What Is Your Neurologic Diagnosis?

Signalment: Six-year-old female spayed Labrador Retriever.

History: Two-week history of progressive scuffing and knuckling in the left thoracic limb. Seven months earlier, a left pelvic limb lameness was diagnosed as lumbosacral degenerative stenosis by epidurography, magnetic resonance imaging of the lumbosacral region, and electrodiagnostic evaluation. Dorsal laminectomy and left facetectomy were performed at L7-S1, disk material was removed, and the dog recovered without complication within 8 weeks.

Physical examination: Normal.

Neurologic examination

Observation

Mental	Alert	X	Depressed		Disoriented		Stupor		Coma			
Posture	Normal	X	Head tilt		Tremor		Falling					
Gait	Normal		Ataxia		Pelvic Limbs		All 4		Circling			
Paresis	Pelvic Limbs		Tetra		Hemi	L	Mono					
Other	Dog is ambulatory, but it holds its neck to the right.											

Postural reactions

Key: 4=exaggerated, clonus; 3=exaggerated; 2=normal; 1=diminished; 0=none; NE=not evaluated.

	LF	RF	LR	RR
Wheelbarrow	1	2		
Hopping	0	2	1	2
Ext postural thrust			2	2
Proprioceptive pos	1	2	1	2
Hemistand/walk	0	2	1	2
Placing–tactile	NE	NE		
Placing–visual	NE	NE		

Spinal reflexes

	LF	RF	LR	RR
Quadriceps			3	2
Extensor carpi	2	2		
Flexion	2	2	2	2
Crossed extensor	0	0	0	0
Perineal			2	2

Cranial nerves

	L	R		L	R	Comments CN
II, VII–Vision menace	2	2	VIII–Nystagmus, resting	2	2	
II, III–Pupils resting	2	2	VIII–Nystagmus, change	2	2	
Stim L	2	2	V–Sensation	2	2	
Stim R	2	2	VII–Facial mm	2	2	
II–Fundus	2	2	V, VII–Palpebral reflex	2	2	
III, IV, VI–Strabismus, resting	2	2	IX, X–Gag	2	2	
III, IV,VI, VIII–Strabismus, position	2	2	XII–Tongue	2	2	

Sensation (Locate and describe abnormal)

Hyperesthesia	3	Cervical, especially when neck is turned to left.
Superficial pain	2	
Cutaneous reflex	2	
Deep pain	2	

What is the problem? Where is the lesion? What are the most probable causes of this problem? What is your plan to establish a diagnosis? Please turn the page.

Assessment

Anatomic diagnosis

Problem	Rule out location
Postural reaction deficits in left thoracic and pelvic limbs, with intact reflexes	C1-5
Cervical pain, especially on movement to left	C1-5

Likely location of one lesion

C1-5, on the left.

Etiologic diagnosis

Rule out disease process	Diagnostic plan (in order of priority)
Nerve root neoplasia Lateralized intervertebral disk disease Other neoplasia—vertebra, spinal cord Diskospondylitis Meningitis	CBC, serum biochemical analysis, urinalysis.
	Thoracic radiography to rule out pulmonary metastasis.
	Cervical radiography and myelography to rule out nerve root neoplasia, disk disease, neoplasia, and diskospondylitis.
	Cerebrospinal fluid analysis to rule out meningitis.
	Electrodiagnostics to assess area of previous lumbosacral surgery.

Comments: Electrodiagnostics are not routinely performed in animals that do not have lower motor disease involving 1 or more limbs; however, given the history of previous lower motor neuron disease in the left pelvic limb, an electrodiagnostic evaluation was performed.

