CASE REPORT: 30-year-old Builder and Surfer Treated with Cox® Flexion-Distraction Therapy For Right C6-C7 Paracentral Disc Protrusion Contacting The Cord And Associated With Encroaching Discophyte

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HISTORY:
A 30 year old builder and amateur surfer presented on January 22, 2019, with cervical pain and radicular symptoms of numbness and tingling intermittently into the right hand. He stated that the symptoms began insidiously 12 months ago, and he has experienced exacerbations and remissions throughout this time. The radicular symptoms were particularly aggravated while on his surfboard in sustained extension and over the past year the frequency of pain had progressively increased with pain now coming on after 10 minutes of minor neck extension. He rated the pain as a 5/10 (10 being the worst pain) at worst, 4/10 currently and is able to relieve radicular symptoms with sustained flexion stretching. He had consulted his general practitioner who referred him for an MRI (See Fig1-4), prescribed pain medication and physiotherapy. The physiotherapist provided him with a stretching program which provided little sustained relief.

EXAMINATION:
Cervical range of motion was measured at 90 degrees flexion, 10 degrees extension, 10 degrees bilateral lateral flexion and 45 degrees bilateral rotation. Reflexes were tested as C5 +1 bilateral, C6 +2 bilateral, C7 +1 bilateral. Dermatome examination showed a decrease in sensation on the first 2 digits of the right hand. A mild right nerve tension sign was present. Orthopaedic testing yielded positive right maximal compression test. Hypertonic and tender points were found in bilateral upper trapezius, rhomboid, scalene, sub occipital and elevator scapulae muscles.

IMAGING:
MRI examination was obtained on June 19, 2018, (See Figures 1-4.) showing right C6-C7 paracentral disc protrusion contacting the cord and associated with disc material or discophyte extending into the foramen and causing severe stenosis. Mild to moderate stenosis in the right foramen at C5-C6 is also present.

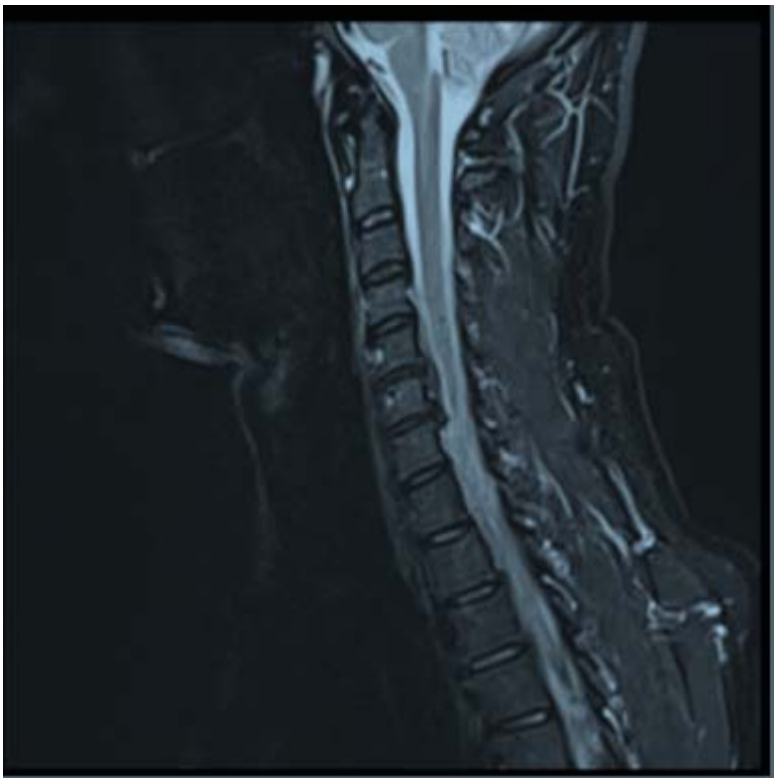

Figure 1- T2 weighted sagittal MRI

Figure 2- T2 weighted sagittal oblique right MRI.

