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A CASE OF HEPATIC CYST AND HEPATIC LOBE TORSION IN A CHOW-CHOW MALE

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Abstract

The paper aims to describe a clinical case of a dog with a hepatic cyst and a hepatic lobe torsion. Abdominal ultrasound of the dog presented for anorexia and vomiting revealed an anechoic mass in the hepatic parenchyma and a hyperechoic area on the left lateral liver lobe. The biochemical findings in this case showed an elevated glutamic pyruvic transaminase (GPT) and alkaline phosphatase (ALP). The surgery consisted of a partial lobectomy of both affected lobes.

Keywords: *hepatic cyst, hepatic lobe torsion, surgery.*

INTRODUCTION

Hepatic cysts can be congenital or can be acquired in time (Van Den Ingh, 1985). Hepatic cystic lesions predominantly remain asymptomatic and are found as a mere coincidence on abdominal imaging techniques, such as ultrasonography (USG), computed tomography (CT) and magnetic resonance imaging (MRI) (Lantinga, 2013).

Although patients usually don't show any sign of illness, the cysts can become large and cause abdominal distention or clinical signs such as lethargy and vomiting. Liver lobe torsion is a rare condition in dogs. Mostly, the cause is unknown but can be explained in case of congenital absence of the hepatic ligaments or traumatic rupture (Fossum, 2012; Scheck, 2007; Bhandal, 2008).

A double partial lobectomy was performed on a 13 y old male

Chow-chow, diagnosed on ultrasound exam with hepatic solitary cyst and hepatic lobe torsion. The outcome was good, the patient had full recovery in two weeks post-surgery.

MATERIALS AND METHODS

A 13-year-old male Chow-chow was presented with signs of vomiting and lack of appetite. Physical examination of the patient revealed an enlarged liver upon abdominal palpation. When pressure was applied, it grunted.

The dog had a history of time to time vomiting for the past 6 months but its condition got worse and was brought into the clinic. It also had a scrotal fistula.

The CBC was normal but there were changes in the biochemical parameters as shown in table 1.

Table 1. Biochemical parameters

Parameter	Value	Reference range
GPT	85,9 UI/L	8,2-57 UI/L
GOT	16,9 UI/L	8,9-49 UI/L
CRE	2 mg/dL	0,5-1,6 mg/dL
UREA	34,3 mg/dl	8,8-26 mg/dl
GLU	74,5 mg/dL	62-108 mg/dL
ALP	289,4 UI/L	10,6-101 UI/L
TBIL	0,3 mg/dL	0,1-0,3 mg/dL

RESULTS AND DISCUSSION

An ultrasound exam was performed to correlate the biochemical findings.

Ultrasound examination of the hepatic parenchyma revealed an anechoic structure that was associated with far acoustic enhancement (Figure 1). It also exposed a hyperechoic area on another lobe which was later confirmed as a liver lobe torsion (Figure 2).

The testes were also examined. The epididymis of the right testis was larger than an usual one and had mixed echogenicity (Figure 3).