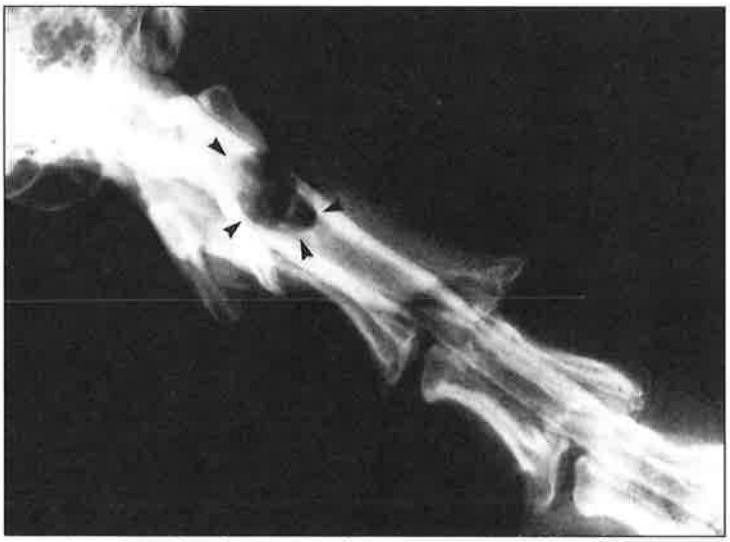

Figure 1—Cervical myelogram, lateral projection. Notice the filling defect (arrows) within the subarachnoid space at C1-2, consistent with an intradural-extramedullary mass.

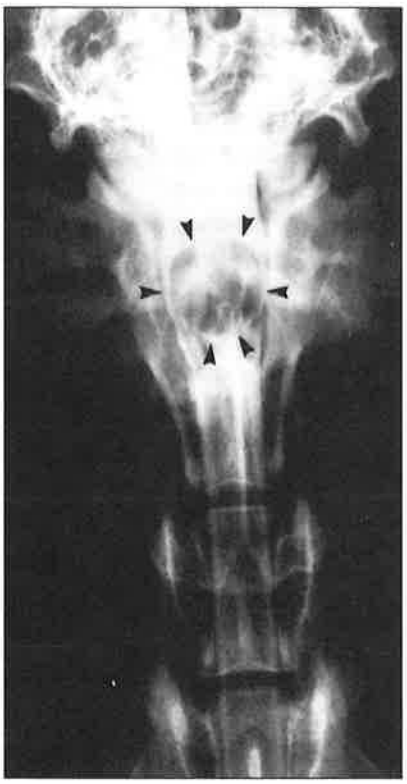

Figure 2—Cervical myelogram, ventrodorsal projection. Again, a filling defect (arrows) is evident within the subarachnoid space at C1-2.

Abnormal test results:

Laboratory data: Cerebrospinal fluid analysis (cisternal puncture)—High concentrations of WBC and protein. 3 RBC/μl, 118 WBC/μl, 173 μg of protein/dl. Cytospin differential revealed 86% lymphocytes, 14% monocytes, few RBC, and no bacteria.

Electrodiagnostic data: Evidence of mild axonal degeneration in the distribution of the left sciatic nerve, consistent with the history of previous lumbosacral disease.

Radiography: Survey vertebral radiography revealed slight collapse of the lumbosacral junction and an irregular appearance to the left wing of C1. Lumbar puncture myelography revealed an intradural-extramedullary mass at C1-2 (Fig 1 and 2).

Presumptive diagnosis: Mass is most likely a neoplasm; primary differential diagnoses include nerve root tumor, meningioma, and lymphosarcoma. Results of CSF analysis attributed to inflammatory reaction to the mass.

Prognosis with treatment: Short-term prognosis is guarded. Masses such as this vary greatly in the ease with which they may be excised. Potential complications with surgery include respiratory paralysis, substantial blood loss, and deterioration of neurologic status. Long-term prognosis also is guarded; even with excision and adjunctive treatment, the mass (if neoplastic) may redevelop.

Prognosis without treatment: Poor. Because neoplasia is almost certainly the cause of this dog's dysfunction, clinical signs can only be expected to worsen.

Therapeutic plan: Surgical excision of the mass, followed by adjunctive treatment, as indicated by histopathologic diagnosis.

Outcome: C1-2 dorsal laminectomy was performed, and the mass was excised. Histopathologic diagnosis was malignant sarcoma, possibly neurofibrosarcoma. Adjunctive cobalt-60 radiation therapy was declined by the dog's owner. The dog was not ambulatory immediately after surgery, but was walking within 7 days. Three months later, the owner reported that the dog appeared to be free of pain. Mild gait dysfunction is noticed after exercise. Eight-month follow-up examination revealed the dog to be mildly hemiparetic and free of signs of pain. Gait dysfunction persists after exercise.

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This feature is sponsored by the American College of Veterinary Internal Medicine on behalf of the specialty of neurology. Contributors to this feature should contact Dr. J. H. Audin (1-800/248-2862, ext 258) for case submission forms. Completed forms will be sent to Dr. Stephen Simpson at Auburn University for his review.