Dynamically Induced Chronic Cord Compression and Radiculopathy

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Confirming the source neurological compression in the patient with intermittent dynamically induced symptoms may be a diagnostic challenge. This diagnostic challenge is compounded when the doctor relies on a static x-ray or MRI report that discounts small structural intrusions in the spinal canal as being clinically insignificant.

Symptoms that manifest during movement may be difficult to image if the mass-effect is small or provoked at end range motion. The following case is interesting because of the obvious change in pathologic interpretation between flexion and neutral positioning. The neutral lateral MRI (read by another radiologist) was considered to only have disc bulges.

However, the purpose of this case study review is not to urge doctors to order flexion MRIs as standard practice it is a reminder that the spine is a dynamic structure and intermittent symptomatic compression of the neural elements may not be apparent on a static film.

The patient had significant relief of pain after the first visit. By the third visit, his pain had dramatically reduced to a tolerable level. His need for pain medication also was reduced.

Thus, treatment may be delayed and the potential for chronicity may be underestimated. Greater deviation of neural elements or larger deformation has a greater potential to produce symptoms. Deformation of the spinal cord or square area of the spinal cord can be clinically graded however most radiologists do not use a measurable scale. Nagata et al [1] described a useful four-level scale based on T1 weighted sagittal images of the cervical spine.

The spinal cord may also be deviated without obvious compression, causing excessive traction on the cord or roots. The degree of compression and intensity of symptoms may not be in direct proportion in cases of mild compression with extensive inflammation.

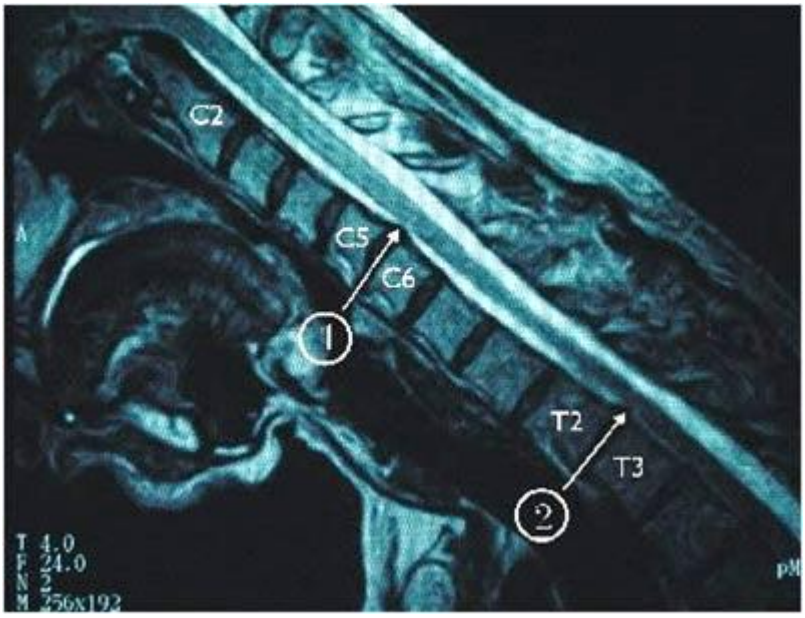
Case Study

Clinical History:

43 y/o male with history of neck and upper quarter repetitive injury during full contact martial arts sparring. His pain was described as intense in the supraclavicular fossa and suprascapular region on the right. He had multiple epidural injections and a C6 sensory root rhizotomy.

The patient had short-term benefits from these invasive procedures without complete resolution of his pain. He was unable to work in full capacity and upper extremity exercises intensified his radicular symptoms. Scalene and omohyoid muscular injury was suspected in addition to disk herniations observed on MRI. Chiropractic treatment over the three years after injury provided reduction in pain however periods of severe break-through pain occurred with activity.

Spinal Cord Compression



Spinal cord compression noted at the C5-6 level and the T2-3 level with cervical flexion. These disk herniations were only part of the mechanisms responsible for pain production in this patient. Injury to the scalenes and omohyoid muscles was clinically suspected.

Laser Treatment Protocol:

Class IV laser was used in the following regions and protocol: The posterior and lateral articular pillars C4-C7 and paravertebral muscles were treated in the cervical spine. The upper thoracic spine T1-T4 and right paravertebrals were treated predominantly in the thoracic spine.

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Trigger points in the ascending trapezius, omohyoid, scalene groups on the right were treated in conjunction with stretching. The treatment protocol used a dual infrared beam laser in the 800 nm and 970 nm ranges set at 3W of power for a duration of 15 minutes in the areas listed above.

The initial treatment program was 1-2 visits per week over two months. There were three treatment phases during each session consisting of the frequencies 2 Hz, 10 Hz and 500 Hz. The probe was moved from point to point with direct contact technique in a grid pattern approximately 4-6 seconds per point.

Results of Treatment:

The patient had significant relief of pain after the first visit. By the third visit, his pain had dramatically reduced to a tolerable level. His need for pain medication also was reduced. At the end of the second month, he was no longer needing narcotic pain meds and was sleeping much better.

He was still unable to return to pre-injury sports activities or work level, however he reported days without radicular pain and only mild pain on light activity. This improvement status has continued for six months with the patient only requiring treatment on a weekly basis. The intractable pain returned on a few occasions following physical activity.

The treatment was considered highly successful because prior to the intervention with Class IV laser, the patient was taking Vicoden on a daily basis and had constant nagging intractable pain shooting into his supraclavicular fossa. His quality of life had improved and the patient was making it through the day without the need for narcotic pain relievers.

Reference:

1. Nagata, K et al. Clinical use of magnetic resonance imaging for cervical myelopathy. Spine. 15(1):1088-1096,1990.

About Dr. Jerome M. True, D.C., DABCN:

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