

**Dr. Karl Cuddy – Managing The Challenges of Inferior Alveolar Nerve Block**

Dr. O'Keefe: Continuing our series of talking to speakers at the upcoming Ontario Dental Association Annual Spring Meeting, I welcome this evening Dr. Karl Cuddy, who is an oral and maxillofacial surgeon based in the Greater Toronto Area; and he presents regularly on subjects like anesthesia and infection for general practitioners. I am going to ask him a question about anesthesia that comes up regularly at his presentations. Karl, I do a lot of mandibular blocks and I think I've got a pretty good success rate. But recently I've been having some patients that I just don't hit the mark with. Have you got some advice for me about alternative techniques and maybe some sort of an understanding of why I'm having these problems?

Dr. Cuddy: Yeah, that's a great question John. You know, despite the frequency with which we all do the inferior alveolar nerve block, there are some challenges and sometimes it has to do with accessory innervation. Alternatively, it may have to do with an alteration in the position of the lingula or potentially even a bifid inferior alveolar nerve canal, so some of the adjuncts that we can use to help achieve anesthesia when we fail the first time with the conventional anesthetic injection, are as follows. I think if you're having difficulty achieving anesthesia and the molar region after giving an inferior alveolar nerve block, but you do have profound anesthesia of the lip and the gingiva, you may consider targeting the nerve to the mylohyoid, which may provide accessory innervation to the molars from the lingual surface of the mandible. If you're having a challenge achieving anesthesia in the incisors, think about accessory innervation from the contralateral incisive nerve and giving an incisive nerve block to help anesthetize these teeth.

Dr. Cuddy: And if you've given your inferior alveolar block, but you're really struggling to achieve anesthetic anywhere at all, the Gow-Gates technique is a good adjunct to have, a good trick to have in your back pocket to augment or replace your inferior alveolar nerve block. And, in experienced hands, we know that it can have a higher success rate of provision of anesthesia. It's a safe technique. It's repeatable and it targets the V3, the mandibular nerve prior to the branching of the lung [inaudible], the nerve to the mylohyoid and the lingual, so you can target these accessory paths of innervation upstream before they branch.

Dr. O'Keefe: Maybe I'm the only dentist in Canada who's never done one, but I've never done a Gow-Gates. Maybe you could show some illustrations to help me get on my path.

Dr. Cuddy: Yeah, we have some pictures. We can look at clinical photographs and anatomic diagrams and I'd also like to just show an image of the mylohyoid injection to review that technique as well. Let's take a look at some of these photos.

- Dr. Cuddy: So, John, as I was saying, I'd like to review some clinical photographs to help ensure that we're all comfortable with these injections. Here, we see a clinical photograph of a set-up to administer a mylohyoid nerve injection. You can see retraction of the tongue towards the contralateral side and along 27- or 25-gauge needle used to conserve our anesthetic. When you're administering this technique, and I'm just going to turn my head to the side to look at a second monitor, here we see the cursor now, you'd want to insert your needle to the depth of the apex or just inferior to the apex of the molar teeth and deposit the anesthetic just posterior to the tooth that you're hoping to achieve anesthesia on. Sound bone. Withdraw the needle by approximately five millimeters, aspirate and deposit a half a carpule to one carpule of local anesthetic. With this technique, you'll be able to anesthetize accessory innervation from the floor of mouth through the nerve to the mylohyoid.
- Dr. Cuddy: Let's talk about the Gow-Gates injection. Here, we see a clinical diagram outlining branches of the trigeminal nerve including V3 which we're trying to target. Remember the V3 travels very close to the mandibular condyle [inaudible] and we can see the off branching in this region. The Gow-gates is to target V3 above the branch for the long buccal, the mylohyoid and the lingual nerve. So, when doing this injection, set your patient up with the mouth open as wide as possible. Look under the tuberosity and you can palpate posteriorly and laterally. If you're looking at the patient from a lateral view extraorally, think about injecting towards the tragus of the ear. If you landmark from the [inaudible] to the tragus, you'll be inserting your needle in the correct direction for the Gow-Gates. To give this injection, insert the needle under the tuberosity oriented superiorly laterally and posteriorly and insert it usually almost to the hub.
- Dr. Cuddy: Ensure that you sound bone, and if you do, withdraw the needle by about half a centimeter, aspirate and deposit at least one car pool. Usually, I use two carpules of local anesthetic at minimum for a Gow-Gates injection. Then be patient. Give it at least five minutes before testing your anesthesia. When you compare the location of the injection for the Gow-Gates compared to their conventional inferior alveolar nerve block, notice that the angle of the needle is oriented more superiorly. The injection point is more superior within the mouth and ultimately the tip of the needle will be lateral to where it is for a conventional block. Just one last thought about the conventional nerve block. We know when we dissect the retromolar region, the infratemporal space for deep to the medial pterygoid in surgery, that the lingula is often much higher than we anticipate or that we may landmark with our conventional landmarks. So, if you're failing with the conventional block, on a repeated basis, you may consider even just injecting a bit more superior to your natural position. Hopefully, with these new ideas or reinforcement of these ideas, rather, you can have near 100% success with your mandibular anesthesia.

- Dr. Cuddy: Karl, I really enjoyed that demonstration there and those tips. But can I ask you a few real quick questions?
- Dr. Cuddy: Yeah, of course.
- Dr. O'Keefe: First what needle do you use for the Gow-Gates?
- Dr. Cuddy: For the Gow Gates and for my conventional block, although I rarely use a conventional block, I'd recommend the use of a 25-gauge long anesthetic needle.
- Dr. O'Keefe: Now, does the patient feel anything different postoperatively? Is there any difference in terms of, you know, the sensations or the length of time anesthesia wearing off?
- Dr. Cuddy: Not, not really. You know, the duration of anesthetic is more influenced by the type of solution that you may use. As far as complications or patient concerns postoperatively, the patients rarely report any increase in Trismus or Hematoma or discomfort with this technique. And it's quite predictable so you rarely have to do it again.
- Dr. O'Keefe: Right. So, you mentioned solutions. What solutions do you tend to use for your blocks?
- Dr. Cuddy: Well, for shorter procedures, I use 2% Lidocaine with one and 100,000 epinephrine almost exclusively. And for longer procedures, I would augment that with some Marcaine, usually 0.5% Marcaine with one in 200,000 epinephrine.
- Dr. O'Keefe: Dr. Karl Cuddy, thank you very much for this presentation and certainly I encourage viewers to go see you at the ODA meeting. You're speaking on Friday the 10th of May, I think. Is that right?
- Dr. Cuddy: That's correct, yes.
- Dr. O'Keefe: You're speaking about anesthesia and infection.
- Dr. Cuddy: Exactly, yeah. We'll, we'll talk a little bit more about local anesthesia. Also, some forms of sedation with some consideration to some of the new RCDSO guidelines. In addition, then managing infections and administering anesthesia really go hand in hand from simple vestibular infections to more complex multispace, deep-space neck infections that we see in the hospital setting.
- Dr. O'Keefe: Very important topics for every dentist in the country and thank you for your lovely presentation this evening.

Dr. Cuddy: Well, thanks very much, John. It's a pleasure and an honor to chat with you.