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SHORT COMMUNICATION

Ultasonographic Findings of Pancreatitis in Dogs

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ABSTRACT

The study was conducted to document and assessment of ultrasound as a diagnostic modality in pancreatitis in dogs. 34 out of 1440 cases presented over a period of one year for ultrasonographic examination having pancreatic changes. Abdominal ultrasonography revealed hypoechoic pancreas, hyperechoic surrounding fat saponification, enlarged or irregular pancreas and dilatation of biliary or pancreatic duct as the major changes in pancreatitis dogs with primary pancreatic disorder. Ultrasound proved to be a good diagnostic modality for diagnosing subclinical form of pancreatitis but may be a poor indictor of prognosis of the disease.

Keywords: Pancreatitis, Ultrasound, Dogs

Pancreatitis is the most common disease of the canine exocrine pancreas. It occurs in both acute and chronic forms (Troy, 2007). Acute pancreatitis is a completely reversibile condition based on the extent of inflammatory changes in pancreas. It is characterized by pancreatic inflammation with infiltration of neutrophils, necrosis and oedema. The clinical course of this disease is highly variable making the timely diagnosis as the most challenging task to the veterinarian (Cordner *et al*., 2010).

Pancreatitis tends to occur in neutered, middle-aged and overweight dogs. Further predisposing factors of this disease varies from high fatty meal to long term use of drugs like seizure medications, chemotherapeutic agents and long term use of antibiotics such as tetracycline and sulphonamide. Cases presented clinically show symptoms like vomiting, inappetance, dehydration, lethargy and praying posture as a response to cranial abdominal pain (Troy, 2007).

Diagnosis is made based on clinical history, physical examination, hematology and biochemistry, radiography, ultrasonography, estimation of serological markers and pancreatic biopsy (Penny, 2004). Among all the above tests, abdominal ultrasound is considered as the most sensitive imaging modality with advantages of its easy availability and non-invasiveness helpful in a quick diagnosis with sensitivity of 68% in dogs with severe acute pancreatitis (Hecht and Hendry, 2007) and elimination of other gastrointestinal disorders (Agthe, 2009). Hence, the present study is aimed to study the ultrasonographic changes in pancreatitis in dogs.

Dogs with history of sudden onset of vomiting, inappetance and lethargy presented to the Small Animal Out-Patient Medicine Unit of Madras Veterinary College Teaching Hospital, TANUVAS were selected as the study group. These cases were thoroughly interrogated followed by physical examination with routine blood work done. Later

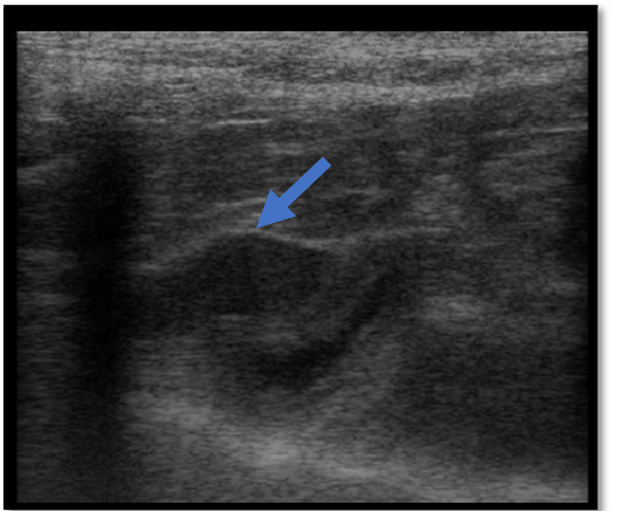

Fig. 1: Ultrasonograpy of normal pancreas (arrow) - Isoechoic or hypoechoic to the surrounding mesentry

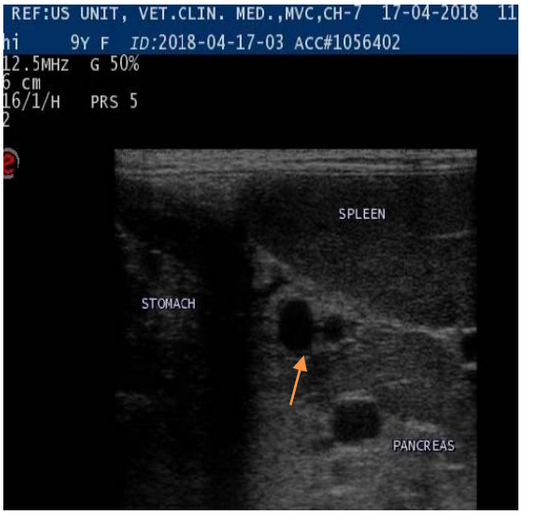

Fig. 2: Arrow showing hypoechoic pancreas visualized ventral to spleen and caudal to stomach

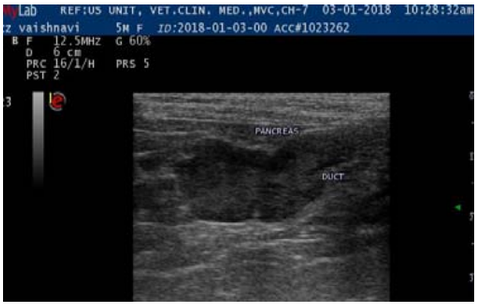

Fig. 3: Hypoechoic pancreas with distinct borders along with prominent pancreatic duct

