RESEARCH ARTICLE

Microscopic and Histochemical study of Liver in Iraqi Flacon (Flacon berigora)

Nadhem A Shehan1, Haifa A Hussein1, Sameera A Daaj1, Shrooq S Hussein2

1Department of Anatomy and Histology, College of Veterinary Medicine, University of Basra, Iraq
2Department of community health, south technical university, Technical institute in Nasryhia

Abstract

The aim of present study is provide basic information about microscopic and histochemical study of liver in Iraqi Flacon (Flacon berigora). The histological study showed the liver covered by thin connective tissue capsule which formed collagen and elastic fibers . the hepatocytes were arranged as anastomosing cords of 2-4 cell thickness, the cords were separated by the blood sinusoïds. The hepatocyte was polygonal shape with large rounded nuclei. The Histochemical result revealed positive reaction for both carbohydrate, lipid and protein when stain by periodic acid Schiff (PAS), osmium potassium dichromate and mercuric Bromophenol Blue respectively.

Key words: liver, Iraqi Flacon, microscopic, Histochemical

Abbreviations: MBB: Mercury Bromophenol Blue, PAS: Periodic Acid Schiff

Introduction

The Flacon (Flaco berigora) from carnivore’s bird relationship with family falcinidae and eats meat foods only [11]. Carnivore’s birds have less complicated digestive systems than those eating complex carbohydrates [6]. The liver is large organ in the body. its play many roles include absorption of nutrients, production of bile, detoxification, also keep of body metabolic homeostasis which captain some processing of carbohydrates , proteins as well as the liver has role for synthesis of plasma protein, like albumin, fibrinogen and complements factors [10, 20]. The histological stricture of liver in birds, the liver covered by capsule which consist of connective tissue , the capsule is thick in ostrich liver [4] while the thin capsule in local coat birds [17,18] when study on liver in coat birds and Racing pigeon. Referred [7, 14].

The liver divided in several lobules contains polyhedral cells (hepatocyte) arrange like plates around the central vein which separated with each other by blood sinusoïd. The sinusoid is blood capillaries have two types of cells kuffer’s cell and flatted endothelium cell [3, 19]. The portal area located between liver lobules and compost of the branch of hepatic artery, portal vein and bile duct which lined with the one layer of cuboidal cells on basal lamina [1]. The cytoplasm of hepatocytes contains the number granules of glycogen when staining by PAS (periodic acid Schiff) the granules needed for energy to Animal [4, 13]. [16] Referred the lipid droops appeared in cytoplasm of hepatocytes with different level in birds. The aim of present work to provide and determine microscopic and histochemical structure feature of liver in Iraqi and Falcon (Flacon berigora).

Material and methods

The collected birds (Flacon) from Basrah markets after examined for any infection, slaughter the birds and isolated liver from celomic cavity. The organ washed by normal saline solution (0.9%Nacl). The specimens were fixed in 10% formalin solution for 48 hours and processed for light microscope were performed [15]. The paraffin section stained by routine stain Harries hematoxylin and Eosin and PAS (periodic acid Schiff for carbohydrate, osmium dichromate for lipid drops and MBB (Mercury Bromophenol blue) to protein present [5, 21]. The slides examined and photo by digital camera.

Result

The histological study of liver in Iraqi an flacon (Flaco berigora) showed the liver is large gland enclosed with serosa lining that contain a thin capsule which composed of collagen and less connective tissue . The connective tissue continuous to sub divided the liver in to lobe and extends in to lobules, (figure 1, 2). The parenchyma of Flacon liver reveled consist of main cell called hepatocyte cell which arrangement around the center veins also the hepatocyte like cords in 2-4 cell thickness , the hepatocyte shape are polygonal with around nuclei, (figure 1, 2, 3).

Correspondence to: Abdulbari A. Affaris, College of Veterinary Medicine, university of Basra, Basra, Iraq Tel:(00964)780-4077140, Email: vetedu2013[AT]gmail[DOT]com

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The sinusoidal are characterized by larger and irregular shape which found between the hepatocytes. The sinusoids lined by the endothelial cells called kuffer’s cell which contain (figure 1, 2). Histochemical study: the present study revealed the strong positive reaction for periodic acid Schiff stain (PAS) when appear pink-red color in cytoplasm of hepatocyte and anther parts of liver tissue like surround the center vein this study evidence for present the distribution carbohydrate into parenchyma tissue, (figure 4, 5, 6).

This study showed the lipid drops in hepatocyte and throughout parenchyma cell when staining with the osmium potassium dichromate procedure, where the lipids drops appear as brown to black color, (figure 7-8). To detect the protein in liver tissue used the Mercuric Bromophenol Blue procedure where observed strong positive reaction for present protein in the liver tissue specialized in hepatocyte and surround the central vein .the protein appear by blue to dark blue color, (figure 9,10).

**Discussion**

The present study showed the liver enclosed with sealing that contain thin capsule (Glasson s capsule).this result agreement with [3, 9] and different with [4] when study on ostrich liver. The hepatocyte cell arranged like cords around the center vein also the hepatocytes are polygonal shape this record by [1, 2, 17]. The sinusoid vessels are irregular shape as well as lined by endothelial cells, flatted shape contact with anther cell

**Figures (1-3):** Cross section of liver showing (A) capsule (B) center vein (C) sinusoid (D) hepatocyte (F) kuffer cell H & E stain 10X.

**Figures (4, 5):** Cross sections of liver showing distribution carbohydrate in to hepatocyte cell and around center vein PAS stain 40X.

**Figure 6:** Cross section of liver showing distribution carbohydrate in to parenchyma tissue PAS stain 10X.
called Kuffer’s s cells which contain large nuclei this study conformable with [1, 12] stgoporins when study on liver in Larus conus, stgoporins Fischeri, Numid meleagris and local duck restrictively.

Histochemical study explained the present carbohydrates in the cytoplasm of hepatocyte and on the parts of liver where appear pink to red color in these tissue, that corresponds to [2, 4, 13]. During of histochemical study of Flacon liver, there was presence of fatty drops in hepatocyte and distribution around center vein. The lipid appear brown to dark color, this like the result which was pointed by [12, 17]. When study for liver in three species of birds and on racing pigeon respectively.

The study showed strong reaction for protein ,where appear dark blue color in hepatocyte and all parts of parenchyma this indicate for type of nutrient in Flacon where this birds is carnivorous that meat eat food only , this agrees result [8] when comparative liver study of Flathead (mugil cephalous) and sea Bream (spparus ourata) also similar by [13]. When comparative study of liver in (Gallus Gallus)and moorhen (Gallinule chorus), while this result disagreement with [12] when study of liver in three species birds where appeared negative reaction for Mercuric Bromophenol Blue (MBB) stain for the proteins which indicated the lack of aggregation of protein inside the hepatocytes.

References

