





Intracranial Hypotension: Diagnosis and Management

Shuu-Jiun Wang, MD

視病猶親

追求卓越

- Neurological Institute, Taipei Veterans General Hospital , Taipei, Taiwan
- Brain Research Center and College of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan





Disclosures

Potential COI	Organization
Advisory Boards	AbbVie, Pfizer, Eli Lilly, Hava Bio-pharma, Biogen, Percept
Consultant	AbbVie, Pfizer, Eli Lilly, Hava Bio-pharma
Grant support for research or education	Novartis, Lundbeck, Orient Europharma Taiwan branches of Eli Lilly and Novartis
Editorial Board	Cephalalgia, The Journal of Headache and Pain



Learning objectives

- In the end of this lecture, the attendees are expected to understand:
 - The clinical presentations of (spontaneous) intracranial hypotension
 - The advantages and disadvantages of different diagnostic tools

(especially heavily T2 weighted MR myelography in detecting spinal CSF leaks)

- The role of epidural blood patch (EBP)
- How to identify and the manage potential complications.



Key messages

- Intracranial hypotension can cause a severe, disabling orthostatic headache.
- HT2W MRM has a similar detection rate with CTM, the gold standard, and owns additional advantages, i.e., contrast-free and radiation-free.
- EBPs can seal the CSF leaks , and are effective and time-efficient
 - Consider EBP early in the course, usually **perform within 2 weeks**
 - An EBP with a volume \geq **22.5 mL** predicts a higher successful rate
 - Multiple targeted EBPs (≥3) should be considered before proceeding to surgical repair.
- A targeted EBP prior to SDH drainage surgery as well as CVT treatments avoids morbidities.

視病猶親 追求卓越



References

The first multidisciplinary consensus for SIH

 Cheema S et al., Multidisciplinary consensus guideline for the diagnosis and management of spontaneous intracranial hypotension. J Neurol Neurosurg Psychiatry. 2023 May 5:jnnp-2023-331166.

The review article for SIH on Continuum ®

 Wang, S.J. 2021. 'Spontaneous Intracranial Hypotension', CONTINUUM: Lifelong Learning in Neurology, 27: 746-66.

Selected key references in the speech (According to the order it appears in the slide)

- Ferrante E, et al. Orthostatic headache without intracranial hypotension: a headache due to psychiatric disorder? *Headache* 2014;54:1056-7
- Mea E et al. Headache attributed to spontaneous intracranial hypotension. Neurol Sci. 2008 May;29 Suppl 1:S164-5.
- Mokri B. Spontaneous low pressure, low CSF volume headaches: spontaneous CSF leaks. Headache. 2013 Jul-Aug;53(7):1034-53.
- Schievink WI et al. A classification system of spontaneous spinal CSF leaks. Neurology. 2016 Aug 16;87(7):673-9.

- Schievink WI. Spontaneous spinal cerebrospinal fluid leaks and intracranial hypotension. JAMA. 2006 May 17;295(19):2286-96.
- Wang YF et al., Heavily T2-weighted MR myelography vs CT myelography in spontaneous intracranial hypotension. Neurology. 2009 Dec 1;73(22):1892-8.
- Tsai PH et al., Heavily T2-weighted MR myelography in patients with spontaneous intracranial hypotension: a case-control study. Cephalalgia. 2007 Aug;27(8):929-34.
- Tsai PH et al., Comparisons between heavily T2weighted MR and CT myelography studies in two patients with spontaneous intracranial hypotension. Cephalalgia. 2008 Jun;28(6):653-7.
- Nitz WR. Fast and ultrafast non-echo-planar MR imaging techniques. Eur Radiol. 2002 Dec;12(12):2866-82.
- Vignaux OB et al., Comparison of single-shot fast spin-echo and conventional spin-echo sequences for MR imaging of the heart: initial experience. Radiology. 2001 May;219(2):545-50
- Cho KI et al., Spontaneous intracranial hypotension: efficacy of radiologic targeting vs blind blood patch. Neurology. 2011 Mar 29;76(13):1139-44.

- Wu JW et al., Factors predicting response to the first epidural blood patch in spontaneous intracranial hypotension. Brain. 2017 Feb;140(2):344-352.
- D'Antona L et al., Clinical Presentation, Investigation Findings, and Treatment Outcomes of Spontaneous Intracranial Hypotension Syndrome: A Systematic Review and Meta-analysis. JAMA Neurol. 2021 Mar 1;78(3):329-337.
- Lin PT, et al. The SIH-EBP Score: A grading scale to predict the response to the first epidural blood patch in spontaneous intracranial hypotension. Cephalalgia. 2023 Mar;43(3):3331024221147488.
- Wang YF et al., Cerebrospinal fluid leakage and headache after lumbar puncture: a prospective noninvasive imaging study. Brain. 2015 Jun;138(Pt 6):1492-8.
- Lai TH et al, Subdural haematoma in patients with spontaneous intracranial hypotension. Cephalalgia. 2007 Feb;27(2):133-8
- Chen YC et al., Treatment and prognosis of subdural hematoma in patients with spontaneous intracranial hypotension. Cephalalgia. 2016 Mar;36(3):225-31.