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Case Report

Iterative epidural blood patch for recurrent spontaneous intracranial hypotension during pregnancy

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Abstract A 30-year-old woman at 28 weeks presented with sudden onset of intense headache, epigastric pain, hot flushes, nausea, vomiting, and stiff neck. Cerebral magnetic resonance imaging showed pathognonomic signs of spontaneous intracranial hypotension (SIH). Epidural blood patch was performed 2 times during pregnancy for symptoms relief in spite of medical treatments. No other recurrence was noted until the spontaneous delivery. SIH is a rare entity during pregnancy which may be diagnosed using magnetic resonance imaging. Iterative Epidural blood patch should be proposed to patients with SIH during pregnancy because it allowed faster symptoms improvement and patient relief with complete recovery than medical treatment only.

1. Introduction

Spontaneous intracranial hypotension (SIH) is a rare condition characterized by postural intense headaches, nausea, vomiting, photophobia, stiff neck, secondary to low pressure of cerebrospinal fluid (CSF). It was first described in 1938 by Schaltenbrand [1]. Most of the time, SIH is associated with a CSF leak, which can be identified with cerebral imaging [2–5]. Nevertheless, it may be described without any related etiology. The CSF analysis does not show any abnormalities, except for a low opening pressure at the puncture point. A PubMed search from 1970 to 2014 of "spontaneous intracranial hypotension and pregnancy" revealed only 6 published cases [6–10]. This case report describes a patient with iterative severe symptoms due to SIH during pregnancy and who necessitates 2 epidural blood patch (EBP) for symptoms relief.

2. Case description

A 30-year-old woman, gravida 3, para 2 (1 vaginal delivery and 1 cesarean section), was admitted at 28th weeks of gestation with sudden onset of intense headache, an important orthostatic characteristic, epigastric pain, hot flushes, phosphenes with positional vertigo, stiff neck, and vomiting making her unable to tolerate food. The patient's symptoms did not relieve with recumbency. She had no history of lumbar puncture, brain trauma, or other relevant medical issues. Blood pressure was 100/65 mm Hg. Neurologic examination was

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normal and obstetrical examinations showed normal fetal heart rate and normal ultrasonography findings. Urinary and blood analyses were all normal. Due to severe headaches, morphine titration was necessary to partly relieve pain, and a cerebral magnetic resonance imaging (MRI) was performed. It showed cerebellar tonsils descent at the foramen magnum, bending hypophisis (Fig. 1A), flattening of the third ventricle (Fig. 1B), and too enlarged venous sinus (Fig. 1C and D). No cerebral tumor or congenital malformation was diagnosed. All these signs were in accordance with the diagnosis of SIH. The patient was hospitalized in order to continue analgesic and antiemetic treatments, without success. After 24 hours, according to the neurologist and anesthesiologist advices, an EBP was performed at the level of L3–L4 with 20 mL autologous blood and resulted in improvement of the symptoms within a few hours, firstly, the end of the vomiting and, secondly, the end of the headaches. After the EBP, the patient was able to eat normally and went back home the next day.

She was readmitted in the emergency ward 15 days later because she was experiencing the same symptoms with positional headache, nausea, vomiting, and tinnitus of right ear, in spite of analgesic, antiemetic, and antivertigo treatments. Neurologic and obstetrical examinations had normal results. A second EBP was performed during hospitalization (15 mL; it was stopped because of a sensation of painful lumbar tightness) but its efficiency was incomplete with persistent headaches for 48 hours. No other recurrence was noted until the spontaneous end of the pregnancy. Due to pregnancy and the potential effects of gadolinium on the fetus [11], no other MRI was done to follow up cerebral imaging after symptoms improvement and patient relief. The use of spinal anesthesia in SIH after EBP was discussed and anesthesiologists' staff considered that the available data do not justify a full contraindication of spinal anesthesia after EBP in pregnant woman according to the French Society of Anesthesia and Reanimation publication [12]. She was delivered at 36 weeks of gestation by cesarean section with spinal anesthesia (sufentanyl, marcaïne, and morphine) for spontaneous rupture of membranes, transverse presentation, and previous cesarean section, yielding a healthy boy weighing 3580 g. After delivery, infant and mother did well, without any recurrence of SIH symptoms at 6 months postpartum. The patient was counseled concerning a low risk of recurrence in a future pregnancy and was informed about signs of SIH.

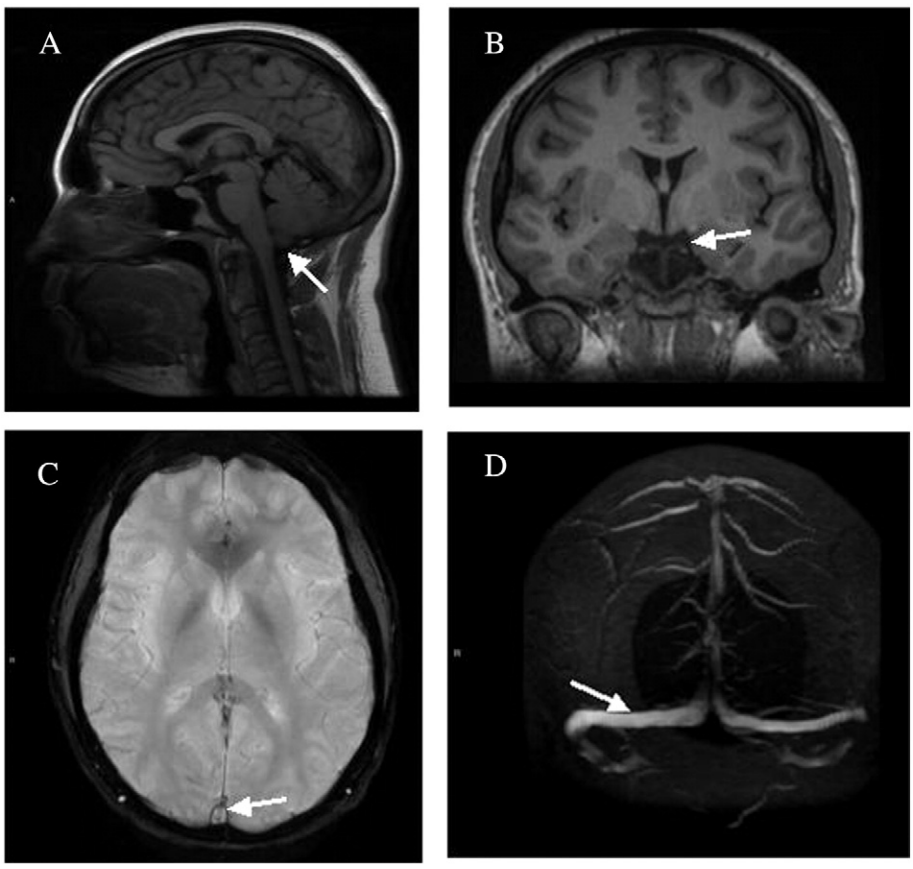

Fig. 1 Magnetic resonance imaging in a case of spontaneous intracranial hypotension. A, Sagittal T1 weighted showing bending hypophisis and cerebellar tonsils descent (white arrow). B, Coronal T1 weighted showing flattened V3 (white arrow). C, Axial T2-weighted MRI showing convexity of sagittal superior sinus (white arrow). D, Time-of-flight MRI venogram image illustrating too wide transverse sinus (white arrow).