

Double Diagnosis Dilemma: A Singular Therapeutic Approach for Two Rare Complications Arising from Levamisole-Laced Cocaine

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INTRODUCTION

- Cocaine is known to affect multiple organ systems, yet cocaine-induced anti-neutrophil cytoplasmic antibody (ANCA) vasculitis and acute interstitial nephritis (AIN) often goes undetected.
- Cocaine laced with levamisole, an antihelminthic previously approved for use in colon cancer and rheumatoid arthritis, may explain presentations of agranulocytosis, retiform purpura, and renal failure.
- Levamisole was withdrawn from markets but is still combined with cocaine given its potential cholinergic effects on the CNS.
- It is estimated that approximately 70% of cocaine in the US is contaminated given levamisole's role as an adulterant to heighten euphoric effects.

CASE

- 45-year-old female with known cocaine use presented for altered mental status, peripheral edema, maculopapular rash, and hypotension.
- Labs revealed acute kidney injury (AKI) with creatinine of 11.8 requiring hemodialysis, hyponatremia of 116, and thrombocytopenia
- Patient received IV antibiotics and steroids with improvement
- Steroid tapering led to subsequent new painful oral mucositis (Figure 1), generalized erythematous vasculitic rash (Figure 2), unilateral painful parotid gland swelling, and worsening renal function
- Patient found to have hepatosplenomegaly, proteinuria, positive c-ANCA (1:40), low C3, low C4
- Urine toxicology was positive for cocaine
- Serum and urine protein electrophoresis showed IgA/Kappa monoclonal protein with an elevated kappa/lambda ratio

CASE (CONTINUED)

- Cryoglobulins, ANA, GBM, MPO, PR-3, lupus anticoagulant, anticardiolipin, anti-centromere, SS-A, SS-B, and anti-sm tests were negative
- Patient received prednisone with improvement in her rash, edema, and overall condition
- Kidney biopsy revealed acute interstitial nephritis, diffuse mesangial proliferative and focal endocapillary proliferative IgA-dominant glomerulonephritis
- Immunofluorescence microscopy revealed granular global mesangial and glomerular capillary wall deposits staining 2-3+ for IgA, C3, Kappa, Lambda and 1+ for IgG
- Electron microscopy confirmed globally distributed mesangial and subepithelial deposits.



Figure 1. Oral Mucositis



Figure 2. Erythematous Vasculitic rash

DISCUSSION

- Levamisole-induced vasculitis (LIV) is an increasingly identified cause of purpuric retiform skin lesions and immunologic abnormalities due to a rise in levamisole-contaminated cocaine.
- Patients who develop LIV present with purpuric, erythematous lesions following exposure that progress to retiform purpura, bullae, and skin necrosis.,.
- Characteristic findings of LIV are associated with the production of autoantibodies, such as c-ANCA, as well as immune complex deposition that contributes to skin necrosis.
- The presence of acute tubulointerstitial nephritis (ATN) in a patient with chronic cocaine use suggests AIN, although it has been infrequently documented in literature with less than 10 cases reported.
- Diagnosing the root cause of AIN can be challenging due to its various potential etiologies and diverse presentations. In our patient, alternative causes were eliminated with kidney biopsy
- Despite the presence of a rash, kidney biopsy results were in favor of AIN rather than vasculitis induced kidney injury.
- While the ATN can be explained by sepsis, cocaine might also have contributed to the ATN findings on biopsy.

CONCLUSIONS

- When managing patients with cocaine use, it is crucial to consider the possibility of levamisole-laced cocaine and its associated complications.
- Heightened awareness is warranted for AIN as the cause of AKI in the context of cocaine use, despite its rarity.
- This consideration becomes significant in critically ill patients where the diagnosis can be easily overlooked.

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