

BVNS Case Study: Zack, 8-year-old male neutered mix breed



Presenting Complaint:

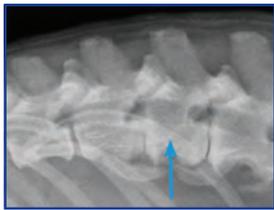
- 3 days progressive back pain (now severe) and progressive pelvic limb weakness (now paraplegic)

Assessment (neurolocalization):

- Non-ambulatory paraplegia; thoracolumbar kyphosis; proprioception absent in the pelvic limbs (normal in the thoracic limbs); brisk reflexes and decreased withdrawals in the pelvic limbs (normal in the thoracic limbs); cutaneous trunci Intact cranial to -L4 on the left and cranial to -L2 on the right; marked discomfort with palpation over cranial lumbar spine
- T3-L3 spinal cord disease; strongly suspect an intervertebral disk extrusion causing injury just caudal to the thoracolumbar region and likely right lateralizing

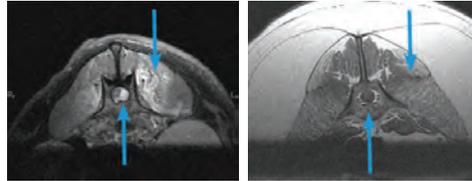
Diagnostics:

A review of blood work showed a mild leukocytosis (WBC 18.34) due to mild neutrophilia (Neut 14.94), as well as hyperglobulinemia (TP 8.6, Glob 5.7). This generated a high index of suspicion for infection of the disk, adjacent bone, and soft tissue (diskospondylitis) along with spinal cord compression from abscess formation or disk extrusion at the site of the infection or pathologic fracture.



This radiograph shows that L1-L2 has a narrow intervertebral disk space but no other pathology is noted.

Not pictured are the diffuse changes in the epaxial muscle from T12 to L4. The MRI on the other hand provided a complete picture of the problem. Pictured below is a T1+gadolinium cross sectional (axial view) of the spinal cord and epaxial muscle at the level of the L2 taken at the location as the blue arrow in the above radiograph. Note the changes in the muscle on the right side of the image and compression of the spinal cord. Brighter areas represent contrast enhancement and are not normal. A control image is provided.



Lastly, a C-Reactive Protein was 61 mg/L (normal 0 - 7.6 mg/L).

Outcome:

Zack was found to be suffering from diskospondylitis at L1-L2 and at L2-L3 with severe empyema and associated compression of the spinal cord. A left T11-L3 hemilaminectomy was performed to remove the inflammatory debris from the spinal canal and decompress the spinal cord and he was placed on a long course of antibiotics. Histopathology of surgically excised epidural fat revealed a severe subacute neutrophilic inflammation — no bacterial colonies were seen, but bacterial involvement could not be ruled out. Subsequent culture produced moderate growth of *Staphylococcus pseudintermedius*.

After surgery, there was immediate and continued improvement in Zack's comfort levels and functional abilities. At the time of his release, four days later, he was weakly ambulatory with moderate paraparesis

and continued absent proprioception in the pelvic limbs. He was much more comfortable than before surgery and has shown continued improvement while making a full recovery over the following weeks.

Take Home Points:

1. MRI is much more sensitive than radiographs for diagnosing spinal cord disease, including diskospondylitis. It is now the standard of care.
2. Diskospondylitis is much less common than disk herniation but should be suspected when there is a leukocytosis, high globulin, and significant back pain. A good outcome can be achieved with a prolonged course of antibiotics but some cases also require surgery.
3. C-Reactive Protein (CRP) has been shown to be more sensitive for detecting inflammation in dogs with diskospondylitis than a white blood cell count, neutrophil count, or assessment of serum globulin. In the dogs that improve clinically, CRP returns to normal. This means that CRP may be a useful blood marker showing when the disease is in remission. The link between diskospondylitis and CRP is an active area of research at BVNS.



Case referred to BVNS by:

Tom Sidor at Beltsville Veterinary Hospital.

For more information or to discuss this case, please email: Dr. Cuff at dcuff@bvns.net or Dr. Brewer at dbrewer@bvns.net.

VSC Case Study: Lolly

Lolly is a 12-year-old male neutered domestic shorthaired cat that presented to the emergency veterinary hospital with a several week history of lethargy and inappetence. No abnormalities were noted on physical examination; bloodwork revealed significantly elevated liver enzymes (ALT and ALP). An abdominal ultrasound was performed, demonstrating a 3cm cavitated mass on the right side of the liver that was also pressing on the gall bladder. The rest of the liver appeared normal. A mass aspirate was submitted for cytology, and the results were consistent with necrosis. Primary rule outs included abscess or neoplasia with a necrotic center.

