

# Self-induced Hot Water Finger Burn Trying to Get Feeling Back after Ropivacaine Block

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**Summary:** This case report is about a patient with self-induced hot water burns several hours after an infraclavicular block with ropivacaine for a scaphoid fracture operation. This patient was honest about what happened. However, some patients are too embarrassed to admit what they did to themselves. The injury may be misdiagnosed by the emergency department physician or by the surgeon because the history is incomplete. The resulting burn, which can lead to fingertip loss when severe, can be erroneously misdiagnosed as an ischemic injury after lidocaine with epinephrine local anesthesia. Most hand surgeons have seen ischemic finger injuries the morning after failed finger replantation. Acutely ischemic fingers from arterial insufficiency do not have parallel hot water burn lines, reactive hyperemia at the base of the burn, or burn blisters at the fingertips. The purpose of this article and its video is to help physicians and nurses recognize the three signs of self-induced hot water finger burns after local anesthesia: (1) a parallel hot water line in the fingers at the proximal burn level; (2) reactive hyperemia just proximal to the burn line; (3) burn blisters in the submerged fingertips. When seeing postoperative patients with these signs, the examining clinician may tactfully ask: "Did you try to get the feeling back in your fingers by warming them?" It is hoped that the patient may then reveal that he tried warming the finger in water, and that may lead to the truth that the water was indeed too hot. (*Plast Reconstr Surg Glob Open* 2024; 12:e5704; doi: 10.1097/GOX.00000000000005704; Published online 5 April 2024.)

A 67-year-old man had an open reduction and screw fixation of a 2-month-old scaphoid fracture with a humpback deformity. The surgery was performed as a day case at 10 AM with a preoperative infraclavicular block by the anesthesia team with 20 mL of 0.5% ropivacaine.

Eight days after the surgery, the patient returned for the first scheduled postoperative visit, with the hand looking as shown in [Figures 1 and 2](#). He explained how and why he scalded his fingers the night of the surgery. He woke up in the middle of the night and was still numb. He read on the internet that the numbness lasts 6–8 hours, so he boiled water and stuck his hand in it to "see if he could feel it." He did not feel it.

The finger burns as seen on day 8 in [Figure 1](#) were treated with daily cleaning of the wound with clean water soaks followed by new bacitracin and greasy gauze dressings and burn gauze covering. Both the scaphoid and the burn wounds healed without further surgery, but it took more than 2 months for the burns to heal ([Figs. 3 and 4](#)) [[See Video \(online\)](#)], which displays how to suspect, diagnose, understand, and avoid self-induced hot water finger burns after local anesthesia.]

## DISCUSSION

This is a case report of a patient who burned his fingers in hot water to try to get his feeling back more than 12 hours after a ropivacaine infraclavicular block. We have published this report for three reasons: (1) to help surgeons and emergency room physicians suspect and make the diagnosis of self-induced water burns after local anesthesia when patients do not reveal how they were injured; (2) to increase awareness of this problem as the use of local anesthesia increases in hand surgery<sup>1</sup>; and (3) to help avoid this problem.

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**Fig. 1.** Volar view of burned postoperative hand 8 days after ropivacaine block surgery and self-induced hot water burn “trying to get the feeling back.”

The patient in this case report was honest about how he got the burn. We are aware of several patients who were too embarrassed to admit that they tried to “get the feeling back” in their fingers by soaking them in hot water. When patients present with a vague history, the physician can suspect and make the diagnosis by looking for the three characteristic physical findings of hot water submersion burns:

1. A parallel hot water submersion line in the fingers (Figs. 3 and 4);
2. Reactive hyperemia proximal to the hot water line burn. [See Video (online), which displays how to suspect, diagnose, understand, and avoid self-induced hot water finger burns after local anesthesia];
3. Burn blisters at the fingertips.

If a self-induced hot water burn is suspected, the physician may tactfully ask: “Did you try to get the feeling back in your fingers by warming them?” It is hoped that the patient may then reveal that they tried warming the finger in water, and that may lead to the fact that the water was indeed too hot.

Getting an accurate history with the help of hot water burn physical findings can also be very helpful in ruling out a possible epinephrine vasoconstriction ischemic injury.<sup>2-4</sup> The morning after arterial thrombosis of failed finger replants, ischemic fingertips are blue but do not have fingertip blisters, a parallel hot water line or reactive hyperemia at the base of a water line.



**Fig. 2.** Dorsal view of burned postoperative hand 8 days after ropivacaine block surgery and self-induced hot water burn “trying to get the feeling back.”

Long-acting local anesthetics that cause finger numbness for over 30 hours can create problems like the one seen in this case report. In single injection finger blocks, the duration of lidocaine anesthesia is 5 hours without epinephrine and 10 hours with epinephrine. When the lidocaine effect wears off, all three sensory modes of touch, pressure, and pain return at the same time, like an on/off light switch. With bupivacaine digital blocks, sensation to pain returns at 15 hours, but the numbness to touch and pressure remains for over 30 hours.<sup>5</sup> The fact that numbness can persist many hours after the pain returns can be confusing and scary for patients. They do not understand why their finger hurts, but it is still numb to touch and pressure. They may go to urgent care and see a physician who is not aware that with bupivacaine, pain comes back long before touch and pressure sensation. Patients may even want to try hot water soaks to get their sensation back, as did the patient in this case report.

Self-induced hot water burns after local anesthesia are not uncommon. Denkler reported 14 cases of self-induced hot water burns “trying to get the feeling back” after local anesthesia.<sup>6</sup> Doctors who inject local anesthesia should advise patients to shield their numb body parts from harm until protective sensation returns. They



**Fig. 3.** Dorsal view of burned postoperative hand 13 days after ropivacaine block surgery and self-induced hot water burn “trying to get the feeling back.” All four fingers were held still at the same submersion level in hot water long enough to create a parallel burn water line and a deeper burn at this level.



**Fig. 4.** Volar view of burned postoperative hand 13 days after ropivacaine block surgery and self-induced hot water burn “trying to get the feeling back.” All four fingers were held still at the same submersion level in hot water long enough to create a parallel burn water line and a deeper burn at this level.

should also educate patients about the duration of the numbing, and about the fact that numbness to touch and pressure lasts twice as long as numbness to pain with long-lasting local anesthetics such as bupivacaine. Patient education should be provided through pamphlets, the internet, video, or personal communication by all treating physicians and surgeon teams who inject local anesthesia to help prevent this type of injury in the future. Patients could be given this educational information immediately after injection of local anesthesia while they are in a pain-free state.

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### DISCLOSURES

*Dr. Lalonde is a consultant for ASSI Instruments and is the editor of the 2016 and 2021 editions of the book Wide Awake Hand Surgery published by Thieme. Drs. Wong and Rohde have no financial interest to declare in relation to the content of this article.*

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