Case Studies

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Case 1: Cervical Spondylosis

A 72-year-old male presents to the office with a chief complaint of neck pain for 30 years. He denies numbness or tingling in his upper extremities. He reports restricted range of motion and increased pain with physical exercise and sitting at a computer. He has experienced progressive difficulty turning his head left and right while driving. He has history of lumbar laminectomy, psoriasis, hypertension, diabetes, hyperlipidemia, cholecystectomy, and prostatectomy. He also reports multiple sports injuries when playing football in high school with "stingers and burners" and two motor vehicle accidents. His occupation is a lawyer. His BMI is 35 kg/m^2.

On exam, the patient has forward head position, with his external auditory meatus 3 inches anterior to the acromioclavicular joint, and a thoracic kyphosis. He has psoriasis plaques on elbows. He has bilateral restricted range of motion in the cervical spine with extension, side bending, and rotation. He has pain with joint/plane motions at C4/5, C5/6, and C6/7. He has full strength in his

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bilateral upper extremities. Deep tendon reflexes are 2+. His sensation is intact. Spurling, Lhermitte, Tinel at elbow and wrist, and Adson's are negative. On functional evaluation, he has normal toe and heel walking, normal balance, and normal tandem.

X-ray demonstrated C4/C5 and C5/C6 spondylosis, loss of intervertebral disc height, and osteophyte formation in the uncovertebral joints. In the thoracic spine, there is evidence of disc degeneration with Scheuermann's kyphosis. There were no arthritic changes noted in the SI joint on lumbar X-ray. MRI findings were consistent with degenerative disc disease, no evidence of central stenosis, and mild to moderate foraminal stenosis at multiple levels (Figs. 9.1 and 9.2).

The patient was diagnosed with multilevel cervical spondylosis with hyper-lordosis, cervical facet arthropathy, thoracic disc degeneration with Scheuermann's kyphosis, and possible psoriatic arthritis.

Medications prescribed include NSAIDs and Flexeril 10 mg at night. He was referred to physical therapy and for weight loss management. He was advised on ergonomic activity modification. He underwent cervical intraarticular facet joint injection with relief.

Fig. 9.1 MRI in sagittal view of cervical spondylosis with right greater than left foraminal stenosis at C4/C5 and C5/C6, central spinal stenosis, decreased intervertebral disc height

