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Protective Effect of Previous Spine Surgery in Traumatic Cervical Spinal Cord Injury: A Case Report

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clinical consideration for the impact of pregnancy physiology on disease process, in addition to implications hormonal changes can have for patients.

Conclusions: Hormone-mediated tumor growth is important to keep in the differential diagnosis, especially in individuals undergoing rapid hormonal fluctuations such as pregnancy, when performing a neuromuscular evaluation.

Level of Evidence: Level V

Progressive Thoracic Myelopathy Due to Foix-Alajouanine Syndrome: A Case Report

Timothy G. Bazil, DO (Beaumont Health (Royal Oak) PM&R Program, Bloomfield Hills, Michigan, United States); Nihal Manjila; Julie Ferris

Disclosures: Timothy G. Bazil, DO: No financial relationships or conflicts of interest

Case Diagnosis: Progressive Thoracic Myelopathy due to Foix-Alajouanine Syndrome

Case Description or Program Description: A 62-year-old male presented 9/2021 for abnormal MRI with progressive LE weakness for ~1.5 years. MRI L-spine demonstrated increased T2-signal changes in lower thoracic spinal cord with prominent intraspinal vessels from suspected ischemic myelopathy, transverse myelitis, versus Foix-Alajouanine Syndrome. On evaluation he had spastic LE paraparesis, sensory deficits, clonus, and bowel/bladder/sexual dysfunction. MRI T-spine demonstrated vascular tortuosity and prominence around thoracic spinal cord with diffuse edema from T4 through conus. Arteriogram revealed Type 1 spinal dural AV fistula arising from a distal radicular branch off T11 intercostal artery, with cephalad and caudal intradural venous drainage.

Setting: Major academic and referral center with Level I adult trauma and Level II pediatric trauma status

Assessment/Results: Patient was evaluated by Neurosurgery and Interventional Radiology. He underwent endovascular Onyx embolization of the AV fistula. He was transferred to IPR unit and discharged at wheelchair level.

Discussion (relevance): This case demonstrates a patient with progressive myelopathy from spinal AV malformation, otherwise known as subacute ascending necrotizing myelitis, or Foix-Alajouanine Syndrome - first described in 1926 in two men with acute-subacute neurological deterioration from spinal AV malformation/vascular congestion*. The disease is typically in men >50*. It affects extrinsic/intrinsic pial veins of spinal cord vasculature, typically lower thoracic/lumbar spinal cord*. If not diagnosed and treated effectively, it can lead to necrotic myelopathy from thrombosis and infarction*. Of note, intravenous steroids can worsen symptoms in patients with spinal AV malformations*.

Conclusions: This patient had worsening neurologic compromise over 1.5 years; presentation is similar to other neurologic conditions including MS or transverse myelitis, in which intravenous steroids are typical treatment. The overall incidence of Foix-Alajouanine is nebulous but estimated ~5-10 million people/year based on 2001 retrospective study*, although likely underdiagnosed*. Early diagnosis and treatment is essential, and diagnoses of AV malformations shouldn't be overlooked.

Level of Evidence: Level V

Protective Effect of Previous Spine Surgery in Traumatic Cervical Spinal Cord Injury: A Case Report

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Disclosures: Jennifer D. Sloan, MD: No financial relationships or conflicts of interest

Case Diagnosis: Protective Effect of Previous Spine Surgery in Traumatic Cervical Spinal Cord Injury

Case Description or Program Description: A 39-year-old female with previous C5-7 anterior cervical discectomy and fusion (ACDF) in 2017 presented following a fall from 20 feet while hiking. She was life flighted to an outside hospital and found to have multiple cervical spine fractures which were surgically repaired with C4-T2 fusion and C7 laminectomy. Imaging also showed retropulsion of osseous fragments in the spinal canal at the lower C7 level deforming the ventral cord contour, and cord edema at C7-T1. On evaluation, she had right lower extremity monoparesis, urinary retention, and severe constipation. She initially had decreased sensation at T4 dermatome and below that returned to normal within 48 hours.

Setting: Major academic and referral center with Level I adult trauma

Assessment/Results: The patient was evaluated by orthopedic spine surgery who determined the residual weakness was likely related to initial cord compression and no further surgical intervention was indicated. She was transferred to the inpatient rehabilitation unit and ultimately discharged home with the ability to walk 250 feet at a modified independent level. Her bowel and bladder function returned to normal.

