Accessory liver lobe anomaly in the abdominal region of a calf

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SUMMARY

In this observation, a mass weighing 450 g in weight and measuring 10x18x9 cm located in the umbical canal was surgically removed and macroscopical and microscopical examination were performed. It was concluded that the mass was liver tissue. The case was diagnosed as accessory liver lobe.

KEY-WORDS : accessory liver lobe - calf.

Introduction

Most cases of developmental disorders observed in the liver of animals are considered to be insignificant. Part of the defects are associated with certain malformations. These defects may be observed as the absence of certain lobes or hypoplasia of liver lobes; in the latter condition, lobes other than the hypoplastic ones are determined to be hypertrophic. The number of lobes may be greater than the normal limit. Ectopic parenchymal foci which mainly originate from fibro-tic tissue may be seen on the ligaments of the liver and in the thorax. Accessory liver lobes may be found to be located in regions other than their normal anatomical position, however still in connection with the liver. These conditions are generally reported as congenital anomalies [1, 2, 3]. Among the veterinary literature cited, reports of heterotopic testis, spleen [4] and accessory liver lobes [7] have been observed to be few in number whereas comprehensive studies have been carried out in human medicine in this field [9, 13, 15, 16, 19].

There is no previous study carried out on accessory liver lobes in animals in Turkey. Macroscopical and microscopical findings belonging to the accessory liver lobe of a calf have been presented in this study.

Materials and Methods

A 7 days old Holstein breed calf submitted to the Surgery Clinic of the University of Erciyes, Faculty of Veterinary Medicine, constituted the material of this study. The owner of the animal had reported the presence of a mass approximately the size of a child’s head (10x18x9 cm and 450 g) in the umbilical region of the calf.

Puncture of the mass was performed for diagnostic aim. Upon failure of diagnosis by puncture, surgical intervention was decided to be performed.

The mass was removed surgically and fixed in 10% buffered formalin. Following trimming and processing, the mass was blocked in paraplast. 5-6 µ thick cross-sections were prepared from the paraffin blocks and dyed in accordance with the Hematoxyline-Eosin and Periodic Acide Schiff (PAS) methods.


**Results**

**MACROSCOPICAL EXAM**

The firm mass, measuring 10x18x9 cm and weighing 450 g, and located in the umbilical region of the calf was removed surgically under general anaesthesia by cutting Vena umbilicalis (Figure 1). The mass was whitish in colour, located slightly lower from the surface and displayed a lobular appearance associated with structures similar to fibrous ligaments. A slightly haemorrhagic fluid was observed to leak from the surface of the cross-section.

**MICROSCOPICAL EXAM**

Microscopical examination revealed part of the hepatocytes located in the Remark Cords to have more than one nuclei whereas complete nucleolysis of the nuclei of some hepatocytes. Granulation was observed in the cytoplasm of these cells (Figure 2). The mentioned hepatocytes were observed to display a diffuse homogeneous structure. In some regions, dense erythrocyte accumulations were observed between the hepatocytes. These hepatocytes were determined to form fibrous tissue, slight mononuclear cell infiltration and incomplete lobulation. Venae centrales containing a few number of erythrocytes in the lumen were observed to exist among diffusely distributed hepatocytes. Mild fibrous tissue and mononuclear cell infiltration was observed at the periphery of these venae centrales. Bile coloured substances of yellowish brown appearance were present in the cytoplasm of part of the hepatocytes (Figure 3).

Furthermore, regions including A. hepatica, V. hepatica and bile ducts were determined and identified as portal inter-space. The periodic-acide-schift dye method revealed the granules located in the cytoplasm of hepatocytes to be glyco-gen granules (Figure 4).

**Discussion**

In this case report, the macroscopical and microscopical findings concerning a mass measuring 10x18x9 cm, weighing 450 g and located in the umbilical canal of a one week-old female calf were evaluated. Histological examination of
the mass revealed it to be functional liver tissue. Since the primary liver was found to be located in its normal anatomical position during surgery, this mass was diagnosed as an accessory liver lobe. Liver defects are generally associated with other malformations and diagnosed in animals during clinical, surgical and post-mortem examination [1-4, 5, 7]. There are only a few reports of accessory liver lobes in animals worldwide [7]. In this study, the presence of an accessory liver lobe connected with the liver in the mediastinal region of a calf has been reported. Furthermore, there is no previous study carried out in Turkey in which an accessory liver lobe was diagnosed.

Surgical intervention and ultrasonographic examination performed upon complaints of patients have revealed many cases of accessory liver lobes connected with the liver in human medicine [8, 9, 10, 11, 12, 15]. In some other research, the presence of ectopic liver tissue located in the umbilical cord [12, 16], sometimes in the wall of the gall bladder and the surrounding fat tissue [5, 14, 16, 17] has also been reported. Heterotopy cases of the liver and some other internal organs have been reported previously in the field of veterinary medicine [6, 4, 1, 2, 3]. However there are only a few number of studies carried out on formation of accessory liver lobes [7].

In research carried out in human medicine and in which accessory liver lobes were diagnosed, sometimes the liver tissue was determined to be fully developed with regard to histological structure [9, 13, 19, 14, 15], sometimes incomplete development was observed [11, 16] in some cases, hepatocellular carcinoma was found to exist [10, 18, 19].

In this case report, the mass related to the liver was found to originate from a fully developed liver tissue which had no connection with the primary organ.

Due to the insufficiency of available studies, further evaluation was not been able to be made.

In conclusion, the accessory liver lobe diagnosed in the umbilical canal of the calf was thought to form as the result of a development defect which occurred during organogenesis.

5. References