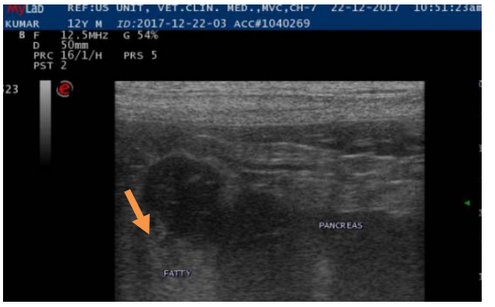

Fig. 4: Arrow showing hyperechoic fat surrounding pancreas

they were subjected to radiography and ultrasonography to rule out other acute abdominal diseases. 34 cases were reported to be having pancreatic changes out of a total of 1440 cases presented over a period of one year for ultrasonographic examination.

Patient preparation was done by fasting the dog for at least 12 hours before scanning to prevent gas and ingesta interference. A high frequency linear or curvilinear transducer of 7.5-10 MHz were used to maximize the resolution of superficial organs and in case of large or obesed dogs 5-8 MHz transducer was preferable to locate deeper organs (Agthe , 2009).

Pancreatic ultrasound was performed either in the dorsal, ventral or lateral recumbency and sometimes in standing position depending on the sonographer. Left lateral and dorsal recumbency was usually preferred. The pancreas were divided into left and right lobes which were joined together at pancreatic body. Normally right lobe was located by using right kidney, portal vein and descending duodenum as landmarks. Left lobe was best visualized by scanning the area caudal to cranial duodenal flexure and greater curvature of the stomach, cranial pole of left kidney and latero-dorsally to spleen (Hecht and Henry, 2007).

A total of 34 cases (2.36%) were confirmed to be pancreatitis based on the ultrasound changes. Normal pancreatic parenchyma being of equal echogenicity as that of surrounding mesentry makes it difficult to differentiate in case of mild pancreatitis (Tim, 2014). The normal pancreatic parenchyma has a similar echogenicity and

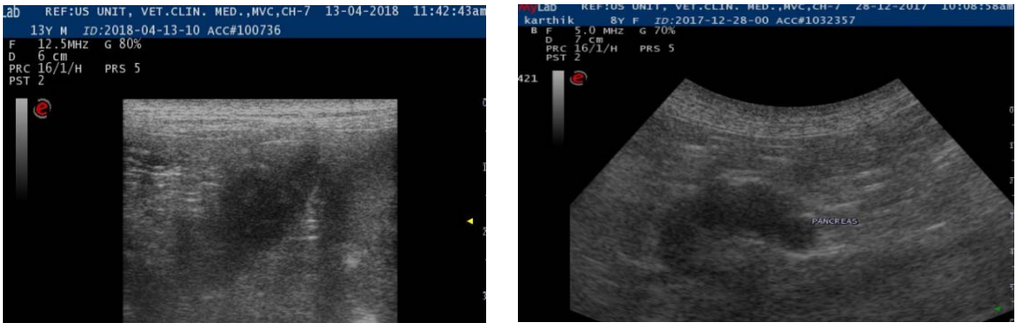

Fig. 5: Ultrasonography of a dog with Pancreatitis (A and B showing hypoechoic, diffused pancreas with surrounding fat saponification)

echotexture to the surrounding mesentery (Fig. 1), local transducer pressure to the cranial quadrant may induce pain. Severity and chronicity of pancreatitis showed variation in scan image. Focal peritonitis and saponification can be appreciated (Agthe, 2009).

Ultrasonographic findings in dogs with acute pancreatitis were hypoechoic pancreas (100 per cent), hyperechoic surrounding fat saponification (42.85 per cent), enlarged or irregular pancreas (50 per cent) and dilatation of biliary or pancreatic duct (14.29 per cent).

The ultrasonographic changes recorded in the present study were hypoechoic (Fig. 2) mass like pancreas with distinct border (Fig. 3) along with contrasting and hazy hyperechoic mesentry (Fig. 4).

In the present study, decreased echogenicity of pancreas may be due to edema, necrosis or hemorrhage, and inflammatory exudates secondary to pancreatitis (Chee and Steiner, 2016). Similar findings have been reported earlier (Chee and Steiner, 2016). In the present study, enlarged hypoechoic pancreas with hyperechoic mesentery (Fig. 5 A and B) was clearly visualized which might be due to necrosis of peripancreatic fat, consistent with saponification of fat secondary to inflammation and concur with the findings of Hecht and Henry, (2007). Dilatation of the pancreatic duct was observed in pancreatitis which may be due to intramural edema and dilatation or obstruction of the bile ducts (Avante *et al.,* 2018).

CONCLUSION

Ultrasonographic changes observed in pancreatitis were hypo echoic areas at the pancreatic area with increased echogenicity of the surrounding mesentry, enlargement of pancreas with presence or absence of pancreatic or biliary duct dilatation.

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