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CORRESPONDENCE

Teaching Neuroimages: Dynamic Digital Subtraction Myelography Discloses a Ventral CSF Leak in a Patient with Upper Limb Amyotrophy

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In response to the article "Ventral Longitudinal Intraspinal Fluid Collection Presenting as Upper Limb Amyotrophy" [1] we would like to point out the importance of sophisticated examinations in order to find a spinal leak in spontaneous intracranial hypotension (SIH).

In 2018, Nicoletti et al. reported on a 63-year-old man with bibrachial amyotrophy due to a spinal cerebrospinal fluid (CSF) leak, which was not located at this time [1]. Dynamic digital subtraction myelography with the patient in a prone position now showed a ventral leak at Th 6/7.

Dynamic digital subtraction myelography is the preferred imaging modality to locate a ventral CSF leak [2]. As most ventral leaks are located in the upper thoracic

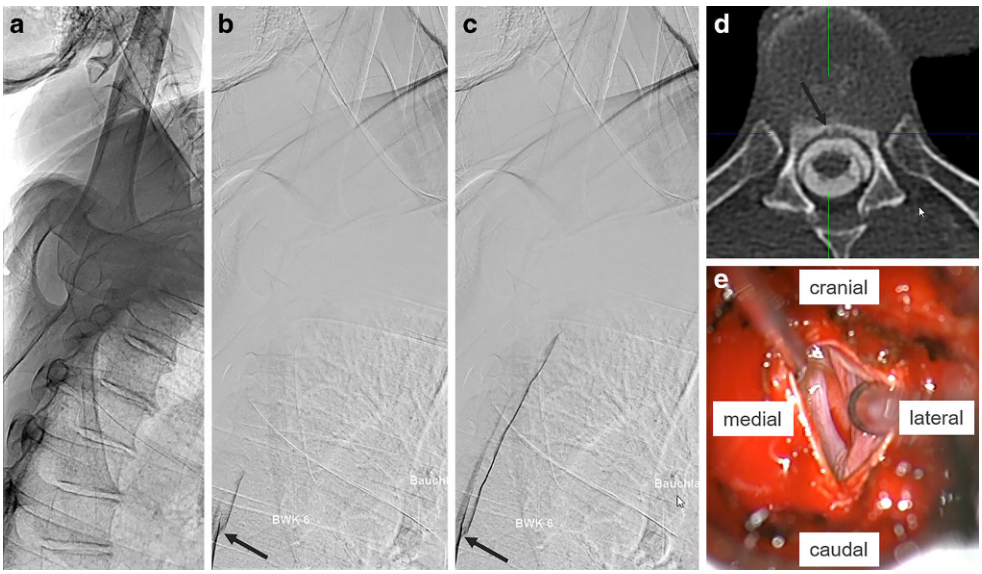

Fig. 1 Native lateral X-ray of patient in prone position with arms overhead in an angiographic suite and a combination of body and table tilting of 20° head down. Left shoulder (humeral head) is elevated over the level of the spinal canal (**a**). Digital subtraction myelography (*DSM*) in the same position. Incoming contrast agent enters the ventral epidural space at the level of tear at Th 6/7 (*arrow* in **b**). As the DSM progresses, contrast runs faster toward the head outside the intrathecal space than inside, indicating a large leak (**c**). Axial spinal CT post myelography with a small bony spur (*arrow*) at the level Th 6/7. The ventral epidural space is filled with contrast agent (**d**). Intraoperative view from dorsal with a large tear of about 5 mm in the ventral dura in craniocaudal orientation (**e**)

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spine, positioning of the patient with elevation of the shoulder is important (shown in Fig. 1a–c).

Bibrachial amyotrophy is a very rare manifestation of spontaneous intracranial hypotension (SIH) and likely caused by stretching of the cervical nerve roots over the extradural CSF collection [3]. Large extradural CSF collections that may progress over the years suggest a large leak rendering the exact localization even more challenging. Minimally invasive surgery from the back of the spine revealed a distinct tear with an underlying small bony spur (shown in Fig. 1d, e).

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Declarations

Conflict of interest N. Lützen, A. Zeitlberger, J. Beck and H. Urbach declare that they have no competing interests.

Ethical standards All procedures performed in the studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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