

Triple Rule-Out CT Leading to the Diagnosis of Ketamine-Induced Cardiomyopathy with Intracardiac Thrombi in a Young Adult

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Abstract

Background: Ketamine is a dissociative anaesthetic that is increasingly misused recreationally, particularly among young adults. While its association with urinary tract complications is well recognised, serious cardiovascular complications are rarely reported.

Objective: To describe a rare case of ketamine-induced cardiomyopathy complicated by intracardiac thrombi and highlight the diagnostic value of triple rule-out computed tomography (CT) in a young adult presenting with acute heart failure.

Case Presentation: A 23-year-old man with a four-year history of recreational ketamine misuse presented with a three-week history of progressive breathlessness, orthopnoea, bilateral leg swelling and palpitations. His medical history was significant only for ketamine-induced cystitis. On examination, he was tachycardic (140 bpm), hypertensive (160/102 mmHg) and hypoxic (94% on 1 L oxygen). He had an elevated jugular venous pressure, bibasal crackles, ascites and peripheral oedema, consistent with acute decompensated heart failure. Blood tests showed an elevated troponin I (169 ng/L) and congestive liver function abnormalities. Given the initial diagnostic uncertainty, with acute coronary syndrome, pulmonary embolism and aortic dissection all considered, a triple rule-out CT was performed. The scan excluded these conditions but unexpectedly demonstrated cardiomegaly, bilateral pleural effusions and intracardiac thrombi involving the left ventricle and right atrium. Transthoracic echocardiography confirmed severe left ventricular systolic dysfunction with an ejection fraction of 15%, multiple apical left ventricular thrombi and a right atrial thrombus. The patient was admitted to the intensive therapy unit for respiratory support and therapeutic anticoagulation before being stepped down to the coronary care unit. Following treatment with guideline-directed heart failure therapy and anticoagulation, he showed gradual clinical improvement.

Conclusion: This case expands the limited literature describing the cardiovascular complications of chronic ketamine misuse and highlights a rare presentation with intracardiac thrombi. It also demonstrates the diagnostic value of triple rule-out CT in patients presenting with acute heart failure when the diagnosis is uncertain. Clinicians should consider recreational drug misuse as a potential cause of unexplained cardiomyopathy in young adults, as early recognition, multimodality cardiac imaging and prompt multidisciplinary management are essential to optimise outcomes and reduce the risk of thromboembolic complications.