Alcohol neurolysis of digital nerves

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Alcohol neurolysis is a well-established treatment in chronic pain management, often used in cases of intractable cancer-related pain that is refractory to other management therapies. We describe a 76-year-old woman with chronic toe neuritis who failed multiple treatments, including oral and topical analgesics, nerve blocks, and radiofrequency ablations. Alcohol neurolysis was performed via digit block of the toe resulting in 100% pain relief.

We describe a case of alcohol neurolysis via digital block of the toe which resulted in 100% pain relief for our patient.

CASE REPORT

A 76-year-old woman presented to our pain clinic with a primary complaint of sharp, stabbing pain affecting the distal interphalangeal joint of the right second toe. There was no history of trauma to the toe, and prior treatments included steroid injections by a podiatrist. She rated the pain a 9 out of 10 on a verbal rating scale. We elected to proceed with a radiofrequency ablation (RFA) of the superficial peroneal nerve at the level of the right second toe.

One month later, she presented for follow-up. She had achieved a 2-week period of 100% pain reduction, but the pain returned to baseline. The patient was utilizing antiinflammatory pain medication with minimal relief. We repeated the RFA and also started the patient on gabapentin 100 mg three times daily with a schedule for slow titration. Additionally, we ordered a compounded cream containing lidocaine 2%, prilocaine 2%, topiramate 2.5%, and meloxicam 0.09% as a topical adjunct.

Three months later, she returned after her second RFA and reported 100% pain relief for approximately 1 week. She did not tolerate the gabapentin well, reporting side effects of dizziness and somnolence. At that time, she requested that the podiatrist amputate her toe and her podiatrist agreed if pain management had exhausted all treatment modalities. After extensive discussion with the patient, we elected to perform alcohol neurolysis for her pain. Using aseptic technique, the right second toe was injected with 1.5 mL of 1% lidocaine

forming a wheal around the base of the toe. Next, 1.5 mL of 98% dehydrated alcohol was injected in a similar fashion. The patient tolerated the procedure well and was discharged home with no apparent complications.

Three days postinjection, the patient experienced redness and swelling in her right second toe. She was seen in the emergency department where she was given intravenous clindamycin and discharged home with oral clindamycin. Significant laboratory findings at this time included an elevated erythrocyte sedimentation rate and C-reactive protein. She followed up in a podiatry clinic later that week where she was noted to have skin necrosis and cellulitis (*Figure 1a*) and was admitted to the hospital for intravenous antibiotics. Magnetic resonance imaging of the leg showed minimal soft tissue edema without evidence of an acute process, and an x-ray of the foot was normal. After 4 days in the hospital, she was discharged home with oral doxycycline and Norco.

Following discharge, she described the pain in her toe as 8 out of 10 on a verbal rating scale, but overall she was improving clinically (*Figure 1b*). She returned to the pain clinic for follow up 2 months from the date of the alcohol neurolysis. At that time, she was extremely satisfied with her pain control, reporting 0 out of 10 pain, and her cellulitis had completely resolved (*Figure 1c*).

DISCUSSION

Alcohol neurolysis is a technique to treat chronic pain, especially cancer pain (1). It is not commonly used for peripheral nerves; however, there have been reported cases of successful alcohol neurolysis for chronic pain conditions that affect peripheral nerves such as Morton's neuroma, meralgia paresthetica, and poststroke spasticity.

Ultrasound-guided alcohol ablation has been described to treat Morton's neuroma, and several studies have been performed describing the safety and efficacy of alcohol ablation

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Figure 1. (a) Right foot 3 days after alcohol neurolysis. Note skin necrosis and developing cellulitis. (b) Right foot upon hospital discharge. The 4-day hospital stay included podiatry evaluation, wound care, and intravenous antibiotics. (c) Right foot at 3-month follow-up in the pain clinic. The pain was 0 out of 10 at this time, with no evidence of infection.

in these cases (2–4). It has been described as a safe procedure that significantly reduces pain and may offer an alternative to surgery (2). One retrospective case series showed a reduction in mean pain score from 8.7 to 3.6, with the procedure proving safe in all patients (3).

Additionally, alcohol neurolysis of the lateral femoral cutaneous nerve (LFCN) has been described to treat meralgia paresthetica (5). While no large study has formally evaluated the use of alcohol neurolysis in this context, there have been isolated reports of alcohol neurolysis of the LFCN being a safe and effective method of treatment (5).

Two separate case series have also shown efficacy for alcohol neurolysis in treating poststroke spasticity. The first study

showed alcohol neurolysis providing good relief of finger flexor spasticity in a cohort of 30 hemiplegic individuals (6). The second showed good relief of elbow flexion spasticity following alcohol neurolysis of the musculocutaneous nerve in a group of 20 hemiplegic patients (7).

To our knowledge, no study has investigated the use of alcohol neurolysis on digital nerves for chronic neuritis or tendinitis in humans, though there are reports of successful analgesia in horses following an alcohol ablation of palmar digital nerves (8).

For our patient, we sought a more permanent method of treating her debilitating pain from chronic digital neuritis. As a final interventional effort, we attempted alcohol neurolysis. Ultimately, she achieved complete pain relief but experienced an adverse event that was likely related to the procedure. Perhaps future injections should consist of a smaller volume of alcohol deeper into the tissue in an attempt to avoid the complication of necrosis and cellulitis.

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