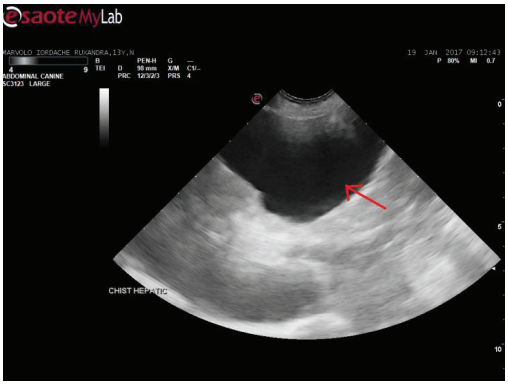

Figure 1. Hepatic cyst

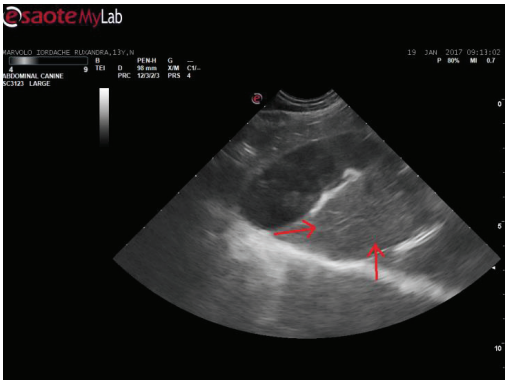

Figure 2. Left lateral liver lobe torsion

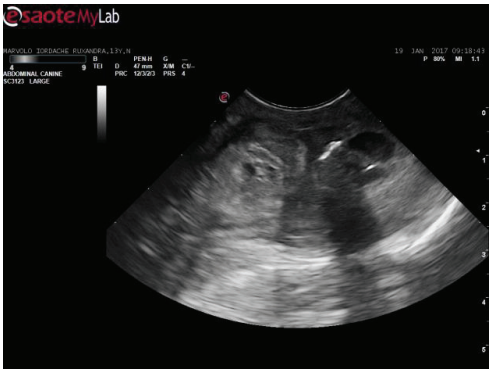

Figure 3. Modified structure of the right testicle

As a result of minimal change in the condition of the dog after a week of treatment with antibiotics, biliary drainers and antispasmodics, the patient was scheduled for surgery.

The patient was premedicated with Diazepam 0.2 mg/kg and butorphanol 0.2 mg/kg, induced with propofol and maintained with isoflurane gas. Analgesia was continued after surgery with Tramadol 2 mg/kg t.i.d.

Ventro-median retroxiphoydian laparotomy was performed and the liver was located.

A hepatic cyst was identified on the left medial liver lobe (Figure 4), along with the torsion of the left lateral liver lobe.

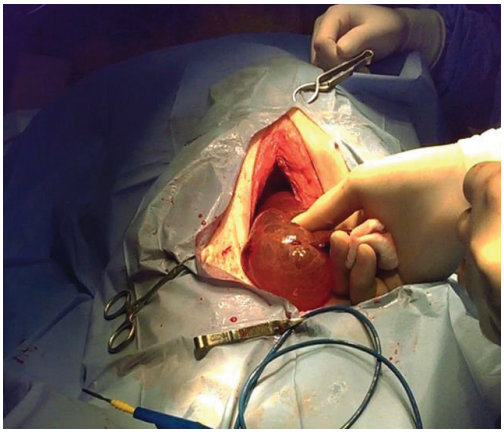

Figure 4. Hepatic cyst

The great omentum was pexed on the torsioned lobe so, some ligatures were applied and then the great omentum was transsected (Figure 5, 6).

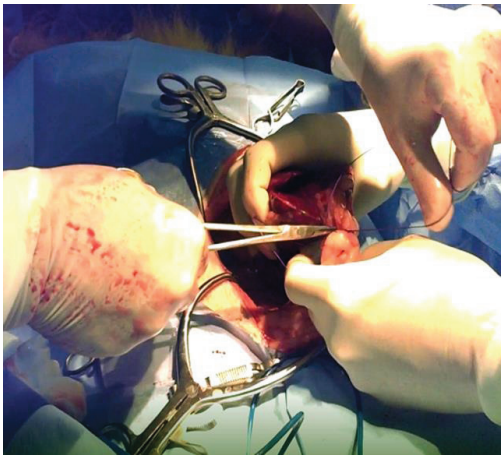

Figure 5. The application of ligatures on the pexed omentum

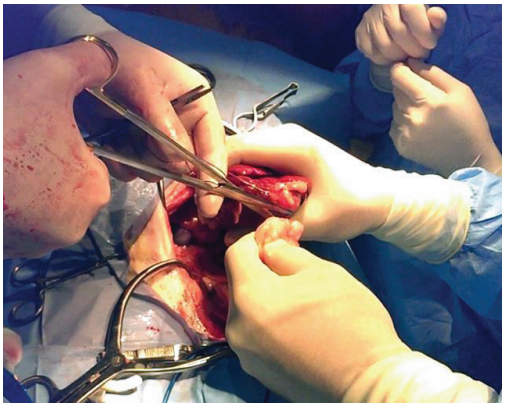

Figure 6. Cutting of the pexed omentum

Partial lobectomy was performed on both affected lobes (Figures 7, 8).

