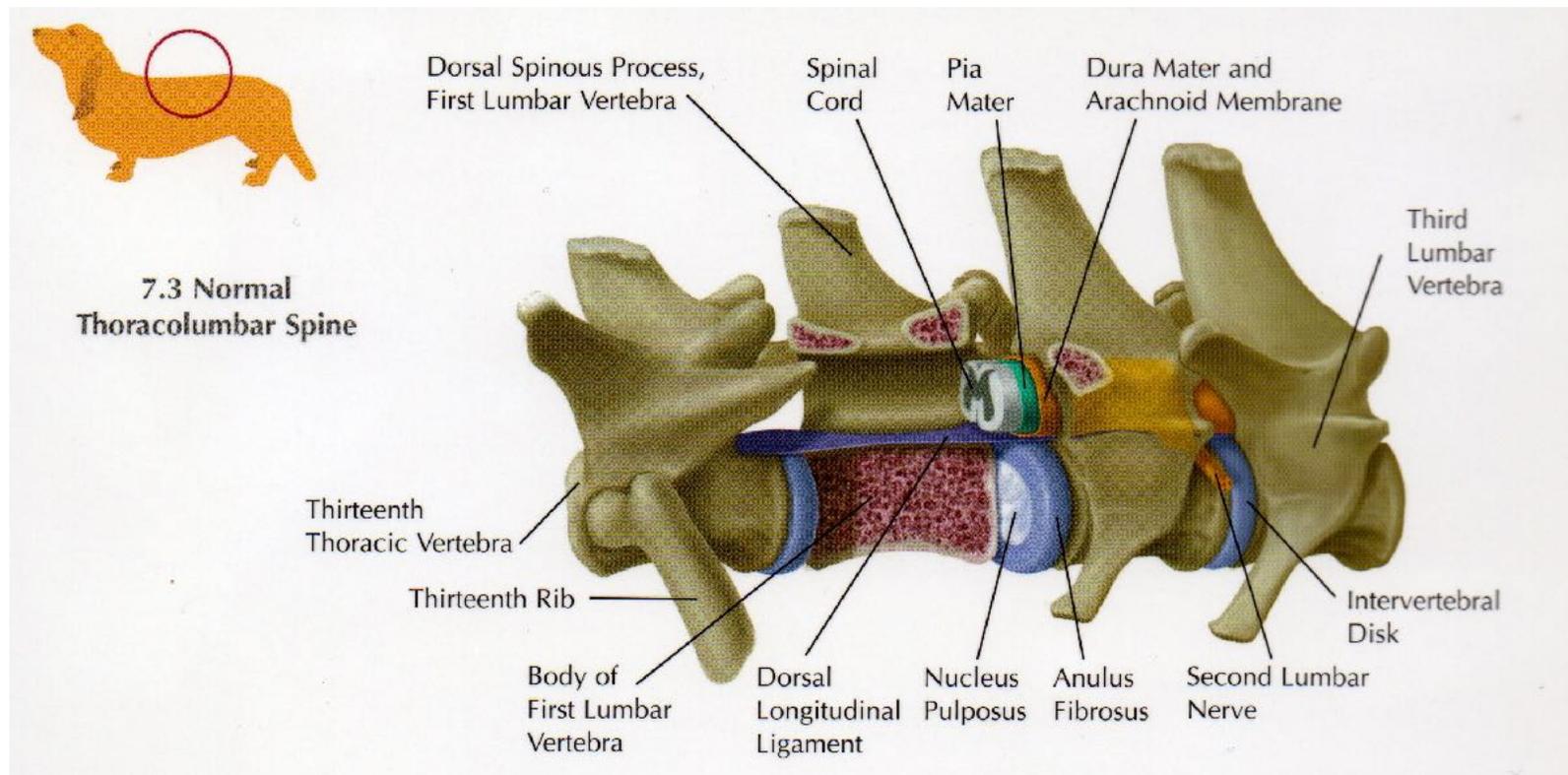


Intervertebral Disk Disease

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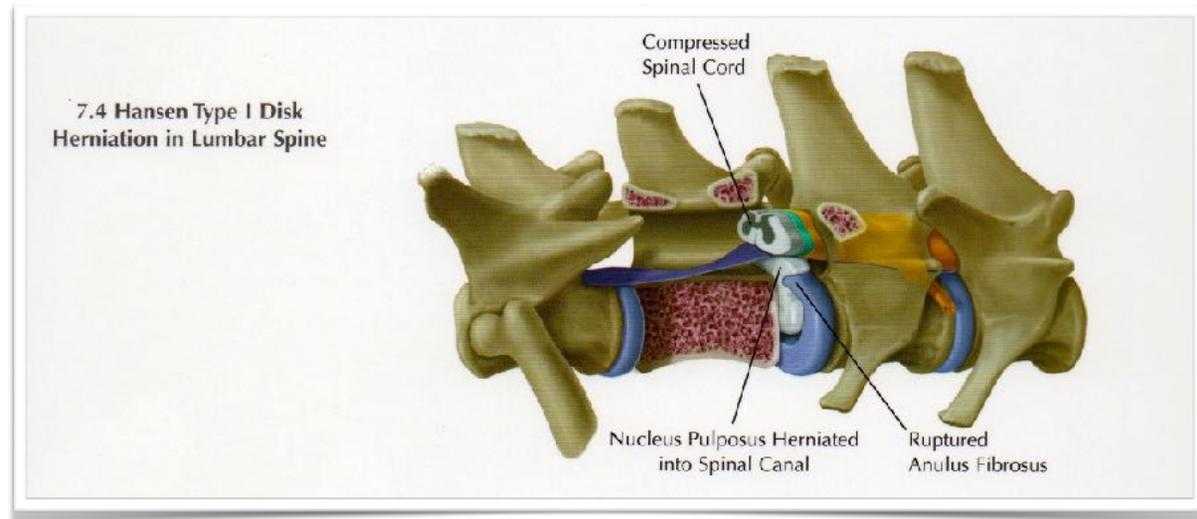


INTRODUCTION

Between each of the vertebrae (bones of the spine) lies an intervertebral disk. This disk is composed of soft tissue, called fibrocartilage, that allows movement and acts as a shock absorber. Normal wear and tear with aging results in deterioration of these disks (disk degeneration). Although some older patients can show clinical signs, more often the deterioration progresses without any problems or symptoms. In some pets, this deterioration is accelerated and middle-aged patients can show clinical signs.

Type I Disk Degeneration

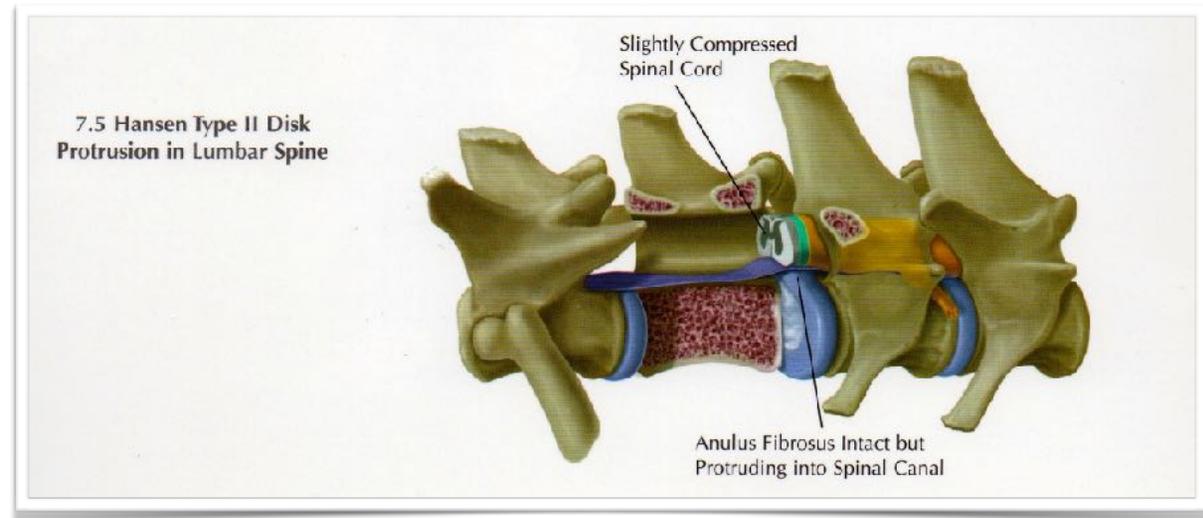
Two groups of patients are most commonly affected. The first group is typically small breed dogs that are usually between the ages of 3 and 9 years. The center of the intervertebral disks, the nucleus pulposus, become calcified and dehydrated/dessicated losing its normal elasticity. With a mild traumatic event, and occasionally even normal movement, the disk can rupture and the calcified center be **rapidly extruded or herniated**. If the disk ruptures to the sides or bottom, the result may only be transient pain lasting for a few hours to a few days. It may even be unnoticed by many owners. However, if the disk ruptures above, the calcified contents are extruded into the spinal canal and can impact on the spinal cord. This results in severe pain and varying degrees of paralysis. Immediate treatment is necessary or complete and permanent paralysis may occur. Surgery is necessary if medication alone does not work or if the signs are severe.



