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Research Article

Spontaneous Cervical Cerebrospinal Fluid Leakage Leading to Intracranial Hypotension

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ARTICLE INFO

Article history:

Received: 16 April, 2019

Accepted: 27 April, 2019

Published: 10 May, 2019

Keywords:

Spontaneous intracranial hypotension

subdural effusion

cerebrospinal fluid leakage

surgical repair

ABSTRACT

This is a case of intracranial hypotension presented with postural headache and imaging study showed typical findings of leptomeningeal enhancement, subdural effusion, and brain sag. Further workup showed cervical cerebrospinal fluid leakage. Surgical treatment was successfully performed to repair the leakage after blood patch failure.

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A 47-year-old man with tonsillar cancer, status post tonsillectomy and concurrent chemoradiotherapy presented with a seven-day history of progressive headache that was exacerbated by the upright position and relieved by lying down. The symptom was not relieved by pain killer and the consciousness became drowsy. Magnetic resonance imaging (MRI) revealed diffuse meningeal enhancement, and subdural effusion (Figure 1A). Spontaneous intracranial hypotension was impressed and cerebrospinal fluid leakage over C1-C2 interlaminar space with cerebellar tonsillar herniation suggestive of the “brain sag” was found on MRI myelography (Figure 1B). After failure of conservative measures, he underwent burr hole drainage of bilateral subdural effusion and surgical repair of the dural defect on C1-C2 interlaminar space (Figure 2A) with paraspinal fascia (Figure 2B). He regained consciousness after surgical treatment, and the symptom of orthostatic headache gradually resolved.

Spontaneous intracranial hypotension is often misdiagnosed; physicians should be aware of this possibility in patients with orthostatic headache and typical imaging findings [1]. These spontaneous cerebrospinal fluid leakages may be due to minor trauma or pre-existing dural weakness [1]. CSF leaks are most frequently located at the thoracic level of the spine

while leakage sites over C1-C2 level were also documented in many case reports [2, 3]. Epidural blood patching, percutaneous injection of fibrin glue, and surgical repair are the choice of treatment. Without the correct diagnosis, one may drain the effusion only without repairing the dural defect to prevent further leakage. This may lead to recurrence of the subdural effusion.

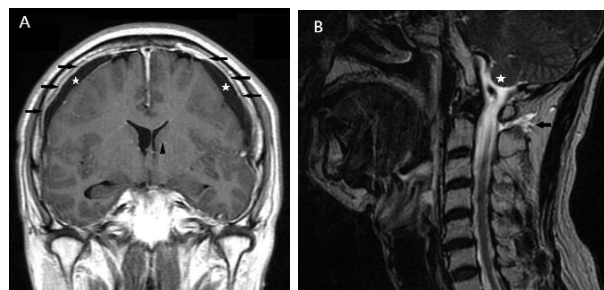


Figure 1: (A) Magnetic resonance imaging (MRI) of the brain in the coronal plane in a 47-year-old man with cerebrospinal fluid leakage induced intracranial hypotension, taken before surgical repair. Diffuse meningeal enhancement (black arrows) and bilateral subdural effusion (white stars) with lateral ventricle compression (black arrowhead) are seen. (B) T2W imaging showing cerebrospinal fluid leakage over C1-C2

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interlaminar space (black arrow). Cerebellar tonsillar herniation suggestive of the “brain sag” was also noted (white star).

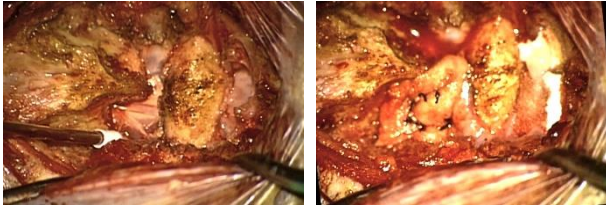


Figure 2: (A) The dural defect on C1-C2 interlaminar space (B) direct repair with fascial graft was performed

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