Opinion Article

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The Intersection of Cerebral Sinovenous Thrombosis and Nephrotic Syndrome

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Description

Cerebral Sinovenous Thrombosis (CSVT) is a rare but serious condition characterized by the formation of blood clots within the cerebral venous system. While CSVT typically presents with symptoms such as headache, vomiting, and altered mental status, its association with nephrotic syndrome is uncommon and poses unique diagnostic and management challenges. Previous epidemiological studies have reported a prevalence of CSVT ranging from 4 to 7 cases per million people. Nephrotic syndrome, a renal disorder characterized by proteinuria, hypoalbuminemia, and hyperlipidemia, is rarely associated with thrombotic complications involving the cerebral venous system. Instead, hypercoagulability and thrombotic events in nephrotic syndrome are more commonly observed in the deep veins of the lower extremities and renal veins. In our case report, we present a unique scenario in which CSVT served as the initial presentation of nephrotic syndrome in a patient with no significant past medical or surgical history. The patient presented to the emergency department with severe headache, vomiting, altered mental status, and generalized body swelling, prompting further investigation. Laboratory evaluation revealed proteinuria, hypoalbuminemia, and hyperlipidemia, consistent with nephrotic syndrome.

Nephrotic syndrome

Non-contrast brain Computed Tomography (CT) revealed a hemorrhagic venous infarct associated with vasogenic edema, indicative of cerebral sinovenous thrombosis. Subsequent Magnetic Resonance Venography (MRV) confirmed occlusion of the superior sagittal and right transverse sinuses. Management of CSVT in the setting of nephrotic syndrome poses unique challenges, requiring a multidisciplinary approach. Subsequently, she was transitioned to rivaroxaban and oral steroids, leading to significant clinical improvement and resolution of the thrombus. This case underscores the importance of considering nephrotic syndrome as a potential underlying cause of cerebral sinovenous thrombosis, particularly in patients presenting with atypical neurological symptoms. Prompt recognition and management of both conditions are crucial for optimizing patient outcomes and preventing long-term complications such as recurrent thrombosis and neurologic deficits. In conclusion, cerebral sinovenous thrombosis can serve as the initial manifestation of nephrotic syndrome, highlighting the importance of a comprehensive diagnostic evaluation and multidisciplinary management approach. Further research is warranted to better understand the underlying pathophysiological mechanisms linking these two conditions and to refine treatment strategies for affected individuals.

Thrombotic event

This unique case underscores the importance of maintaining a high index of suspicion for underlying systemic conditions, such as nephrotic syndrome, in patients presenting with cerebral sinovenous thrombosis, especially when there is no clear precipitating factor. While CSVT typically presents with characteristic neurological symptoms, the presence of nephrotic syndrome may obscure the clinical picture and lead to delayed diagnosis and management. Furthermore, the management of CSVT in the context of nephrotic syndrome requires careful consideration of both thrombotic and renal aspects of the disease. Anticoagulation therapy, such as low molecular weight heparin and subsequently rivaroxaban, is essential for treating the thrombotic event and preventing further clot formation. However, the use of anticoagulants must be balanced with the risk of exacerbating underlying renal pathology, including the potential for hemorrhage and renal impairment. In addition to anticoagulation, the management of nephrotic syndrome may involve immunosuppressive therapy with corticosteroids to reduce proteinuria and stabilize renal function. Close monitoring of renal parameters, including proteinuria levels and renal function tests, is essential to guide treatment decisions and assess response to therapy. Collaboration between neurology, nephrology, and hematology specialists is paramount in optimizing patient outcomes in cases of CSVT associated with nephrotic syndrome. This multidisciplinary approach ensures comprehensive evaluation, tailored treatment strategies, and ongoing monitoring to address both the thrombotic and renal components of the disease process. Overall, this case highlights the complex interplay between cerebral sinovenous thrombosis and nephrotic syndrome and underscores the importance of a coordinated and holistic approach to management to achieve favorable outcomes for affected patients.