



Arizona Veterinary Specialists' News



LEADERS IN SPECIALTY CARE

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A NEW TAKE ON AN OLD DISEASE

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Desert Veterinary Medical Specialists

dvmspecialists.com

Is there anything new about portosystemic shunts? We have not discovered new predisposed breeds, or better surgical options. For the most part, diagnosis starts with clinical suspicion, routine labs, and bile acids testing. If bile acids are abnormal, especially if post-prandial bile acids are over 100, it is time to take the next step in looking for a shunt. This is one of the areas where we have been able to improve our ability to detect shunts. Until recently, the gold standard was nuclear scintigraphy. This test, while safe, is costly, and requires special licensing and equipment to perform. Most pets screened for a shunt with this technique need to spend the night in isolation to allow the technetium-99 to degrade to safe levels. This is stressful for many owners who consider their pets family and adds expense to this procedure. Finally, this diagnostic provides very limited information regarding the locations of the shunt

and cannot reliably differentiate an intrahepatic shunt from an extrahepatic shunt. This is a critical differentiation since the options and prognosis differ for those broad shunt types. Abdominal ultrasound is a popular recommendation since it is non-invasive, readily available, and allows for assessment of other organs. However a 2013 study in *Veterinary Radiology and Ultrasound* revealed that abdominal ultrasound has a sensitivity of only 68% for portosystemic shunts. So do we have anything better? We do! In that same study, CT angiography had a sensitivity of 96% for shunt detection, and in addition, it was able to correctly identify the origin and insertion of the shunt in 15 out of 16 cases, aiding in efficient identification and correction at surgery. For example, look at figure 1, this shunt travels

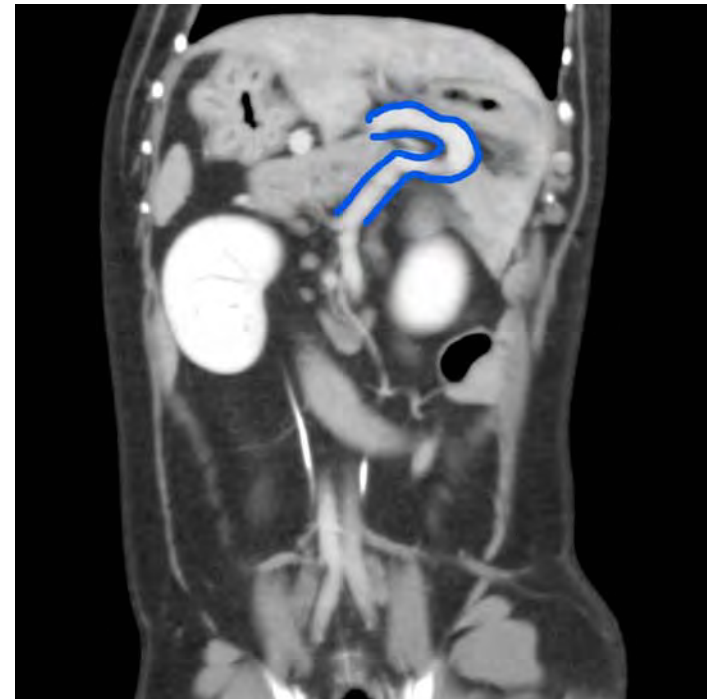


Figure 1

up and around the stomach along the diaphragm, and area that is difficult to visualize surgically and is not routinely assessed for the presence of a shunt. Figure 2 shows a more typical shunt path and figure 3 shows a large intrahepatic shunt.

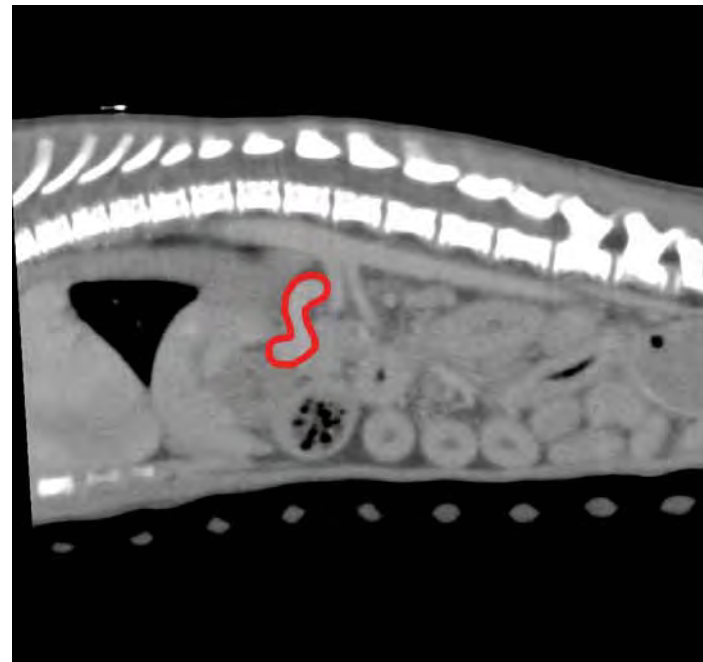


Figure 2



Figure 3

So now that you have a patient that has been identified as having a shunt, is there anything new about management? The overall recommendation is the same, graduated occlusion with surgical placement of an ameroid constrictor or cellophane