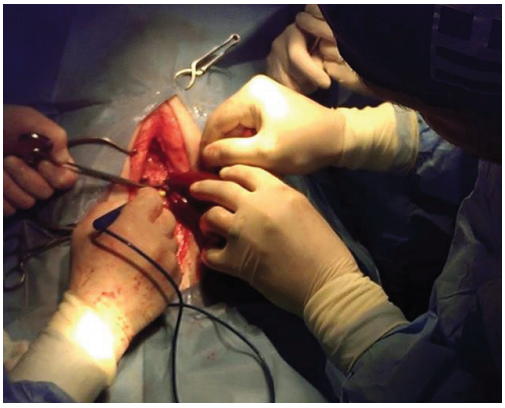

Figure 7. Hepatic parenchyma incised with the electrocautery scalpel

For the liver lobe with torsion, the line of separation between normal hepatic parenchyma and that to be removed was determined.
Separate ligations were applied along the normal parenchyma to isolate the damaged tissue (Figure 9).
The selected site of the liver parenchyma was incised with the electrocauter resulting in the partial removal of the liver lobe (Figures 10, 11).

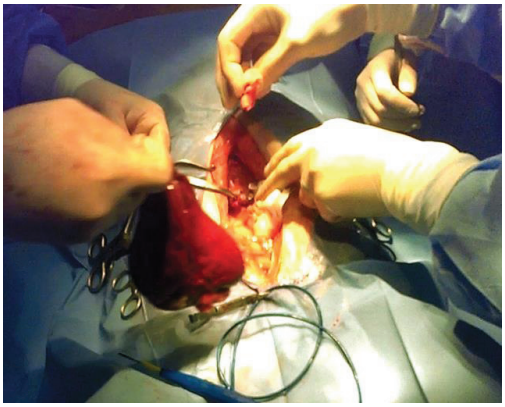

Figure 8. Partial lobectomy of the torsioned hepatic lobe

The same technique was applied for the hepatic cyst lobe.

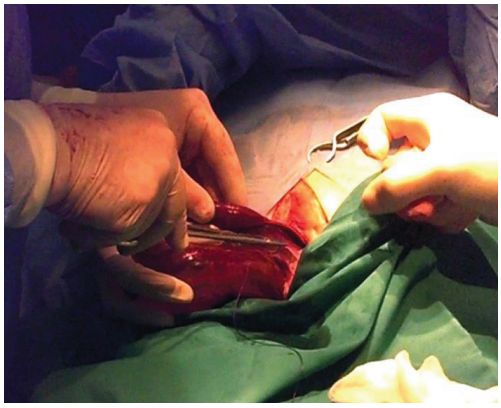

Figure 9. Separated ligatures were applied on the lobe with the cyst

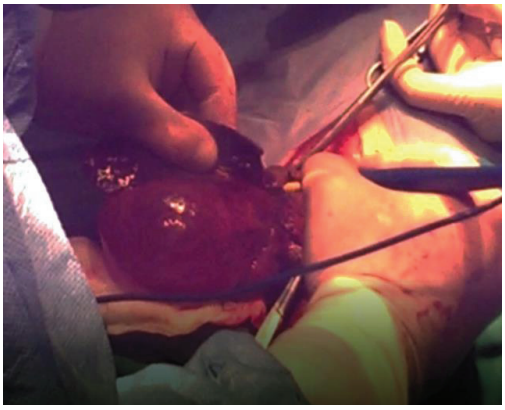

Figure 10. Partial lobectomy performed with the electrocautery scalpel

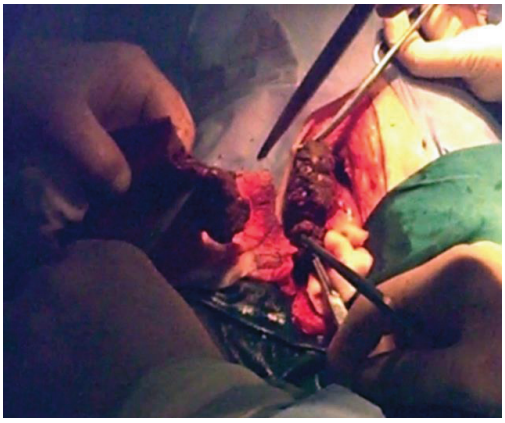

Figure 11. Partial lobectomy of the liver lobe

The abdominal cavity was closed in two layers: simple continuous suture of the *linea alba* with polydioxanone (PDS) 2/0 followed by a continuous "U" suture of the skin with 2/0 Nylon.
A bilateral orchiectomy was also performed for the removal of the modified testes.
The partially removed liver lobes and the testes were sent for a histopathological diagnostic.
The suspicion of liver cyst was confirmed (Figure 12).

