**Abstract** *(in English – Times New Roman 12 - max. one page)* Deadline for receipt: March 31, 2024

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| Title: Refractory Coma and Anisocoria associated with Spontaneous Intracranial Hypotension: Case Report & Discussion  Author(s): Dr Callewaert P-A., and Dr Demanet N.  Hospital/Institute: Centre Hospitalier de Valenciennes, Avenue Désandrouin CS 50479, 59322 Valenciennes Cedex, France |
| **Background:** Spontaneous Intracranial Hypotension (SIH) is an uncommon medical condition characterized by low Cerebrospinal Fluid (CSF) pressure, often managed conservatively. However, in a minority of cases, SIH can progress to severe clinical deterioration, including coma and other neurological deficits. **Clinical Case:** A 57-year-old male presented to the Emergency Department with typical orthostatic headaches. The suspected SIH was confirmed by MRI imaging. Initial management involved conservative therapy in relation to the patient's stable clinical condition. Several days later, during the etiological assessment, the patient suddenly deteriorated into a comatose state accompanied by non-reactive unilateral mydriasis. Imaging revealed a minor increase in intracranial collections compared to the previous scan results. Emergency treatment involved the evacuation of these collections as part of the general management of suspected intracranial hypertension. Despite the surgical drainage, the patient remained in a deteriorated clinical state. The curative treatment involved the injection of an epidural blood patch, which had been initially delayed due to various medical contraindications. By re-establishing normal CSF pressure and alleviating stress on the central nervous system structures, the patient's condition improved significantly, almost as quickly as it had deteriorated.**Discussion:** SIH-induced comas have already been documented in medical literature. The pathophysiology underlying altered wakefulness involves the compression and dysfunction of brain stem structures such as the pontine tegmentum. In this case, unilateral non-reactive mydriasis was observed, which was interpreted as another sign of brain sagging due to compression of the parasympathetic fibers surrounding the oculomotor cranial nerve (III). Correction of the CSF pressure by the epidural blood patch alleviates the stress and dysfunction of these structures, enabling the reversal of neurological deficits.**Conclusion:** The case underscores the potential for SIH to precipitate rapid and severe clinical deterioration. Clinicians should prioritize restoring CSF pressure and consider early injection of an epidural blood patch, once the patient's condition permits, to mitigate the risk of further complications and clinical decline.**Declaration of Interest:** Written with the written consent of the patient. The authors do not declare any conflicts of interest or any funding. The manuscript adheres to the CARE Guidelines. |