

Superior Sagittal Sinus Thrombosis with Intracranial Hemorrhage

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Abstract

The venous system of the brain mainly includes the cerebral veins and the venous sinuses into which they enter. Cerebral venous thrombosis (CVT) is a special type of cerebrovascular disease, which can be divided into venous sinus thrombosis and cerebral venous thrombosis. The clinical manifestations mainly include headache, vomiting, vision loss. Some patients are usually accompanied by seizures and limb paralysis, and even drowsiness and disturbance of consciousness.

Keywords

Cerebral venous thrombosis (CVT); Superior sagittal sinus thrombosis (SSST); MRI.

1. INTRODUCTION

Cerebral venous thrombosis (CVT) is a special type of cerebrovascular disease, which can be divided into venous sinus thrombosis and cerebral venous thrombosis, and the sagittal sinus venous thrombosis (SSST) is more common. The clinical manifestations mainly include headache, vomiting, vision loss. The diagnosis of CVT depends on MR venography or venous CT showing thrombosis in cerebral veins.

2. PRESENTATION OF CASE

A 49-year-old woman with no major past medical history was referred to our department for a chief complaint of dizziness for more than 2 months. The patient suddenly developed dizziness, no nausea and vomiting, and no limb twitching at home 2 months ago. At the local hospital examination CT showed bilateral frontal cerebral hemorrhage. Admission physical examination: T: 36.5°C, P: 80 beats/min, R 18 beats/min, BP: 115/70 mmHg, no yellowing of the skin throughout the body, no palpable swelling of the superficial lymph nodes throughout the body, clear breath sounds in both lungs, no smell wet and dry rales. The abdomen is flat, the liver, spleen and ribs are not palpable and swollen, and there is no tenderness or rebound pain. There is no deformity in the limbs of the spine, and no edema in the lower limbs. Nervous system: Consciousness, clear speech, answering questions to the point, normal memory/orientation/calculation. The pupils on both sides are of equal circle with a diameter of about 3mm and are sensitive to light reflection. Extremities muscle strength is normal, finger nose test/calcaneus knee tibia test/closed eyes and difficult to stand sign (-), limbs feel symmetrical, bilateral tendon reflexes are symptomatic, and pathological signs are negative. MR shows that several abnormal signal shadows in the frontal lobes on both sides, the larger one is located in the left frontal lobe, the size is about 3.3x3.8x4.8cm, MRS showed no increased of NAA peak, Cr peak and Cho peak (Figure1A-1C), Computed tomography vein (CTV) and Digital

subtraction angiography (DSA) suggest superior sagittal sinus thrombosis (Figure 2A and 2B). After anticoagulation and improved circulation, the patient complained of improvement and was discharged from the hospital.

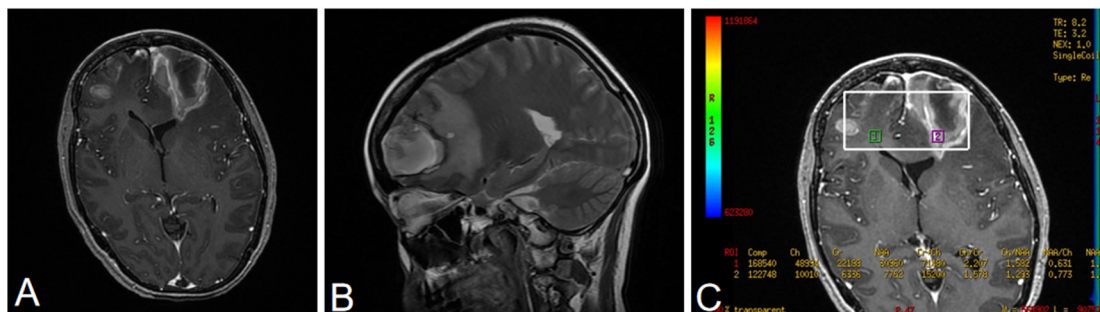


Figure 1. (A)MRI T1W1 Scan showed high signal, (B) T2W2 Scan showed slightly high signal, (C) MRS showed no increased of NAA peak, Cr peak and Cho peak

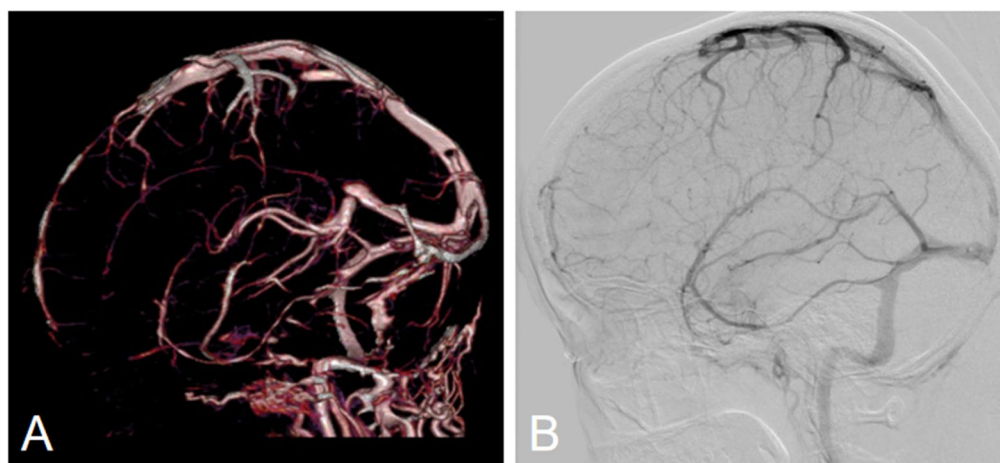


Figure 2. (A)CTV and (B)DSA suggest superior sagittal sinus thrombosis

3. DISCUSSION

The superior sagittal sinus is the main component of the superficial cerebral venous system [1]. Understanding this structure and its changes is of practical clinical importance to neurosurgeons, neurologists and radiologists in the treatment of some diseases. An in depth understanding of the superior sagittal sinus is essential for clinicians, because it determines the patient's treatment.

Due to the increasing awareness and use of magnetic resonance imaging (MR) in patients with acute and subacute headaches and new-onset epilepsy, the frequency of CVT diagnosis is increasing [2]. CVT rarely manifests as stroke syndrome. Their most common manifestations are isolated headache, intracranial hypertension syndrome, epilepsy, lobar syndrome and encephalopathy. The diagnosis of CVT depends on MR venography or venous CT showing thrombosis in cerebral veins or sinuses [3].

For patients whose condition was severe at the time of admission or whose condition deteriorated after anticoagulation, local thrombolysis or thrombectomy can be selected. For patients with large venous infarction or hemorrhage, decompression surgery is life-saving. After the acute phase, patients should be anticoagulated for a variable period of time, depending on their inherent risk of thrombosis. The management of CVT patients includes treatment of related conditions, anticoagulation with parenteral heparin, prevention of recurrent seizures,

and decompression neurosurgery for patients with large venous infarction or bleeding with impending hernia. After the acute phase, the patient should be anticoagulated for 3-12 months [4].

Use antiepileptic drugs for patients with early seizures and supratentorial lesions to prevent further early seizures [5]. The main method of acute treatment is anticoagulation, but in severe hemorrhagic transformation cases of venous infarction, mechanical endovascular thrombus removal may be a potential life saving method.

4. CONCLUSION

In summary, CVT is a special type of cerebrovascular disease, with specific site of characteristic MRI findings. To be familiar with the special type of cerebrovascular disease, SSST is helpful to improve the understanding of this disease.

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