NECK AND BACK PAIN

BASICS

OVERVIEW

- Discomfort along the spine or vertebral column; discomfort may involve the spinal cord, spinal nerves, bones, and/or muscles along the spine
- The spine is composed of multiple bones with disks (intervertebral disks) located in between adjacent bones (vertebrae); the disks act as shock absorbers and allow movement of the spine; the vertebrae are named according to their location—cervical vertebrae are located in the neck and are numbered as cervical vertebrae one through seven or C_1-C_7; thoracic vertebrae are located from the area of the shoulders to the end of the ribs and are numbered as thoracic vertebrae one through thirteen or T_1-T_{13}; lumbar vertebrae start at the end of the ribs and continue to the pelvis and are numbered as lumbar vertebrae one through seven or L_1-L_7; the remaining vertebrae are the sacral and coccygeal (tail) vertebrae
- Each disk is composed of a central gel-like area, known as the "nucleus pulposus," and an outer fibrous ring, known as the "annulus fibrosis"
- Degeneration of the intervertebral disks causes protrusion or extrusion of disk material into the spinal canal; the protruded or extruded disk material causes spinal-cord compression (known as "myelopathy") and/or nerve-root compression (known as "radiculopathy")
- Protrusion is defined as the disk bulging into the spinal canal with the fibrous ring of the disk being intact; extrusion is defined as the center or nucleus of the disk being forced out of its normal position into the spinal canal with the fibrous ring of the disk being ruptured
- Two types of protrusion/extrusion have been reported in dogs: sudden (acute) disk herniation ("slipped disk") is Hansen type I and long-term (chronic) disk herniation is Hansen type II; Hansen type I involves degeneration of the center or nucleus of the disk with rupture of the fibrous ring and resulting movement of the center into the spinal cord (extrusion) while Hansen type II involves degeneration of the disk, followed by bulging of the disk into the spinal cord with the fibrous ring remaining intact (protrusion)

SIGNALMENT/DESCRIPTION of ANIMAL

Species

- Dogs and cats

Breed Predilections and Ages

- Intervertebral disk disease—dogs: Hansen type I usually develops at 3 to 8 years of age, occasionally outside this range; Hansen type II is more common in large-breed, older dogs in the low lumbar area; more frequently recognized in low lumbar area in cats
- "Wobbler" syndrome (condition affecting the cervical spine, in which the spinal cord is compressed; may involve the intervertebral disks or abnormal bones [vertebrae])—large-breed dogs; more often in middle-aged to older Doberman pinschers (disk related) and young Great Danes (abnormal formation and/or abnormal movement of the bones [vertebrae] in the neck)
- Dislocation of the joint between the first and second cervical vertebra (condition known as "atlantoaxial luxation") and partial dislocation of the joint between the first and second cervical vertebra (condition known as "atlantoaxial subluxation")—most often occurs in young to middle-aged miniature breeds; any breed or age may be affected, if trauma induced
- Steroid-responsive inflammation of the membranes covering the brain and spinal cord (membranes known as "meninges;" condition known as "meningitis") and inflammation of the arteries (known as "arteritis")—dogs less than 2 years of age; Bernese mountain dog, boxer, beagle, Nova Scotia duck tolling retriever, German shorthaired pointer
- Bacterial or fungal infection of the intervertebral disks and adjacent bone of the spine (vertebral bodies; condition known as "diskospondylitis")—dogs; intact breeding animals susceptible to *Brucella* diskospondylitis
- Musculoskeletal trauma—any age or breed

SIGNS/OBSERVED CHANGES in the ANIMAL

- Perceived discomfort of the animal (such as reluctance to get up or lie down, reluctance to go up or down stairs, difficulty squatting to urinate or defecate, difficulty getting into vehicles)
- Head down posture—neck pain
- Reluctance to move head in various directions—stiff neck
- Arched back—neck or back pain
- Pain on feeling the epaxial muscles (muscles along the spine)
- Rigidity of the epaxial muscle (muscles along the spine)
- Warmth or heat detected in the epaxial muscles (muscles along the spine)
- Guarded posture
- Reluctance to walk—guarded short stride
- Low-grade fever—primarily in patients with involvement of the membranes covering the brain and spinal cord (meninges) or bacterial or fungal infection of the intervertebral disks and adjacent bone of the spine (diskospondylitis)

CAUSES

Epaxial Muscles (muscles along the spine)

- Inflammation of the muscles secondary to trauma (known as "traumatic myositis")
- Disorder following exercise that leads to injury and destruction of skeletal muscle tissue (known as "exertional rhabdomyolysis")
- Muscle cancer—rhabdomyosarcoma
- Infectious inflammation of the muscles (infectious myositis)—parasitic, bacterial, protozoal
- Immune-mediated inflammation of the muscles (immune-mediated myositis)
- Foreign-body inflammation of the muscles (foreign-body myositis)—grass-awn migration