Type II Disk Degeneration

The second group of patients most commonly affected with disk degeneration are large breed dogs, usually 4 to 9 years of age. In these patients the disk degeneration results in a **slowly protruding** or **bulging** disk. The spinal cord may become compressed over the course of many months and thus symptoms may be gradual and be mistaken for arthritis.

Treatment should be started before irreversible damage to the spinal cord has occurred. Again, the decision for medical treatment or surgery will depend on the severity of the symptoms and where in the neck or back the problem is occurring.

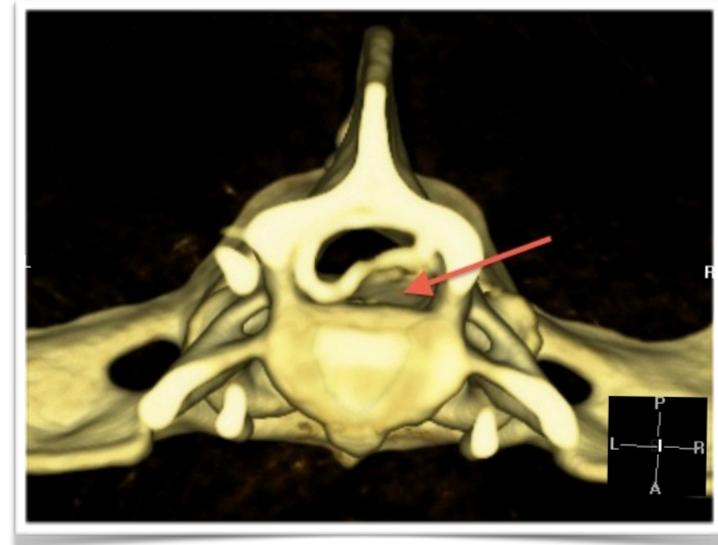


Traumatic Disk Rupture

Major traumatic events may also result in rupture of deteriorated or even normal disks in any patient. Treatment in patients with traumatic disk rupture may be the same as for those patient with Type I or Type II disk degeneration. Some have termed this "Type III" disk disease and it may also be called Fibrocartilagenous Embolism or FCE.

DIAGNOSIS

Although we can be suspicious that disk degeneration is the cause of the clinical signs, a Myelogram, Myelogram/CT scan or MRI is required to be certain of the diagnosis. A myelogram is a special x-ray study, performed under general anesthesia, where a dye is injected through a spinal tap needle and x-rays are taken. This dye highlights the spinal cord and outlines the tops of the disks. The procedure localizes which disks are protruding, bulging, or extruding and thus causing the compression and swelling of the spinal cord. A CT scan is then performed to evaluate the compression in 3 dimensions. For some spinal cord problems, an MRI may be required.



TREATMENT

If surgery is indicated, the procedure will depend on where the disk problem is located. If the degenerative disk is in the neck, the disk is removed from the spinal canal from the front (underside) of the neck through a procedure we call a "ventral slot". Degenerative disks in the lower back can not be removed in this way because all of the abdominal organs are in the way. In these cases, a "laminectomy" or "hemilaminectomy" is performed. A window is made in the bones of the spine above or to the side of the spinal canal, and the degenerate disk is carefully removed and the compression relieved. In some patients with calcified disks that have not yet herniated, a prophylactic (preventative) procedure called "fenestration" may be recommended. In fenestration, a small window is cut in the side or bottom of the calcified disks. Some of the calcified disk material can then be removed, the remainder, if ever extruded,

should not extrude into the spinal canal. The procedure cannot be performed on all the disks thus only those disks considered to be at higher risk are operated upon with fenestration.

