Extrahepatic Portosystemic Shunt Surgery

Your pet has been diagnosed with a congenital portosystemic shunt (PSS) which are vascular anomalies that connect the portal circulation (drainage from the intestines) with systemic circulation, thereby bypassing the liver. These are mainly found in small and toy-breed dogs such as Yorkshire terriers, pugs and dachshunds.

Cause

The exact cause of shunts can be congenital in young patients (abnormal development during pregnancy) or acquired in older patients. Abnormal connections are made between veins that drain the intestines and bypass the liver which normally filters toxins from the blood. This bypass not only increases certain toxins in the blood but also prevents the liver from developing normally so these patients typically have a very small liver.

Signs

The main signs of portosystemic shunts in dogs are:
1. Some dogs may show very little clinical signs
2. Small liver on radiographs
3. Low BUN (blood urea nitrogen) and glucose (sugar) in the blood and sometimes low albumin and cholesterol
4. High blood ammonia levels
5. Ammonium biurate crystals in the urine
6. Seizures, especially after eating
7. Dementia or lack of alertness
8. Stunted growth

Diagnosis

Diagnosis is confirmed by blood tests, radiology, bile acids, blood ammonia and finally surgical exploration. There are tests that can be done pre-operatively to confirm the diagnosis include nuclear scintigraphy (available at UT Veterinary College), ultrasound (not 100% at finding shunts), CAT scan and MRI (both add significant and usually unnecessary expense). During surgery, a small amount of contrast agent can be injected into a mesenteric vein or the spleen and a radiograph taken to outline any shunt that may be present.
Treatment

Although medical management with lactulose, low protein diet and antibiotics can minimize clinical signs, surgery is the only definitive treatment to cure this condition. Unfortunately, there are some shunts that are not surgically repairable because they are inside the liver or multiple shunts.

Prognosis

Good if the disease is diagnosed and treated early. Even with surgical correction, a small percentage of patients will develop multiple acquired shunts three to six months after surgery that are not repairable.

Short Term Complications

The most common complications right after surgery are seizures, fluid buildup in the abdomen, and discomfort.

Long Term Complications

Long term complications include multiple acquired shunts (up to 40% in Yorkies and 17% in other breeds and is not surgically repairable) and kinking of the ameroid constrictor if your pet is overactive which can lead to fluid buildup in the abdomen.

Post Operative Care

We will continue medical management for at least one month. Right after surgery we will monitor blood glucose ever few hours and start food and water later the same day if doing well. Constrictors start to close in 3-14 days and are complete by 4-5 weeks. Consider bile acid blood test in 4-6 weeks to determine success of shunt occlusion.