

Polyurethane Tubing to Minimize Pain During Nail Injections

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Nail matrix and nail bed injections are painful and can cause considerable patient anxiety. Because most patients receive injections in both hands, some methods to decrease periprocedural anxiety, such as squeezing a stress ball, cannot be utilized. Clenching a length of polyurethane tubing with the teeth during nail injections is a safe and cost-effective strategy that may decrease anxiety and increase the likelihood that patients will return for follow-up injections, thereby leading to better clinical outcomes.

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Practice Gap

Nail matrix and nail bed injections with triamcinolone acetonide are used to treat trachyonychia and inflammatory nail conditions, including nail psoriasis and nail lichen planus. The procedure should be quick in well-trained hands, with each nail injection taking only seconds to perform. Typically, patients have multiple nails involved, requiring at least 1 injection into the nail matrix or the nail bed (or both) in each nail at each visit. Patients often are anxious when undergoing nail injections; the nail unit is highly innervated and vascular, which can cause notable transient discomfort during the procedure^{1,2} as well as postoperative pain.³

Nail injections must be repeated every 4 to 6 weeks to sustain clinical benefit and maximize outcomes, which can lead to heightened anxiety and apprehension before and during the visit. Furthermore, pain and anxiety

associated with the procedure may deter patients from returning for follow-up injections, which can impact treatment adherence and clinical outcomes.

Dermatologists should implement strategies to decrease periprocedural anxiety to improve the nail injection experience. In our practice, we routinely incorporate stress-reducing techniques—music, talkesthesia, a sleep mask, cool air, ethyl chloride, and squeezing a stress ball—into the clinical workflow of the procedure. The goal of these techniques is to divert attention away from painful stimuli. Most patients, however, receive injections in both hands, making it impractical to employ some of these techniques, particularly squeezing a stress ball. We employed a unique method involving polyurethane tubing to reduce stress and anxiety during nail procedures.

The Technique

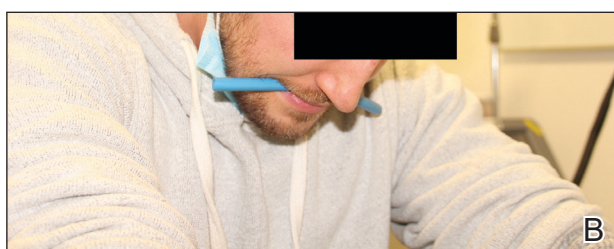
A patient was receiving treatment with intralesional triamcinolone injections to the nail matrix for trachyonychia involving all of the fingernails. He worked as an equipment and facilities manager, giving him access to polyurethane tubing, which is routinely used in the manufacture of some medical devices that require gas or liquid to operate. He found the nail injections to be painful but was motivated to proceed with treatment. He brought in a piece of polyurethane tubing to a subsequent visit to bite on during the injections (Figure) and reported considerable relief of pain.

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A, Trachyonychia of the fingernails on the right hand was being treated with painful intralesional triamcinolone injections to the nail matrix, and the patient brought in polyurethane tubing to help with pain management. B, He bit on the polyurethane tubing for pain and anxiety relief during the nail injections.

What you were not taught in United States history class was that this method—clenching an object orally—dates to the era before the Civil War, before appropriate anesthetics and analgesics were developed, when patients and soldiers bit on a bullet or leather strap during surgical procedures.⁴ Clenching and chewing have been shown to promote relaxation and reduce acute pain and stress.⁵

Practical Implications

Polyurethane tubing can be purchased in bulk, is inexpensive (\$0.30/foot on Amazon), and unlikely to damage teeth due to its flexibility. It can be cut into 6-inch pieces and given to the patient at their first nail injection

appointment. The patient can then bring the tubing to subsequent appointments to use as a mastication tool during nail injections.

We instruct the patient to disinfect the dedicated piece of tubing after the initial visit and each subsequent visit by soaking it for 15 minutes in either a 3% hydrogen peroxide solution, antibacterial mouthwash, a solution of baking soda (bicarbonate of soda) and water (1 cup of water to 2 teaspoons of baking soda), or white vinegar. We instruct them to thoroughly dry the disinfected polyurethane tube and store it in a clean, reusable, resealable zipper storage bag between appointments.

In addition to reducing anxiety and pain, this method also distracts the patient and therefore promotes patient and physician safety. Patients are less likely to jump or startle during the injection, thereby reducing the risk of physically interfering with the nail surgeon or making an unanticipated advance into the surgical field.

Although frustrated patients with nail disease may need to “bite the bullet” when they accept treatment with nail injections, lessons from our patient and from United States history offer a safe and cost-effective pain management strategy. Minimizing discomfort and anxiety during the first nail injection is crucial because doing so is likely to promote adherence with follow-up injections and therefore improve clinical outcomes.

Future clinical studies should validate the clinical utility of oral mastication and clenching during nail procedures compared to other perioperative stress- and anxiety-reducing techniques.

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