

Soft tissue laceration caused by lower extremity intraosseous access insertion in an obese patient

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DESCRIPTION

Intravenous access placement in the obese could be challenging due to unreliable anatomical landmarks and impact overall care. Intraosseous (IO) access remains a quick and reliable alternative to emergent intravenous access.^{1,2} The adult IO demonstrates an excellent safety profile with serious complications, such as compartment syndrome, osteomyelitis and skin abscesses, occurring in less than 1% of insertions.³

An 85-year-old woman presented with septic shock due to lobar pneumonia. Physical examination revealed a dehydrated, hypotensive, morbidly obese woman with anasarca and lower extremity lymphoedema. After several failed peripheral intravenous access attempts, IO access was achieved using the Arrow® EZ-IO® system, 2 cm distal and slightly medial to the tibial tuberosity in the right lower extremity during first attempt by an experienced emergencist without difficulties. The IO needle length was 45 mm and its gauge 15 Ga. EZ-IO® stabiliser dressing was not used during placement. IO fluid administration promptly improved the patient's haemodynamics. During transportation, a 7 cm longitudinal skin and soft

Learning points

- ▶ Intraosseous (IO) access is a lifesaving route for emergent administration of fluids in shock patients with poor peripheral access.
- ▶ IO access insertion complications are rare. Skin and soft tissue laceration across tibial IO insertion site could develop in obese patients with severe anasarca and chronic lymphoedema.
- ▶ Possible mechanisms of skin and soft tissue laceration at the tibial IO insertion site includes lack of use of EZ-IO® stabiliser dressing, chronic lymphoedema in the obese and traction forces applied to the IO line during transportation.

tissue laceration was noticed across the IO insertion site. The IO was then removed ([figure 1](#)). Wound exploration revealed marked skin thinning and abundant adipose subcutaneous tissue. Laceration repair was achieved with non-continuous sutures of skin and subcutaneous tissue. While a major benefit of the EZ-IO® is its minimal risk for complications, we suggest that the lack of use of the EZ-IO® protective dressing, the patient's redundant soft tissue and thin skin and the traction forces to the IO applied during the patient's transportation contributed to this complication.

Contributors RB was responsible for conception of the work, data collection, obtaining consent and writing the case presentation. KD was responsible for conception of the work, data collection and discussion portion of the article. DM was responsible for a detailed literature search on intraosseous access indications, contraindications and its complications. Critical revision of the article was completed by MD. All authors reviewed and approved the final version of the case report submitted for publication. All authors certify that they have participated sufficiently in the work to take public responsibility for the content, including participation in the concept, design, writing or revision of the manuscript.

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Figure 1 Longitudinal right lower extremity soft tissue tear across EZ-IO® insertion site.



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