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Case Report

Vaginal cesarean section for second-trimester therapeutic abortion

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Abstract

Objective: Pregnancy does not increase the risk of bleeding from a brain arteriovenous malformation (AVM), but once an AVM has bled during pregnancy, the rate of rebleeding during the same pregnancy is high. Therefore, termination of the pregnancy is an option for patients in whom the AVM is located in an eloquent area. We report a woman with an intracerebral hemorrhage from a brain AVM who underwent a second-trimester therapeutic abortion by vaginal cesarean section.

Case report: A 30-year-old multiparous woman visited our emergency department at 17 weeks of gestation complaining of a sudden-onset headache with vomiting. She had no history of headaches or seizures. Based on the clinical presentation, computed tomography and magnetic resonance imaging, we made a clinical diagnosis of Spetzler–Martin Grade III AVM. Before undergoing stereotactic radiosurgery as a primary treatment, we advised her to terminate her pregnancy and performed a vaginal cesarean section at 19 weeks of gestation. Two months later, the patient underwent gamma knife surgery for the underlying lesion, without complications. Follow-up angiography and magnetic resonance imaging showed that the AVM had disappeared completely.

Conclusion: Although its indications are limited, vaginal cesarean section is a useful option for terminating a pregnancy that compensates for the disadvantages of dilatation and curettage and systemic abortifacients.

Keywords: arteriovenous malformation; pregnancy termination; stereotactic radiosurgery; vaginal cesarean section; vaginal hysterotomy

Introduction

Intracerebral hemorrhage (ICH) during pregnancy from a brain arteriovenous malformation (AVM) is rare, but ICH has a high maternal mortality rate and it predominates as a non-obstetric cause of maternal mortality during pregnancy [1]. Pregnancy in itself does not increase the risk of bleeding from a brain AVM [2], but once an AVM has bled during pregnancy, the rate of rebleeding during the same pregnancy has been reported to be 27% [3]. In cases in which the brain AVM is located in an eloquent area, the high risk of morbidity justifies termination of the pregnancy, because any rebleeding is highly likely to cause severe neurological problems. However, a second-trimester termination of pregnancy for a woman with an acute cerebrovascular disorder poses a great challenge for clinicians. We present here the case of a woman with ICH from a brain AVM who underwent a second-trimester therapeutic abortion by vaginal cesarean section.

Case report

A 30-year-old, gravida 1 para 1, right-handed woman visited our emergency department at 17 weeks of gestation in June 2009 complaining of a sudden-onset headache with vomiting. She had no history of headache or seizures. One

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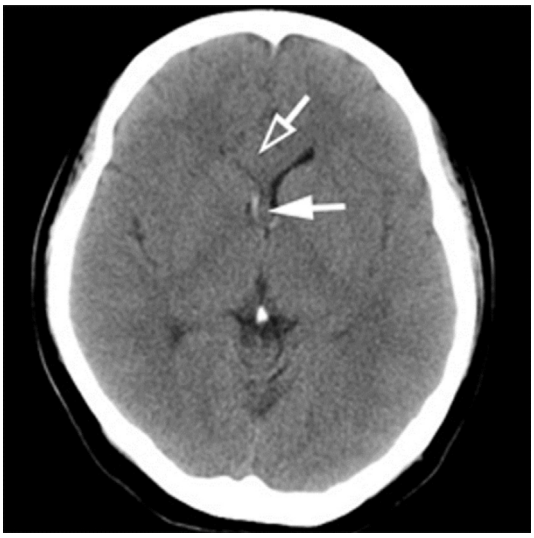

Fig. 1. A CT scan at admission (17 weeks of gestation) showed a small hemorrhage along the margin of the right lateral ventricle (solid arrow) and a space-occupying lesion displacing the right frontal horn of the lateral ventricle posteriorly (open arrow).

year earlier, she had a full-term pregnancy and uneventful vaginal delivery. The initial neurological examination showed a consciousness level of E4V5M6 (Glasgow Coma Scale) with both pupils equal in size and no focal neurological deficit. Her vital signs were: blood pressure 128/78 mmHg, pulse 96 beats/min, body temperature 37.1 °C, and percutaneous oxygen saturation (SpO_2) 98% (room air). Computed tomography revealed a right small ICH with rupture into the right lateral and third cerebral ventricles and an unknown space-occupying lesion displacing the right frontal horn of the lateral ventricle posteriorly (Fig. 1). Brain magnetic resonance imaging (MRI) revealed an AVM encroaching on the right cingulate gyrus and corpus callosum (Fig. 2A). Based on the size of the malformation (2.5 cm), its location in an eloquent area, and the presence of deep venous drainage delineated as a flow void by magnetic resonance angiography, we made a clinical diagnosis of a Spetzler–Martin Grade III AVM.

