Small Animal MRI Versus Myelogram

Advanced Animal Imaging

Ryan Harrell BS, BS, CNMT
It is a specialized form of x-ray that helps veterinarians determine damage to the spinal cord.

A myelogram can help determine if there is a serious problem or if the animal needs surgery.

Regular X-rays can only show fractures and luxations, but a myelogram can show soft tissue disorders.
Indications for a Myelogram

- Spinal lesions are not visible on plain x-ray.
- Determine the significance of multiple lesions identified on plain x-ray.
- Determine spinal cord compression.
- Assist in deciding the indications for surgery.
- The animal is sedated.
- The animal is placed on IV fluids.
- Central Spinal Fluid is collected and sent to the lab for testing.
- A dye is injected into the spinal column.
- The dye shows up on the x-ray.
- The x-ray can show a protrusion or bulging disc.
Advantages of Myelograms

- Provides easy access to sub-archnoid space allowing the collection of CSF with minimal chance of blood contamination.

- Less contrast medium is required for evaluation of cervical lesions.
Disadvantages of Myelograms

- Usually a myelogram cannot be done at a regular veterinary practice.
- A specialized veterinarian or teaching hospital is needed to perform the exam.
- Injections can be difficult.
- In most cases myelograms are cheaper than MRI imaging. *(Except at AAI)*
Disadvantages of Myelograms

- Injections must be done in the neck or lower back region.
- Subdural injections are the most common complication observed during cisternal injections of contrast medium.
- Post-procedural Seizures.
- Risk of needle puncture into medulla oblongata or cervical spinal cord.
Disadvantages of Myelograms

- Induced spinal cord edema, cystic necrosis, myelomalacia, axonal necrosis and hydromelia.
Difficulties with Myelograms

- **Poor Radiographic Quality:**
  - Incorrect positioning
  - Incorrect exposure or artifact results into poor radiographic quality.
- **Poor Distribution of Contrast Medium:**
  - Inadequate volume injected
  - Incorrect injection site
  - Epidural opacification
  - Contrast not adequately mixed with CSF
  - Incorrect Radiographic Views
- **Pathoanatomical Problems:**
  - Normal anatomical variations
  - Spinal cord swelling
What is MRI

- MRI = Magnetic Resonance Imaging
- Is a noninvasive imaging test used to diagnose a variety of medical conditions in the brain, head, orbits, neck, hocks, stifle, hips and spine.
MRI is one of the most advanced imaging tools available for the investigation of soft tissue injury and pathology.
Reasons to order a MRI

- Seizures / Convulsions
- Head Tilt
- Loss of Balance
- Abnormal Behaviors (Stuck in corners, staring into space)
- Inability to Walk
- Weakness in the legs/limbs
- Walking in circles
- Deafness
- Blindness
- Abnormal Nasal Drainage or Swelling
- Neurological Pain
- Other Neurological Signs
- Assist in Surgery
Advantages of MRI

- AAI offers MRI imaging at a lower price than Myelograms. The price includes the dictated report and sedation cost.

- MRI is less invasive than a Myelogram. MRI does not require a spinal tap.

- MRI has less induced risks or complications following imaging.
Advantages of MRI

- MRI can reconstruct the images into 3D planes (Sag, Axial, Trans).
- MRI is often quicker and easier.
- MRI shows better resolution in soft tissue compared to any other imaging modality.
Advantages of MRI

- MRI allows you to differentiate different types of cord swelling.
- MRI can detect early disc degeneration.
- MRI allows the spinal nerves to be visualized.
Disadvantages of MRI

- MRI is usually expensive and not widely available in veterinary medicine.
  
  At AAI, we provide the most reasonably priced MRI exam in the Region.

  Our MRI imaging is less expensive than the region’s myelogram exam imaging.
Disadvantages of MRI

- Reduced fine bone detail.
- Whole spine studies can be tedious.
- Interpretation can be difficult in MRI.

AAI and Ohio State have many years of experience in MRI imaging and interpretation.
Advanced Animal Imaging (AAI)

- Regionally Owned
- Advanced Technology
- Affordable Imaging
- Expert Analysis
- Rapid Report Turn Around Time
Located at the corner of Liberty Mills Rd. and Homestead Rd.

In the lower level of Indian Creek Veterinary Hospital.

Phone: (260) 434-1555
5902 Homestead Road
Fort Wayne, IN 46814