HISTOLOGICAL AND HISTOMORPHOMETRIC STUDY OF RETINA IN PIGEON AND DUCK

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ABSTRACT

The eye ball (globe) comprises Three concentric layers. (The fibrous tunic, The vascular tunic, and the nervous tunic. And the nervous tunic the deepest layer of the eye ball is the internal (nervous) tunic or retina. The study aimed to determine the histological structure of retina.

The histological and histomorphometric Study Showed The retina as representing internal Tunica (Nervous). And show That retina in pigeon and duck haves many layers (ten layers); One of these is the photoreceptor Layer , In which are found the specialized neural receptor cells of the visual system, The rods and cones are more dominant while the rods are most in photoreceptors layer also the measurement of retina is smallest than in the center (middle) and the measuring of rods and cones layers in pigeon, smallest than in duck.

INTRODUCTION

The eyes is an elaborate organ whose primary function is to collect and focus light the photosensitive retina (1,12).

The retina the deepest layer of the eye ball is the internal (Nervous) tunic in eye of bird (8). Which is the origin of the optic nerve (6). The retina has high density of neurons (5) Retina is strongly stick in the choroid layer

(The middle of class) (8) as it consist of ten layers in birds (pigeon)*Columba Liviadomestica* , duck and *Anser anse*r including

1- Pigmented Epithelium layer. 2- Rods and Cones layer.3- External limiting membrane.

4- External nuclear layer 5- External plexifrom layer

6- Internal nuclear layer 7- Internal plexifrom layer 8- Ganglionic cells layer 9- Neurofibrous layer 10- Internal limiting membrane.(7,8,9).

MATERIALS AND METHODS

- Ten Bird on study pigeon (*Columba Liviadomestica*)
- The rate weight of pigeon 200- 250 grams
- Ten Birds on Study ducks (*Anser anser*)
- The rate weight of duck (1.5-2) K.g

A Total of 20 birds (Pigeon and duck) were collected from different locales at Basra City , for the histological Study of the retina in the pigeon and ducks collected 20 sample were used, after killed the samples in formaldehyde solution concentration of 10% solution and then passes during serial concentration of alcohol (4) the samples were examined then, the range were measured by oculometer (micrometer) the results was statistically by spss program.

RESULTS AND DISCUSSION

The result of histological examination by using light microscopic showed that the retina in the eye especially (tunica Interna) Different in Thickness in pigeon and duck retina Further more, the thickness of pigeon's retina reached (X^- 193.800 ± 8.916 µ in parties where in the center has (X^- 261.800 ± 6.142 µ) Table (1) and the thickness of duck's retina are (X^- 350.550 ± 9.816) in parties where in the center has (X^- 410.5000 ± 7.111) Table (1) also the result showed that the thickness of the second layer (rods and cones layer) in retina of pigeon (*Columba Livia domestica*) (X^- 28.017 ± 1.229µ) Table (1) where as the second layer in duck (*Anse ranser*) X^- 45.012± 1.222µ the result of histological examination also showed that the retina in the pigeon's eye and duck consist of ten layers fig (1 and 3). This result agree with (1 and 9) by the other hand, result showed that the second layer in retina consisting of photoreceptors cells in two shapes (rods and cones cells) in pigeon and duck retina this study agreed with(7,8,9and 1)this study showed the rod cell with elongated cells up to layer pigmented epithelium layer fig (2,4) in pigeon's and duck's retina and the cones are small in dimensions. This study greed with (3) and the table (1) shows the measure layers in retina and the measuring second layer (rods and cones) of retina in pigeon and duck.

Table (1) Measurement of retinal layers in micrometers of Pigeon and Duck eyes

X^- 193.800 ± 8.916	Measuring the retina when the parties In pigeon
X^- 261.800 ± 6.142	Measuring the retina at the center In pigeon
X^- 28.017 ± 1.229	measuring rods and cones Layer In pigeon
X^- 350.550 ± 9.816	Measuring the retina when the parties In duck
X^- 410.500 ± 7.111	Measuring the retina at the center In duck
X^- 45.012 ± 1.222	measuring rods and cones Layer In duck

