

LUMBAR DISC DISEASE

Extended version

Classic case: Chondrodystrophoid breed (dachshund, beagle, etc) with acute paraplegia

Presentation:

Acute onset paraplegia, chondrodystrophoid breed

Differences in severity* affect treatment, monitoring, prognosis

- **Grade I**
 - Acute back pain
 - No neurologic deficits
 - Kyphosis
 - Tense abdomen
- **Grade II**
 - Grade I findings
 - Spastic paraparesis
 - Ataxia
 - Ambulatory
 - Loss of proprioception
- **Grade III**
 - Severe paraparesis
 - Unable to stand up and walk
 - Voluntary movement is present with support
- **Grade IV**
 - Paraplegia
 - No voluntary movement
- **Grade V**
 - Paraplegia
 - Overflow incontinence (dribbling of urine)
- **Grade VI**
 - Grade V findings
 - Loss of deep pain sensation (nociception)

Patellar reflex

- Increased if disk rupture is cranial to L₄
- Decreased if disk rupture is at L₄-L₆
- Normal if disk rupture is caudal to L₆

Flexor reflex

- Normal if disk rupture is cranial to L₆
- Decreased if disk rupture is caudal to L₆

*Clinical grades of herniation may vary between institutions



Typical posture of paraplegic dachshund (he looks anxious)



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DDX:

Fibrocartilagenous embolism, spinal column tumor, discospondylitis, abdominal pain, degenerative myelopathy, spinal fracture/luxation, meningomyelitis, meningitis

Test of choice:

MRI – a high-field MRI is a safe and fast way to localize a ruptured disk

Myelography

- \pm computerized tomography (CT) if necessary
- Only if MRI unavailable
- Irritates spinal cord
- Dogs usually seizure during recovery

Plain radiography

- Supports diagnosis of disc disease
 - Narrowed intervertebral disc space (if unanesthetized, disc spaces may narrow from muscle spasms alone)
 - Presence of calcified disc(s)
- **Do not** rely on plain radiography alone for surgical localization

Rx of choice:

Strict cage rest

- Grades I and II
- 4-6 weeks
- Allow scarring, fibrosis-prevents further extrusion

Hemilaminectomy

- Allows lateral decompression and a window to remove extruded disc
- Grades I and II if no response to cage rest
- Grades III, IV, V, and VI
- **If Grade VI > 48 hours, will probably not be of benefit**
- This procedure should be done by a well-experienced surgeon or neurosurgeon



Dachshund after hemilaminectomy
(he looks relaxed)

Fenestration

- Controversial **prophylactic** measure
- Annulus is cut laterally
 - Allow nucleus pulposus to extrude laterally instead of the spinal canal
 - Does **not** decompress spinal cord nor treat an extruded disc
- Used in conjunction with hemilaminectomy



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Rx of choice: (continued)

Pain management

- NSAID and corticosteroid
 - **Highly controversial**
 - Extremely high risk of GI ulceration
 - Increases chances of urinary tract infection (corticosteroid)
 - Little benefit to overall outcome
- **Opiate drugs preferred for pain relief**
 - Safer than corticosteroids and NSAIDS
 - Tramadol
- **Muscle relaxants** - Relieve pain from muscle spasms
 - Diazepam
 - Robaxin

Prognosis:

Grades I and II – Good
 Grades II-IV – Fair
 Grades IV-VI – Guarded
 Grade VI > 48 hours – Poor

Prevention:

Keep chondrodystrophoid breeds from jumping up and down from furniture
 Cage rest for 4-6 weeks if back pain occurs to prevent further extrusion

Pearls:

80% of disc disease occurs between T₁₀ and L₃ vertebrae

Intercapital ligaments betw T₁ and T₁₁ connect rib heads preventing dorsal disc extrusion

Withdrawal reflex

- **Not** an indicator of deep pain presence or absence
- Must get a **conscious response** from dog to indicate presence of deep pain perception
 - Yelp
 - Tries to bite



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Pearls: (continued)

Types of disc disease

- **Hansen Type I** disc
 - Nucleus pulposus ruptures through annulus into spinal canal
 - Disc extrusion
 - Rapid onset of clinical signs
 - Can be seen in any breed, but most often seen in chondrodystrophoid breeds
- **Hansen Type II** disc
 - Bulging of annulus
 - Disc protrusion
 - Usually a more chronic course
 - Can be seen in any breed, but most often seen in medium and large **NON**-chondrodystrophoid breeds

Intervertebral disc disease is common in dogs, rare in cats

Refs: A Practical Guide to Canine and Feline Neurology, Dewey, 2nd ed. p 325-339, Veterinary Neuroanatomy and Clinical Neurology, de Lahunta and Glass, 3rd ed. p 257-259, Small Animal Neurology, Jaggy. p 351-356, and Merck Manual, 10th ed (online): Degenerative diseases of the spinal column and cord

My Notes: