

A 35-year-old male presents with complaints of muscle weakness and sensory loss in his upper extremities. His medical history is significant for involvement in a motor vehicle accident seven years ago in which he sustained a whiplash cervical spine injury. Physical examination today reveals moderate wasting of the small hand muscles and impaired pain and temperature sensation in the bilateral upper extremities. Light touch, vibration, and position senses are all intact. Which of the following is the most likely diagnosis?

- ☐ A. Amyotrophic lateral sclerosis
- ☐ B. Syringomyelia
- ☐ C. Cervical spondylosis
- ☐ D. Intervertebral disk prolapse
- ☐ E. Multiple sclerosis

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- ☐ A. Amyotrophic lateral sclerosis [3%]
- ☒ B. Syringomyelia [73%]
- ☐ C. Cervical spondylosis [15%]
- ☐ D. Intervertebral disk prolapse [8%]
- ☐ E. Multiple sclerosis [1%]

[Proceed to Next Item](#)**Explanation:**User Id: [REDACTED]

This patient's upper extremity sensory deficits and weakness are best explained by syringomyelia (**Choice B**), a disease process in which CSF drainage from the central canal of the spinal cord is disrupted, leading to a fluid filled cavity that compresses surrounding neural tissue. Damage most often involves the crossing fibers of the spinothalamic tract (pain and temperature) and upper extremity motor fibers, due to their medial locations within the corticospinal tract. The most common causes of syringomyelia are Arnold Chiari malformations and prior spinal cord injuries (SCIs). In fact, 3-4% of SCI patients go on to develop syringomyelia. In cases of syringomyelia caused by SCI, the cervical level of the cord is most often involved. Symptoms develop months or years after the initial injury, and progression is gradual. Classically, the injury is a motor vehicle accident with whiplash. Characteristic physical exam findings include decreased strength and diminished pain and temperature sensation affecting the arms/hands or having a cape-like distribution, with preservation of dorsal column function (light touch, vibration, position sense).

(**Choice A**) ALS causes upper and lower motor neuron deficits with no loss of sensory function. Twitching, muscle weakness, and cramping are common symptoms.

(**Choice C**) Cervical spondylosis results from disc degeneration in patients over age 40. Neck pain and stiffness are the most common symptoms. Patients may develop spinal

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(**Choice A**) ALS causes upper and lower motor neuron deficits with no loss of sensory function. Twitching, muscle weakness, and cramping are common symptoms.

(**Choice C**) Cervical spondylosis results from disc degeneration in patients over age 40. Neck pain and stiffness are the most common symptoms. Patients may develop spinal stenosis, resulting in neurologic deficits.

(**Choice D**) A herniated cervical disc may cause unilateral radiculopathy from compression of the nerve root. Unilateral pain and weakness in the distribution of the involved nerve is likely, but dissociated sensory findings will not occur.

(**Choice E**) Multiple sclerosis is a demyelinating disease that presents with random, asymmetric white matter lesions. Nystagmus and scanning speech are common symptoms. A relapsing-remitting course is common, and at least two separate lesions are required for diagnosis. This patient's symptoms are explained by one lesion.

Educational objective:

Three to four percent of patients with spinal cord injuries will develop post-traumatic syringomyelia. Whiplash is often the inciting injury. Symptoms develop months to years later. The condition involves enlargement of the central canal of the spinal cord due to CSF retention, resulting in impaired strength and pain/temperature sensation in the upper extremities. MRI is used for definitive diagnosis.