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A NOTE ON THE LIVER OF INDIAN ONE HORNED RHINOCEROS (*RHINOCEROS UNICORNIS*)

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Studies on the liver of the domestic animals including the Indian elephant were conducted by Marippa (1958), Sisson and Grossman (1959), Nickel *et al.* (1973) and Prasad and Sinha (1982) but the study on the liver of Indian one horned rhinoceros is yet to be taken up. Hence, the present communication deals with the morphological characteristics of the liver of rhinoceros, the unique wild animal found in Assam.

The liver of a 47-years old male rhinoceros and the liver of a full term aborted foetus of rhinoceros, collected from the state zoo of Assam, constituted the material for the present study. The morphological features of the liver were recorded immediately. The pieces of liver tissues were preserved in 10 per cent neutral buffered formalin; processed for paraffin sectioning and the 5 to 6 μm thick sections were stained by routine haematoxylin and eosin stain and Mallory's triple method (Luna, 1968).

The liver of both adult and foetus was more extensive, thick at the centre and was gradually thinner towards the periphery. The weight of the liver of the adult rhinoceros was 12 kg, which seems to be higher than that of ox and horse as described by Nickel *et al.* (*loc. cit.*) being in the range of 3 to 10 kg and 2.5 to 7 kg respectively. The weight of the liver of the aborted foetus was 1.2 kg which was lesser than that of an Indian elephant foetus as recorded by Mariappa (*loc. cit.*) to be 2.17 kg.

Like the other mammals, the liver of rhinoceros presented parietal and visceral surface and dorsal, ventral, right and left borders. The parietal surface was convex and was marked by costal impressions. The visceral surface was irregularly concave which possessed impressions meant for attachment with other different visceral organs. The portal fissure was located at the visceral surface near the dorsal border of the liver through which portal vein, hepatic artery and nerves enter or pass out of the organ. The portal fissure did not lodge the bile duct as the gall bladder was absent. The gall bladder is present in all domestic animals except in horse (Sisson and Grossman, *loc. cit*) and in Indian elephant (Mariappa, *loc. cit.*). However, the hepatic duct was found to emerge out of the portal fissure.

The oesophageal notch in rhinoceros was not so prominent and the renal impression in caudate lobe was indistinct. However, oesophageal notch and renal impression in different domestic animals including Indian buffalo and elephant were distinct and prominent (Mariappa, *loc. cit.*; Sisson and Grossman, *loc. cit.*; Prasad and Sinha, *loc. cit.*).

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The present study revealed that the liver of rhinoceros was divided at the ventral border into 5 lobes by means of prominent interlobular fissures *viz.* right lobe, quadrate lobe, caudate lobe, left medial lobe and left lateral lobe out of which the right lobe was the largest (Fig. 1). Mariappa (*loc. cit.*) recorded that the liver of Indian elephant consisted of a larger right lobe and a smaller left lobe while in horse the ventral border was thin and was marked by three deep interlobar incisures which partially divided the liver into four lobes *viz.* right, caudate, quadrate and left lobe (Sisson and Grossman, *loc. cit.*).

Histological sections of rhinoceros liver showed that the liver may be termed as muralium simplex as in other mammals (Elias, 1963). In addition, the interlobular connective tissue pattern around the hepatic lobules resembled other domestic animals (Fig.2), but not as adult pig where the same was described to be very thick (Kiernan, 1933). The interlobular connective tissue in main trabeculae of liver of rhinoceros consisted of mostly collagenous fibers (Fig. 3).

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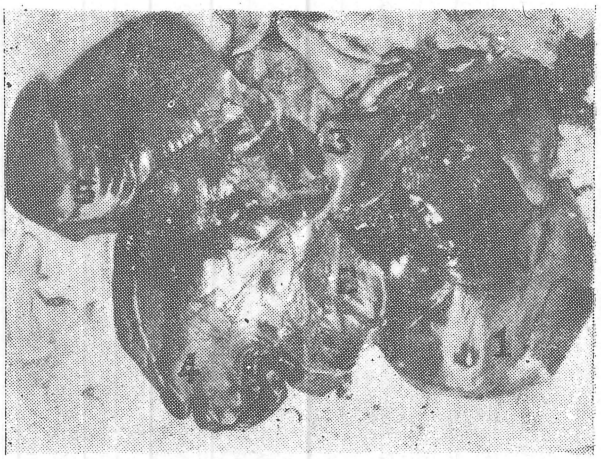


Fig. 1. Liver, visceral surface showing 1. Right lobe, 2. Quadrate lobe, 3. Caudate lobe, 4. Left median lobe and 5. Left lateral lobe

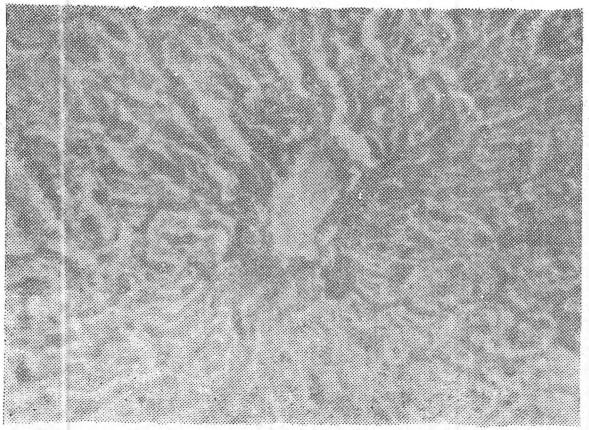


Fig. 2. Photomicrograph of liver showing muralium simplex. (H & E)

An unusual occurrence of *Spirocerca lupi* worms in the heart of a dog—U.K. Garg *et al*.

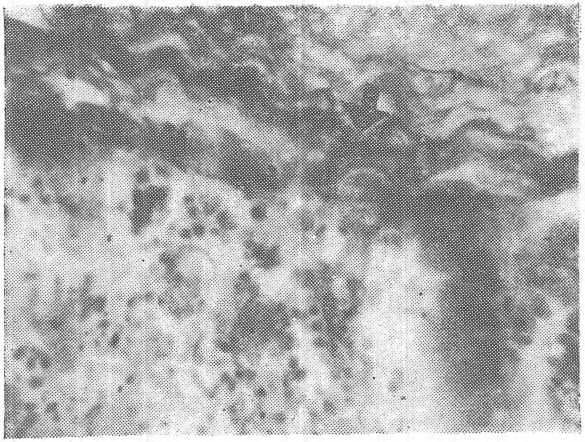
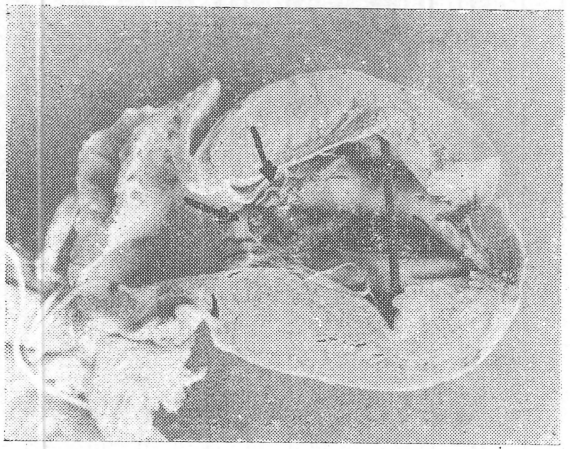


Fig. 3 Liver showing collagenous fibers in a Mallory's trabecula



Spirocerca lupi worms loacted in the atrioventricular junction and haemorrhage in endocardium

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