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CVST, distinguished from nonthrombotic CVSS before treatment – a MUST

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Dear editor, there has been recent emphasis on the significant number of patients with idiopathic intracranial hypertension (IIH) found to have associated nonthrombotic dural cerebral venous sinus stenosis (CVSS) (1). However, cerebral venous sinus thrombosis (CVST) accounts for 9-4% of patients with presumed IIH (2). CVST is life-threatening and CVSS mainly make visual loss, which maybe severe in up to 25% of patients and 3% of patients develop a fulminant or malignant course with rapidly progressive visual loss (3,4). Acute CVST overlapped with nonthrombotic CVSS in both clinical presentation and imaging but differ in treatment regimen and clinical outcome (5); the overlap often misleads doctors to make a misdiagnosis and treatment delay.

A typical case represented by a 28-year-old female with onset of severe headache and blurred vision for three days was found to have remarkable bilateral papilledema; the intracranial pressure was 50 cmH₂O with normal composition of cerebral spinal fluid. No local lesion was found in magnetic resonance imaging (MRI) and the blood tests data were plasma d-dimer 253 mg/l, fibrinogen 3.2 µg/l, leukocyte count $6.4 \times 10^9/l$, other items were not pertinent. She was given the diagnosis of CVST initially according to the diffused brain swelling and local lesion at right medial transverse sinus shown on magnetic resonance venography (MRV) (Fig. 1a); the patient then underwent urokinase 1.5 million International Unit (IU) intravenously for thrombolysis, followed by low molecular weight heparin 0.2 ml twice daily, through subcutaneous injection for seven days. The increased intracranial pressure, headache, and the blurred vision were severe and developing. After performing digital subtraction angiography (DSA), the diagnosis of nonthrombotic CVSS was confirmed (Fig. 1b); the patient then underwent stent placement immediately (Fig. 1c), the intracranial pressure decreased to 20 cm H₂O at the 24 h after stenting, and the symptoms

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above improved promptly. At the eighth-month follow-up, the papilledema completely resolved. This case alerted that it is necessary to distinguish CVST from nonthrombotic CVSS with DSA when the clinical and laboratory data and magnetic resonance (MR) imaging of the patient were ambiguous, instead of anticoagulation or thrombolysis hastily.

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Fig. 1.
The MRV and DSA imaging of CVSS. (a) MRV before stenting; (b) DSA before stenting;
(c) DSA after stenting.