Degenerative and Anomalous Myelopathies

Disease	Canine Degenerative Myelopathy	Degenerative Lumbosacral Stenosis	Caudal Cervical Spondylomyelopathy (CSM)	Atlantoaxial Subluxation/Instability
Signalment	Late onset disease (mean = 9 years) Occurs in many pure-bred dogs **Non-painful progressive pelvic limb weakness**	Middle-aged medium to large breeds Mean age: 7 years German Shepherd Dog Common in working dogs Male > Females	<u>Osseous-associated</u> Great Dane/Mastiff/Giant breeds Younger dogs (1-2 years) Rapid Growth Disc-associated Doberman pinscher Middle to older dogs (>5-6 years) Males > Females Conformation	Congenital vs acquired Young toy breeds Yorkie, Pomeranian, Mini/Toy Poodle, Chihuahua, Pekingese Any breed (with trauma)
Clinical Signs	<u>Early</u> Asymmetric spastic paresis General proprioceptive ataxia PL T3-L3 myelopathy <u>Late</u> LMN paraplegia to tetraplegia Progresses to thoracic limb weakness Flaccid weakness Dysphagia Respiratory distress	Posture Muscle atrophy Postural reaction deficits Normal or pseudo-hyperreflexia of patellar reflex Reduced flexor reflex Reduced perineal reflex **Lumbosacral pain**	GP ataxia and tetraparesis Short-choppy steps in thoracic limbs (LMN) **Two-engine Gait** Long stride in hindlimbs (UMN) +/- neck pain	Instability leads to over-flexion and dorsal (sub)luxation of axis > spinal cord trauma Cervical pain General proprioceptive ataxia Tetraparesis to plegia
Mechanism	Mutation in Superoxide Dismutase 1 (SOD1) Does not diagnose DM but dogs who are homozygous for the mutation are at higher risk of developing the disease	Intervertebral disc degeneration (IVDP) Osteophyte formation Narrowing of the intervertebral foramen	OA-CSM Osseous proliferation Stenosis of the vertebral column DA-CSM	Dens aplasia, hypoplasia or dorsal angulation/degeneration Lack of ligaments Incomplete bone (especially C1)

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		Thickening of interarcuate ligament	Spinal instability IVDP Ligament hypertrophy Joint capsule proliferation	No support structures = excessive movement Neck flexion = Bad
Diagnosis	Diagnosis of exclusion NSF on MRI and CSF Definitive diagnosis: histopathology	Survey radiography Dynamic imaging (extension and flexion) CT/MRI	Myelogram MRI CT Dynamic vs Static	Survey Radiography MRI CT
Treatment Management	No proven effective treatment Physiotherapy Maintain quality of life Long-term prognosis is poor	<u>Conservative</u> Weight loss Confinement 8-14 weeks Anti-inflammatory meds 24-50% recovery rate <u>Surgical</u> *Severe pain, neurologic deficits, or inadequate response to conservative therapy Decompression (dorsal laminectomy) Stabilization 80% success	Conservative Exercise restriction 4 weeks Chest harness Weight reduction Pain management 50% Success Surgical Dynamic lesions: spinal distraction, discectomy and stabilization Bony proliferation with compression myelopathy: dorsal decompression	Conservative Pain management +/- Corticosteroids Immobilization of C spine Strict rest 6-8 weeks *Surgery is recommended sooner than later Surgical Stabilization Dorsal Suture/Wire, Kishigami, Pins, AAI Clamp Ventral Screws +/- PMMA, Pins and PPMA, Locking plate