An exploratory laparotomy was performed which confirmed the hepatic mass. The mass incorporated the majority of the caudate process of the caudate liver lobe. A liver lobectomy was performed which allowed excision of the entire mass, using a TA 30 Stapler. No other abnormalities were noted on exploration of the abdomen. An uncomplicated recovery followed surgery. Appetite and attitude gradually improved over the next 2 days, and the liver enzymes began to decrease.

Lolly was reexamined 2 weeks following surgery. Her incision was healed, her appetite was good, and she was much more active than before surgery. Also, the liver enzymes were within normal limits.

Neoplasia was discussed with the owner as likely to be the diagnosis on histopathology. Primary hepatobiliary neoplasms are divided into hepatocellular, biliary, neuroendocrine, and primary sarcomas. In dogs, the most common primary liver neoplasm is hepatocellular carcinoma. In cats, the most common are biliary neoplasms. Cholangiocellular (bile duct) adenoma is somewhat more common in cats than cholangiocellular carcinoma. Primary hepatic tumors have a high rate of metastasis, often to the regional lymph nodes, spleen, or lungs.^{1,2}

The liver is also a common site for metastatic neoplasia. Secondary (metastatic) hepatic neoplasia is overall more common than primary hepatic neoplasia. Common secondary hepatic tumors include lymphosarcoma, pancreatic adenocarcinoma, and hemangiosarcoma.³

Frequent clinical pathological abnormalities associated with hepatic tumors include elevated liver enzymes and elevated bilirubin. Other abnormalities may include decreased albumin and potentially decreased glucose. Azotemia is commonly found in cats. Also, elevated bile acids and prolonged coagulation times may be found.⁴

Histopathology revealed hepatic infarction with subacute thrombosis, fibrosis, and chronic inflammation. There was no evidence of neoplasia. This was an interesting outcome for a cat presenting with a liver mass. Based upon clinical signs and the appearance of the mass at surgery, neoplasia was the expected diagnosis. With malignant neoplasia, surgical resection would not be curative, but there would at least be a temporary resolution of clinical signs with a good quality of life. However, with a diagnosis of hepatic infarction, mass excision is expected to be curative.

1. Post G, Patnaik AK: Nonhematopoietic hepatic neoplasms in cats: 21 cases (1983-1988). *J Am Vet Med Assoc* 201;1080, 1992.

2. Patnaik A, et al: Canine hepatic neoplasms: A clinicopathologic study. *Vet Pathol* 17:553, 1980.

3. Trigo F, et al: The pathology of liver tumors in the dog. *J Comp Pathol* 98:21, 1982

4. Strombeck D: Clinicopathologic features of primary and metastatic neoplastic disease of the liver in dogs. *J Am Vet Med Assoc* 173:267, 1978.



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May 2012- Issue No. 8

Please join us on Wednesday, June 27, 2012 at The LifeCentre for our next continuing education program.

A two part presentation on advanced imaging by Matthew J. Uzzle, DVM.

Part 1: The Virtual Abdominal Exploratory with MRI

Abdominal lesions can be both difficult to detect as well as difficult to characterize once detected. MRI has come to the forefront of diagnostic imaging as it can provide answers to many of these diagnostic dilemmas. Through a series of images that we have produced, as well as a review of multiple references we will look into the impact that MRI imaging of the abdomen can have on patients that are seen everyday in your hospital.



Matthew J. Uzzle, DVM
Medical Director
Bush Advanced Veterinary Imaging

Part 2: Advanced Imaging of Forelimb Lameness

Through multiple case examples we will discuss the common orthopedic injuries and diseases that affect the shoulder and elbow and also show how MRI and CT imaging can help differentiate between them. Both modalities can lead to a more accurate diagnosis, as well as an early diagnosis, which can vastly alter treatment planning.



Date: June 27, 2012
Time: 6:30 pm Meet, Greet and Eat
Program: 7:00 pm - 8:00 pm
Place: The LifeCentre
165 Fort Evans Rd. NE
Leesburg, VA 20176
Sponsor: William Bush, VMD, DACVIM
(Neurology/Neurosurgery)
RSVP to: Rory Caracciolo
571-209-1195 or
rcaracciolo@tlcvets.com
You can also RSVP online at
www.tlcvets.com/education

One hour of CE will be issued by the Virginia Board of Veterinary Medicine for courses held at TLC.

— We hope to see you there! —