

## Detection of cerebrospinal fluid leakage in intracranial hypotension with radionuclide cisternography and blood activity monitoring

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Radionuclide cisternography is an indispensable examination to detect cerebrospinal fluid (CSF) leakage in patients suspected of having spontaneous intracranial hypotension (SIH). However, it sometimes fails to demonstrate the site of CSF leakage, and in such cases, early bladder visualization is utilized for the diagnosis of SIH as an indirect finding. The aim of this work is to improve the diagnostic ability of radionuclide cisternography and to reevaluate the reliability of early bladder visualization as an indirect finding of CSF leakage. **Methods:** We obtained serial images during the first hour after injection as well as the following time points in 4 patients with SIH and 5 with normal pressure hydrocephalus (NPH) as a control. We also performed blood sampling over time to measure blood radioactivity concentrations. **Results:** All 4 patients with SIH demonstrated leakage, 2 of 4 within one hour after injection. Bladder visualization was observed falsely in 4 of 5 patients with NPH, considered to be the result of a lumbar puncture complication. In this false bladder visualization, blood radioactivity showed a more rapid raise and fall than in CSF leakage of SIH. **Conclusions:** The combination of radionuclide cisternography, including early time points and blood sampling, may enable accurate diagnosis of SIH.

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