



BVNS neurotransmitter

Welcome to the latest edition of the BVNS Neurotransmitter. We are excited to continue to offer these case reports and hope they provide a valuable learning opportunity for our team and yours.



CASE STUDY: BOUDREAUX

Boudreaux is a 4 year old male neutered Papillon that the owners brought to BVNS for recurrent back pain. He had several past episodes of having a hunched back, walking slowly and exhibiting signs of pain. Each episode responded to rest and pain medications. The family veterinarian had performed general lab work and radiographs of the thoracolumbar spine with no apparent abnormalities.

Presenting complaint:

Recurrent back pain.

Examination Abnormalities and Localization:

Boudreaux's general physical examination was within normal limits. On neurologic exam his gait, cranial nerve exam, reflexes and mentation were all normal. He did, however, experience moderate pain on direct palpation of the cervical spine and mild pain in the lumbar spine.

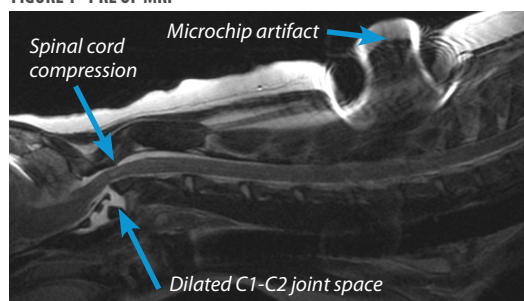
Possible differential diagnoses for a dog of this breed and age included: 1) Intervertebral disc extrusion, 2) Inflammatory disease (i.e. meningitis - infectious or auto immune), 3) Malformations (i.e. Caudal Occipital Malformation Syndrome, Atlanto-Axial subluxation), 4) Neoplasia (less likely).

Diagnostics:

Because of the recurrent back and neck pain, an MRI of the thoracolumbar and cervical spine was recommended. Pending those results a spinal fluid analysis was also recommended.

The MRI of the thoracolumbar spine was performed first and did not reveal any significant abnormalities other than degenerative intervertebral discs without evidence of herniation. No obvious cause of the back pain was found.

FIGURE 1 - PRE OP MRI



The MRI of the cervical spine (figure 1) revealed a markedly widened C1-C2 joint space. The cranial aspect of C2 was tipping dorsally causing compression of the spinal cord. The dens on

C2 appeared to be hypoplastic. Additionally, there was mild hyperintensity noted within the spinal cord near the area of compression that most likely represented edema or scarring from chronic compression. These MRI findings were consistent with an Atlanto-Axial (A-A) subluxation with subsequent spinal cord compression.

Treatment:

Given the severity of the MRI findings and Boudreaux's neurologic status, surgical stabilization of the A-A joint was recommended. Several factors are considered in determining the prognosis with surgical stabilization:

1. **AGE** - younger patients tend to do better than older patients
2. **LENGTH OF TIME SYMPTOMS HAVE EXISTED** - chronic symptoms is a negative prognostic indicator
3. **SEVERITY OF NEUROLOGIC STATUS** - dogs that are currently ambulatory tend to do better
4. **SIZE OF DOG** - very small dogs can be difficult to stabilize

Because of the sensitive region of the nervous system involved with this type of problem, surgical mortality rates can be as high as 25-40%. Nevertheless, given Boudreaux's current status, we felt that surgical stabilization was the preferred method of treatment and that his prognosis would be good. The owner agreed and surgery was scheduled. The alternative would have been to place Boudreaux in a neck brace for 8-10 weeks. While this is a viable option, neck braces are inherently difficult to place and frustrating to maintain. They are often placed incorrectly, slip, become soiled and need to be frequently changed. The bulk of bandage needed to truly stabilize the A-A joint can often interfere with eating and drinking.

There are several ways to surgically stabilize the A-A joint. In this case, we reduced the luxation by using bone forceps to pull C2 ventrally. We then placed 2 threaded pins dorsal-laterally through the A-A joint from a ventral approach. Several small cortical screws were also placed in various locations in the ventral aspect of C1 and C2. These screws were then incorporated into bone

cement to help hold the fixation. The pre and post radiographs can be compared in figure 2.

Outcome

It's been about 9 months since his surgery and he has remained pain free and is off all medications. Repeat radiographs were performed about 3 months after surgery and all implants were in their proper location. Even though Boudreaux didn't know how to express his thanks (you'll see him snarling in this picture), his owners were very happy with his outcome.

Take Home Points:

1. Don't exclude A-A luxation as a differential in adult dogs.
2. Dogs with cranial cervical malformations (AA luxations, Chiari malformations) often will have spinal pain in areas other than their neck (i.e. back). Changes in spinal fluid dynamics and pressure can account for this pain.
3. An A-A luxation is occasionally just one part of a combination of concurrent cranial cervical malformations. Sometimes, multiple advanced imaging studies such as MRI, flexed and extended CT scans, and 3D reconstructions are needed to gather the full clinical picture.
4. Several factors determine the prognosis with surgical management (see above). Every patient is evaluated separately.
5. Surgical management is typically the best way to manage this problem. Neck braces can be used but are inherently cumbersome, frustrating and cause numerous potential complications.

FIGURE 2 - PRE AND POST SX



This case was referred by Dr. Bethany Birch of Banfield of Alexandria. For more information or to discuss this case please contact Dr. Brewer at dbrewer@bvns.net or Dr. Jarboe at jjarboe@bvns.net.

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Our Team of Specialists

Jessica Barker, DVM, MS

Residency Trained in Neurology/
Neurosurgery

David Brewer, DVM, DACVIM (Neurology)
Neurology/Neurosurgery

William Bush, VMD, DACVIM (Neurology)
Neurology/Neurosurgery

Joli Jarboe, DVM, DACVIM (Neurology)
Medical Director, Neurology/Neurosurgery

Deena Tiches, DVM, DACVIM (Neurology)
Medical Neurology

Martin Young, DVM, MS

Residency Trained in Neurology/
Neurosurgery

Daniel Cuff, DVM

Neurology Resident

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