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Communication

[*Comunicação*]

Hepatic cirrhosis in a red-foot tortoise (*Geochelone carbonaria*). A case report

[*Cirrose hepática em jabuti* (Geochelone carbonaria). *Relato de caso*]

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Hepatic disease in chelonians may range from subclinical disease reflected only by elevations of liver enzymes in the blood to life-threatening liver failure. Icterus, central nervous system signs, and secondary renal disease may occur secondarily to liver disease depending upon the degree of liver damage (Frye, 1991b). The aim of this manuscript is to report a case of hepatic cirrhosis in a tortoise probably caused by an inadequate diet.

A 30-year-old male red-foot tortoise (*Geochelone carbonaria*) was presented to the Pathology Division of the Universidade Federal de Minas Gerais for *post mortem* examination. According to the owner, the diet offered to the animal was tomato, papaya, watermelon, mango, and sporadically, lettuce and watercress.

At necropsy, marked subcutaneous edema and ascites were found. There was no deposit of fat in the subcutaneous or in the celomatic cavity and the animal was emaciated. The liver was smaller than expected and was composed of pale yellowish firm nodules ranging from 0.3 to 1cm in diameter (Fig. 1). The entire organ was affected and normal liver tissue was not present. When cut, the parenchyma was yellow. Histologically, the liver surface was irregular and its architecture was completely disrupted. The nodules were framed by a thick layer of fibrous connective tissue (Fig. 2A). Macrophages with cytoplasmic dark brown pigment were present within these septae. Almost all hepatocytes within the center of the nodules were dilated with large vacuoles, which resembled lipid droplets. The nuclei of those hepatocytes were marginated (Fig. 2B). Based on macroscopic and microscopic findings hepatic cirrhosis was diagnosed.

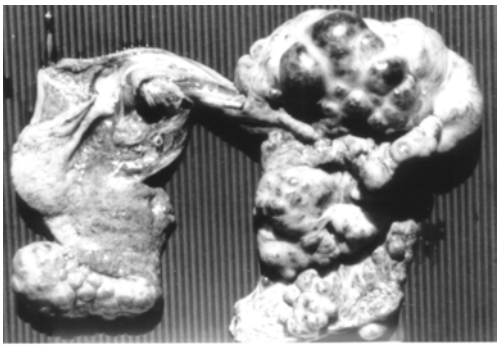

Figure 1. Tortoise (*G. carbonaria*) cirrhotic liver. Deformed liver with firm nodules ranging from 0.3 to 1cm in diameter through out the organ.

Cirrhosis in vertebrates can occur in consequence of several causes as hepatic inflammation, heart failure with passive congestion, hepatic or post-hepatic biliary obstruction and severe hepatocellular lipidosis (Crawford, 1999).

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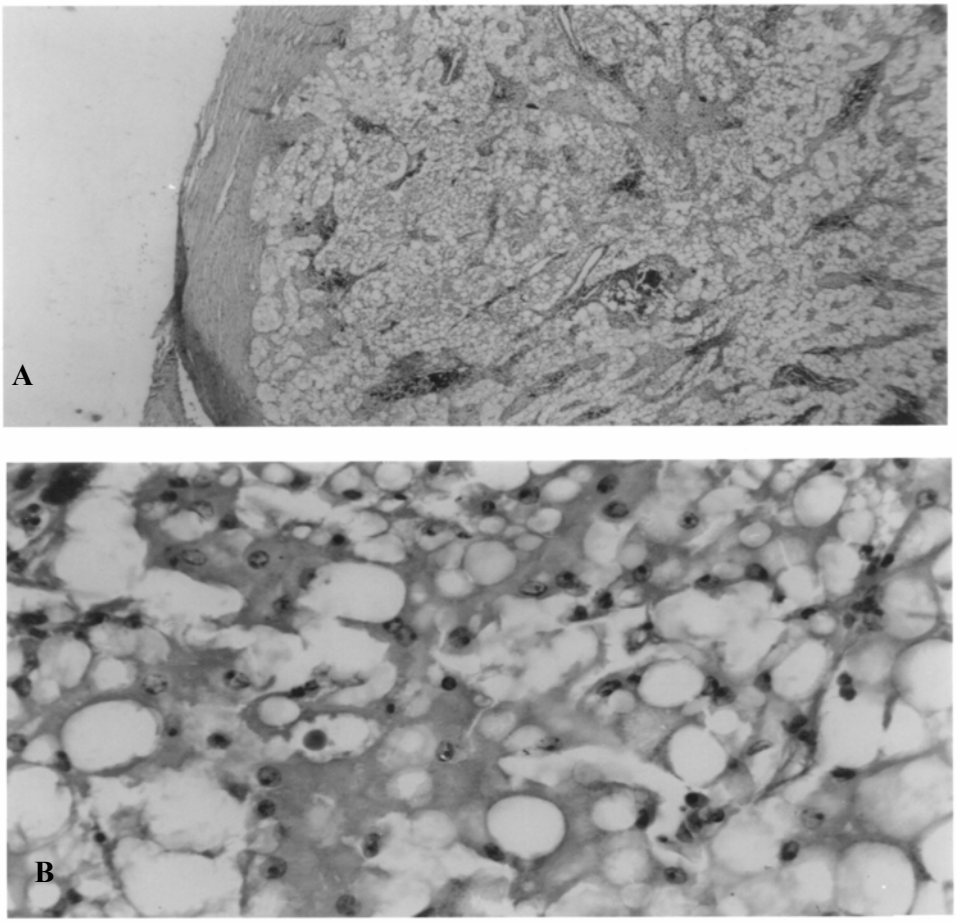

