A pain in the neck

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A 76-year-old man presented to the emergency department (ED) after the sudden onset of severe headache, posterior neck pain, dyspnea and quadraparesis while doing the dishes. Paramedics assisted his ventilation on route, but he had recovered adequate spontaneous respirations when he arrived in the ED. At this time, he complained of neck pain and difficulty moving his arms and legs. There was no history of trauma and no relevant past medical problems. He had no chest pain or shortness of breath and denied bowel or bladder dysfunction. He recalled changing light bulbs while helping his daughter move the day before.

His vital signs were as follows: blood pressure, 120/87 mm Hg; respiratory rate, 30 breaths/min; pulse 80 beats/min and regular; temperature, 36.7°C; and oxygen saturation, 98% on room air. Glasgow Coma Scale score was 15. Examination revealed mid-line cervical tenderness at C3–C4 and use of accessory respiratory muscles. Chest auscultation and heart sounds were normal, and there were no neck bruits. Neurological exam revealed normal cranial nerves, normal muscle tone, and 2/5 motor strength in all limbs with symmetrically reduced deep tendon reflexes. Light touch and pinprick sensation were normal, as were rectal tone and plantar responses. Vibration sense, proprioception and cerebellar testing were not performed.

The electrocardiogram, complete blood count, electrolytes, glucose, INR (international normalized ratio) and aPTT (activated partial thromboplastin time) were normal. Results of non-contrast computed tomography of the head were unremarkable, as were plain cervical-spine films and chest x-ray.

The best approach is:

A. Lumbar puncture to rule out subarachnoid hemorrhage
B. Magnetic resonance imaging (MRI) to image the cervical cord
C. Doppler ultrasound of the neck arteries
D. Cerebral angiography

For the Answer to this Challenge, see page 59.

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Received: Sept. 18, 2003; final submission: Nov. 10, 2003; accepted: Nov. 11, 2003

This article has been peer reviewed.

Can J Emerg Med 2004;6(1):50