Diagnosis and Therapeutic Approach of Canine Hepatic Abscess

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Received: 13/06/2016 Revised: 27/06/2016 Accepted: 29/06/2016

Abstract
The presented case reports describe diagnostic and therapeutic approach of a liver abscess in two dogs. The dogs had chronic inappetance, occasional vomiting and weight loss. Diagnostic procedures hematobiochemistry, radiography and ultrasonography were performed. Sonography of abdomen revealed an abscess-forming lesion in the left lower liver lobe. Under sedation and ultrasonographical assistance aspiration of the lesion (abscess) was performed which revealed fluid material. Medical management was carried out successfully by single aspiration of abscess with broad spectrum antibiotics, anti-inflammatory drugs, fluid therapy and liver supportive.

Keywords: Liver Abscess, Dog, Needle Aspiration, Medical Management.

1. Introduction
Hepatic abscesses are relatively uncommon in dogs. Causes of hepatic abscess are most often unknown, yet lesions are attributed to infections involving other organs or organ systems in dogs (Farrar et al., 1996; Feliciano et al., 1989). Hepatic abscesses form either as isolated lesions or more commonly in association with infections elsewhere in the body. Macroscopic abscesses can be solitary large masses or smaller masses scattered throughout the liver (Jennifer et al., 2004). Enteric aerobes and anaerobes are the most common organisms isolated from macro- or micro-abscesses in affected dogs and humans, with approximately 40% of infections being polymicrobial in both species (Jennifer et al., 2004). Clinical signs (viz., anorexia, vomiting, lethargy, and diarrhoea) and clinico-pathological findings are similar to those of other inflammatory hepatic disease. Ultrasonography and fine-needle aspiration of the lesion aids in early diagnosis. Ultrasonography is valuable in detecting hepatic abscess. However, a definitive diagnosis frequently requires exploratory celiotomy. Differential diagnoses for ultrasonographic findings include neoplasia, torsion, granuloma, nodular hyperplasia with haemorrhage (Farrar et al., 1996). Ultrasound guided cytological evaluation of aspiration samples may assist in the diagnosis. Antibiotic therapy with drainage is the definitive treatment.

2. Materials and Methods
Two dogs (1- German shepherd, 4 yrs, intact male and 1- Labrador, 6 yrs, intact male) were presented with the signs of chronic inappetance, occasional emesis and weightloss. Thorough physical and clinical examination was carried out to rule out the systemic involvement.

Case Report -1
A four year male German shepherd dog with clinical signs of chronic inappetance, occasional emesis, going down in condition and hemechezia was reported with no clinical improvement on treatment at local veterinary hospital. The vitals at the time of presentation were Temperature: 102.6° F, Respiration rate: 46/min., H/R: 89/min, conjunctival mucus membranes showed mild congestion, Skin Tenting Test (STT) <5 sec and Capillary refill time (CRT) <2sec. On palpation of anterior aspect of abdomen pain was evinced.

Case Report -2
A six year male labrador dog with clinical signs of chronic inappetance, emesis, lethargy and ascites was presented. The vitals at the time of presentation were in normal ranges, STT <3 sec and CRT <2sec. On palpation of abdomen, fluid thrill was noticed. Hematology, biochemical tests, radiograph and ultrasonography were performed in both dogs.

3. Results and Discussion
A complete blood cell count in both dogs revealed leukocytosis with neutrophilia. Serum biochemistry showed increase in ALT, AST, alkaline phosphatase, bilirubin and mild increase in BUN. The -
values are presented in Table 1. Leslie et al. (1998) and Farrar et al. (1996) reported leukocytosis, neutrophilia, an increase in ALT, AST, ALP and total bilirubin. Jennifer et al. (2004) in his study on hepatic abscess in cats reported increase in BUN. Abdominal radiograph showed hepatomegaly in GSD dog and effusion in Labrador dog. On ultrasonography, both the dogs had single abscess which was identified in the left liver lobes and the size of abscess was < 3cms in GSD, 3-4cms in Labrador. Ascites was also observed in Labrador dog. Hypoechoic to anechoic liquid content was observed in liver lobe with hyperechogenic rim. Typically, on ultrasonography abscesses present an anechoic or hypoechoic liquid content, and may also contain gas inside. Alterations of the liver parenchyma were also observed, suggesting an acute hepatitis, disease often found in association with abscesses. Other alterations such as hyperechogenicity of peri-hepatic fat, regional lymphadenopathy and abdominal effusion can also be verified (Babicsak et al., 2013). Ultrasonography assisted fine needle aspiration was done to confirm the suspected hepatic abscess. An ultrasound guided fine-needle aspirate biopsy is recommended to confirm a suspected abscess, provided that there is safe access to the lesion. The use of ultrasound-guided fine-needle aspirate biopsy was helpful in confirming abscessation by cytologic examination and or by aerobic/anaerobic culture (Leslie et al., 1998). Cytology of the abscess material revealed polymicrobial organism’s viz., E. coli, Staphylococcus, Streptococcus, Klebsiella and neutrophils were also found. The medical treatment varies depending on the size, nature and the organism involved. In the present cases, 2-3ml of liquid content from the abscess was collected by ultrasound guided needle aspiration using 20 G needle under sedation followed by antibiotic (Intacef Tazo®), NSAID (Melonex®, Metrokem®, fluid therapy for 2 weeks and hepatic supportive (Silymarin) for one month. Single time needle aspiration was done in both dogs as the abscess size was < 3 cms. However, Dhaval et al. (2012) in humans reported that abscesses smaller than 5 cm sizes were managed by parenteral antibiotic therapy, while those above 5 cm size were planned to be managed by ultrasound-guided percutaneous aspiration/drainage followed by administration of broad-spectrum antibiotics intravenously and also stated that in cases of pyogenic liver abscess, fluoroquinolones or a second generation cephalosporin was given intravenously along with metronidazole. The general comparison of surgical versus medical management is not fully appropriate without considering underlying conditions, location, accessibility and degree or severity of abscessation. In present study both the dogs’ didn’t show recurrence from the day of recovery (since 3 months). Presently they are under observation to rule out any recurrence/spread. Improvement in clinical signs was noticed on day 3 in one dog and day 5 in other dog.

4. Conclusion
Hepatic abscesses are rare in dogs, but the clinical signs and clinico-pathologic findings are similar to other inflammatory hepatic disease. Early detection of liver abscesses, followed by percutaneous
interventional management and ultrasonographic monitoring contribute to the favourable results. Therefore, the use of ultrasound in the diagnosis and medical management of canine hepatic abscesses is therefore encouraged.

Reference