

Levamisole-adulterated Cocaine Induced Vasculitis with Skin Ulcerations

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CASE REPORT

A 40-year-old man with Hepatitis C and a history of cocaine abuse presented with multiple stages of painful rashes on his extremities and ears. On examination, the patient had several areas of purpuric macules and retiform purpura to his legs and ears (Figures 1 and 2), as well as large ulcerations with erythematous borders on bilateral lower extremities (Figure 3). Laboratory studies revealed mild leukopenia (white blood cell 3.8 K/uL), positive anti-nuclear antibody (ANA), and negative cryoglobulins. Anti-myeloperoxidase antibodies (MPO-ANCA) and anti-proteinase-3 (PR3-ANCA) were also positive. Skin biopsy revealed dermal purpura and thrombi.

DISCUSSION

This patient presented with characteristic findings of levamisole-toxicity. Levamisole is not an inert substance

but an antihelminthic drug and potent immunomodulator that was once used for treating cancer and certain autoimmune diseases.¹⁻² Levamisole is also an increasingly popular cocaine-adulterant³ linked to a growing number of cutaneous-vasculitis cases characterized by neutropenia or leukopenia, purpuric rash, and production of certain autoantibodies.⁴ It was these side effects that caused Levamisole to be withdrawn from the market in 2000. It is unknown why Levamisole has become an increasingly popular cocaine adulterant in the U.S. and Canada. It has been hypothesized that the cutting agent may intensify or prolong the stimulant properties of cocaine by its effects on the metabolism of monoamine neurotransmitters, specifically dopamine.^{5,6} Levamisole's chemical properties also make detecting it in street purity tests difficult. Resolution of the cutaneous and hematologic effects often occurs spontaneously with discontinuation of the drug.



Figure 1. Intermediate skin lesions on left ear.



Figure 2. Early skin lesions on right thigh.



Figure 3. Late-stage skin ulceration to left leg with necrotic borders.

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REFERENCES

1. Amery WK, Bruynsells JP (1992) Levamisole, the story and the lessons. *Int J Immunopharmacol* 14(3):481-486.
2. Tanphaichitr P, Tanphaichitr D, Sureeratanan J, et al. Treatment of nephrotic syndrome with levamisole. *J Pediatr* 96:490-493.
3. Centers for Disease Control and Prevention (December 2009). Agranulocytosis associated with cocaine use - four States, March 2008-November 2009. *MMWR Morb. Mortal. Wkly. Rep.* 58: 1381-1385.
4. Bradford M, Rosenberg B, Moreno J, et al. Bilateral necrosis of earlobes and cheeks: another complication of cocaine contaminated with levamisole. *Ann Intern Med* 152(11):758-759.
5. Spector S, Munjal I, Schmidt DE. Effects of the immunostimulant levamisole, on opiate withdrawal and levels of endogenous opiate alkaloids and monoamine neurotransmitters in rat brain. *Neuropsychopharmacology*. 1998; 19:417-427.
6. Chang A, Osterloh J, Thomas J. Levamisole: a dangerous new cocaine adulterant. *Clin Pharmacol Ther.* 2010;88: 408-411.