**TCVM Treatment of Intervertebral Disc Disease (IVDD) and FCE**

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**IVDD:** Although intervertebral disc (IVD) disease in chondrodystrophic breeds (like Dachshunds) is a surgical disease. There are a number of things which might help delay the degeneration of the IVD and minimize the effects of herniation of the IVD if it happens. Vitamin E is a potent anti-oxidant which, when given before spinal cord injury, can prevent or markedly reduce the effects of spinal cord trauma. Spinal cord signs from IVD disease are due to two factors: 1) the presence of space-occupying compression from the herniated IVD material and 2) internal damage of the spinal cord due to vascular damage and subsequent expansion of that damage from ischemia (diminished blood flow) and tissue destruction secondary to lipid peroxidation and oxidant free-radical production. The latter effect is where vitamin E acts.

 The IVD represents one of the "joints" for connection of vertebrae. While the metamorphosis which takes place in the nucleus pulposus is genetically programmed, the degeneration occurs secondary to the decrease in IVD elasticity. This transmits greater shock to the IVD causing progressive damage. It may not be possible to completely stop this process of damage, but reducing inflammation caused by this damage and providing nutrient support to the cartilaginous structures in the IVD has the potential to delay the onset of IVD disease. Recent studies have shown that there is regeneration of disc material. As such, IVD disease is because degeneration wins out over the natural regenerative (healing) process. Increasing the changes of regeneration (healing) may be the only choice other than surgery. This will not happen overnight and must be part of the of the patients life-long treatment.

 Don't forget that while a number of dogs will recover from IVD disease with cage rest for a minimum of 30 days or 3 weeks beyond the time it takes them to return to normal function without the aid of medication, early surgery gives the best chance for them to regain neurologic function. This is particularly true if they are paralyzed. If they have sudden or rapid onset of paralysis with decreased or absent pain sensation caudal to the lesion, then emergency surgical intervention is critical to optimize their chances of recovery. This will include giving IV anti-oxidant, corticosteroids (Solu Medral or Solu Delta Cortef). Once the initial problem is treated, the patient still must heal. The principles of integrative medicine apply, demanding that all modalities which are available be employed in returning the dog to health. As such, besides conventional medicines and surgery, attention must be given to physical therapies and dietary and nutritional support. Dietary supplementation is also important in speeding the recovery of the patient once IVD herniation has occurred.

 From a TCM point of view IVDD represents a “bi” (pain) syndrome often accompanied by a “wei” (weakness) syndrome. This puts IVDD under the control of the kidney (bones and spinal cord), the liver (joints and smooth flow of Qi and blood), and the spleen (muscle strength). There are 2 excess conditions and 3 deficiency conditions that are associated with various forms for IVDD. The excess conditions are invasion of wind-cold-damp and blood stagnation. The former is typical of IVDD conditions associated with fibrocartilaginous embolization (FCE) and the latter is the typical pattern in acute IVDD in chondrodystrophic dogs. The deficient conditions represent variations in patterns from chronic, type II IVDD in non-chondrodystrophic breeds and are in increasing severity: yang deficiency, yin deficiency and combined yin-yang deficiency.

 Type-I IVD herniation in chondrodystrophic dogs represents a Jing (genetic essence) deficiency of the kidney. This leads to failure of the kidney to nourish its child, the liver. The resultant liver deficiency results in impaired joint health (degeneration of the IVD) at a young age. The IVD herniates leading to acute blood stagnation which results in pain and paralysis. The tongue will usually be purple in color, indicating stagnation. The pulse will be wiry (indication of liver stagnation and pain) and fast due to the local excess and heat. The treatment principles include activation of the blood, dissipation of the stagnation and resolution of the stasis. TCM herbal therapy includes *Da Hou Lou Dan Tang* (Double P formula #2, Jing Tang Herbal, 100-400 mg/kg every 12 hours) until paralysis is resolved. Acupuncture therapy is also very helpful including the local hau tuo jia ji points, BL11, BL23, GV1, wei jian, GV6 and LIV3. The hau tou jia ji points act locally to stimulate the nervous system. BL11 supports the bones and BL 23 supports the kidney function. GV1 and wei jian help pull the energy down past the blockage. Hemoacupuncture at wie jian at the initial onset of paralysis is like acupuncture on steroids. GV6 fortifies the spleen, supports the kidney and strengthens the back. LIV3 is the source point for the liver and helps re-establish liver function.

**References**

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 **Fibrocartilaginous InfarctionFibrocartilaginous Infarction:** Even though animals do not suffer from to the same degree of vascular disease as human beings, infarction of the spinal cord with fibrocartilaginous material is not uncommon. It occurs in any breed of dogs, but is most common in large breeds, such as Great Danes, Labrador retrievers and German Shepherds. Although both arteries and veins can be affected, most commonly it is the venous system of the spinal cord which is obstructed, leading to a hemorrhagic infarction. It is believed that herniation of the nucleus pulposus takes place either into the vertebral body or the venous sinuses within the spinal column. Since the vertebral body represents a vascular space communicating with the spinal venous system, the material gains access to the spinal veins. These veins do not have valves, allowing the fibrocartilaginous material to flow up and down the spinal column. When intra-thoracic pressure increases, this material can be back-flushed into small penetrating spinal cord veins. When the intra-thoracic pressure returns to normal, the veins collapse trapping the material and leading to excessive venous pressure upstream to the occlusion. The venules rupture leading to a hemorrhagic infarction. The pattern of infarction usually affects a quadrant of the spinal cord, although initial signs may affect more of the spinal pathways from inflammation and spinal cord swelling. The infarction can occur anywhere along the spinal cord, but the causal cervical and mid- to lower lumbar spinal cord segments appear to be most frequently involved.

 The presence of spinal cord infarction should be suspected whenever a patient presents with acute onset of paresis or paralysis which is markedly asymmetrical and there is no evidence of hyperpathia. Vascular disease is generally acute and non-progressive. In addition, the spinal cord contains pain pathways, but no pain receptors. As such, strict diseases within the spinal cord without meningeal involvement are usually not painful. Most of the other diagnostic tests will be within normal limits. Occasionally, there will be evidence of hemorrhage on CSF analysis. Spinal radiographs, do not demonstrate the disease, but may reveal other evidence of spinal column degeneration. Myelography will be normal or demonstrate mild intramedullary swelling. In a small number of cases (where the vascular occlusion is secondary to a systemic disease), the minimum data base will show evidence of the systemic disease.

 **TCM Diagnosis and TreatmentTCM Diagnosis and Treatment:**  FCE represents acute disruption of blood flow to the nervous system and as such is the invasion of wind accompanied by cold and damp. This is an excess condition leading to the sudden (wind sign) onset of cold which slows the blood and leads damp accumulation. The tongue may be greasy (after a little time) reflecting the damp. The pulse will be slow and soft (cold-damp). The treatment principle is to dispel the cold, disperse the damp, quiet the wind, activate the blood and relieve stagnation. Acupuncture points should include the local Hau Tuo Jia Ji points, BL-23, BL-67, GB-39, GV-1, and GV-14. Herbally, *Xiao Huo Luo Dan* can be used.