

EARLY REVERSAL OF BRAIN SAGGING AFTER EPIDURAL BLOOD PATCH IN SPONTANEOUS INTRACRANIAL HYPOTENSION: EVIDENCE FROM BASAL CISTERN MORPHOMETRY

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Background. Spontaneous intracranial hypotension (SIH) is characterized by cerebrospinal fluid (CSF) leakage leading to intracranial CSF volume depletion and downward displacement of the brain ("brain sagging"). Although epidural blood patch (EBP) is considered the first-line invasive treatment, the timing of anatomical reversal after EBP has not been systematically investigated. We describe two SIH patients demonstrating very early radiological improvement of brain sagging quantified by basal cistern morphometry.

Methods. Two women with definite spontaneous intracranial hypotension (SIH) were consecutively evaluated at the Intracranial Pressure Disorders Clinic, Headache Center, AOU Renato Dulbecco, Catanzaro (Italy) and underwent non-targeted lumbar epidural blood patch after unsuccessful conservative management. The first patient, aged 25 years, presented with severe orthostatic headache associated with neck pain, photophobia, phonophobia, nausea and aural fullness. The second patient, aged 63 years, developed orthostatic headache with cervical pain, vertigo and bilateral abducens nerve palsy causing diplopia. Pre-treatment brain MRI showed typical SIH findings, including diffuse pachymeningeal enhancement, bilateral subdural collections and marked brain sagging. Brain CT was performed the day after EBP in both patients, while one patient also underwent follow-up brain MRI 48 hours after treatment. Midsagittal measurements of the interpeduncular, prepontine and cisterna magna were obtained before and after EBP according to a previously described morphometric method (Table 1).

Results. Both patients experienced rapid resolution of orthostatic headache within 24 hours after EBP. Imaging obtained the day after demonstrated early upward repositioning of the brainstem with measurable enlargement of the basal cisterns compared with pre-treatment studies, indicating prompt reversal of brain sagging (Figure 1). In the patient who underwent MRI 48 hours after EBP, these findings were confirmed, despite persistence of residual subdural collections, suggesting that restoration of brain position may precede complete resolution of other SIH-related imaging abnormalities.

Conclusions. This case series provides preliminary evidence that reversal of brain sagging may occur within the first 24 hours following EBP. Quantitative assessment of basal cistern dimensions appears to be a simple, reproducible imaging biomarker for documenting early treatment response in SIH and may complement conventional MRI findings during post-treatment follow-up.