



All Sugars are Not Sweet

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PUBLISHED ABSTRACT

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Background: Extravasation is defined as the leakage of drugs from the vessel to the surrounding area with the potential to cause tissue necrosis. Such drugs (known as vesicants) that can extravasate include vasopressors, alkylating chemotherapeutic agents, hyperosmolar or hypo-osmolar agents, and certain antibiotics (vancomycin) [1]. Dextrose, at concentrations of 10% or greater, is also considered to be a vesicant, with rates of extravasation from 50% dextrose (D50) injections varying between 10–30% [2].

Case Report: A cachectic 48-year-old female with a past medical history of HIV, former IV drug use, and alcohol use, presented with lethargy. Upon initial assessment, she had track marks on her arms and was only responsive to sternal rub, with her exam otherwise unremarkable. She briefly improved with intravenous naloxone but ultimately required intensive care unit admission following intubation for airway protection. The toxicology screen was positive for methadone, opioids, and alcohol. Initial labs revealed ALT of 118 units per liter, AST of 94 units per liter, hemoglobin of 9.5 grams per deciliter, and albumin of 2.3 grams per deciliter. She was started on thiamine, multivitamin, and folate supplementation, and despite starting tube feeds, glucose measurements were consistently low (with the lowest reading of 35 milligrams per deciliter). She received 2 ampules of 50 milliliters (25 grams) 50% dextrose through a 22-gauge antecubital peripheral IV line, with fingerstick improving to 220 milligrams per deciliter after 10 minutes. Two hours later, extensive swelling and fluid-filled blisters were noted throughout her right forearm and hand, with Doppler ultrasound revealing the absence of a radial pulse (**Figure 1**). Her arm was elevated, a cold compress was applied, and a local subcutaneous injection of hyaluronidase was administered. Compartment pressures remained within normal limits, and a repeat Doppler ultrasound after one hour revealed reappearance of the right radial pulse. The patient's swelling and blisters improved gradually over the next few days.

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Figure 1 Site of extravasation on right forearm depicting swelling and fluid-filled blisters.

Discussion: To the best of our knowledge, there is only one published case on D50 extravasation so far. It describes a 57-year-old female who received D50 in the field for hypoglycemia. She developed extravasation injury and was subsequently diagnosed with compartment syndrome, ultimately requiring fasciotomy. In our case, however, because the incident occurred in-hospital, it was recognized early, the patient was treated with hyaluronidase, and her symptoms self-resolved.


Conclusion: This case emphasizes the importance of early detection and treatment when suspecting extravasation of D50 in order to prevent the development of serious complications like compartment syndrome. 10% dextrose (D10) is now emerging as a safer (given the lower concentration) and equally effective alternative to D50 administration and could become the standard of care for hypoglycemia management [3].


COMPETING INTERESTS

The authors have no competing interests to declare.

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