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Richard Vestal

Dana Davis

Tammy Berry

Sean Biggs

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Methamphetamine-Associated Decompression Hematuria

Richard A. Vestal II, MD; Dana Davis, MD; Tammy Berry, MD; Sean Biggs, MD

Abstract

- Methamphetamine use remains relatively prevalent in the United States, with a rising incidence and 1.2 million US residents having used the drug within the last year.^[1]
- Symptoms related to increased sympathetic tone (such as mydriasis, tachycardia, hyperactivity, myocardial infarction and stroke) have been well-described.^[2]
- Methamphetamine and other sympathomimetics causing urinary retention have also been described, though reports attributing urinary retention to methamphetamine alone are less frequent.^{[3],[4]}
- Additionally, bladder decompression in patients with chronic urinary retention resulting in hematuria has been previously well-documented.^{[5],[6]}
- To our knowledge, this poster represents the first description of a patient with chronic urinary retention from methamphetamine use with substantial decompression hematuria upon methamphetamine cessation.

Case Presentation

A 38-year-old male presented to the hospital from a correctional facility with a three-day history of painful gross hematuria preceded by several weeks of urinary retention, which had been unresponsive to a friend's tamsulosin.

The patient endorsed a several-year history of active methamphetamine use, but had not used the drug for the last three days due to his current incarceration.

Further history revealed a long history of painful gross hematuria every time the patient abstained from methamphetamine.

Exam findings were unremarkable, including a normal prostate exam

Temp: 35.1, **Pulse: 106**, **Blood pressure: 86/41**, Resp: 12, O2: 100%

Labs

WBC: 8.5 Urinalysis unremarkable apart from numerous RBCs

Hgb : 6.6

Hct: 20

Plt: 255 Liver function test with low protein and albumin only

INR: 1.3

Imaging is shown

The patient received gentle packed red blood cell transfusion and received continuous bladder irrigation and was discharged with recovering hemoglobin and cessation of hematuria. He was instructed to continue taking tamsulosin until his follow-up visit.



