

TAKING THE PAIN AWAY

“HOT TOOTH” DIAGNOSIS & TREATMENT



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Every dentist, whether you are a newbie or a seasoned veteran, has encountered the “hot tooth”. You know, the tooth that does not get numb no matter how hard you try. It comes along with a terrified patient that has not slept and they are holding their face in agony. Traditional anesthetic techniques do not work. Your patient has not eaten in several days and is quickly losing faith in your skills. You feel defeated

as a dentist. All you want to do is help. The tooth remains sensitive to pressure, temperature, and touch. It’s the infamous “hot tooth”, highly inflamed and unresponsive to traditional methods of anesthesia. We have all been there. This article is here to help! Diagnosis, Dental Treatment, Drugs and techniques to successfully anesthetizing the “hot” dental pulp.

Dental Diagnosis – Thinking beyond the tooth:

Our ability to accurately diagnose acute inflammatory dental pain is paramount to our professional survival. There are many different causes of dental pain and sometimes it can be non-odontogenic in origin. The “hot tooth” is typically Symptomatic Irreversible Pulpitis, an inflammatory condition of the pulp. It is characterized by spontaneous pain, decreased pain threshold, and increased response to a painful stimulus. There caries, history of trauma, or a leaky restoration. When the etiology of tooth pain is unclear, please consider all non-odontogenic sources of pain before proceeding with treatment. Here is a chart to help!

Table 1. Differential Diagnosis of Dental Pain

ODONTOGENIC PAIN
Odontalgia – e.g., symptomatic reversible pulpitis, symptomatic irreversible pulpitis, symptomatic apical periodontitis, pulp necrosis
VS. NON-ODONTOGENIC PAIN
Musculoskeletal – e.g., TMD
Neurovascular – e.g., migraine, cluster headache
Inflammatory Conditions – e.g., sinusitis
Systemic Disorders – e.g., cardiac pain
Psychogenic – e.g., persistent somatoform pain disorder
Neuropathic – e.g., trigeminal neuralgia, herpes infection

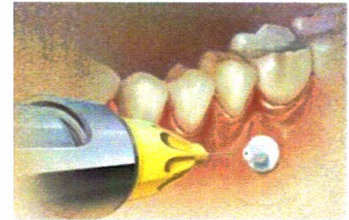
Dental Treatment and obtaining successful local anesthesia:

Next, we need to reduce pain in a terrified patient. “Hot teeth” are difficult to anesthetize. Sometimes the Inferior Alveolar Nerve Block does not achieve pulpal anesthesia. Adding additional carpules of anesthetic does not work and unfortunately, lip numbness alone is not enough. Surprisingly, failure of pulpal anesthesia is higher in the incisor teeth than the molars and premolars. Research shows, pulpal anesthesia failure occurs in approximately 17% of first molars, 11% of first premolars and

32% of lateral incisors. After using your traditional methods of anesthesia via infiltration or IAN block try using the following:

■ **Intraosseous injections (IO):** Clinically, the intraosseous injection works very well providing approximately 60 minutes of pulpal anesthesia approximately 86% - 90% of the time when used after the Inferior Alveolar Nerve Block. The IO injection technique can provide anesthesia to a single tooth or multiple teeth in a quadrant, depending on the site of injection and the volume of anesthetic administered. The system typically consists of a perforator, a guide sleeve, and a 27-gauge ultra-short needle.

Method: After confirming by radiograph that there is adequate interproximal bone between the teeth, the perforator and guide sleeve are attached to a slow-speed handpiece and a perforation is made approximately 2 mm coronal to the mucogingival line, distal to the tooth to be anesthetized. The handpiece and perforator are removed, leaving the guide sleeve in the attached gingiva. A 27-gauge ultra-short needle is introduced through the guide sleeve and approximately one-third of the carpule of local anesthetic is injected.



■ **Periodontal Ligament (PDL) Injections:** This injection technique is frequently used when an isolated area has inadequate anesthesia in a mandibular molar. It is often accomplished using a PDL injector but can also be accomplished with your traditional syringe and needle. This technique successful about 75% of the time.

Method: Use a 30-gauge ultrashort needle with the bevel oriented towards the root surface. Administer a small amount (0.2ml) of anesthetic solution slowly to the distal of each root. The needle is firmly placed into the periodontal space between the root of the tooth and the interseptal bone. Excessive amounts of anesthetic should not be administered into this confined space. Also, you must feel a resistance. Ischemia (blanching) will often be seen which will indicate you have been successful. Advantages of this technique are profound pulpal anesthesia with a minimal volume of anesthetic and the absence of lingual and lower lip anesthesia when used without the IAN block.



■ **Intrapulpal Injection:** You will find that 5-10% of mandibular molars do not obtain pulpal anesthesia with the supplement-