

## A case report of sinus hypoplasia

### Bir sinüs hipoplazisi olgu sunumu

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#### ABSTRACT

Transverse sinus (TS) hypoplasia has serious potential effects on cerebral hemodynamics. Right sinus hypoplasia is less common. In this article, we present a rare case of right transverse and sigmoid sinus hypoplasia with headache complaint. A 37-year-old male patient was admitted to the emergency department because of headache and anxiety complaints continuing for the last two days. Neurological examination including fundoscopy was normal. Cranial and diffusion magnetic resonance (MR) imaging, and MR venography were planned to exclude venous sinus thrombosis. According to MR venography, right TS, right sigmoid sinus and jugular bulb were reported as hypoplastic. Patients who apply to the emergency department with headache, anxiety, and nervousness should be considered for transverse and sigmoid sinus hypoplasia.

**Keywords:** Headache; hypoplasia; migraine; sinüs.

#### Öz

Transvers sinüs (TS) hipoplazisi serebral hemodinamikler üzerinde ciddi olası etkilere sahiptir. Sağ sinüs hipoplazisi daha az görülür. Bu yazıda, baş ağrısı yakınması olan nadir bir sağ transvers ve sigmoid sinüs hipoplazisi olgusu sunuldu. Otuz yedi yaşında bir erkek hasta son iki gündür devam eden baş ağrısı ve anksiyete yakınmaları nedeniyle acil servise kabul edildi. Fundoskopi dahil nörolojik muayene normaldi. Venöz sinüs trombozunu dışlamak için kranial ve difüzyon manyetik rezonans (MR) görüntüleme ve MR venografi planlandı. MR venografiye göre sağ TS, sağ sigmoid sinüs ve juguler bulb hipoplazik olarak bildirildi. Acil servise baş ağrısı, anksiyete ve asabilik ile başvuran hastalarda transvers ve sigmoid sinüs hipoplazisi dikkate alınmalıdır.

**Anahtar sözcükler:** Baş ağrısı; hipoplazi; migren; sinüs.

The anatomical asymmetry of transverse sinuses (TSes) is common. Unilateral hypoplasia or aplasia of TSes is seen between 20% and 39% of cases.<sup>[1,2]</sup> According to the literature, TS hypoplasia cannot be regarded as a normal variant. Transverse sinus hypoplasia has serious potential effects on cerebral hemodynamics.<sup>[3-6]</sup> Transverse sinus hypoplasia and aplasia are related to intracranial hypertension without papilledema and they are risk factors for chronic migraine.<sup>[7]</sup> Right sinus hypoplasia is rarer than left sinus hypoplasia.<sup>[8]</sup> In this article, we present a rare case of right transverse and sigmoid sinus hypoplasia with headache complaint.

#### CASE REPORT

A 37-year-old male patient was admitted to the emergency department because of headache and anxiety complaints continuing for the last two days. In his history, he mentioned about a recurrent headache for a long time. The patient was treated for sinusitis and migraine in his previous emergency department applications. His vital findings were normal with no fever. Neurological examination including fundoscopy was normal. Patient's headache was continuing despite pain medication. Therefore, a computed tomography (CT) of the patient was obtained. No pathological findings were found by CT.

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**Figure 1.** Magnetic resonance venography image showing hypoplasia of right transverse sinus, sigmoid sinus, and jugular bulb.

Cranial and diffusion magnetic resonance imaging (MRI), and MR venography were planned to exclude venous sinus thrombosis. According to MR venography, right TS, right sigmoid sinus and jugular bulb were reported as hypoplastic (Figure 1). A written informed consent was obtained from the patient.

## DISCUSSION

Right TS, right sigmoid sinus, and jugular bulb hypoplasia were detected by MR venography in our patient whose headache did not respond to symptomatic treatment. Similarly, Alper et al.<sup>[8]</sup> performed MR venography to investigate the presence of aplasia and hypoplasia of TSes in 105 patients. They have found left sinus aplasia in 20%, left sinus hypoplasia in 39%, right sinus hypoplasia in 6%, right sinus aplasia in 4%, and symmetric sinuses in 3% of their patients.

Furthermore, Fofi et al.<sup>[1]</sup> investigated TS morphology with MR venography in 83 patients with chronic migraine and found asymmetry between TSes in 50.6% of patients. Of the patients, 24.1% had severe asymmetry between sinuses and 9.6% had aplasia. Nervous diseases, hypertension, migraine, and anxiety have been reported more often in patients with TS aplasia and hypoplasia.

In a study by Surendrababu et al.,<sup>[9]</sup> MR angiography results of 100 patients were obtained. Accordingly, 13 patients had right TS hypoplasia,

35 patients had left TS hypoplasia, six patients had right sigmoid sinus hypoplasia, and nine patients had left sigmoid sinus hypoplasia.

Finally, Bono et al.<sup>[10]</sup> compared cerebrospinal fluid pressure of 48 patients with bilateral TS stenosis who suffered headache and 50 patients with normal TSes. In the mentioned study, 48 headache sufferers were reported to have increased intracranial pressure.

In this case report, we presented a patient with right-sided transverse and sigmoid sinus hypoplasia. According to the literature, right TS hypoplasia with right sigmoid sinus hypoplasia is a rare condition. Thus, patients who apply to the emergency department with headache, anxiety, and nervousness should be considered for transverse and sigmoid sinus hypoplasia.

## Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

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