BRIEF ARTICLES

Crospovidone Induced Vasculopathy of the Skin

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INTRODUCTION

The rate of opiate abuse in the United States continues to rise, with over 4 million cases of non-medical use of prescriptions per year. [1] The ramifications of the epidemic can be see across a wide variety of medical specialties including dermatology. Dermatologists play a critical role in recognizing skin signs of drug abuse, such as Levamisole associated vasculopathy from adulterated cocaine. Crospovidone is an insoluble disintegrant commonly found in pharmaceutical tablets. Drug users searching for a quicker high from opioids opt to crush the tablets and inject them intravenously. When tablets containing the excipient crosprovidone are crushed and injected, it can result in a vasculopathy. This has been described previously in the lungs[2], but to our knowledge this is an unrecognized cause of vasculopathy of the skin.

CASE REPORT

A 46-year-old man with a past medical history of intravenous drug use (IVDU), alcohol abuse and chronic hepatitis C presented with new onset left hand swelling, redness and tenderness for 4 days. The patient was originally seen at an outside hospital and given Ceftriaxone with minimal improvement. Patient denied recent trauma to the area or recent IVDU; however, the patient's drug screen was positive for opioids and on further questioning he did endorse recent injection drug use.

On physical exam there were dusky red to violaceous purpuric macules and patches on the first and second digit and the thenar eminence (Fig1). Given the presentation and clinical history, the differential diagnosis included vasculopathy (due to cryoglobulinemia or levamisole) or a thromboembolic process. However, lab workup demonstrated a negative rheumatoid factor, negative cryoglobulins, negative blood cultures, and a normal white blood cell count. Moreover, in combination with an asymmetric distribution along the distal radial artery, this raised concern for an alternative cause of vasculopathy.

Subsequent punch biopsy was performed of the hand. Hematoxylin and Eosin stain showed a blue to purple coral-shaped foreign substance within the vascular lumen (Fig2A&B). Congo red highlighted the foreign substance with a similar morphology (Fig2C&D).

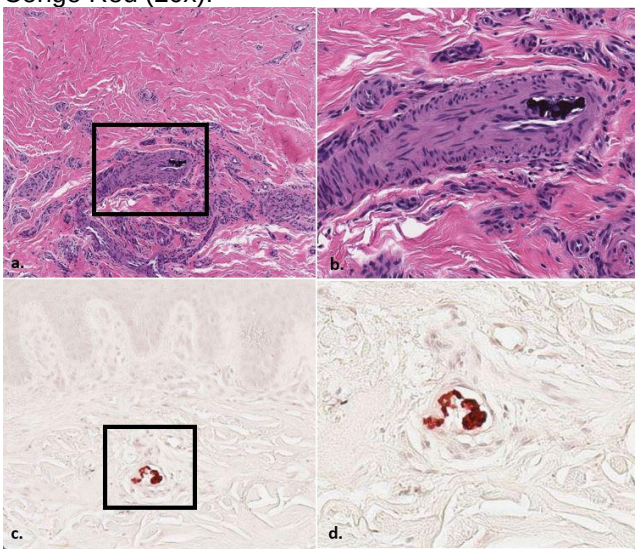
Crospovidone has been reported to cause angiothrombosis in lungs [2] and found incidentally in gastrointestinal tract biopsies.[3]

Patients can crush tablets and inject them, introducing the insoluble foreign material into the dermis. On histologic sections, crospovidone stains violet-blue on H&E, bright red on mucicarmine and red-brown on Congo-red. Although the material can resemble calcium histologically, Von Kossa stain is negative. The pathogenesis in the skin appears to be by thromboembolic occlusion of vessels, similar to that seen in the lungs.

Given the critical role that dermatologists play in the workup of skin signs of drug abuse, it is important that providers recognize this uncommon and likely underreported complication of drug abuse. Prompt recognition of this entity can be beneficial to patients and their providers alike. As in other causes of vasculopathy, supportive therapy with wound care, monitoring for wound site infections and in this case referral to a substance abuse program is imperative to prevent further occurrences.

Figure 1. Red to dusky violaceous purpuric macules and patches on the first and second digit.

Figure 2. A) Hematoxylin and Eosin stain highlighting blue to purple coral-shaped foreign material within the vascular lumen (10x) **B)** high powered view of crospovidone material within vascular lumen on H&E (20x) **C)** Congo Red highlighted the foreign substance with a similar morphology within vascular lumen (10x) **D)** high powered view of crospovidone highlighted by Congo Red (20x).



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