Backbone (Vertebra) and Associated Structures

- Intervertebral disk disease
- Bacterial or fungal infection of the intervertebral disks and adjacent bone of the spine (diskospondylitis)
- Osteoarthritis (form of joint inflammation [arthritis] characterized by chronic deterioration or degeneration of the joint cartilage) of the articular facets (surfaces of the backbone [vertebra] where it joins together with another backbone)
- Unstable structural abnormalities of the backbones—hemivertebra (incomplete development of one side of a vertebra) and dislocation of the joint between the first and second cervical vertebra (atlantoaxial luxation) or partial dislocation of the joint between the first and second cervical vertebra (atlantoaxial subluxation)
- Cancer of the backbone (vertebra)—osteosarcoma, chondrosarcoma, multiple myeloma, and cancer that has spread to the spine (known as "metastatic cancer")
- Infection/inflammation of the backbone (vertebra; condition known as "vertebral osteomyelitis")
- Fracture
- Dislocation (known as "luxation") and partial dislocation (known as "subluxation")
- Abnormal formation and abnormal movement of the backbones (vertebrae)

Spinal Nerves

- Entrapment of the spinal nerve by intervertebral disk herniation
- Tumors or cancer—neurofibroma and neurofibrosarcoma
- Traumatic entrapment, tearing, or laceration of the spinal nerves
- Inflammation of the nerves (known as "neuritis")—viral, bacterial, and parasitic
- Compression or inflammation of spinal nerves at the point where they enter the spine or vertebral column

Meninges (membranes covering the brain and spinal cord)

- Tumors or cancer—meningioma and cancer that has spread to the meninges (metastatic cancer)
- Inflammation of the meninges (known as "meningitis")—bacterial, viral, parasitic, protozoal, rickettsial, of immune-mediated disease or of unknown cause (so called "idiopathic disease")

RISK FACTORS

- Trauma
- Breeds with "normal" short, bowed legs (known as "chondrodysplastic breeds")
- Very active animal—for example, asked to jump a lot (such as working police dogs)
- Previous diagnosis of cancer

TREATMENT

HEALTH CARE

- Varies widely according to the nature and extent of the lesion and tissues involved
- The cause of the neck or back pain should be diagnosed before symptomatic treatment is started
- Inpatient versus outpatient—depends on severity of disease
- Acupuncture—may alleviate neck/back pain

ACTIVITY

- Depends on underlying cause of neck or back pain

SURGERY

- Surgical intervention—may be indicated for intervertebral disk herniation, trauma, congenital (present at birth) spinal abnormalities, and tumors/cancer; a foreign body may require surgical removal or drainage to treat an associated abscess

MEDICATIONS

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive.

Epaxial Muscles (muscles along the spine)

- Antibiotics—for infection; depends on the causative agent
- Steroids—may be required; depends on the diagnosis
- Chemotherapy or radiation therapy—for cancer; depends on tumor type

Backbone (Vertebra) and Associated Structures

- Steroids—indicated in some causes (such as intervertebral disk herniation, other spinal cord trauma) and not indicated in other causes (such as infectious disease); if at all possible, a diagnosis should be established before initiating steroid therapy
- Antibiotics or antifungal medications—indicated when a specific organism can be identified or is suspected (such as with bacterial or fungal infection of the intervertebral disks and adjacent bone of the spine [diskospondylitis])
- Chemotherapy and radiation therapy—depends on tumor type

Spinal Nerves

- Steroids—useful for trauma, inflammation, and nerve compression; may help some patients with tumors or cancer

Meninges (membranes covering the brain and spinal cord)

- Antibiotics—indicated when a specific organism can be identified or is suspected; chose antibiotics that cross the blood–brain barrier
- Steroids—if at all possible, a diagnosis should be established before initiating steroid therapy; drug of choice for immune-mediated or steroid-responsive diseases
- Nonsteroidal anti-inflammatory drugs (NSAIDs)—may alleviate musculoskeletal pain; limited results against nervous system-related pain
- Glycosaminoglycan (such as chondroitin)—may decrease musculoskeletal pain
- Methocarbamol—used for muscle relaxation
- Benzodiazepines (such as diazepam)—muscle relaxation and antianxiety effects
- Phenylbutazone—may alleviate musculoskeletal pain; ineffective against nervous system-related pain
- Fentanyl patches—to relieve pain
- Other pain relievers (known as "analgesics"), such as tramadol, butorphanol, buprenorphine, morphine sulfate

FOLLOW-UP CARE

PATIENT MONITORING

- Monitor response to treatment closely and make adjustments as necessary
- Watch for signs of inflammation of the stomach and intestines (known as "gastroenteritis") and the bladder (known as "cystitis")

POSSIBLE COMPLICATIONS

Epaxial Muscles (muscles along the spine)

- Abscess
- Long-term (chronic) pain
- Development of scar tissue (fibrous replacement) in place of muscle fibers, causing long-term (chronic) pain and immobility

Backbone (Vertebra) and Associated Structures

- Frequent recurrence in patients with intervertebral disk disease that receive medical management only
- Permanent paralysis or dysfunction
- Lack of control of urination (known as "urinary incontinence") and bowel movements (known as "fecal incontinence")
- Long-term (chronic) pain
- Spread of disease to adjacent tissues

Spinal Nerves

- Permanent nervous system deficit or dysfunction
- Long-term (chronic) pain

Meninges (membranes covering the brain and spinal cord)

- Involvement of spinal cord and brain tissue

EXPECTED COURSE AND PROGNOSIS

- Depend on cause of neck and/or back pain

KEY POINTS

- Discomfort along the spine or vertebral column; discomfort may involve the spinal cord, spinal nerves, bones, and/or muscles along the spine
- Perceived discomfort of the animal (such as reluctance to get up or lie down, reluctance to go up or down stairs, difficulty squatting to urinate or defecate, difficulty getting into vehicles)
- The cause of the neck or back pain should be diagnosed before symptomatic treatment is started