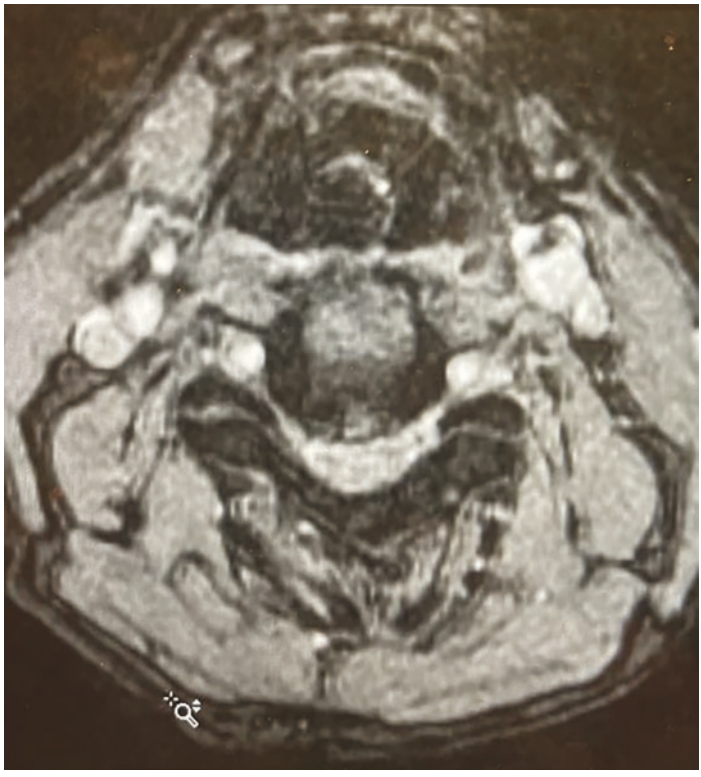

Fig. 9.2 MRI axial view of cervical spondylosis

Case 2: Cervical Myelopathy

A 65-year-old woman presents with one and a half years of neck discomfort associated with restricted range of motion. One year ago, she had onset of numbness and tingling in the bilateral fourth and fifth fingers and the bottoms of her feet. This sensation does not affect her sleep and are not exacerbated with physical activities. She denies weakness, history of trauma, or prior neck surgery. However, the patient reports loss of balance on occasion, which has worsened over the past year. She reports no falls and no

difficulty swallowing. Medical history includes unilateral laryngeal atrophy with vocal cord dysfunction and mild hyperlipidemia.

On exam, she has bilateral restricted range of motion in the cervical spine with side bending and rotation. Sensation and motor are intact throughout. Deep tendon reflexes are brisk (3+) throughout. Spurling and Hoffman are mildly positive, and Babinski, Tinel at the elbow and wrist, Allen, Adson, and Phalen's tests are all negative. Lhermitte's test is positive. She has no clonus. Toe walking, heel walking, one legged stance, and tandem are consistent with mild vestibular dysfunction.

X-ray of the cervical spine demonstrates straightening of the cervical lordosis with C5/C6 and C6/C7 spondylosis associated with loss of intravertebral disc height. There is no evidence of pannus formation or C1/C2 instability. Flexion and extension views demonstrate no evidence of transitory motion. Oblique views have evidence of mild foraminal stenosis.

MRI of the cervical spine demonstrates moderate to severe cervical stenosis from C5 to C7 associated with loss of intervertebral disc height. There is moderate foraminal stenosis at C5/C6 and C6/C7 bilaterally. Additionally, there is anterior and posterior compression of the spinal cord with gliosis (Fig. 9.3). Electromyography (EMG) has no evidence of cervical radiculopathy or compressive neuropathy.

The patient was diagnosed with cervical spondylosis from C5 to C7 with moderate to severe stenosis and myeloradiculopathy. She is advised to follow neurological precautions with activities. Pharmacologic treatment includes Medrol dose pack, gabapentin 300 mg TID, and meloxicam. Physical therapy is focused on strengthening and balance, with cervical spine and neurologic precautions, which includes no cervical traction or manipulation. Injections are not initially indicated in this patient due to the spinal cord compression. Surgical consultations include orthopedic spine and neurosurgery. Her options regarding surgery include observation, posterior laminectomy or laminoplasty, and anterior cervical decompression and fusion from C5 to C7, likely accessing on the side of the laryngeal atrophy.

Fig. 9.3 MRI sagittal view of cervical spondylosis C4–C7 with myelomalacia at C5–C6

Case 3: Cervical Dystonia

A 33-year-old female graphic designer presents with 10-year history of neck discomfort associated with headache. She reports failing multiple treatments with a previous physician, including medications, physical therapy, chiropractor, acupuncture, and massage. Trigger point injections provided temporary pain relief. Her pain is interfering with work, as she cannot sit at a computer for prolonged periods of time due to increased neck spasms. It is also interfering with sleep. She has history of ADHD, is on Adderall, and history of anxiety and depression, on Wellbutrin and Lexapro. There are no changes in the pain with menstruation or physical activity. Imaging 5 years ago revealed no evidence of degenerative changes in the cervical spine.

On exam, the patient has postural kyphosis. She has full range of motion of her neck and upper extremities but has evidence of hypermobility and multidirectional instability of bilateral shoulders. Her distal strength is intact. However, she has 4/5 weakness in her periscapular muscles and rotator cuff and shoulder subluxation without labral click. Sensation, reflexes, and functional evaluation are normal. She has trigger points in her cervical paraspinal muscles, trapezius, and sternocleidomastoid bilaterally, with evidence of TMJ. Adson's, Tinel's, and Roos tests are negative.