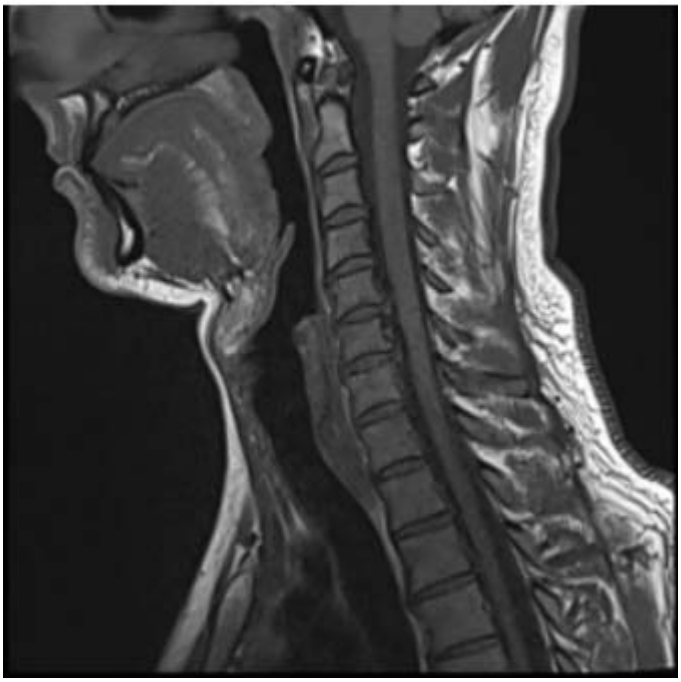

Figure 3- T1 weighted sagittal MRI

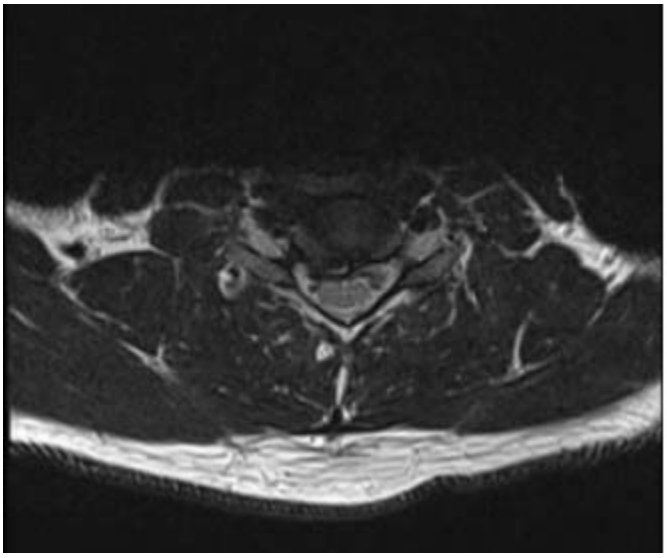

Figure 4- T2 weighted axial MRI

TREATMENT:

The patient was treated with Cox® flexion-distraction Protocol 2 in the cervical spine in conjunction with soft tissue therapy and a home care stretching and stability rehabilitation program. He received 5 treatments over a 3 week period at which time he reported a complete resolution in symptoms. He was able to maintain extension postures without pain or radicular symptoms. The patient ceased his care program at this time, against advice, due to the 2 hour commute to our clinic.

RESULTS:
The patient began to immediately feel symptomatic relief during the application of long Y axis decompression and soft tissue therapy applied on his initial visit. He was advised to rest and apply ice post therapy.

On his second treatment Protocol 2 cervical decompression therapy was applied including a coupled lateral flexion and circumduction motion at both C5-6 and C6-7 levels. After his second treatment, he was able to surf for 1 hour without radicular symptoms occurring. On his fourth treatment, range of motion was re-evaluated showing 15 degrees left lateral flexion and 35 degrees right lateral flexion; bilateral rotation had increased to 30 degrees. At this point he was provided with a stretching and strengthening home care routine as well as a "Spikey Ball" exercise for rhomboids. After a short break he returned for a 5th visit, reporting that he had been pain free for 10 days. Range of motion reevaluation showed further improvement with 80 degrees flexion, 15 degrees left lateral flexion, 30 degrees right lateral flexion and 40 degrees bilateral rotation. He was encouraged to continue his treatments in order to further improve range of motion, stability and prevent relapse however due to increased work commitments and a long commute time, the patient ceased care.

Table 1 (Patient outcome measures)

Outcome Measures.	Tx Date: 22/1/19	25/1/19	29/1/19	31/1/19	9/2/19
VAS	4/10	-	3/10	2/10	0/10
NDI	-	30%	-	-	12%

DISCUSSION:
Stenosis due to disc herniation in the cervical spine is a common cause for radiculopathy in the upper limbs (8). An insidious presentation of cervical stenosis can be a due to a combination structural changes not only of disc and joint but also of the soft tissue structures surrounding. For this reason MRI imaging offers us the best opportunity to comprehensively evaluate stenotic change in the cervical spine (5). Cox® flexion distraction therapy aims to decompress stenotic compartments, dropping intradiscal pressure, pressure on nerve roots and decreasing the encroachment of the intervertebral foramen (2). As functional range of motion is restored a home care plan is crucial in obtaining a satisfactory long term outcome for a patient. Patient compliance for maintenance therapy targeted at enhancing functionality and avoiding exacerbation is an ongoing struggle in practice. As pain resolves, we often see patients abandon care. This is why it is so important to educate patients throughout their treatment period to ensure that a comprehensive understanding of their condition and its sequelae is provided. A strong education and rehabilitation program is associated with a better long term outcome than treatment alone (1). We then hope that an educated patient be more diligent in participating in a long term care plan, be it active, passive or a combination of the two.

CONCLUSION:

This case highlights the successful diagnosis and treatment of a stenotic cervical compartment, reduction in pain, 18% reduction in NDI and restoration of work capacity and activities of daily living using Cox® flexion-distraction decompression therapy and implementation of a strong home rehabilitation exercise program.

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