Discussion (relevance): Fractures through previous ACDF are rare and require significant force. This patient had an unusual presentation with dramatic functional recovery as the forces were concentrated at the inferior part of her previous fusion. Additionally, she had evidence of corticospinal tract involvement without spinothalamic involvement relating to the fragments affecting the ventral cord.

Conclusions: This case implies that the patient's previous ACDF may have provided a "protective effect" as the injury was below the levels of her previous spine surgery and only damaged the ventral cord. Without this, the patient may have been more susceptible to a higher level of injury and damage to further anatomic regions of the cord with greater functional deficits.

Level of Evidence: Level V

Quality Indicators (QI) and Functional Gains During Inpatient Rehabilitation for a Patient with Longitudinally Extensive Transverse Myelitis: A Case Report

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Disclosures: Deanna R. Claus, MD: No financial relationships or conflicts of interest

Case Diagnosis: Previously healthy 21-year-old male with new longitudinally extensive transverse myelitis (LETM)

Case Description or Program Description: The patient developed acute back and chest pain, which progressed rapidly to arm numbness, then tetraplegia over the course of 24 hours. He was subsequently diagnosed with LETM after MRI demonstrated cord enhancement from C4 to T1. Exam 10 days after symptom onset was documented as C6 AIS A spinal cord injury. He underwent treatment with steroids, intravenous immunoglobulin, plasmapheresis, and cyclophosphamide for suspected Neuromyelitis Optica Spectrum Disorder. Acute inpatient rehabilitation (AIR) initiated 23 days after symptom onset.

Setting: Tertiary Care Academic Hospital

Assessment/Results: At time of admission and discharge from AIR, Quality Indicators (QI scores) assessed his level of function. He underwent a 28-day AIR stay. On admission, the patient was dependent (QI score of 1) for all self-care and mobility activities of daily living (ADLs) with exception of upper body dressing (3). Discharge QI scores demonstrated improvement in eating (3), oral hygiene (4), ability to shower/bathe self (3), lower body dressing (3), rolling left and right (3), wheeling 50 feet with 2 turns (6), and wheeling 150 feet (6) in a power wheelchair. He remained dependent for 6 out of 12 of testable ADLs. He had no gains in muscle strength testing and International Standards for Neurologic Classification of Spinal Cord Injury (ISNCSCI) classification was unchanged at time of discharge. He discharged to a home environment with family support and home health services.

Discussion (relevance): This patient's QI scores show limited changes in physical function. While some patients experience neurologic recovery after a

diagnosis of LETM, this patient did not make neurologic gains and continued to require assistance with all ADLs after AIR, except for power wheelchair mobility.

Conclusions: QI scores from this patient's rehabilitation stay suggest that complete spinal cord injuries from LETM may experience limited neurological recovery while in AIR.

Level of Evidence: Level V

Rare Diagnosis of Para-infectious SARS-COV2 Associated Acute Transverse Myelitis Based off Clinical Presentation and CSF Studies with Negative Imaging: A Case Report

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Disclosures: Kurt D. Wilhelm, MD: No financial relationships or conflicts of interest

Case Diagnosis: Rare Diagnosis of Para-Infectious SARS-COV2 Associated Acute Transverse Myelitis Based Off Clinical Presentation and CSF Studies with Negative Imaging

Case Description or Program Description: Patient was admitted for two weeks of ascending paresthesias and weakness of his lower extremities around ten days after recovering from a mild SARS-COV2 associated illness. While in the hospital, his weakness progressed to flaccid paralysis of his lower extremities with a sensory level at T10. Initial workup including magnetic resonance imaging (MRI) of his brain, cervical, thoracic and lumbar spine were negative. Initial electrodiagnostic (EMG) testing was unrevealing. He received a course of intravenous immunoglobulins followed by a five day course of intravenous solumedrol, both of which did not result in any improvement. Multiple weeks into admission, the patient began to exhibit hand intrinsic weakness and paresthesias, so plasmapheresis was attempted without any change in his symptoms.

Setting: Major Academic and Referral Center with Level 1 Adult Trauma

Assessment/Results: After admission to our inpatient rehabilitation unit, repeat MRIs of his cervical and thoracic spine were again unrevealing. Initial cerebrospinal fluid analysis showed lymphocytic pleocytosis, elevated protein and positive oligoclonal bands (2). Repeat EMG obtained after his upper extremity symptoms began did not reveal a cause for his weakness. Inflammatory and neoplastic workups were negative. He also developed upper motor neuron signs on neurological examination late in his admission.

Discussion (relevance): There are documented cases of neurologic complications, specifically transverse myelitis, associated with the multi-systemic inflammatory/immunological response in the post-infectious