Cervical and thoracic radiographs are ordered to assess for interval changes since prior imaging. Cervical spine X-ray demonstrated no degenerative changes but straightening of cervical lordosis. Thoracic X-ray demonstrated mild postural kyphoscoliosis. MRI of the cervical spine has no evidence of disc degeneration nor neural compression.

The patient was diagnosed with cervical dystonia, hypermobility syndrome, postural kyphoscoliosis, and bilateral shoulder subluxation.

Her treatment plan included pharmacologic management with NSAIDs, topical Lidoderm patch, diclofenac topical gel, Lyrica 50 mg, titrated to 300 mg daily, and continuation of current anti-

depressant mediations, with consideration to change to Cymbalta or duloxetine. She was referred to physical therapy for stretching, strengthening, and postural control, and she was prescribed a postural control brace and home neuromuscular electrical stimulation unit (Fig. 9.4, from Google Images). Consult was placed for a dentist for treatment of TMJ with oral orthotic. No surgical referrals were placed. If her symptoms do not resolve, she may be a candidate for Botox injections for cervical dystonia.

Fig. 9.4 Postural control brace

Case 4: Cervical Herniation with Radiculopathy

A 52-year-old engineer presents with 2 weeks of severe neck and right arm pain, associated with difficulty extending his head, weakness in right upper extremity, and impaired sleep. The pain initially started 2 months prior in Texas when the patient was working on a project erecting tents for undocumented migrants. At that time, the pain manifested as mild discomfort in the cervical spine with radiation into right interscapular region. He was evaluated in urgent care 2 weeks ago when his symptoms became so severe and he was unable to work. At urgent care, he was prescribed ibuprofen 800 mg, dosed, Toradol 30 mg injection, and given a cervical spine soft collar. He reports no history of trauma.

He presents on exam with forward flexed posture and torticollis. Pain is exacerbated with sidebending right, rotating right, and with extension. Deep tendon reflexes and sensation are normal. Muscle strength is diminished in the right upper extremity, specifically the deltoid, biceps, and rhomboids are only anti-gravity. Apley's compression test and Spurling's test are positive on the right.

The patient brought his X-ray from urgent care, which revealed C5/6 degeneration with loss of intervertebral disc height, and focal kyphosis at C4/5. An MRI of the cervical spine was ordered, which revealed a right-sided far lateral and foraminal herniated disc at C5/6 with compression of the C6 nerve root (Figs. 9.5 and 9.6).

The diagnosis was right C5/C6 foraminal herniated disc with right C6 radiculopathy. Pharmacologic treatment included Medrol dose pack, and gabapentin 300 mg TID, which was titrated up to 600 mg TID. Analgesics were ordered for as needed. He was referred to orthopedic spine surgery for microscopic discectomy and nerve decompression without fusion, and for a postoperative rehabilitation program.

