Prenatal diagnosis of the vein of Galen aneurysm: A case report

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The vein of Galen aneurysm (VGA) is a rare congenital vascular malformation.¹ Prenatally, it is suspected when a giant midline cystic structure superior to the thalamus is identified on ultrasonography and it is usually diagnosed by identifying blood flow within the cyst using color power Doppler ultrasonography.² The dural sinuses and neck vessels are frequently enlarged, and signs of cardiac overload may be present, including cardiomegaly, hepatomegaly, soft tissue edema, polyhydransios and hydrops. The outcome is strongly dependent on the antenatal evidence of other intracranial abnormalities (hydrocephalus, brain, edema, porencephaly) and hydrops. The cardiomegaly with congestive heart failure is often seen in the affected fetus and neonate and it makes poor prognosis.³ In order to improve the prognosis of the severe form of VGA, it is desirable that embolization is performed early to prevent irreversible cardiac failure and brain injury.⁴

We describe one case of VGA diagnosed by prenatal color power Doppler ultrasonography and managed successfully by postnatal embolization.

Case Report

A 35-year-old nulliparous woman had an uneventful pregnancy until 35 weeks of gestation when an ultrasonography revealed an anechoic lesion pos-
terior to left thalamus with a keyhole shape and regular borders. The patient was referred to our hospital for further evaluation at 36+5 weeks of gestation. Our ultrasonographic examination at referral revealed 1.4×1.3 cm size anechoic, intracerebral, median and left paramedian lesion. Color Doppler ultrasonography confirmed a VGA by demonstrating turbulent arterial and venous blood flow within the mass (Fig. 1). The blood flow supplied from circle of Willis and left posterior cerebral artery and drained to dural straight sinus. Other intracranial structures including ventricles showed normal findings. There was no cardiomegaly, hydrops, or any other structural anomalies. The location of anechoic lesion is paramedian and not typical location of VGA, but our diagnostic impression was the vein of Galen aneurysm.

On follow-up ultrasonography, there was no change in cerebral findings but the ratio of cardiac circumference/thoracic circumference slightly increased although still remained within normal range. At 40+0 weeks of gestation, she was admitted with labor pain.

At 40+1 weeks of gestation, a 3,110 gram male newborn with Apgar scores of 3 and 7 at 1 and 5 minute, respectively was delivered vaginally after augmentation by intravenous oxytocin.

The baby was transferred to neonate intensive care unit for further evaluation and management. On the first day of postnatal life, ultrasonography (Fig. 2), magnetic resonance image (MRI) (Fig. 3) and magnetic resonance angiography (MRA) (Fig. 4) confirmed the antenatal diagnosis of VGA. Infantogram showed mild cardiomegaly. No cardiac anomaly was found on echocardiography except mild tricuspid valve regurgitation and patent ductus arteriosus. One week later after birth, follow-up echocardiography showed that patent ductus arteriosus was closed and tricuspid valve regurgitation almost disappeared and infantogram showed improved cardiomegaly. On the eighth day of postnatal life, transarterial embolization was performed and led to occlusion of large shunt between left posterior choroidal artery and true vein of Galen. After embolization, improvement of drainage to deep venous system and

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*Fig. 1.* Fetal ultrasound image shows a paramedian cyst and blood flow within cyst.