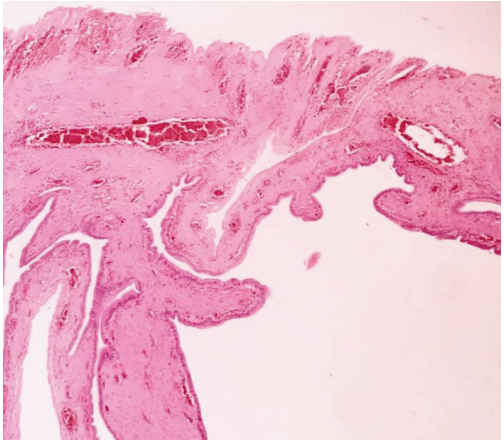

Figure 12. Bile duct (cross section- detail) - marked dilatation with several intraluminal prolongations of attenuated bile duct epithelium, suggesting compressive atrophy (bile duct dilatation/Polycystic liver disease).

The histopathological analysis showed a chronic hepatitis in thetorsioned liver lobe (Figure 13) and a chronic severe epididymitis of the testes (Figure 14).

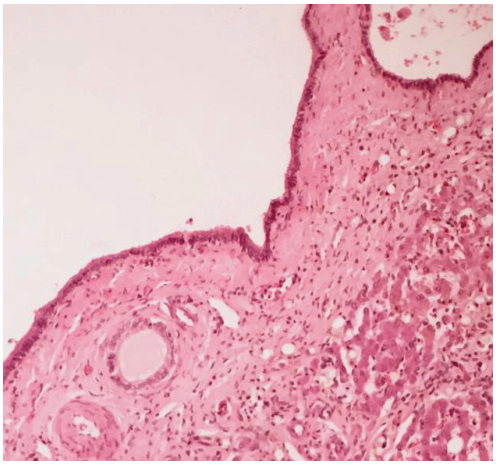

Figure 13. Liver - interstitial fibrosis dissecting groups of hepatocytes; the collagen fibers are arranged in layers surrounding markedly dilated bile ducts; the hepatocellular cords are compressed and occasionally dissociated (chronic hepatitis)

Figure 14. Epididymis (cross section) - severe thickness of tunica serosa, evident interstitial connective tissue proliferation; diffuse ectasia of ductus deferens(chronic severe epididymitis)

As in the clinical case of liver lobe torsion studied by Scheck (2007), the Chow-chow also had episodes of vomiting and obvious pain when abdominal pressure was applied on physical examination.
The study conducted by Bhandal et al. (2008) also revealed that the clinical signs were unspecific, with vomiting and a history of anorexia.
The Rottweiler showed no signs of pain at abdominal palpation. As in the case of the Golden Retriever, it also had peritoneal

effusion. Despite the long period of illness of the Chow-chow, no peritoneal effusion was found. In all three dogs, the major biochemical changes included elevated liver enzymes.
In most cases, the liver cystic lesions described by Van den Ingh and Rothuizen (1985) were coincidental findings.
A direct relation between the cystic lesions and clinical disease existed in one dog, a Pekingese which had been vomiting for a week until it was brought to the vet. As in our case, physical examination revealed hepatomegaly.

CONCLUSIONS

The clinical signs of the patient along with the biochemical findings, attested a liver dysfunction. The ultrasound examination revealed an existing mass in the liver which could only be treated by surgery. The differential diagnostic of the hepatic cyst from hepatic abscess or neoplasia was confirmed through histopathological analysis.

The clinical findings of all authors cited in the paper revealed that all patients were presented with a history of anorexia and episodes of vomiting. Abdominal pain was present only in some cases, though the existing hepatomegaly. Elevated liver enzymes were present in all cases with liver lobe torsion.

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