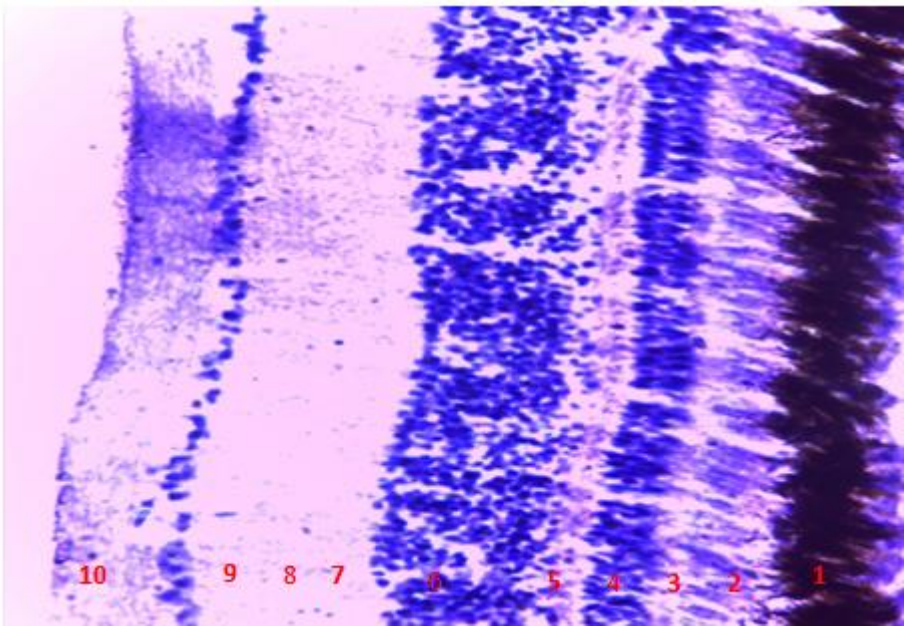

Fig (1) : Retina of the pigeon E.&H. X40

1. Pigmented epithelium layer
2. Rods and cons layer
3. External limiting membrane
4. External nuclear layer
5. External plexiform layer
6. Internal nuclear layer
7. Internal plexiform layer
8. Ganglionic cell layer
9. Neurofibrous layer
10. Internal limiting membrane

