

Surgery – Carpal Hyperextension Injury

<p>What is a carpal hyperextension injury?</p>	<p>Also called carpal luxation or subluxation, carpal hyperextension results from a loss of stability in the palmar carpal ligaments and palmar fibrocartilage. Most commonly it occurs in mid to large breed dogs after a fall or jumping from a high surface, but can be seen less frequently in cats and small breeds dogs. Hyperextension can also occur without trauma in animals with end stage immune-mediated arthropathies or degenerative conditions. Small breed dogs are overrepresented for immune-mediate collapse of the carpal joints.</p>
<p>How is a carpal hyperextension injury diagnosed?</p>	<p>If traumatic, the patients are lame on the affected limb and the carpus is swollen. There is a varying degree of plantigrade stance in the affected limb depending on the degree and location of subluxation. In chronic degenerative or immune-mediated arthropathies there is a plantigrade stance with pain on manipulation of the carpal joint. These cases are often bilateral. Radiographic examination is recommended to determine the location of the instability and to rule out any associated fractures. The patient should be anesthetized or heavily sedated and in addition to the standard craniocaudal and mediolateral projection, a radiograph should be taken in the medial to lateral projection with the limb stressed to maximal carpal extension. This latter film will help to localize the area of instability. Comparison films can be considered if the contralateral limb is normal.</p> <p>Instability can be noted at the antebrachiocarpal joint, the middle carpal joint, carpometacarpal joint or a combination of the latter two. There is often displacement of the accessory carpal bone. Palpation of the limb when the patient is sedated is advised to rule out or differentiate from collateral ligament injury.</p>
<p>What is the treatment?</p>	<p>Medical management for traumatic carpal hyperextension can be considered with cast or splint and pain medication. However, especially in large breed dogs, the prognosis for full recovery is guarded. Even if there is initial improvement the carpus will often breakdown over time.</p> <p>If there is concurrent polyarthritis, arthrocentesis with fluid analysis and cytology should be performed and immunosuppressive therapy should be considered once the diagnosis is confirmed. Many of these patients may require surgical stabilization if hyperextension persists once the immune response is controlled and the inflammatory stage of the disease is no longer active. In general, surgical treatment is often required. Most carpal hyperextension injuries are best treated with a pancarpal arthrodesis. Even if the injury is localized to the middle carpal joint there is potential for breakdown of the radiocarpal joint if only partial athrodesis is performed (“domino-effect”).</p> <p>Pancarpal arthrodesis is performed by removing the cartilage on the intra-articular surfaces of the carpal bones, packing with bone graft (can be allograft or autograft) and stabilizing with a dorsally placed bone plate that spans the entire carpus. A cast or caudal splint is usually placed post-operatively for 6-8 weeks until full bone healing and fusion are achieved.</p>
<p>What is the prognosis?</p>	<p>Traumatically induced carpal hyperextension injuries have an excellent prognosis with surgical stabilization. There is potential for a mild gait abnormality but most patients are pain free and have good function of the limb post pancarpal arthrodesis.</p> <p>If the hyperextension is a result of immune-mediated athropathy there are more potential complications for healing and complete joint fusion due to the inflammatory nature of the disease and the concurrent immunosuppressive therapy.</p> <p>The surgeons at VSCT are happy to review the case and the radiographs to assess if the patient would be a good candidate for carpal arthrodesis.</p>
<p>Questions? Surgical Experts: Jim Boulay, DVM, MS, DACVS Barb Gores, DVM, DACVS Sharon Shields, DVM, DACVS</p>	<p>The Veterinary specialty Center of Tucson has board-certified surgeons available for questions and consultations on surgical conditions during the weekdays. A member of the surgery team is on-call 24/7 to provide consultations to VSCT emergency doctors and to perform emergency surgery for patients seen by the VSCT emergency service. Board-certified surgeons have four additional years of training and are certified by the American College of Veterinary Surgeons to assure competency in advanced veterinary surgery.</p>