

# SUBDURAL EFÜZYON VENÖZ SİNÜS TROMBOZUNUN İŞARETİ OLABİLİR

## Subdural Effusion May be an Indicator of Venous Sinus Thrombosis

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### ÖZET

Serebral venöz sinüs trombozu (SVST), nadir bir strok formudur. En sık radyolojik bulguları, dural sinüs veya kortikal venlerde trombus, parankimal hemorajik infarkt, hemorajinin eşlik ettiđi veya etmediđi fokal ödemdir. Bununla birlikte, literatür gözden geçirildiğinde, az sayıda SVST olgusunun subdural efüzyon ile birliktelik göstermektedir. Biz, 17 yaşındaki lösemi hastası bir kız çocuğunda subdural efüzyonun eşlik ettiđi süperior sagittal sinüs ve kortikal ven trombozunu sunuyoruz.

**Anahtar kelimeler:** *Intrakraniyal sinüs trombozu; Subdural efüzyon; Manyetik rezonans görüntüleme*

### ABSTRACT

Cerebral venous sinus thrombosis (CVST) is an uncommon form of strokes. The most common radiological findings are thrombus in the dural sinus or cortical veins, paranchimal hemorrhagic infarctions, focal edema with or without hemorrhage. However, in a review of the literature, only a few cases of CVST were associated with subdural effusion. We report superior sagittal sinus and cortical veins thrombosis with bilateral subdural effusion in a 17 year-old girl with leukemia.

**Keywords:** *Intracranial Sinus Thrombosis; Subdural effusion; Magnetic resonance imaging*

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## INTRODUCTION

Cerebral venous sinus thrombosis (CVST) is uncommon and frequently unrecognized form of stroke and accounts for 0.5-1% of all strokes (1,2). It is often associated with head trauma, infection (typically mastoiditis), shock, dehydration, hypercoagulable states which may be genetic such as protein C, protein S, antithrombin III deficiencies or leukemia or other malignancies or use some medications such as oral contraceptives (3,4).

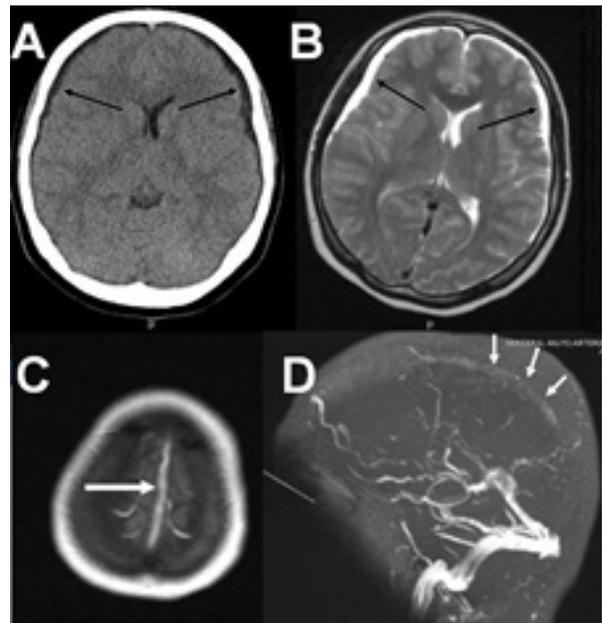
CVST may present with variable radiological features including thrombus in the dural sinus or cortical veins, hemorrhagic infarcts or minimal effacement of sulci, isolated thrombus in the dural sinus or cortical veins (5). However, in a review of the literature, only a few cases of CVST were associated with subdural effusion (SDE).

We report superior sagittal sinus and cortical veins thrombosis with bilateral SDE in a 17 year-old girl with leukemia.

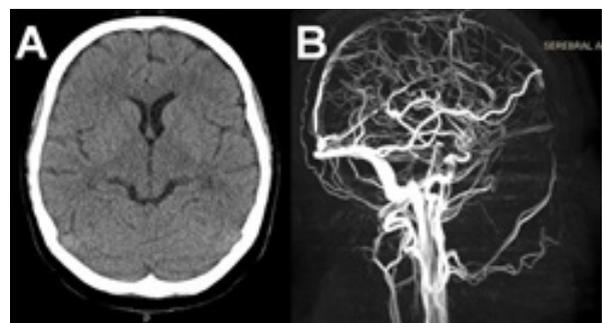
## CASE REPORT

A 17-year-old girl with newly diagnosed acute lymphoblastic leukemia complained of the sudden onset of a severe headache while she was receiving intravenous L-asparaginase. Several hours later, she developed generalized tonic-clonic seizure and loss of consciousness. On examination, there was no papilledema and she had no focal deficit. Anticonvulsant medication was given intravenously. The initial noncontrast computed tomography (CT) showed hyperdensity in cortical veins and superior sagittal sinus which was suggestive of acute sinus thrombosis. CT ruled out intracerebral hemorrhage and infarction but showed bilateral subdural fluid collection. Acute thrombosis in the cortical veins and the superior sagittal sinus was confirmed by magnetic resonance (MR) imaging and MR venography. MR imaging showed also bilateral SDE (Figure 1).

Follow-up imaging performed 2 months later demonstrated spontaneous regression of bilateral subdural effusion and partial recanalization of the superior sagittal sinus (Figure 2).



**Figure 1.** Bilateral subdural effusion with density and signal intensity similar to cerebrospinal fluid is seen on CT and T2-weighted images (arrows) (A,B). Axial T1-weighted images shows abnormal high signal in the region of superior sagittal sinus and cortical veins with loss of normal T1 flow voids (arrow) (C). 2D TOF MR venography reveals show no flow related signal at superior sagittal and cortical veins (arrows) (D).



**Figure 2.** Follow-up CT imaging shows spontaneous regression of bilateral subdural effusion (A). Partial recanalization of the superior sagittal sinus is seen on follow-up MR venography (B).

## DISCUSSION

Diagnosis of CVST is typically based on clinical suspicion and imaging confirmation. Headache is due to increased intracranial pressure and is the most common symptom in CVST. Papilledema, diplopia, hemiparesis, aphasia, seizures, psychosis may occur in CVST (1,2). The importance of imaging in CVST has increased considerably in recent years. CT is widely used as the initial neuroimaging modality in patients who present with new-onset neurological symptoms such as headache, seizure, focal deficit. CT without contrast is often normal in CVST but acute thrombosis in cortical vein and dural sinus appear as a homogenous hyperdensity. Contrast enhancement CT may show a filling defect within the vein or sinus. The absence of a flow void in the dural sinus is the principal early sign of CVST on non-contrast enhanced MR imaging (2).

CVST is an uncommon form of strokes. The most common radiological findings are thrombus in the dural sinus or cortical veins, paraneural hemorrhagic infarctions, focal edema with or without hemorrhage. The development of SDH following CVST is rare and there are only a few case reports published so far (3-11). Whether the SDH was caused by the CVST can be explained in several reports. In the case report by Singh et al., the etiology was estimated to be hemodynamic stress in the bridging collaterals to the scalp veins, which could explain the SDE, caused by CVST (5). Takamura et al participate in this view and also, they think hemorrhagic diathesis associated with chronic disseminated intravascular coagulation might facilitate SDE (8). In conclusion, the diagnosis and management of cerebral venous thrombosis can be difficult and clinical suspicion and imaging confirmation is very important. Imaging studies should be done immediately, especially in patients with hypercoagulable state. Most common radiologic findings of CVST are thrombus in the dural sinus and cortical veins, hemorrhagic infarcts and edema. However, CVST can rarely present with SDE.

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