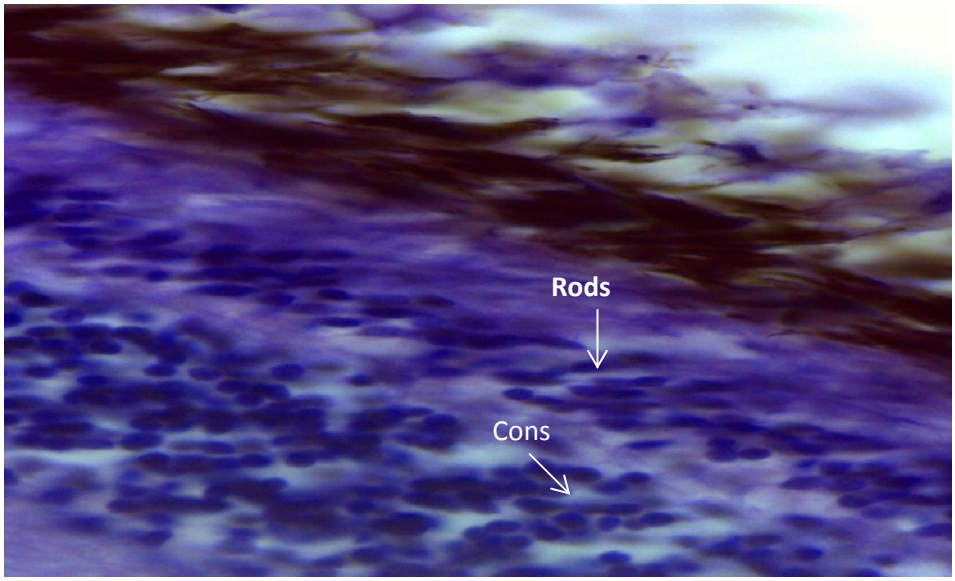

Fig (2): Rods & Cons of the Pigeon E.&H. X 100

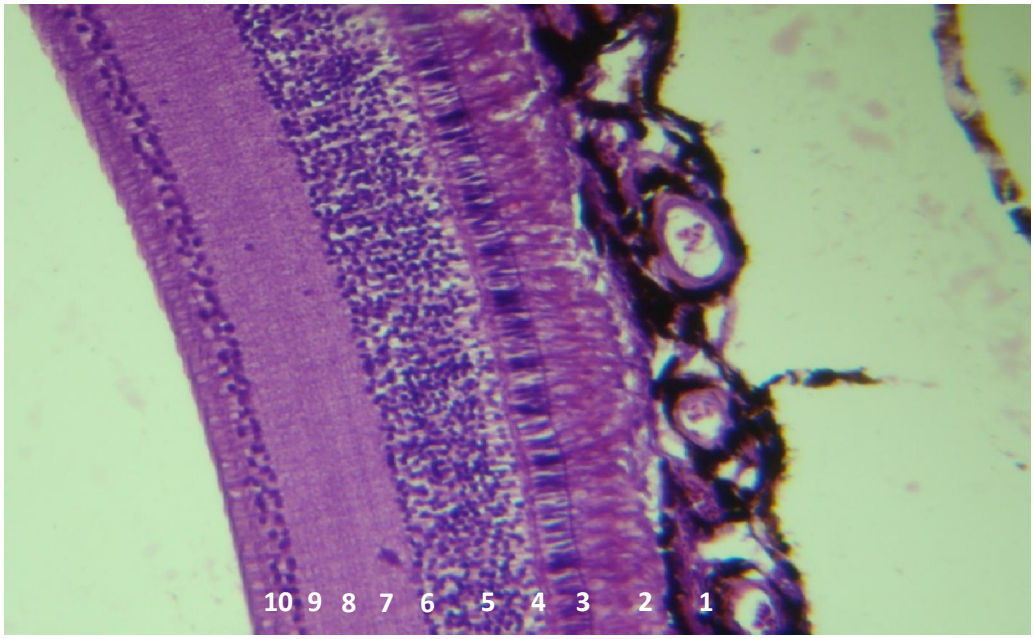

Fig (3) : Retina of the Duck E.&H. X20

1. Pigmented epithelium layer
2. Rods and cons layer
3. External limiting membrane
4. External nuclear layer
5. External plexiform layer
6. Internal nuclear layer
7. Internal plexiform layer
8. Ganglionic cell layer
9. Neurofibrous layer
10. Internal limiting membrane

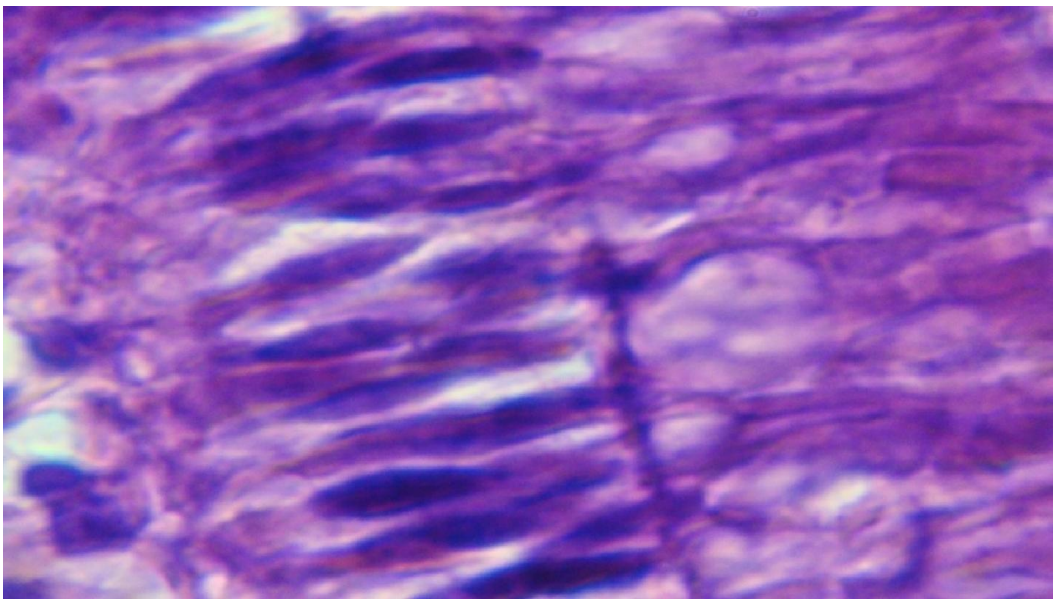

Fig (4): Rods & Cons of the DuckE.&H. X 100

دراسة نسجيه قياسية للشبكية في الحمام والبط

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الخلاصة

تتركب كرة العين من ثلاث طبقات هي الغلالة الليفية ، الغلالة الوعائية ، الغلالة العصبية.
الغلالة العصبية هي الطبقة الغائرة لكرة العين وهي الشبكية وكان الهدف من الدراسة معرفة التركيب النسيجي للشبكية ولوحظ في الدراسة النسيجية والقياسية النسيجية بان الشبكية هي الطبقة الداخلية (العصبية). وان الشبكية في الحمام والبط تتكون من عدة طبقات (عشرة طبقات) احداها الطبقة المستقبلة للضوء والتي تتألف من خلايا عصبية متخصصة لنظام الرؤية في حين ان العصب والمخاريط هي الاكثر شيوعا في هذه الطبقة بينما العصب بارزة في الطبقة المستقبلة للضوء ، كذلك كان قياس الشبكية صغيرا في الاطراف مما في المركز (الوسط)في كلا الطائرين وكان قياس طبقات العصب والمخاريط في الحمام اصغر مما في البط .

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