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Clinical vignette: Levamisole-tainted cocaine causing leukocytoclastic vasculitis

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INTRODUCTION:

- In 2009, MMWR reported that up to 70% of cocaine seized at US borders is cut with levamisole.6
- This anti-helminthic agent is primarily used in veterinary medicine, but it has immunomodulating properties and has been used to treat some forms of cancer in humans. Specifically, it was tested in colon cancer9 and has some steroid-sparing use in pediatric nephritic syndrome.10
- From experience in these populations it is known to cause a reversible neutropenia. The association of cocaine and levamisole with leukocytoclastic vasculitis is recently being reported in the medical literature.3

USE AS A CUTTING AGENT:

- The reason for levamisole's increasing use as a cutting agent is multifactorial and a fascinating interplay of pharmacology and drug distribution and sales.
- At the point of sale, use of levamisole does result in larger and heavier rocks, leading to the assumption that a higher quality product is being purchased.
- There is some preliminary evidence that levamisole itself may be selected for pharmacologic qualities, rather than just the resultant effect on appearance.
- Levamisole may interact with monoamine neurotransmitters in key regions of the brain, specifically with serotonin, norepinephrine, and dopamine.11 This may be enhancing the cocaine user’s subjective high, leading to repeat use.

CASE REPORT:

- A 36-year-old woman presented to Emergency with 2.5 years duration of waxing and waning severe pain related to confluent necrotic lesions involving her lower extremities. Her medical history was significant for crack cocaine use for 12 years, resulting in a recent admission for febrile neutropenia consistent with levamisole toxicity. Last use was the night prior to this presentation, toxicology screen was positive for cocaine.
- Physical exam revealed a cachectic, malnourished woman in severe distress with painful non-blanching purpura noted along the helixes of both ears and tip of the nose. Her lower extremities had large, minimally retiform purpuric plaques with surrounding erythema, which later developed hemorrhagic bullae over the subsequent 10-day hospital course.
- At admission, her absolute neutrophil count was 2,200, reaching a nadir of 1,000. Inflammatory markers included C-reactive protein elevated at 6.9, erythrocyte sedimentation rate greater than 120.
- No evidence of infectious process was found during the hospital course, including viral serologies and bacterial cultures.

TREATMENT:

- There is no specific treatment for this condition, rather identification of the cause and then removal of the offending agent is the primary issue.
- Small role of systemic corticosteroids, but unproven.

DISCUSSION:

- Timely identification of this process is key for therapeutic intervention of patient abstinence from all cocaine use.
- As levamisole is being found with such frequency in cocaine, manifestations of toxicity with respect to impaired immunity and vasculitis must be made known to practitioners.
- This presentation does not tend to respond to immunosuppressants and in fact application of steroids or cytotoxic therapy may worsen the condition when combined with the effects of cocaine and levamisole.
- Additionally,