Proceedings of the 36th World Small Animal Veterinary Congress
WSAVA

Oct. 14 - 17, 2011
Jeju, Korea

Next Congress:

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INTRODUCTION:

Portosystemic shunts (PSS) are disorders in which a vascular bypass communicates between the portal venous system and the systemic venous system. PSS is a rare disease in cats, while it is a relatively frequent disease in dogs. PSS is classified into two categories: acquired and congenital. Congenital PSS results from abnormalities in the development of the portal venous system or fetal vessels. Congenital PSS is divided into two categories: extrahepatic and intrahepatic. Acquired PSS is commonly caused by portal hypertension resulting from liver cirrhosis or liver failure.

Congenital PSS

Congenital PSS is characterized by a single large shunt, which is classified into two types: extrahepatic shunt and intrahepatic shunt. Extrahepatic shunts are typically seen in small breeds dogs. Intrahepatic shunts are typically seen in large breeds dogs. In cats, extrahepatic shunts are more commonly seen than intrahepatic shunts.

Acquired PSS

Acquired PSS is commonly caused by portal hypertension secondary to liver cirrhosis or liver failure. It is characterized by multiple shunts. Ascites may be accompanied in acquired PSS in dogs with acquired PSS, while it is typically not seen in dogs with congenital PSS. In cats, ascites is usually not seen in acquired PSS.

Laboratory tests

In PSS in dogs, there is a decrease in the levels of total protein, albumin, blood urea nitrogen (BUN), total cholesterol and glucose. In PSS in cats, there is a decrease in the levels of BUN, but the levels of total protein, albumin, total cholesterol and glucose are often within normal limits. Ammonia and serum bile acid (SBA) are among the most reliable tests for PSS in both dogs and cats. It is recommended that SBA be tested twice: before meals and two hours after meals.
Radiological tests
Liver tends to become smaller in both dogs with congenital PSS and dogs with acquired PSS. The size of liver will usually not become smaller in cats with PSS.

Ultrasound tests
There is no huge difference between ultrasound findings in dogs with PSS and those in cats with PSS. Intrahepatic shunt can be detected in almost all cases. Detection of extrahepatic shunt depends on the surgeon’s skill and technique. Ultrasound tests for acquired PSS are often difficult.

Diagnosis
Diagnosis of PSS is made by non-invasive CT angiography or contrast radiography of the portal vein from mesenteric vein or splenic vein during abdominal operation. The advantage of CT angiography is that it can obtain images of portal vasculature before surgery. These images can be reconstructed into 3D images. However, acquired PSS is often not detectable by CT angiography.

Internal & Surgical management
Internal treatments are used to prevent and treat hepatic encephalopathy. Hepatic encephalopathy will be discussed in another session.

In congenital PSS, ligation of the shunt vessel is required by monitoring of portal and systemic blood pressures. Ligation of extrahepatic shunt is not so difficult. Ligation of intrahepatic shunt is very challenging. It is often difficult to secure the shunt vessel. Ultrasonic surgical aspirator may be helpful to isolate the shunt vessel. There are several methods for ligation of shunt vessels including complete ligation, ameroid constrictor, cellophane band and partial ligation. Selecting the appropriate method for ligation depends on portal blood pressure.

Prognosis
Prognosis of congenital PSS is good after successful surgical management. On the other hand, prognosis of acquired PSS is relatively good if underlying liver disease is controlled by internal treatments, but it is worse when underlying liver disease is severe.