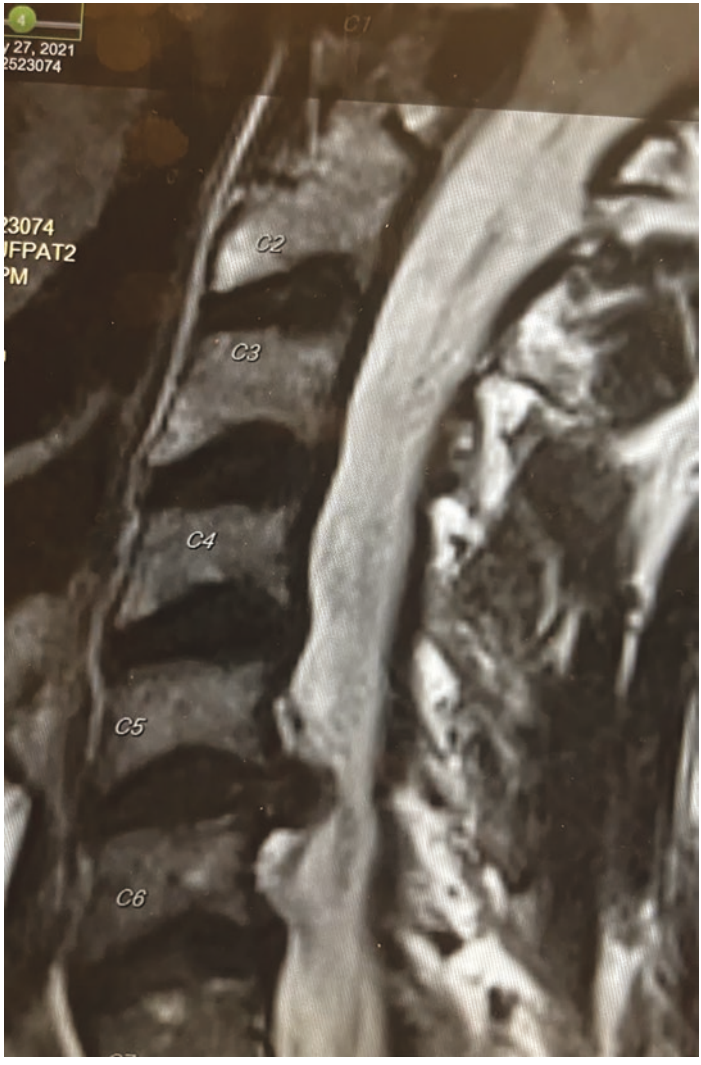

Fig. 9.5 MRI parasagittal view of herniated disc C5/C6

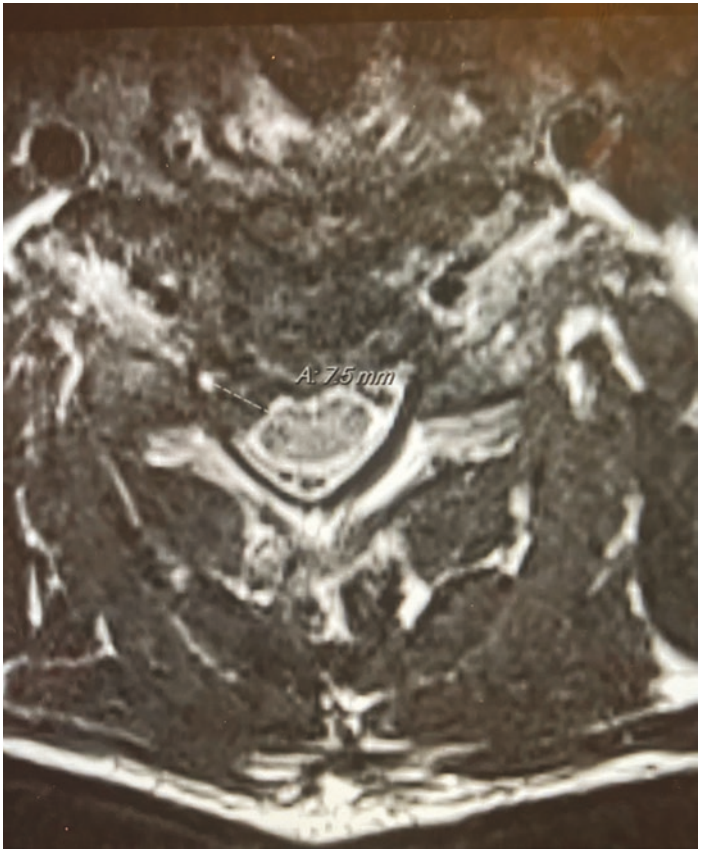

Fig. 9.6 MRI axial view of herniated disc C5/C6