

Clinical Pearl: Levamisole-induced vasculitis with necrosis in chronic cocaine users

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ABSTRACT

This case reveals an additional risk faced by persons who abuse substances, specifically when such substances are adulterated. Levamisole, often used to falsely extend the quantity of cocaine a person believes he is purchasing, is known to have life-threatening adverse events. In this case, a chronic cocaine user developed vasculitis from impure cocaine.

KEYWORDS

cocaine abuse, levamisole, adulteration

PATIENT CASE

Over the course of 12 weeks from initial presentation to accurate diagnosis, a 49 year-old male presented to the emergency department (ED) of his local Veterans Affairs hospital a total of four times with the primary complaint of painful lesions located all over his body. During the first presentation to the ED, the patient was noted to have two tender, erythematous, golf-ball sized lesions on his lower extremities. One was on the left buttock, the other on the left calf. The patient denied any other symptoms with the exception of intermittent fever and chills. The patient's past medical history included a diagnosis of bipolar disorder, obstructive sleep apnea, gastroesophageal reflux disease and a history of alcohol dependence. The patient was also actively dependent on cocaine, use of which was confirmed with a urine drug screen. Vitals and labs were found to be within normal limits, and the remainder of toxicology was negative.

During that initial visit, and at three subsequent visits (once to his primary care physician and twice more to the ED), he was misdiagnosed with methicillin-resistant *staphylococcus aureus* (MRSA) lesions. He was also seen and assessed by many specialties, including rheumatology, oncology, dermatology, infectious disease, and surgery. During his second trip to the ED, he was briefly admitted to the general medical floor. He continued to follow up with psychiatry and his primary care physician, as his lesions were not improving. The patient was finally admitted to the general medical floor again, though not for the lesions, but for increasing and intractable pain. It was at this time, 12 weeks from his initial presentation to the ED, that he was diagnosed with

levamisole-induced vasculitis with necrosis resulting from use of adulterated cocaine. He underwent five weeks of intravenous antibiotics and multiple incisions with drainage prior to discharge. Upon discharge, the patient chose to return to home without treatment of his cocaine addiction, and unfortunately was lost to follow-up.

DISCUSSION

Levamisole, an antihelminthic with immunomodulatory activities, was voluntarily pulled from the United States and Canadian markets by Janssen in 1999 due to life-threatening adverse events, including agranulocytosis, vasculitis, necrosis, hepatotoxicity, aseptic meningitis and seizures¹. However, it remains widely available due to extensive use in veterinary medicine and aquatics as a deworming agent. It is also still used in other countries, and can be purchased online. Levamisole is currently being used as a cutting agent in cocaine. When crushed and mixed with pure cocaine, the adulterated product looks no different than the pure product². This allows the dealer to sell the adulterated product for the price of the pure product, thus increasing the dealer's profit. Additionally, levamisole is hypothesized to increase the release of dopamine, theoretically enhancing and/or increasing the effects of the cocaine².

Currently, there is little guidance in the form of published data to guide treatment in patients with levamisole-induced vasculitis. Currently available data is limited to isolated case reports published in dermatology journals. Adverse events reported include agranulocytosis with and without neutropenia as well as vasculitis with and without necrosis^{2,3}. Generally, lesions appear on the face, specifically the ears and nose. However, they can be

found anywhere on the body, and it appears that the location of the lesions is not related to the actual injection/ingestion site. Levamisole-induced vasculitis is a diagnosis of exclusion, and much must be considered when treating a patient with vasculitis.

Many confounding factors must be considered when treating patients with levamisole-induced vasculitis. First, the patient must be willing to affirm cocaine use, or use must be quantitatively confirmed. One must also consider MRSA cellulitis as the causative agent, as intravenous drug users generally have significant exposure to MRSA bacteria. Other co-morbid conditions, such as diabetes and neuropathy, must also be ruled out. Choice of antibiotic therapy should be based on the Infectious Disease Society of America (IDSA) guidelines for skin and soft tissue infections with adjustments for cultures and sensitivity if available⁵. Pain is also an issue, and should be addressed regardless of history of addiction. Incision and drainage may need to be performed, as it is nearly impossible to treat necrotic tissue with medications alone. Most importantly, the patient's addiction needs to be addressed. Without addressing the underlying issues, and in this case, the source of the infectious agent, it is futile to appropriately treat the lesions. If the patient continues to use adulterated cocaine, more than likely, the lesions will return.

CONCLUSION

Based on the recent reappearance of levamisole-induced vasculitis, it appears that use of cocaine adulterated with levamisole is on the rise. As a result, levamisole-induced vasculitis can and should be considered when any patient with a known history of cocaine use presents with lesions of unknown origin. Differential diagnoses should not be limited to the obvious, and a thorough history must be obtained. Pharmacists should be vigilant in ensuring that all options are explored, and appropriately treated. Treatment should be a combination of antibiotics and pain management, with an emphasis on addiction recovery.

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