Intervertebral Disc Disease and Nursing Care of the “Down Dog”

Deanna M. Swartzfager, RVT
Intervertebral Disc Disease (IVDD)

- Syndrome of pain and neurologic deficits, and sometimes complete paralysis, resulting from displacement of part or all of the nucleus of an intervertebral disc.
- Most common spinal problem in dogs
- Infrequent disorder in cats
The Spinal Column

Source: Hill’s Atlas of Veterinary Clinical Anatomy
Type I Intervertebral Disc Disease

Brisson, 2010
Hansen Type I extrusion
Other Disc-Related Issues

- Type II - progressive
- Type III/ANNPE - peracute
- FCE - peracute
Surgical Management (Type I)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical (pain and/or weak)</td>
<td>92%</td>
</tr>
<tr>
<td>TL weak, not walking</td>
<td>100%</td>
</tr>
<tr>
<td>TL paralysis</td>
<td>90%</td>
</tr>
<tr>
<td>TL paralysis, deep pain negative</td>
<td>60%</td>
</tr>
</tbody>
</table>

Recurrence rate is approximately 10%

Recovery time is usually about 2 weeks; longer for deep pain negative
Medical Management

- Recovery from Type I extrusion is longer and less complete (more likely to relapse or recurrence)

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<tr>
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<td>45%</td>
</tr>
<tr>
<td>TL paralysis, deep pain negative</td>
<td>5%</td>
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Recurrence rate is approximately 40%

Recovery time is about 6-12 weeks
Complications of the “down dog”

- Pulmonary atelectasis or pneumonia
- Poor gastric motility
- Fecal retention
- Urinary bladder damage/UTI
- Decubital ulcers
- Muscle atrophy
- Joint stiffness
- Pain
- Inadequate nutritional intake
- Patient depression or lethargy
Nursing Care

Regardless of medical or surgical management, nursing care will be very similar.
Crate rest and exercise restrictions

• Strict cage confinement for 3-4 weeks
• Activity restricted to short elimination walks for 5-10 minutes, 3-5 times a day
• Gradual return to normal activity over 4-6 weeks
• Lifelong exercise restrictions
Medications

- NSAID (or steroid)
- Gabapentin
- Tramadol (or trazodone)
- +/- Diazepam
- +/- Prazosin
Respiratory care

• Concern for atelectasis in recumbent patients
• Turn patient q4h or keep sternal
• Monitor respiratory patterns and auscultate frequently
• Risk for aspiration pneumonia, especially brachycephalic patients
Bedding

• Thick, soft; top layer should be absorbent or non-retentive (urine scald)
• Sheepskin, foam, air mattress, “trampoline”
• Pillows, rolled-up blankets for keeping sternal or providing support for head
Decubital ulcers

• Make sure bony prominences are well padded
• Turn patient q4h
• Watch for ulcer formation; can use padded “donuts” to relieve pressure
Bladder Management

- Overdistension of the bladder and UTI’s are typical sequelae of IVDD
- Overdistension can result in permanent loss of muscle tone
- Consider urinary catheter
Bladder management

- Palpate bladder q4-6h to estimate its size, even with urine present on the bedding! Express bladder as needed
- Keep bedding (and patient!) clean and dry
- Monitor for signs of UTI
Bladder expression
Rehabilitation Therapy

- Massage
- Passive range of motion (PROM)
- Assisted standing
- Advanced therapies such as hydrotherapy, laser therapy, ultrasound, acupuncture, sling therapy
Massage

• May be initiated before PROM to facilitate muscle and joint compliance
• Start with slow glide using entire palm of hand in direction of hair growth (cranial to caudal; proximal to distal)
• Continue massage distal to proximal
Passive Range of Motion (PROM)

- Mimics normal muscle pumping action to improve blood flow and increase sensory awareness in the affected limb(s)
- Helps maintain soft tissue and joint integrity
- Minimizes potential for contracture formation
Passive Range of Motion (PROM)

• PROM should never hurt - motion of joint should never be forced
• Keep limb you are working on parallel to the ground to prevent torquing of the joints
• Support each joint above and below
Passive Range of Motion (PROM)
Mobility Assistance
Mobility Assistance
Mental status

• Affection
• Putting patient where can observe activity
• Regular trips outside
• Frequent physiotherapy sessions
Things to watch for

• **Myelomalacia** - Profound pain, loss of tone (floppy legs), tetraparesis with abdominal breathing, increased temperature

• Deep pain negative patients - licking or chewing at legs or tail - place e-collar immediately!
Procedures

Click on the links below to learn more about the following procedures:

- Bladder Maintenance
- Down Dog Care
- MRI: What to expect
- Neurosurgery: What to Expect
- Passive Range of Motion
- Spinal Tap: What to Expect
<table>
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<tr>
<th></th>
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<th>FCE</th>
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<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Annulus tear, nucleus propulsus in spinal canal</td>
<td>Annulus bulge, microtears</td>
<td>Low volume, high velocity</td>
<td>Spinal cord stroke</td>
</tr>
<tr>
<td><strong>Onset, progress</strong></td>
<td>Acute, progressive</td>
<td>Slowly progressive</td>
<td>Very acute, can progress in first 24 hours</td>
<td>Very acute, can progress in first 24 hours</td>
</tr>
<tr>
<td><strong>Pain</strong></td>
<td>Painful to episodically very painful, muscle spasms</td>
<td>Mild pain, limits mobility</td>
<td>Moderate pain, improves in 24 hours</td>
<td>No</td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td>Surgery often required, exercise restrictions, NSAIDs</td>
<td>Exercise restrictions, surgery, NSAIDs</td>
<td>Exercise restrictions, NSAIDs, no surgery</td>
<td>Rehabilitation, no steroids</td>
</tr>
<tr>
<td><strong>Prognosis</strong></td>
<td>Good (medical) to excellent (surgical)</td>
<td></td>
<td>~67% return to walking; better chance if pain sensation is intact</td>
<td>~80% successful recovery</td>
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