The deep brain location of the AVM made it impossible to remove surgically and its small size required no adjunct endovascular embolization, therefore, we selected stereotactic radiosurgery (gamma knife surgery). The initial hemorrhage in the eloquent area occurred at 17 weeks of gestation, which did not exceed the limit of fetal viability, suggesting that the

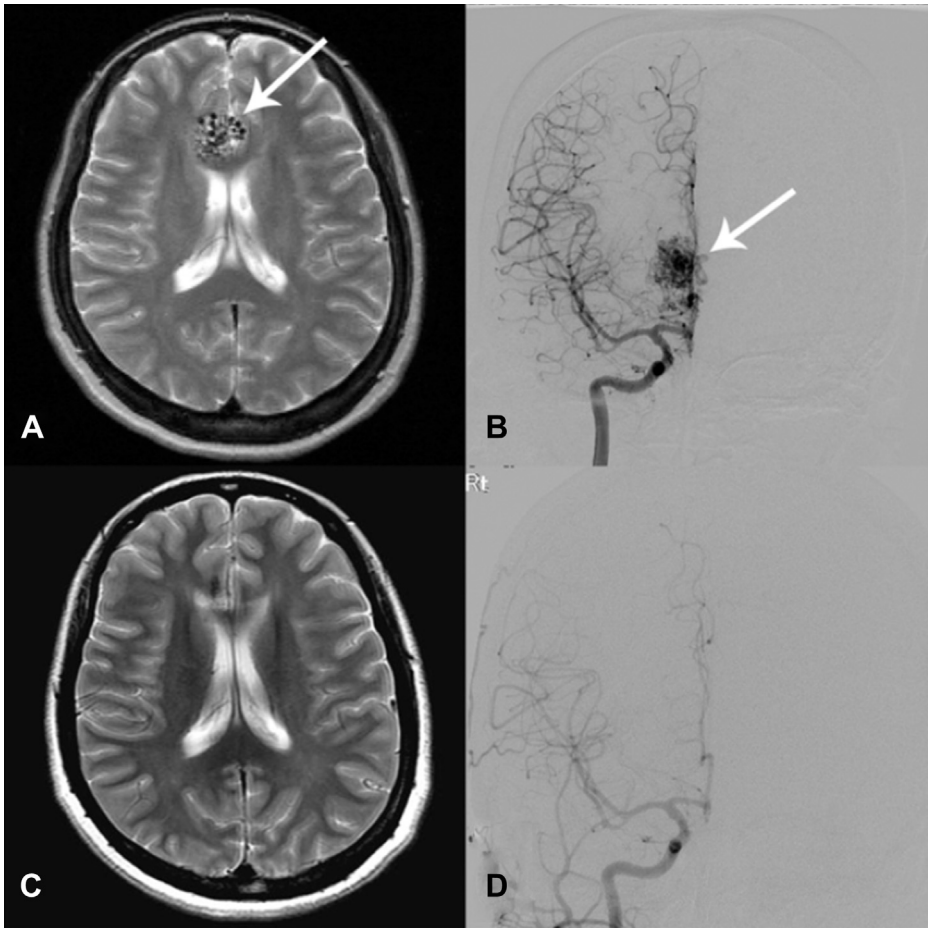

Fig. 2. (A) Magnetic resonance imaging showed an arteriovenous malformation (AVM) encroaching on the right cingulate gyrus and corpus callosum. (B) The AVM was supplied by the branches of the right anterior cerebral artery and drained into the superior and inferior sagittal sinuses. Follow-up magnetic resonance imaging (C) and angiography (D) at 2 years after radiosurgery showed complete disappearance of the AVM.