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Figure 1. Dorsum of the right hand.

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A 60-year-old man with bronchogenic carcinoma presented to the emergency department (ED) with a chief complaint of progressive swelling and increasing pain around the intravenous-line site where he had received doxorubicin (an anthracycline chemotherapeutic agent) earlier in the day. He rated the discomfort an 8 on a 0 to 10 scale and was unable to close his fist. The dorsum of the hand was warm and tender to touch (Figure 1).



Figure 2. Tissue necrosis. Used with permission of Lisa Schulmeister, RN, MN, APRN-BC, OCN.

For the diagnosis and teaching points, see page 422.

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DIAGNOSIS:

Anthracycline chemotherapy extravasation. Anthracyclines (daunorubicin, doxorubicin, epirubicin, and idarubicin) have the potential to cause blistering, skin sloughing, and tissue necrosis when they inadvertently leak from the vein or access catheter into the surrounding tissue. Immediate signs and symptoms of extravasation include swelling, redness, and pain. Left untreated, tissue necrosis begins to occur in 7 to 10 days, progressively worsens, and may require surgical intervention (Figure 2). Meanwhile, chemotherapy treatment is often interrupted or discontinued.¹

Topical dimethyl sulfoxide has been used for such patients in the past, but the evidence supporting it is limited.^{1,2} It is now possible to initiate definitive medical treatment in the ED, with dexrazoxane administered intravenously. When given within 6 hours of the anthracycline extravasation, the risk of skin necrosis requiring surgical intervention is reduced. In clinical trials, 98% of 57 patients receiving dexrazoxane in a timely fashion did not require surgical intervention, and 71% continued chemotherapy as scheduled.³ The treatment is administered over 1 to 2 hours into a large vein in an area other than the area affected by the extravasation (eg, opposite arm). Adverse effects include nausea/vomiting, diarrhea, stomatitis, bone marrow suppression, altered liver function, and infusion site burning.⁴

From the ED, surgical consultation for anthracycline extravasation may still be indicated, especially if the patient's presentation is delayed, but contemporary optimal initial treatment includes local tissue cooling, elevation of the afflicted extremity, and dexrazoxane administration.

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