

Case Report

Bilateral Transverse Sinus Hypoplasia: A Rare Case Report

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Abstract

The dural sinuses are pathways for drainage of blood from brain to the internal jugular veins. Occipital sinus is a rare normal anatomical variation of dural sinuses which acts as an alternative drainage pathway when the transverse sinuses are hypoplastic. It drains blood from skull and brain to the internal jugular vein. The variations can culminate in wrong diagnosis and imaging interpretation. We reported a 33 years old pregnant woman presented with headache and normal neurological examination. Magnetic resonance imaging and magnetic resonance venography studies revealed occipital sinus as the main drainage pathway of the brain. Both the transverse sinuses were hypoplastic. Without considering this rare variation such conditions can culminate in wrong diagnosis, which can be prevented by reporting such rare conditions.

Keywords: Transverse sinus, Hypoplasia, Headache

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Introduction

The dural sinuses are pathways for drainage of blood from brain to the internal jugular veins [1]. Cerebral venous sinuses have anatomic variations [2]. Occipital sinus is the smallest dural venous sinus, lies on the inner surface of the occipital bone at the attaching site of the falx cerebri to the skull, which connects both the sigmoid sinuses and internal vertebral plexus [1, 3]. Occasionally, it is difficult to diagnose sinus thrombosis owing to non-specificity of clinical presentation and variability of venous sinuses anatomy. The variations can culminate in wrong diagnosis [4]. Incorrect imaging interpretation may also result from anatomic variations [3].

Case Presentation

A 33 years old pregnant woman gravid 2/para 0/abortus 1, at 8 weeks of gestation presented with acute onset headache, which started 3 days ago, the pain was more in the parietal-occipital region and did not radiate to anywhere. The patient's headache was throbbing and constant without diurnal pattern, and was neither aggravated nor alleviated with physical activity, or any other factor. Nausea and vomiting were the accompanying

symptoms. Pain did not respond to oral analgesics. She had a history of chronic generalized deep seated and throbbing headaches.

On admission she was afebrile with a blood pressure of 120/80 mmHg. General and neurological examinations were normal. Ophthalmoscopy did not show signs of increased intracranial pressure. She underwent brain magnetic resonance (MR) imaging and brain MR venogram (MRV) (Figure 1). At MRV both transverse and sigmoid sinuses are hypoplastic, with bilateral dominant occipital sinuses. With hydration and anti-migraine treatment she was completely symptom free on the 3rd day.

Discussion

Previous studies have reported the presence of occipital sinuses in a range from 4 to 35.5% of cases [3].

Widjaja found a relationship between size of the transverse sinus and the presence of occipital sinus in children [5]. Occipital sinuses can be the main drainage pathways of the intracranial veins instead of the transverse or sigmoid sinuses when these sinuses are hypoplastic or aplastic [6].

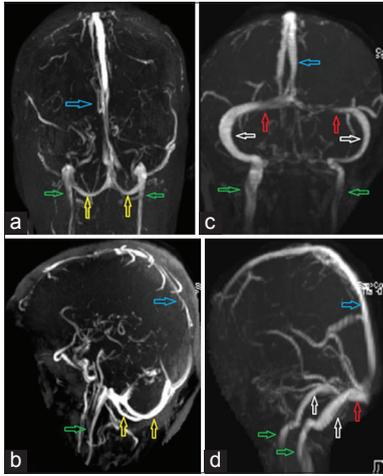


Figure 1. Brain MRV, anterior-posterior (a) and lateral (b) views show absence of normal transverse sinus with dominant occipital sinus. (a and b) show normal appearing transverse sinus for comparison. Superior sagittal sinus (blue arrows), transvers sinus (red arrows), sigmoid sinus (white arrows), jugular vein (green arrows), occipital sinus (yellow arrows).

Unilateral hypoplasia of transverse sinus with dominant occipital sinus is not uncommon but this is a rare case of bilateral transverse sinus hypoplasia with bilateral dominant occipital sinuses. Physicians should be aware of such anatomical variations and must not misdiagnose it as cerebral venous thrombosis (CVST) especially when there are risk factors for CVST like pregnancy in this case.

Conclusion

Rare anatomic variations of dural sinuses should be considered while interpreting brain MRI and MRV. Misdiagnosis of this condition as cerebral venous sinus thrombosis can culminate in dire consequences of anticoagulant treatment, all of which can be avoided by familiarity with this variation.

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