

THE PALATAL PRESS AND ROLL ANESTHESIA TECHNIQUE

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Patients generally do not enjoy having sharp needles injected into their oral mucosa. Since many patients generate anxious and fearful feelings around the local anesthesia process, a reduction in injection pain can reduce anxiety and facilitate a more favorable dental experience.¹ Palatal anesthesia is necessary to reduce discomfort during surgical, endodontic, and restorative procedures. Pain traditionally associated with palatal injections can be minimized with one of several methods: electronic,^{2,3} topical,^{4,5} cryogenic,^{6,7} pressure,⁸ or, as presented in the following, through the palatal press and roll injection technique.

Clinical Procedure

- Have a positive mental attitude while visualizing a successful, pain-free dose of palatal anesthesia. Explain to the patient the pressure he or she will experience during the process;
- Dry the palatal mucosa with cotton gauze;
- Place topical anesthetic on the palatal mucosa for 2 minutes;

- Inform the patient that he or she will feel strong pressure on the palate;
- Apply pressure to the palatal mucosa with the end of a mirror handle (Figure 1);
- Place the beveled side of a 30-gauge needle so that it is gently touching the mucosa and the mirror handle (Figure 2);
- Simultaneously press and roll the handle of the mirror toward the needle (Figure 3), with concomitant injection of several drops of the anesthetic agent over 10 seconds;
- Remove the needle and then remove the mirror handle;
- Inquire with the patient if he or she felt the pressure; and
- After waiting 1 minute, reinsert the beveled side of a 30-gauge needle and dispense the appropriate amount of anesthetic for profound palatal anesthesia.

The resultant palatal anesthesia technique should yield adequate palatal anesthesia in a comfortable manner for the patient.



Figure 1. Diagram conveys how to apply pressure to palatal tissue with mirror handle.

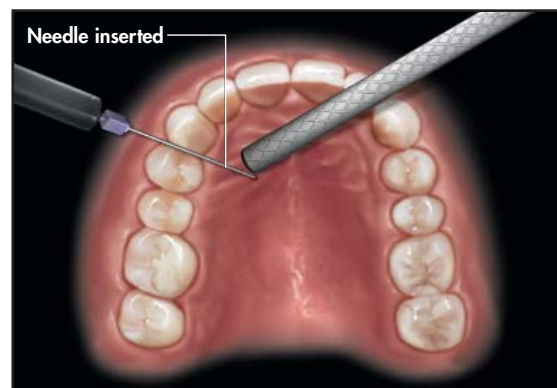


Figure 2. Placement of beveled edge of 30-gauge needle next to the mirror handle.

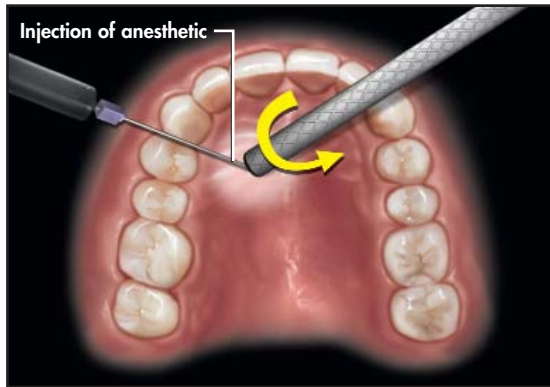


Figure 3. Illustration demonstrates “press and roll” of the mirror handle while the needle is simultaneously injected.

Discussion

To successfully administer dental anesthesia, a scientific understanding of the prevention of pain is paramount. There are two types of nerve fibers that are present in the palatal mucosa relative to the generation of pain: A-delta and C fibers. Pain impulses can be blocked with the stimulation of mechanoreceptors known as A-beta fibers, which travel to the brain more rapidly. When the A-beta fibers associated with pressure are stimulated first (ie, with the mirror handle), the A-delta and C fibers associated with pain cannot be felt.

Dental anesthesia also involves one’s adherence to the aforementioned technique. Framing the patient’s expectations about what is possible with pain-free injections and then delivering on this goal can set the stage for future successful injections. The operator’s belief system regarding what is possible can create a more favorable outcome. Contrarily, if the operator sees a painful injection as the only option, then an unsuccessful outcome may be more likely.⁹⁻¹¹ Therefore, it behooves the clinician to maintain an optimistic demeanor before, during, and after the palatal injection process.

Drying the palatal mucosa allows for faster diffusion of the topical anesthetic agent through the epithelium and connective tissue. Topical anesthetics have been shown to be effective when used prior to injections. The effectiveness of topical anesthetic agents is variable based on single or mixed agents.¹² Two minutes is the general time needed for adequate topical anesthesia.

The uniqueness of the palatal press and roll technique is the rolling pressure applied while the anesthetic agents are injected. The science of the pressurized roll can be understood in pressure anesthesia literature.¹³ The Gate Control Theory was initially based on the fact that small diameter nerve fibers carry pain stimuli through a gate mechanism,¹⁴ but larger-diameter nerve fibers going through the same gate can inhibit the transmission of the smaller nerves carrying the pain signal. Pressure anesthesia was later corroborated mathematically.¹⁵ The pain nerve fibers in the palatal mucosa are A-delta and C fibers. The A-delta fibers are larger in diameter, myelinated, and are more localized in sensation; the C fibers are smaller in diameter, nonmyelinated, slower, and more diffuse. The delivery of the pressurized roll can be perfected with practice, where mechanoreceptors (A-beta) are stimulated through pressure. The nonpainful pressure stimulus can block the noxious stimulus of injection pain.

A slower rate of injection of anesthetic has been shown to cause less pain and therefore be more comfortable to the patient.¹⁶ The type of anesthetics, such as prilocaine without vasoconstrictor, has also been shown to contribute to lower pain level during injection into the palatal tissues.¹⁷

Once topical and pressure anesthesia is present, placement of the needle bevel towards bone may prevent unnecessary mucosal tears. The pressure anesthesia occurs by the application of a blunt instrument and the rolled pressure over the injecting needle. The clinician’s goal is to produce mucosal anesthesia through ischemia, thereby preventing pain impulses with the Gate Control Theory of pain. Another key distinction of this technique is slow gradual dispensation of the anesthetic agent. Several drops of anesthetic are deposited under the rolled mirror handle. Asking patients if they felt the pressure allows them to remember the pressure and leads them towards a successful, comfortable dental experience. One minute is needed to allow for regional anesthesia, prior to reinsertion of the needle again to complete.



Conclusion

A technique for improving the delivery of anesthetic agents to the palatal mucosa is described herein. It is simple, safe, and predictable. Pain-free injection can lead to a more favorable patient experience while undertaking surgical, endodontic, and restorative treatment.

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