Figure 2. Histologic section of a cirrhotic liver from a red-foot tortoise (*G. carbonaria*). Nodules are framed by a thick layer of fibrous connective tissue (A, 40×) and the core is composed of dilated hepatocytes with large cytoplasmic vacuoles and nuclei displaced to one side of the cell (B, 400×).

Hepatocellular lipidosis is a relatively common lesion in captive reptiles (Frye, 1981). Usually, the gross appearance of a liver affected with hepatocellular lipidosis before the terminal cirrhotic stage is a pale yellow to light tan, swollen, highly friable organ that, when placed in an aqueous medium, floats. Microscopically, the hepatocytes are swollen and filled with clear or faintly staining material and, usually, the nuclei is displaced to one side of the cell (Frye, 1991b). This description is in accordance to the findings in the present case, and it appears that the cirrhosis observed in this case was secondary to the severe hepatocellular lipidosis.

There was neither evidence of hepatic inflammation in the present case nor were infectious agents such as parasites, bacteria, fungi or viral inclusions. There was also no morphological evidence of heart disease or circulatory disturbances rendering the possibility of hepatic cirrhosis secondary to passive hepatic chronic congestion unlikely.

It is not possible to rule out the possibility that the liver failure was caused by metabolic abnormalities or toxins. However, based on the history of a diet consisting of fruits and vegetables, only, without animal or high quality protein, nutritional imbalance is the most likely

cause of the severe hepatocellular lipidosis with subsequent hepatic cirrhosis observed in this tortoise. Despite hepatocellular lipidosis being a relatively common finding in captive reptiles (Frye, 1981), hepatic cirrhosis in chelonians has been seldon described.

Keywords: red-foot tortoise, *Geochelone carbonaria*, liver cirrhosis

RESUMO

*Um jabuti (*Geochelone carbonaria*) de 30 anos de idade foi encaminhado ao setor de patologia para exame* post mortem*. À necropsia, foi observada ascite acentuada. O fígado apresentava-se diminuído de volume e com vários nódulos firmes entre 0.3 e 1.0 cm de diâmetro distribuídos por todo o órgão. À microscopia, esses nódulos eram constituídos externamente por espessa camada de tecido conjuntivo fibroso envolvendo hepatócitos dilatados e vacuolizados na sua porção central. A cirrose conseqüente à lipidose hepática foi provavelmente causada por níveis baixos de proteína na dieta.*

Palavras-chave: jabuti, Geochelone carbonaria*, cirrose, fígado*

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REFERENCES

BOYER, D.M.; BOYER, T.H. Tortoise care. *Bul. Assoc. Rept. Amphib. Vet.*, v.4, p.16, 1994.

BOYER, T.H.; BOYER, D.M. Turtles, tortoises and terrapins. In: MADER, D.R. *Reptile medicine and surgery*. Philadelphia: W.B. Saunders, 1996. p.61-78.

CRAWFORD, J.M. The liver and the biliary tract. In: COTRAN, R.S.; KUMAR, V.; COLLINS, T. (Eds). *Robbins pathologic basis of disease*. Philadelphia: W.B. Saunders, 1999. p.845-901.

FRYE, F.L. *Biomedical and surgical aspects of captive reptile husbandry*. Edwarsville: Veterinary Medicine Publishing, 1981. 456p.

FRYE, F.L. *Reptile care: an atlas of diseases and treatments*. Nepture City: T.F.H. Publications, 1991a. v.1, 324p.

FRYE, F.L. *Reptile care: an atlas of diseases and treatments*. Nepture City: T.F.H. Publications, 1991b. v.2, 637p.

JONES, T.C.; HUNT, R.D.; KING, N.W. *Veterinary pathology*. 6.ed. Philadelphia: Lippincott Williams & Wilkins, 1996. 1392p.

KELLY, W.R. The liver and biliary system. In: JUBB, K.V.F.; KENNEDY, P.C.; PALMER, N. *Pathology of domestic animals*. 4.ed. San Diego: Academic, 1993. v.2, p.319-406.

SCOTT, P.W. Nutritional diseases. In: BEYNON, P.H.; LAWTON, M.P.C.; COOPER, J.E. *Manual of reptiles*. Shurdington: Bristish Small Animal Veterinary Association, 1992. p.138-152.