


CASE REPORT

A spontaneous dissecting posterior cerebral artery aneurysm in a 10-month-old female infant: a case report

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Abstract

Introduction

Posterior cerebral artery (PCA) aneurysms are a rare group of intracranial aneurysms. Pediatric aneurysms account for approximately 4% of all aneurysms and are commonly associated with an underlying predisposing disorder, such as trauma. In contrast to traumatic aneurysms, spontaneous dissecting cases are pointed out as a rare cause of pediatric aneurysms. The current paper presented a spontaneous dissecting aneurysm in a 10-month-old female infant.

Case Report

The case was a 10-month-old female infant admitted to the Neurology Ward of Imam Hossein Hospital, Tehran, Iran, with a ruptured dissecting PCA aneurysm for a diagnostic brain angiography. Brain computerized tomography scan and magnetic resonance imaging showed left occipital subarachnoidal and intraventricular hemorrhage, left periventricular intracranial hemorrhage, and PCA infarct. The endovascular embolization was performed for her, and the aneurysm and parent artery were obliterated with two coils. No clinical deficits and complications happened during and after the procedure.

Dissecting PCA aneurysm is a rare condition, particularly in infants. Endovascular coiling and surgical clipping are two treatment options for cerebral aneurysms, one of which might be preferred according to the symptoms and age of the patient.

Keywords: Aneurysm; Child; Dissecting; Endovascular coiling; Posterior cerebral artery

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Introduction

Pediatric aneurysms account for approximately 4% of all aneurysms and are more frequent in males than females. They predominantly occur in the carotid bifurcation and posterior circulation, where large and giant aneurysms and related spontaneous thromboses are more common (1-3). More than half of the pediatric aneurysms are associated with an underlying predisposing disorder, such as infection, trauma, tumor, or dissection (2). In contrast to traumatic aneurysms, spontaneous dissecting cases are considered a rare cause of pediatric aneurysms (2, 4). Arterial dissections in pediatrics account for 7% of all dissections and are regarded as an important cause of ischemic stroke in these patients. In infants, arterial dissection commonly occurs in carotid artery territory, supraclinoid internal carotid artery (ICA), and middle cerebral artery (MCA) (5, 6). Posterior intracranial circulation is a rare location for arterial dissection, and reports of posterior cerebral artery (PCA) aneurysms are limited, especially those due to spontaneous dissections (6, 7). This case report aimed to present a case of a spontaneous dissecting aneurysm in a 10-month-old female infant.

Case Report

A 10-month-old female infant was admitted to the Neurology Ward of Imam Hossein Hospital, affiliated with Shahid Beheshti University of

Medical Sciences (SBMU), Tehran, Iran, with a ruptured dissecting PCA aneurysm for a diagnostic brain angiography. According to her parents, she awakened with crying and irritability, followed immediately by a right-side upper limb focal seizure and loss of consciousness. Her parents mentioned no history of previous trauma and infection. She did not have a drug usage or past medical history, and there was no family history of congenital neurological or vascular diseases. She was born at 39 gestational weeks by an elective cesarean section. The perinatal period was normal, and her Apgar score was ten at 1 and 5 min.

The patient was first admitted to an emergency department in her hometown. Her initial examinations showed drowsiness, hyperthermia with an oral temperature of 39, and normal vital signs. She breathed spontaneously, opened her eyes in response to pain, and the strength of all four limbs was Normal. Her pupils measured 2 mm bilaterally and were reactive to light. Antiepileptic agents and antibiotics were begun for her, and after about 2-3 h, her consciousness level returned to normal. Brain computerized tomography (CT) scan and magnetic resonance imaging revealed left occipital subarachnoidal and intraventricular hemorrhage, left periventricular intracranial hemorrhage, and PCA infarct (Figure 1). The laboratory tests showed elevated erythrocyte sedimentation rate and C-reactive protein, and negative blood culture. The patient was referred to Imam Hossein Hospital for diagnostic brain angiography three days after the onset of symptoms. We observed a 6/5×4/5 mm dissecting aneurysm at the P3 segment of the left PCA and nominated the patient for embolization (Figure 2). The endovascular embolization was performed after three days with general anesthesia. A 4F diagnostic catheter was used for catching

the left vertebral arteries. In addition, a headway 17 microcatheter and a traxes soft-tip wire were used for catching the left PCA. The aneurysm and the parent artery were obliterated with two coils (cosmos 2×2 and hydro form 2×2) successfully