band for extrahepatic shunts. Intrahepatic shunt present more challenges since they are significantly more difficult to isolate and ligate surgically, and coil embolization is available at limited centers and also carries a more guarded prognosis. However, medical management prior to surgery has changed somewhat in the last few years. We know from studies that age at correction does not affect outcome, so do not be afraid to recommend an older patient for surgery. The biggest change is the addition of an anti-seizure medication to the protocol, even for patients that do not have any history of seizure activity. In a 2011 paper in the *Journal of Veterinary Internal Medicine*, a study revealed that treatment of pets with Keppra prior to surgery reduced the risk of post-operative seizures from 5% to 0. This is critical because many dogs that have post-operative seizures do not survive to discharge. The length of time needed for his benefit has been unclear, as dogs in this study were treated for variable lengths of time, from 24 hours to 4 weeks or more. At this time, unless medically necessary, 2-4 weeks of medical management including Keppra, lactulose, a prescription diet designed for dogs with liver disease, and an antibiotic such as amoxicillin or metronidazole is recommended.

So while it seems like portosystemic shunts are old news, we are always advancing our knowledge and ability to detect them. Contact DVMS to discuss a potential shunt case and we can help you determine the next options for your patient.

Services Offered at Arizona Veterinary Specialists, LLC

Arizona Veterinary Emergency & Critical Care Center



Emergency and Critical Care

- ◆ In house diagnostic tests
 - STAT laboratory blood tests
 - * Complete Blood Count (CBC)
 - * Serum biochemical analysis
 - * Blood gas analysis
 - * Urinalysis
 - * Blood lactate measurement
 - * Coagulation testing
 - * Ethylene glycol (Antifreeze) testing
 - * Parvovirus testing
 - Digital x-rays
 - * Radiologist interpretation
 - Scanning ultrasound
 - Gastrointestinal endoscopy
- ◆ Specialized Therapies
 - Intravascular volume expansion/shock therapy
 - Blood component therapy
 - Rattlesnake antivenom therapy
 - Oxygen
 - Short and long term ventilator therapy
 - Anesthetic ventilator
 - Pain medication delivery via constantrate infusion
 - Nutritional support
 - Feeding tube placement
 - Peritoneal dialysis
 - Continuous suction for chest and other drains
 - Central and peripheral IV catheter placement
 - CPR with advanced life support
 - Electrical defibrillation & emergency cardioversion
 - Anesthesia for high-risk critical patients
- ◆ Soft tissue emergency surgical procedures performed by our emergency veterinarians (included, but not limited to):
 - Wound repair
 - Emergency tracheostomy
 - Chest tube placement
 - Abdominal surgeries

- Gastric Dilatation Volvulus (GDV) or bloat surgery
- GI foreign body removal
- C-section
- Splenectomy
- Bladder stone removal
- ◆ Intensive monitoring
 - Electrocardiogram (EKG)
 - Blood pressure (direct arterial and indirect)
 - Urinary catheter placement and measurement of urine output
 - Pulse oximetry (Oxygen saturation)
 - Capnography (End Tidal CO2)
 - Central venous pressure
 - Arterial and venous blood gas measurement

Dermatology for Animals, PC



Dermatology

- ◆ Allergy testing (skin testing) and immunotherapy
- ◆ CO₂ laser for ablation of skin tumors
- ◆ Testing for food allergies and hypoallergenic diets
- ◆ Ear disease diagnosis and treatment
- ◆ Bacterial and fungal skin disease diagnosis and treatment
- ◆ Cytological smears and microbiologic examinations
- ◆ Ectoparasite identification and treatment
- ◆ Immune-mediated and hormonal skin disease diagnosis and treatment
- ◆ Treatments of nail and nail bed disorders
- ◆ Skin biopsy sampling and histopathology interpretation
- ◆ Liquid nitrogen cryotherapy

