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Unveiling an Uncommon Case: Acute Venous Sinus Thrombosis and Serotonin Syndrome in a Methamphetamine User – A Case Report

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Background: Acute venous sinus thrombosis (VST) is a rare cerebrovascular disorder influenced by various factors, including hypercoagulable states, infections, and inflammatory processes. The infrequent occurrence of concurrent presentation with serotonin syndrome poses diagnostic complexities. The intricate interplay of pathophysiological mechanisms, involving vascular inflammation and sympathomimetic toxidrome, necessitates comprehensive evaluation and tailored management strategies.

Case: A 34-year-old male with chronic methamphetamine use history arrived at the emergency department exhibiting agitation, confusion, altered consciousness, and dilated pupils. Laboratory results displayed leukocytosis, metabolic acidosis, hypokalemia, elevated creatine phosphokinase, and lactate levels. Positive amphetamine and methamphetamine screens affirmed drug usage. Imaging unveiled acute VST in the superior sagittal sinus, with suspected distal right transverse-sigmoid sinus thrombosis. The patient was admitted to the ICU for sepsis resuscitation, encompassing fluid administration, antibiotics, and intubation. Midazolam and fentanyl achieved sedation. On the second ICU day, spontaneous clonus, hypertonia, and deep tendon hyperreflexia indicated serotonin syndrome. Discontinuation of fentanyl and cyproheptadine administration led to clinical amelioration. The multifaceted etiology of VST encompassed possible contributions from amphetamine-induced hypercoagulability and methamphetamine-related dehydration, along with potential roles of hypertension-induced vasculitis and inflammatory processes.

Conclusion: This case highlights the diagnostic complexities associated with acute VST and serotonin syndrome coexistence. In situations involving altered mental status and involvement of multiple systems, a thorough differential diagnosis is essential. Rapid recognition and targeted interventions were crucial to the skillful management of this complex clinical presentation. Understanding the intricate interplay of pathophysiological mechanisms in concomitant conditions enables the development of effective therapeutic approaches that improve patient outcomes.