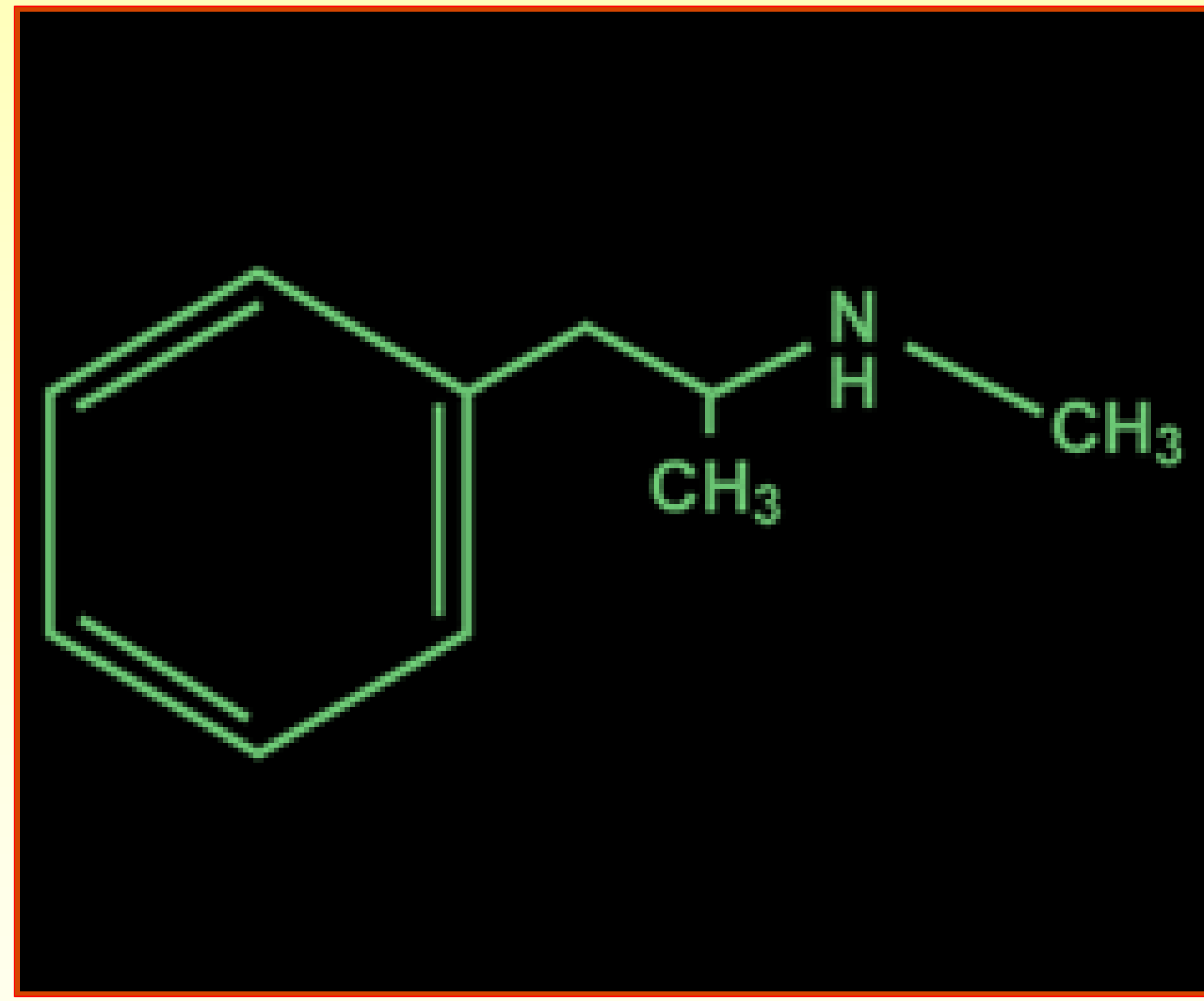
Coronal CT urogram demonstrating a markedly thickened bladder wall and increased trabeculation compatible with bladder outlet obstruction.



Sagittal CT urogram further demonstrating bladder wall thickening and trabeculation, and also demonstrating multiple diverticula measuring up to 4 cm.



Axial CT urogram further demonstrating bladder thickening and trabeculation. Also showing a large left posterior ureteroceles with findings compatible with clot formation.



Molecular structure of methamphetamine

Follow-up

In Urology clinic follow-up, the patient had been non-compliant with his tamsulosin, but had also continued to abstain from methamphetamine with complete resolution of his symptoms. A post-void residual volume of 131 mL was demonstrated. The patient was offered Foley catheter placement and cystoscopy, but declined.

Approximately 6 months later, the patient returned to the hospital with acute painful urinary retention following a relapse of methamphetamine use. He was discharged with additional tamsulosin and supplies for self-catheterization.

In repeat Urology clinic follow-up the patient again declined cystoscopy and Foley catheter placement for post-void residual volumes of 322 mL and 194 mL.

He is currently being managed with tamsulosin and encouragement to abstain from methamphetamine use.

Discussion

To our knowledge, this is the first case to describe a patient with such significant adverse genitourinary effects related to both intoxication and withdrawal of methamphetamine.

It has been previously well-described that methamphetamine is sympathomimetic via inducing the release of catecholamines from the pre-synaptic nerve terminals.^[2]

The urinary bladder neck contains a high concentration of alpha 1 receptors and activation via catecholamines results in bladder constriction and urinary retention; a known response of the sympathetic nervous system.^[7]

Chronic urinary retention leading to bladder distension is believed to cause mechanical injury to the bladder vasculature, though clinically significant bleeding may not be seen due to the tamponade effect from increased intra-bladder pressure.

When decompression occurs, the tamponade effect is lost and the patient may experience clinically significant bleeding from the previously damaged vasculature.

This case serves to contribute to the medical literature documenting the less commonly encountered effects of methamphetamine, as atypical presentations are likely to become more prevalent if recreational use of this drug continues to increase.

References

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