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## Subtle computed tomography abnormalities in cerebral deep sinus thrombosis

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## Abstract

A patient with cerebral deep sinus thrombosis, which was not diagnosed on the first examination, is reported. A 46-year-old woman presented with headache and vomiting. Neurological examination and a brain computed tomography (CT) scan showed no obvious abnormal findings. The patient suffered disturbed consciousness on the day after the examination, and was admitted to our emergency centre. A CT scan and magnetic resonance imaging revealed an ischaemic lesion in the left basal ganglia, suggesting deep sinus occlusion. Anticoagulant therapy was administered. One day after admission, a CT scan showed a haematoma and severe brain swelling in the same region. Cerebral angiography demonstrated a straight sinus occlusion. Intracranial pressure was not controlled with hypothermia, and the patient died 25 days after admission. Review of the initial CT scan revealed subtle, early findings of deep venous thrombosis that were missed on first examination.

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**Keywords:** Cerebral venous sinus thrombosis; Intracranial hypertension; Magnetic resonance venography; Straight sinus occlusion

## 1. Introduction

The prognosis for patients with cerebral venous thrombosis (CVT) is poor, and one-third of patients with CVT present with isolated signs of intracranial hypertension such as headache and papilloedema.<sup>1</sup> We report here a patient with deep CVT that was not diagnosed on the first examination. A review of the initial radiographic findings identified subtle abnormalities indicative of deep CVT, which were missed during the first examination.

## 2. Case report

A 46-year-old woman experienced headache and vomiting of 3 days duration. Neurological examinations and a brain computed tomography (CT) scan revealed no apparent abnormal findings (Fig. 1). On the day after the initial examination, the patient had a high fever and her level of consciousness gradually reduced, so she was transferred to our emergency centre. On admission, she was somnolent, and had global aphasia and right hemiplegia. Pupils were equal in size and bilaterally reacted to light. The results of

routine laboratory examinations were unremarkable except for a mild iron deficiency anaemia, and no infectious disease was suspected. The prothrombin time and the activated partial thromboplastin time were normal. A test for antinuclear antibodies was negative. The patient had no past history of infection, surgery or trauma, and was currently taking no medication, including oral contraceptives. She had no family history of coagulation disorders. A CT scan revealed an isodense lesion with perifocal oedema in the left basal ganglia, and high-density spots at the interhemispheric fissure.

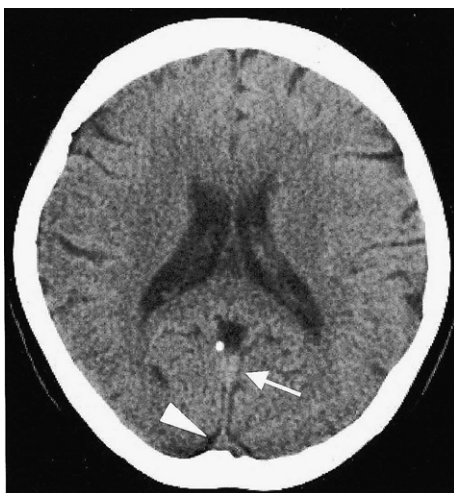


Fig. 1. CT scan from the first examination, revealing no apparent abnormal findings. However, the densities of the superior sagittal sinus (arrowhead) and the straight sinus (arrow) are slightly increased.

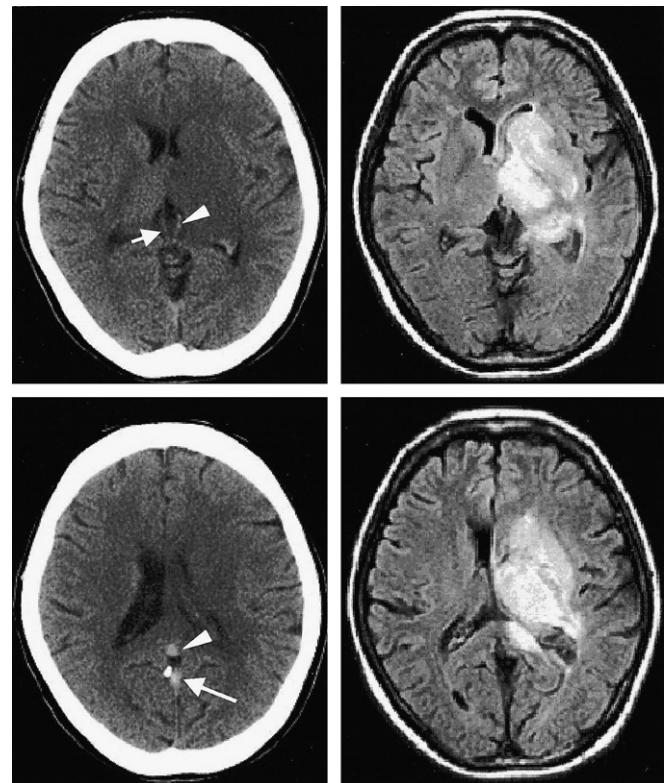


Fig. 2. Left: a CT scan taken on admission, showing oedema in the left basal ganglia. The density of the left internal cerebral vein (arrowhead) is higher than that of the right (arrow) (left upper panel). The densities of the straight sinus (arrow) and the vein of Galen (arrowhead) had become higher than that at the first examination (left lower panel). Right: T<sub>1</sub>-weighted fluid attenuated inversion recovery MRI clearly revealed a high-intensity lesion.

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