



VETERINARY  
MRI + RADIOTHERAPY  
CENTER OF NEW JERSEY

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# Veterinary MRI and RT Center of New Jersey

Case Report #2

February 2010

## Computed Tomography for Identification of Portosystemic Shunts

*CT is a non-invasive method of accurately identifying PSS*

*Up to 20% of PSS can be missed by the use of abdominal ultrasound alone*

*CT should be considered in any dog with elevated bile acids*

### Clinical Case Info...

Lucy is a nine year old, female spayed Schnauzer that presented to the Veterinary MRI and RT Center for confirmation of a suspected portosystemic shunt. Lucy's bloodwork and clinical signs were consistent with a diffuse hepatopathy and/or a portosystemic shunt. An abdominal ultrasound and radiographs were performed, revealing a small liver and possible shunt. A CT scan was performed to confirm the presence of and define the path of a shunt vessel.



The CT examination was effective at identifying a single, extra-hepatic (see above image) portosystemic shunt arising from the left gastric vein and emptying into the caudal vena cava cranial to the liver. The CT scan also revealed the presence of left renal pelvic and bladder calculi, likely secondary to the confirmed hepatic disease process.

*CT can decrease surgical time by accurately identifying the path of the anomalous vessel*

## Discussion

Portosystemic shunts (PSS) are vascular anomalies that divert blood from the abdominal viscera to the heart, bypassing normal hepatic bloodflow. Due to shunting of blood away from portal circulation, toxins, intestinal byproducts, and absorbed bacteria which are normally extracted by the liver, enter systemic circulation.

Several shunting patterns have been described and have traditionally been identified using abdominal ultrasound, contrast portal venography, and colorectal scintigraphy. Abdominal ultrasound has been shown to miss approximately 20% of shunt vessels due to the presence and shadowing of gastrointestinal gas. Contrast venography is an invasive procedure and colorectal scintigraphy is not readily available and requires human exposure to radiopharmaceuticals. Computed tomography has recently become another means of identifying anomalous vessels.

Computed tomography has proven to be a useful, non invasive tool in the diagnosis and surgical planning of portosystemic shunts. CT is a non-invasive, ever more accessible tool used in veterinary medicine. Localizing the path of a shunt non-invasively with CT prior to surgery reduces surgical exploration time if surgical attenuation of the shunt is elected. Ruling out a shunt with CT may help avoid an invasive procedure.

*If you have any questions regarding the value of CT or MRI evaluation for a particular patient please do not hesitate to contact our facility to discuss the case prior to requesting an imaging study.*

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**This case report can now be viewed on our website [www.vetmirt.com](http://www.vetmirt.com) by clicking on the hyperlink “case report” under “for veterinarians”.**

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Thank you from the Staff at The Veterinary MRI and Radiotherapy Center of NJ