Southwest Veterinary Surgical Service, PC



Surgery

- ◆ Abdominal surgery
 - ◆ Airway surgery
 - ◆ Angular limb deformity surgery
 - ◆ Arthroscopy
 - ◆ CT Scans
 - ◆ External skeletal fixation
 - ◆ Fracture repair
 - ◆ Laparoscopy and Thoracoscopy
 - ◆ Neurologic surgery
 - ◆ Oncologic surgery
 - ◆ Oral surgery, such as maxillofacial surgery and oral fractures
 - ◆ Orthopedic surgery
 - ◆ Otolgic surgery
 - ◆ Perineal surgery
 - ◆ Reconstructive surgery
 - ◆ Ring fixators
 - ◆ Soft Tissue surgery
 - ◆ Stem cell therapy
 - ◆ Thoracic surgery
 - ◆ Tibial Plateau Leveling Osteotomy (TPLO)
 - ◆ Triple Pelvic Osteotomy (TPO)
 - ◆ Total Hip Replacement (THR) both cemented and cementless procedures available
 - ◆ Tibial Tuberosity Advancement (TTA)
- ### Anesthesia and Pain Management
- ◆ Anesthetic management of high risk and critical care patients
 - ◆ Extensive anesthesia monitoring
 - Blood pressure, both direct and indirect
 - Pulse oximetry
 - Electrocardiogram
 - Capnography
 - Body temperature
 - Ventilator therapy
 - ◆ Pain patches
 - ◆ Chronic pain management consultations

Arizona Veterinary Dental Specialists, PLLC



Dentistry

- ◆ Periodontics
- ◆ Dental digital radiography
- ◆ Root canals
- ◆ Nasal disease treatment
- ◆ Oral disease treatment
- ◆ Oral surgery
- ◆ Orthodontics
- ◆ Restoration
- ◆ Professional teeth cleaning
- ◆ Maxillofacial surgery
- ◆ Oral fractures
- ◆ Fractured teeth treatment
- ◆ Malocclusion treatment
- ◆ Crown therapy
- ◆ In house lectures
- ◆ Telephone radiographic consultation
- ◆ Bite evaluation

Arizona Veterinary Oncology, PLLC



Radiation Oncology

- ◆ Conventional Radiation Therapy
- ◆ Stereotactic Radiosurgery
- ◆ I-131 radioactive iodine treatment

Medical Oncology

- ◆ Chemotherapy
- ◆ Immunotherapy
- ◆ Cryotherapy
- ◆ Oncologic surgery
- ◆ Clinical trials



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Internal Medicine

- ◆ Endoscopy
 - Bronchoscopy
 - Bronchoalveolar lavage
 - Colonoscopy
 - Cystoscopy
 - Foreign body retrieval
 - Gastroduodenoscopy
 - PEG tube placement
 - Rhinoscopy
- ◆ Endocrine disorders
- ◆ Emergency consultations
- ◆ Blood and plasma transfusions
- ◆ Gastrointestinal diseases
- ◆ Genitourinary disorders
- ◆ Hepatic diseases
- ◆ Infectious diseases
- ◆ Intensive care treatment
- ◆ Immune-mediated diseases
- ◆ Nutrition consultations
- ◆ Oxygen therapy
- ◆ Pancreatic diseases
- ◆ Pulmonary diseases
- ◆ Renal disease
- ◆ Respiratory diseases
- ◆ Second opinion examinations
- ◆ Ultrasonography
- ◆ Tracheal and urethral stenting

Cardiology

- ◆ Echocardiography
- ◆ Electrocardiogram (ECG)
- ◆ Chest radiographs
- ◆ Blood pressure
- ◆ Pericardiocentesis
- ◆ Cardiology breed certification
- ◆ Holter monitoring

- ◆ Event monitoring
- ◆ Non-surgical PDA repair
- ◆ Balloon valvuloplasty
- ◆ Pacemaker implantation
- ◆ Invasive blood pressure measurements
- ◆ Angiography
- ◆ Implantable ECG Loop Recording

Radiology

- ◆ Outpatient and inpatient ultrasound
- ◆ Radiology Rounds
- ◆ Digital radiography
- ◆ Outpatient and inpatient CT scans
 - 64 slice
- ◆ Fluoroscopic urinary, GI, and tracheal studies
- ◆ Nuclear imaging
 - GFR scans
 - Bone scans
 - Thyroid scans
 - Splenic scintigraphy
- ◆ Radiographic interpretation
- ◆ CT and MRI interpretation

Eye Care for Animals, dba



Ophthalmology

- ◆ Biomicroscopy
- ◆ Indirect ophthalmoscopy
- ◆ Electroretinography
- ◆ Ultrasonography
- ◆ Applanation tonometry
- ◆ Fluorescein angiography
- ◆ Glaucoma treatment
- ◆ Cataract surgery
- ◆ Corneal reconstructive surgery
- ◆ Treatment of eyelid abnormalities



LEADERS IN SPECIALTY CARE

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Our mission is to enhance the quality of our patients' lives, to strengthen the human-animal bond, and to provide a safe and stimulating work environment for all of our team members.

Questions or comments?
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AVS CORE VALUES

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We will strive to discover and share knowledge that will continuously improve the veterinary profession.

EXCELLENCE

At Arizona Veterinary Specialists, our standard is excellence in all that we do and the way in which we do it.

COMPASSION

The spirit of all our relationships will be driven by compassion.

PATIENT CARE

We are committed to providing compassionate, ethical, and quality care to our patients. We treat them as if they are members of our own families.

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We will conduct ourselves in a manner that will instill confidence and trust in all of our interactions.





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