# Cerebral venous sinus thrombosis in nephrotic syndrome

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A 36-year-old woman presented to the emergency department with recurrent syncope. She was diagnosed with nephrotic syndrome 16 days previously. Since she refused a kidney biopsy, she had been empirically treated with oral prednisone. A noncontrast computed tomography scan of the brain showed a high-density shadow in the superior sagittal sinus (Supplementary Figure S1A) and right transverse sinus (Supplementary Figure S1B), suggesting thrombosis. The patient was started on s.c. enoxaparin immediately. The oral prednisone was switched to i.v. methylprednisolone. On the following day, she was noted to have generalized tonic-clonic seizures. A new-onset hemorrhage at the left parietal lobe was identified on repeated computed tomography and magnetic resonance imaging examinations (Supplementary Figure S2). Magnetic resonance venography confirmed multiple thrombi in the superior sagittal sinus (Figure 1a), right sinus transversus, and right internal jugular vein (Supplementary Figure S1C).

After treatment with anti-epileptic valproate, the patient did not experience a recurrence of seizures. Remission of proteinuria occurred on the 27th day from onset, suggesting a steroid-sensitive podocytopathy. Following hospital discharge, the patient transitioned to warfarin (target international normalized ratio, 2.0–3.0) and continued to take valproate and prednisone (1 mg/kg per day). The valproate, warfarin, and prednisone were discontinued after 3, 15, and 17 months, respectively (Supplementary Figure S3). The patient achieved complete remission from nephrotic syndrome, with no residual neurologic deficits. A significant size reduction of the filling defect in the superior sagittal sinus, right transverse sinus, right sigmoid sinus, and right internal jugular vein was observed by magnetic resonance venography reexamination (Figure 1b).

Cerebral venous sinus thrombosis is a rare but serious complication in patients with nephrotic syndrome. Prophylactic anticoagulation is beneficial for thrombosis prevention in at-risk patients with nephrotic syndrome. Early diagnosis is essential when patients with nephrotic syndrome have unexplained seizures or other neurologic symptoms.

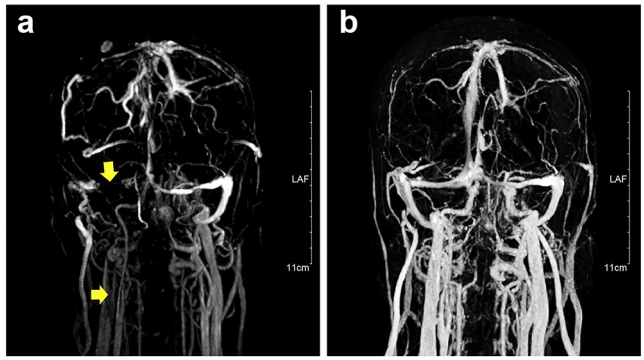


**Figure 1 | (a) Magnetic resonance venography 3-dimensional coronal image confirmed thrombosis of right transverse sinus and right internal jugular vein (arrows).** (**b**) Follow-up after 15-month warfarin anticoagulation therapy showed significant improvement. LAF, left anterior feet.

## DISCLOSURE

All the authors declared no competing interests.

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## SUPPLEMENTARY MATERIAL

Supplementary File (PDF)

**Figure S1.** (**A,B**) Computed tomography showed a high-density shadow in the superior sagittal sinus and right transverse sinus. (**C**) Magnetic resonance venography sagittal image reported a complete filling defect in the superior sagittal sinus.

**Figure S2.** Repeated computed tomography (**A**) and magnetic resonance examinations (**B,C**) represented an acute hemorrhage at the left parietal lobe.

**Figure S3.** Treatment duration and main medication prescribed for nephrotic syndrome.