

Dural sac shrinkage sign

Kawahara et al. previously found the usefulness of [dural sac shrinkage signs \(DSSSs\)](#), which are the anterior shift of the [spinal cord](#) and [dura mater](#) behind the [cord](#), detected by [magnetic resonance imaging \(MRI\)](#) at the [thoracic](#) level for [spontaneous intracranial hypotension diagnosis](#) ¹⁾.



In a retrospective [survey](#) on the usefulness of Dural sac shrinkage sign for the early detection of iatrogenic [intracranial hypotension](#) caused by [lumboperitoneal shunt overdrainage](#) for patients with [idiopathic normal pressure hydrocephalus \(INPH\)](#).

Forty-five INPH patients had an LPS using a pressure [programmable valve](#) equipped with an [anti-siphon device](#).

Nine patients complained of [orthostatic headache](#) after the LPS, indicating IH due to overdrainage, which persisted for more than a week in three patients and 2-7 days in six patients. The headache was transient/ nonorthostatic in ten patients and absent in 26 patients. The DSSSs and accompanying enlargement of the venous plexus were observed in all three patients with prolonged orthostatic headaches. Only the anterior shift of the dura mater was observed in 1 (4%) among 25 patients who had short-term orthostatic headache, transient/ nonorthostatic headache, or absent headache, and underwent spinal MRI. A patient with prolonged severe orthostatic headache with both DSSSs eventually developed intracranial subdural effusion and underwent tandem valve surgery, which provided a quick improvement of symptoms. The DSSSs on thoracic MRI also disappeared promptly.

DSSSs may serve as objective signs for the diagnosis of IH due to overdrainage through an LPS for INPH ²⁾.

1)

Kawahara T, Arita K, Fujio S, Hanaya R, Atsuchi M, Moinuddin FM, Kamil M, Okada T, Hirano H, Kitamura N, Kanda N, Yamahata H, Yoshimoto K. Dural sac shrinkage signs on magnetic resonance imaging at the thoracic level in spontaneous intracranial hypotension-its clinical significance. *Acta Neurochir (Wien)*. 2021 Oct;163(10):2685-2694. doi: 10.1007/s00701-021-04933-w. Epub 2021 Aug 20. PMID: 34415442.

2)

Kawahara T, Atsuchi M, Arita K, Fujio S, Higa N, Moinuddin FM, Yoshimoto K, Hanaya R. Dural sac shrinkage signs on spinal magnetic resonance imaging indicate overdrainage after lumboperitoneal shunt for idiopathic normal pressure hydrocephalus. *Surg Neurol Int*. 2022 Jun 23;13:269. doi: 10.25259/SNI_291_2022. PMID: 35855156; PMCID: PMC9282775.

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