



Case #55

NAME Educational Activities Committee

Case provided by:

Dr. Kanayo Tatsumi (St. Louis City Medical Examiner's Office, MO)





1. A 32-year-old man was found unresponsive in his residence. At autopsy, multiple lesions were observed on his lower extremities. What is the most likely etiology of these skin lesions?

- Diabetic vasculopathy
- Hypothermia with frostbite
- Decubitus ulcers
- Chronic substance abuse
- Scalding injuries

Answer...

D. Chronic substance abuse – (CORRECT ANSWER, 58.54 % of responses)

The skin lesions in this case are thought to be related to the decedent's history of chronic xylazine abuse via subcutaneous injection. "Skin popping" is a method of injecting illicit drugs, especially cocaine, opiates, and barbiturates, into the skin with the goal of achieving slower absorption, decreased risk of overdose, and easier administration than with intravenous drug use. It allows direct inoculation of bacteria and irritants into the skin, and as a result, use of this method has the greatest risk factor for the formation of suppurative skin infections versus other routes of administration. Chronic complications include formation of round, depressed, hyperpigmented scars (as seen in the first picture).

Xylazine was initially discovered as an antihypertensive agent, but due to its side effects it was not approved for human use by the Food and Drug Administration Agency (FDA). However, its use was approved as a veterinary sedative and anesthetic for large mammals. Xylazine's use as a recreational drug was first documented in the unregulated opioid supply in Puerto Rico over twenty years ago. An increase in trend has been seen throughout the US as it emerged as an adulterating agent with fentanyl, heroin and cocaine. Synergistic effect of xylazine with these illicit drugs increase the risk of overdose and death. Whether xylazine responds to Naloxone is unclear.

As an agonist of central alpha 2 receptors on the brainstem, closely related to clonidine, xylazine's effects include sedation, miosis and depression of the central and peripheral nervous system. Peripherally, it causes arterial constriction on local blood vessels, resulting in decreased skin perfusion and skin ulcerations. There is a high incidence of skin ulcers in xylazine users, with ulcers being seen in 38.5% of users in one study.

“Skin popping” Scars



A. Diabetic vasculopathy (23.98 % of responses)

Patients with diabetes are 2-4x more likely to develop peripheral artery disease. In addition to vascular insufficiency, peripheral neuropathy and altered foot mechanisms puts these patients at increased risk for complicated non-healing wounds of the extremities. Because of these patient's higher blood glucose levels, they are also more vulnerable to bacterial infections of those wounds. Diabetic wounds are most common on pressure points of the feet and toes. Although infected wounds of the skin should technically progress to a similar wound to the one seen in our second picture, the round, depressed, hyperpigmented scars on the first picture are more consistent with “skin popping” rather than diabetic vascular insufficiency.

B. Hypothermia with frostbite (4.47 % of responses)

Hypothermia results in vasoconstriction, hyperviscosity and microthrombi, resulting in ischemia of exposed tissues. Body parts most prone to frostbite injury include the feet, hand, ears, lips, and nose. Patients that survive cold tissue injury are prone to secondary infection and dehydration from loss of the skin barrier, which in theory could lead to lesions similar to our second picture. However, frostbite injuries will generally range from tissue cyanosis with edema and areas of blistering to complete tissue necrosis forming a black eschar. The round, depressed, hyperpigmented scars in the first picture are more consistent with skin popping.

C. Decubitus ulcers (5.56 % of responses)

Decubitus ulcers are skin and soft tissue injuries typically related to immobility (ie, seen in bed/chair-bound individuals). They usually develop over bony prominences (eg, sacrum, calcaneus, ischium), as a result of chronic pressure or pressure in combination with shear. The location of our injury, over the shin, makes it unlikely to be a decubitus ulcer.

E. Scalding injuries (7.45 % of responses)

Thermal destruction of the skin barrier and concomitant depression of local and systemic host cellular and humoral immune responses are pivotal factors contributing to infectious complications in patients with severe burns. In addition, the burn wound surface (in deep partial-thickness and in all full-thickness burns) is a protein-rich environment consisting of avascular necrotic tissue (eschar) that provides a favorable niche for microbial colonization and proliferation. However, skin lesions resulting from scalding will generally show blistering, charring and epidermal slippage, rather than the round, depressed and hyperpigmented lesions and scars.

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