CASE REPOSITORY

Acute Hand Ischemia Following Elective Venous Sclerotherapy for Dorsal Hand Varicose Veins

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Venous sclerotherapy is an emerging cosmetic treatment option for dorsal hand varicose veins. Although venous sclerotherapy is considered a safe and effective procedure for treatment of venous malformations and varicosities in both the upper and lower extremities, inadvertent injection of the sclerosing agent into the arterial system has led to reported instances of acute ischemic events and distal limb necrosis. This is a rare but well-documented complication of lower-extremity venous sclerotherapy. Only 2 cases have been reported in upper-extremity venous sclerotherapy, both of which occurred during treatment of complex vascular malformations. We report an instance of acute, distal digit ischemia after elective venous sclerotherapy for a dorsal hand varicosity. As this procedure grows in popularity, it is essential for hand surgeons to be aware of this rare but potentially devastating complication. *(J Hand Surg Am. 2017;■(■):1.e1-e5. Copyright © 2017 by the American Society for Surgery of the Hand. All rights reserved.)*

Key words Varicose vein, ischemia, venous sclerotherapy, hand.

Online Exclusive

VENOUS SCLEROTHERAPY IS A cosmetic treatment option for age-related, dorsal varicose veins of the hand. Originally developed as a minimally invasive treatment for lower-extremity varicosities, venous sclerotherapy has become the reference standard for treatment of visible veins on the dorsal surface of the hand.[1]

Sclerotherapy is considered a safe and effective treatment for a spectrum of venous pathology. Nearly all reported complications are local and transient; however, severe complications have been noted to occur via 2 primary mechanisms. First, inadvertent injection of the sclerosing agent into the soft tissues has been associated with local soft tissue necrosis. Second, administration of the sclerosing agent into the arterial system via direct injection or through an arteriovenous malformation can cause arterial destruction and acute distal ischemic events. Although multiple reports exist of lower-extremity necrosis and ischemia after venous sclerotherapy, far fewer instances can be found in the literature of acute upper-extremity ischemia.

We report the case of a patient who developed acute finger ischemia after elective, cosmetic venous sclerotherapy for a dorsal hand varicosity, and discuss therapeutic interventions required to prevent digital ischemia.

CASE REPORT

A 63-year-old, right hand—dominant woman with no notable medical history presented to an outside institution for evaluation of a left hand dorsal

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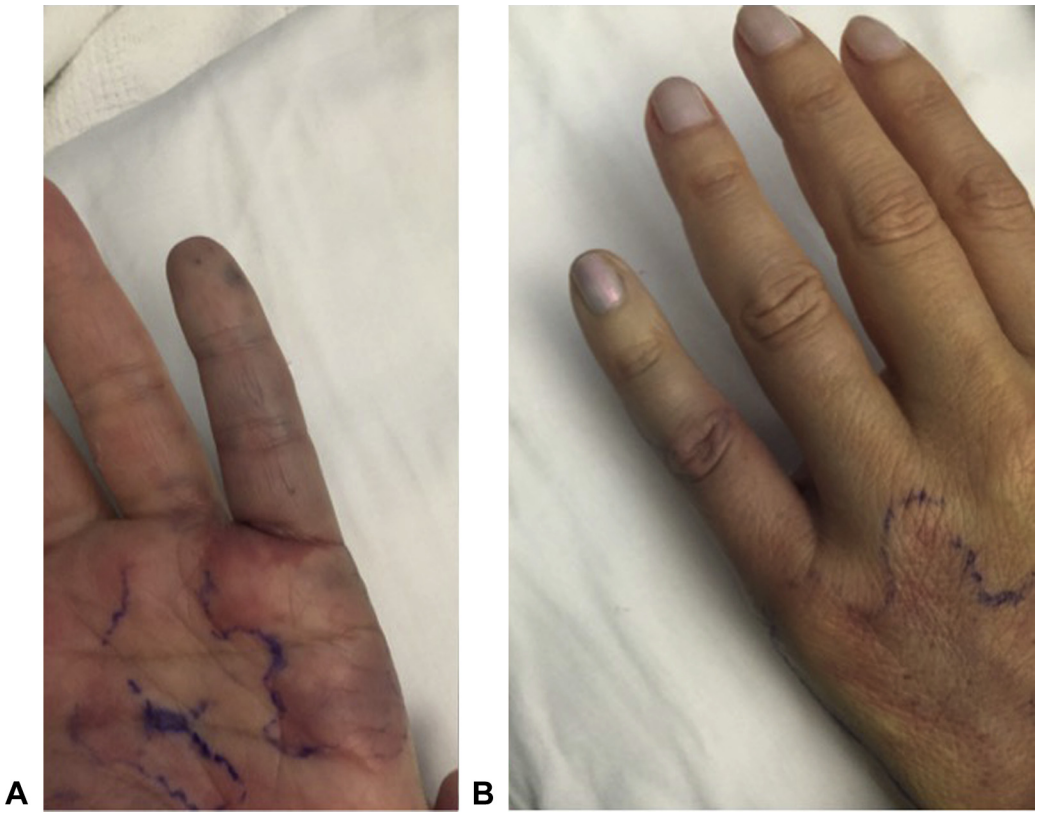

FIGURE 1: **A** Volar and **B** dorsal little finger and ulnar aspect of the hand as seen on presentation. Pallor and cyanosis of the little finger and ulnar hand is noted compared with the ring finger and radial hand.

varicosity and was recommended to undergo dorsal hand vein sclerotherapy. The patient underwent injection of 1.5 mL 1% sodium tetradecyl sulfate into an ulnar-sided, dorsal hand vein between the fourth and fifth metacarpals. Immediately after the injection she was noted to have cyanosis and pallor to the ulnar hand and ring and little fingers. These symptoms improved after application of topical nitroglycerin paste except for the little finger, which remained cyanotic. The patient was then discharged home.

The patient presented to our institution approximately 24 hours after the index procedure reporting persistent pain to the little finger. Physical examination revealed pallor and cyanosis of the ring and little fingers (Fig. 1). There was slow capillary refill to the ring and little fingers compared with the radial 3 fingers; the little finger had equivocal capillary refill and poor skin turgor. In addition, pallor and poor skin turgor were noted proximally in the hypothenar aspect of the hand. No pulse was detected to the ring or little fingers using a Doppler probe and no active bleeding occurred on pinprick of the little finger. Active bleeding on pinprick was present throughout the ring finger. Radial and ulnar pulses were palpable at the wrist.

The patient was diagnosed with acute ischemia of the ulnar hand and little finger. She was taken emergently for left upper-extremity angiography for further evaluation. Normal flow was noted throughout the radial, ulnar, anterior interosseous, and posterior interosseous arteries throughout the forearm. Selective catheterization and angiography of the ulnar artery revealed a blockage at the level of the takeoff of common digital artery at the fourth web space. No flow was noted through the radial and ulnar digital arteries of the little finger as well as through the ulnar digital artery of the ring finger. There was normal flow through the radial digital artery of the ring finger (Fig. 2). We administered 250 μg nitroglycerin and 3 mg tissue plasminogen activator to the common digital artery of the fourth web space at the level of the blockage, which resulted in dilation of surrounding arterial vasculature but no improvement in distal flow past the level of the blockage.

The patient was then transferred to the intensive care unit, where she was administered heparin and nitroglycerin drips with the finger in a warming blanket. She was monitored for 3 days and gradual improvement in capillary refill and pallor was noted. We then obtained magnetic resonance imaging (MRI)