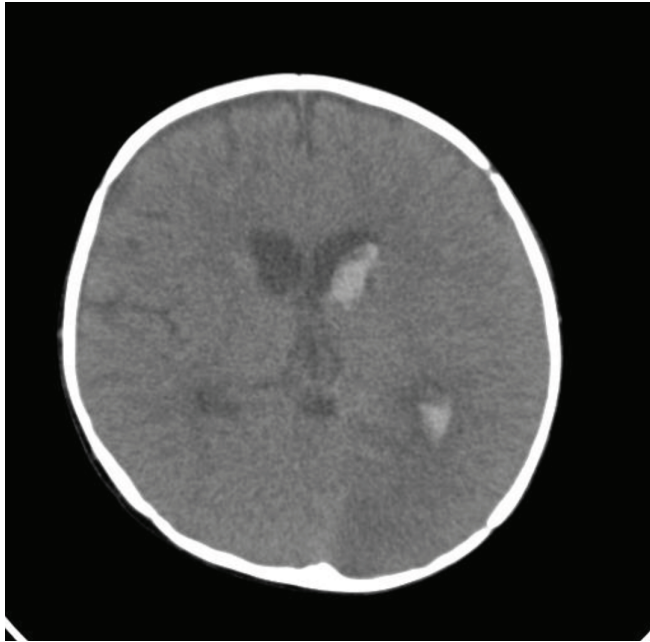


Figure 1. Brain computerized tomography (CT) scan and magnetic resonance imaging revealed left occipital subarachnoidal and intraventricular hemorrhage, left periventricular intracranial hemorrhage, and PCA infarct

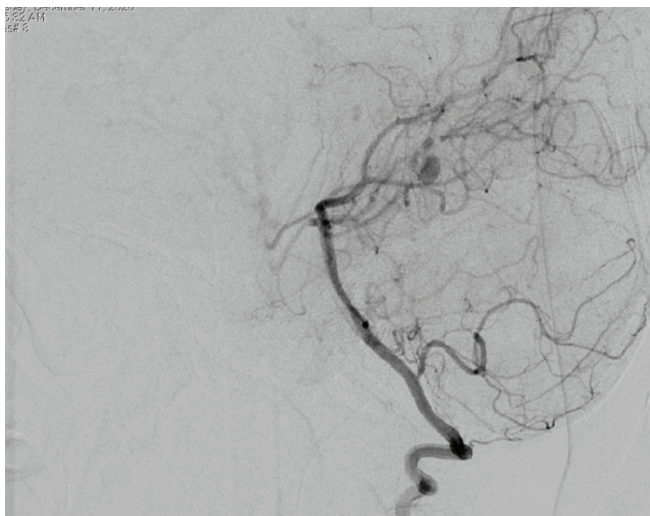


Figure 2. The laboratory tests showed elevated erythrocyte sedimentation rate and C-reactive protein, and negative blood culture. The patient was referred to Imam Hossein Hospital for diagnostic brain angiography three days after the onset of symptoms. We observed a 6/5×4/5 mm dissecting aneurysm at the P3 segment of the left PCA and nominated the patient for embolization

(Figure 3). No clinical deficits and complications happened during and after the procedure.

After surgery, the patient's body temperature returned to normal status, and her antibiotics were discontinued according to the pediatric



Figure 3. The endovascular embolization was performed after three days with general anesthesia. A 4F diagnostic catheter was used for catching the left vertebral arteries. In addition, a headway 17 microcatheter and a traxes soft-tip wire were used for catching the left PCA. The aneurysm and the parent artery were obliterated with two coils (cosmos 2×2 and hydro form 2×2) successfully



Figure 4. A recheck brain CT scan was performed one day follow up and showed the decreasing volume of hemorrhage over time

infectious diseases specialists. Rheumatologic factors of the patient were checked by a pediatric rheumatologist and were reported as normal. A recheck brain CT scan was performed one day follow up and showed the decreasing volume of hemorrhage over time (Figure 4). The infant was discharged from the hospital with normal general health status.

Discussion

We reported a 10-month-old female infant with a PCA aneurysm due to spontaneous dissection, in whom the aneurysm and parent artery were obliterated with two coils. Intracranial aneurysms are rare in children, with significantly higher devastating consequences than in adults (1). About two-thirds of intracranial aneurysms in children manifest as hemorrhage with a higher rebleeding rate than in adults (4). The PCA aneurysms are a rare group of intracranial aneurysms with an incidence rate of 0.8%-1.4% of all aneurysms. Although 12% of these aneurysms were reported in children, spontaneous dissecting PCA aneurysms are sporadic in this population (2). Pediatric aneurysms mainly occur because of an underlying predisposing disorder, such as infection, trauma, tumor, or dissection (2). This condition is also reported in certain genetic disorders, namely Marfan syndrome, Ehler-Danols syndrome, and moyamoya disease. Traumatic aneurysms have always been a frequent type of aneurysm in infants, and trauma to the brain either after an injury or a surgical operation accounts for about 40% of all pediatric aneurysms. On the other hand, spontaneous dissecting aneurysms are a rare cause of pediatric aneurysms (2, 4). The most common locations for dissecting aneurysms of the posterior circulation are the vertebral or the basilar arteries (2).

Endovascular coiling and surgical clipping are two available treatment options for cerebral aneurysms, one of which should be chosen based on the symptoms and age of the patient. The rate of endovascular coiling is increasing due to its fewer deaths and shorter hospital stays than clip placement. Outcome data of these treatments in children are limited (8, 9). We preferred endovascular coiling over surgical clipping for our patient because it was less invasive and was associated with significantly mild complications.

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Conflict of Interests:

All authors declare no potential conflicts of interest for the research, authorship, and/or publication of this article.

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Authors Contribution

The surgery was done by Aghamiri as neurologist angioplasty and Salimi as anesthesiologist. Sepehrirad collected the data and searched related literature. The article was written by EP and edited by Sistanizad.

Conflict of interest

None

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