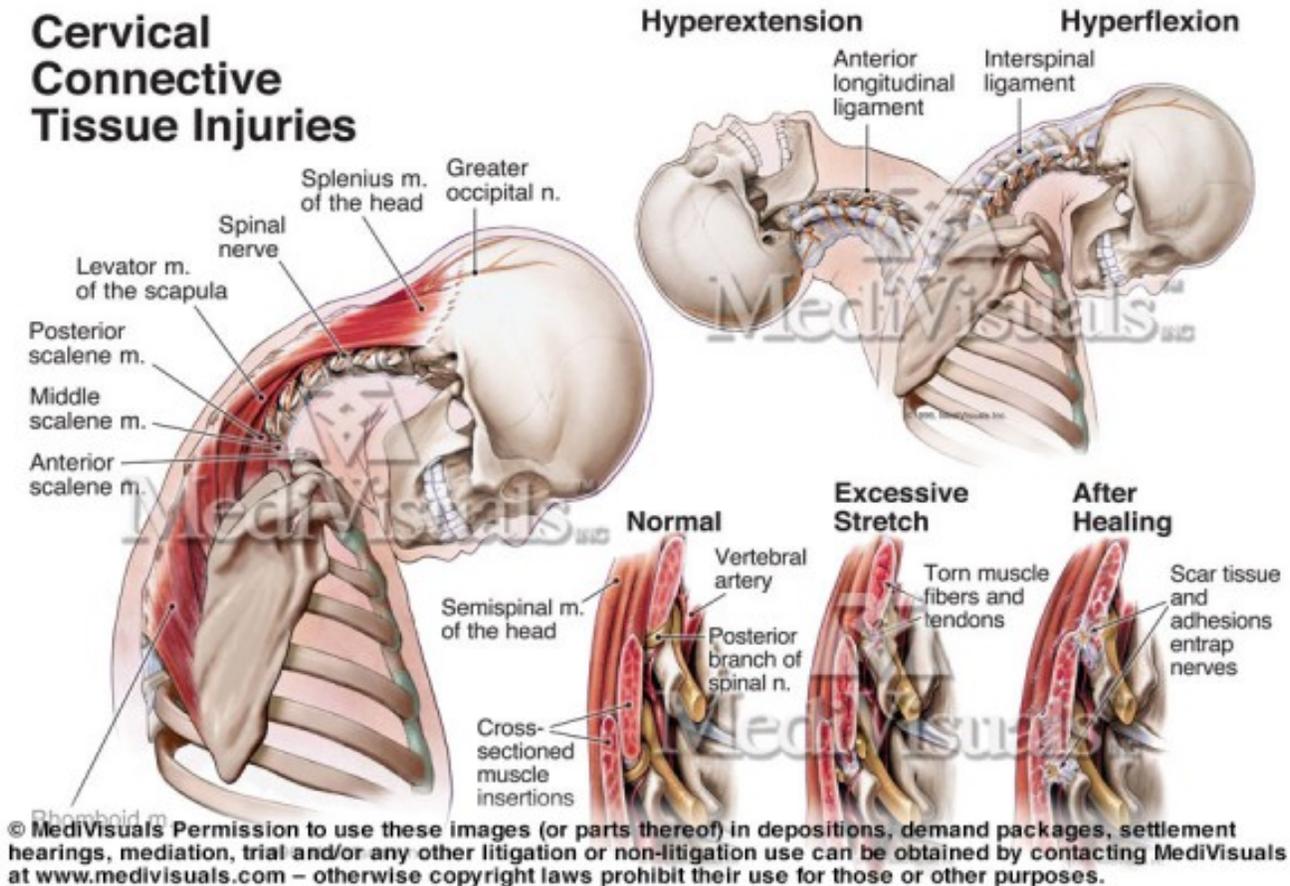


Connective Tissue Injury

MRI vs Intraoperative Assessment for Accuracy – Which is BETTER?

From the Desk of Dr. Brian Guetter at Exacta Care

When evaluating the traumatically injured patient, proper workup requires a complete history, physical examination including detailed neurologic and orthopedic analysis and specialized diagnostic testing modalities such as MRI and stress radiographs. An accurate and detailed analysis of the patient's condition is critical to avoid further injury and to prevent delay in diagnosing injuries to sensitive neurological structures. In a recent paper by Haris et al. (2016), the authors stated **“Traumatic injuries of the spine and spinal cord are very common and such injuries can cause potentially devastating lesions that may lead to significant neurological damage.”** (page 1).



The authors continue by stating “In several instances, progression of injury may be halted by timely diagnosis and treatment and imaging studies play an extremely vital role in detecting any abnormality that compromises the integrity of the canal and the spinal cord.” (page 1) It is the clinician's duty to accurately diagnose and manage these spinal injuries. Identifying the location and degree of injury is an important first step in the process. Regarding the “type” of imaging modality of choice, the paper's authors report **“Magnetic Resonance Imaging (MRI) plays an important role in screening and evaluating patients for neurologic injury, ligamentous injury, and the need for operative intervention.”** (page 4) Regarding the accuracy of the test, they state “MRI was found to be highly sensitive in detecting injuries to the spinal cord and the posterior longitudinal ligament and moderately sensitive for detection of disc injuries. On the other hand, where the anterior longitudinal ligament, ligamentum Flavum and the

interspinous ligament are concerned, MRI performed ineffectively with higher number of false negative interpretations.” (page 4) The later structures, (which are commonly injured) are best detected with plain film stress radiographs (**flexion and extension views- Dr. Guetter screens all trauma patients with these tests for the most accurate diagnosis**).

The “moderately sensitive” label for detecting disc injury on MRI is a very important statement since 75% of the spinal injuries examined showed injury to the intervertebral disc on MRI, while 33% (1/3) showed no injury to the intervertebral disc on MRI which turned out to be injured once the surgeon was able to examine them intraoperatively. **So in this study, 1/3 of disc injuries were missed on MRI study but in fact were present.** “Hence to conclude, the utilization of MRI in assessing non-osseous injuries to the spine is well established and should be the modality of choice in evaluating spinal injuries, even when using low field strength magnets.” (page 4) When it comes to evaluating the spinal trauma patient, a comprehensive evaluation requires history, physical examination and MRI evaluation which all must be correlated to accurately understand what the patient’s true injuries are, this requires advanced specialty training in spine care and trauma. Dr. Guetter continues to update his credentials with a focus on the trauma patient.

For more detailed information on this topic please contact Dr. Guetter at Exacta Care, 502-272-4700.