AFTER CARE AND PROGNOSIS

Patients are generally hospitalized for about 1 week. They must be confined to a crate or pen until instructed differently by the doctor. If permanent, irreversible damage has not already occurred, patients may begin to show improvement within a few days to a few weeks after surgery. Physical therapy consisting of slings, carts, exercises and swimming are important for recovery of strength and coordination. Patients may continue to improve for up to 6 months or more after treatment.

PHYSICAL REHABILITATION

Certified Canine rehabilitation Therapists (CCRT) are the Physical Therapists of the veterinary profession. CCRT guided exercises and treatments, such as low level laser (Cold Laser), can improve the outcomes with surgery.

Your pet's surgeon can advise you on which techniques may be best for your pet.

ABOUT THE AUTHOR

*Dr. Kenneth Bruecker, DVM, MS, DACVS, DACVSMR
Board Certified Veterinary Surgery
Board Certified Veterinary Sports Medicine and Rehabilitation*

A San Fernando Valley native, Dr. Bruecker attended Pierce College then received his bachelors degree in Animal Science from the University of California at Davis.

He graduated from the University of California at Davis, School of Veterinary Medicine in 1983. After one year of general small animal practice in San Fernando, Dr. Bruecker completed an additional year of clinical internship at the West Los Angeles Veterinary Medical Group. He received his master of science degree at the completion of a three year surgical residency at Colorado State University and moved back to Ventura County in 1988 to establish specialty veterinary care. Dr. Bruecker is Founder, Medical Director and Chief of Surgery at the Veterinary Medical and Surgical Group in Ventura, California. He also provides consulting and training services throughout the world.

Dr. Bruecker provided regular surgical support for practices in the state of Hawaii from 1996 through 2011.

In 2015, Dr. Bruecker founded Continuing Orthopedic Veterinary Education (COVE), a company whose mission is post-graduate veterinary orthopedic education, training, mentoring and surgical coaching around the world.

Board Certified in Surgery since 1990, Dr. Bruecker's primary clinical interests are spinal surgery, sports medicine/orthopedics (including arthroscopy, TPLO, TTA, and limb deformity correction), minimally invasive surgery (such as laparoscopy) and peri-operative pain management. He is well respected for his expertise in arthroscopy, limb deformity, disorders of the knee, fracture management and disorders of the spine. He has authored numerous articles and book chapters on Wobbler syndrome, treatment of intervertebral disk degeneration and spinal fracture management. He is an active participant in working groups on elbow dysplasia, shoulder injuries, advanced techniques in small animal arthroscopy and cranial cruciate ligament repair. Dr. Bruecker was the first to offer TPLO surgery, TTA surgery, cementless hip replacement, arthroscopy and laparoscopy to owners of pets in Ventura, Santa Barbara and San Luis Obispo Counties, as well as to the State of Hawaii. He holds a patent for the first locking Triple Pelvic Osteotomy plate used to treat hip dysplasia. He has been an innovator in the development of many new surgical techniques and orthopedic implants.

Dr. Bruecker became a Diplomate of the American College of Veterinary Sports Medicine and Rehabilitation in 2015 and thus is now Board Certified in this field, as well as surgery.

Dr. Bruecker is a past program chair of Neurosurgery for the American College of Veterinary Surgeons and a past program chair for the veterinary technician program for the American College of Veterinary Surgeons. He served as the orthopedics program director for 2004 and 2005 for the American College of Veterinary Surgeons. He was also program director for orthopedics, pain management and anesthesia for the 2006 American Veterinary Medical Association annual symposium. He has served as the program chair for the Association for Veterinary Orthopedic Research and Education (AVORE). He is a past Executive Board Member (2004-2007) and is Past-President (2014-2015) of the Veterinary Orthopedic Society.

Due largely to his commitment to education and training, Dr. Bruecker was chosen as the Veterinarian of the Year by the California Veterinary Medical Association in 2004. He is an invited speaker and educator throughout the United States, Latin America, South America, Europe, Asia and the South Pacific on a variety of topics in orthopedics (fracture management and arthroscopy), neurosurgery and pain management. He splits his time between global veterinary education and clinical practice.

Dr. Bruecker and his family farm avocados and citrus in Ventura County. He is an enthusiast of classic cars.