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## Case report

## Cryptogenic postpartum stroke



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## ABSTRACT

An estimated 25–40% of ischemic strokes are classified as cryptogenic, which means the cause of the cerebral infarction remains unidentified. One of the potential pathomechanisms – especially among young patients with no cardiovascular risk factors – is paradoxical embolism through a patent foramen ovale. Pregnancy, cesarean delivery and the postpartum period are associated with an increased risk of cerebrovascular events. Factors that may contribute to ischemic strokes during gestation and puerperium include classic cardiovascular risk factors, changes in hemostaseology/hemodynamics, and pregnancy-specific disorders such as pre-eclampsia, eclampsia, postpartum cerebral angiopathy or peripartum cardiomyopathy. In this case report, we present a 36-year-old thrombolysis candidate undergoing mechanical thrombectomy 3 weeks after a cesarean section due to HELLP-syndrome. After evaluation of anamnestic and diagnostic parameters, closure of the patent foramen ovale has been performed. In the absence of specific guidelines, diagnostic work-up for cryptogenic stroke should be oriented after the suspected pathomechanism based on patient history and clinical picture. As long as definite evidences emerge, management of cryptogenic stroke patients with pathogenic right-to-left shunt remains individual based on the mutual decision of the patient and the multidisciplinary medical team.

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## 1. Introduction

An estimated 25–40% of ischemic strokes are classified as cryptogenic, which means the cause of the cerebral infarction remains unidentified [1]. Potential etiologies include paroxysmal atrial fibrillation, patent foramen ovale (PFO), atherosclerotic plaques of the aortic arch, congenital and acquired prothrombotic states, etc. [2]. Pregnancy,

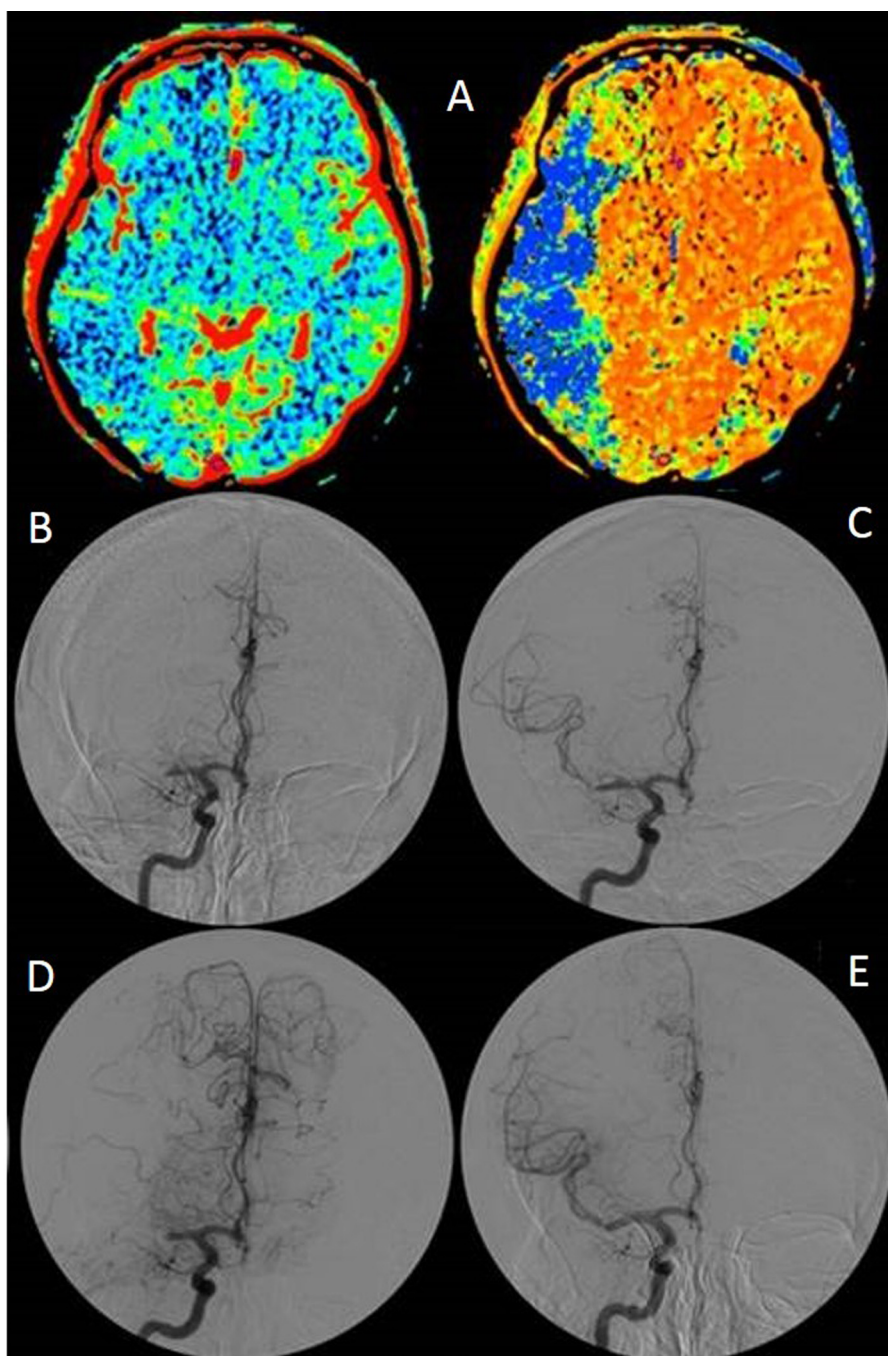
cesarean delivery and the postpartum period are associated with an increased risk of cerebrovascular events, especially in the first 6 weeks after childbirth [3,4]. Factors that may contribute to ischemic strokes during gestation and puerperium can be classified as conventional cardiovascular risk factors, aspecific changes in hemostaseology/hemodynamics, and pregnancy-specific disorders such as pre-eclampsia, eclampsia, postpartum cerebral angiopathy or peripartum cardiomyopathy [5].

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**Fig. 1 – (A) Perfusion CT images showing a significant cerebral blood volume-mean transit time mismatch in the right middle cerebral artery (MCA) M1 field. (B) Angiography before intervention confirming the occlusion of the right MCA stem. (C, D) Consecutive incomplete stent retriever thrombectomies resulted in early reocclusion. (E) Angiography after microstent deployment in the right MCA M1 segment.**

## 2. Case presentation

A 36-year-old female patient was admitted to our facility with left-sided weakness developing on the toilet 2.5 h earlier. She had a history of HELLP-syndrome (severe, potentially life-threatening complication of pre-eclampsia with hemolysis, elevated liver enzymes and low platelet count) necessitating acute cesarean section during the 29th week of her pregnancy,

3 weeks before her present admission. Neurological examination revealed right-sided conjugated gaze deviation, left-sided hemiplegia, homonymous hemianopsia and neglect syndrome (National Institute of Health Stroke Scale [NIHSS]: 22 points). CT scan of the brain including CT angiography and perfusion images showed an occlusion of the right middle cerebral artery (MCA) M1 segment with significant perfusion mismatch (Fig. 1A). Due to the recent cesarean section, systemic thrombolysis was withheld and mechanical thrombectomy

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