعى الشق المستعرض.

الوزن في نصف الكرة الايمن كان2,297± 0.0116 غم بينما في نصف الكره الايسر2,282±0,0078 غم.طول كرة المخ الايمن سجل 14,220± 0,759سم بينما طول نصف الكرة الايسر كان 12,810±1,767سم.عرض كرة المخ الايمن من الامام5,930±0,346سم بينما عرض كرة المخ الايسر من الامام5,920±0,304 سم،العرض الخلفي لنصف الكرة الايمن سجل 8,930±0,221سم بينما العرض الخلفي في النصف الايسر كان8,13±0,163سم .هذه القياسات اوضحت وجود فروقات بين الجزء الايمن والايسر لنصفي كرة المخ.

لوحظ في الدراسة النسيجية بان المخ يتكون من القشره والنخاع.القشره تمثل الماده السنجابية والتي تتكون من ستة طبقات ,الطبقة الجزيئية,الطبقة الحبيبية الخارجية,الطبقة الهرمية,الطبقة الحبيبية الداخلية ,الطبقة الهرمية الداخلية والطبقة متعددة الاشكال.

اظهرت طبقات القشرة امتلاكها عدد كبير من الخلايا الهرمية والقمرية والتي تكون مهمة في حيوية ونشاط الطيور المهاجرة بسب معيشتها في بيئات مختلفة.

النخاع يتمثل بالماده البيضاء ويقع الى الداخل ويمتلك زياده في عدد حزم الالياف العصبيه الكثيفه والخلايا الدبقيه.

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