

Intraosseous injection for Profound anesthesia of the Lower Molar

by

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The endodontic treatment of mandibular molars is complicated when block anesthesia is less than totally effective. Supplemental anesthesia by infiltration gives little or no additional effect because of the thickness of the buccal or lingual bone in this area. Other methods for obtaining profound anesthesia must be attempted, unless the patient and the dentist agree to the unpleasantness of a painful treatment. In the author's hands, the most successful technique for obtaining supplemental anesthesia in such cases has been the intraosseous injection technique.

Experience over the past six years has shown that this technique is easily learned, that the instruments are readily obtained and easy to use, and that both the patient and the operator benefit from the results.

Armamentarium

- i Aspirating carpule syringe
- 2 1" 30 gauge sterile disposable needle
- 3 2% Lidocaine with 1/100,000 epinephrine
- 4 Beutelrock drill (Busch Fig 86,#3)
5. Slow speed contra-angle

Technique

The procedure is initiated after the mandibular block is shown to be inadequate

1. Infiltrate the buccal gingival papilla distal to the involved tooth, Fig 1.

2. Cut the injection needle (using sterile scissors) at ½ inch from the hub and check to insure a patent opening, Fig. 2.
3. Make a 10-15 mm deep hole, at the injection site, using the Beutel rock drill (Busch Fig 86,#3). The drill is angled at 45 degrees to the occlusal plane while it rotates slowly in the contra angle, Fig. 3.
4. Insert the shortened 30 gauge needle into the prepared hole, and press the hub firmly against the gingiva.
5. When the hub seals the hole, deposit ½-1 cc of the anesthetic solution into the cancellous bone.
6. Proceed with your original treatment.

Discussion

Although elaborate data was not kept on the success rate of the above technique, some observations were made. In the author's hands the entire supplemental procedure was usually performed in ½ - 1 minute. Profound anesthesia followed inadequate anesthesia approximately 75% of the time using this technique. Improved anesthesia 15% of the time, and 10% of the time no improvement was noted (number of cases: about 1000).

Failure and limited increase in anesthesia seemed to occur when the drill did not enter the cancellous bone (no noticeable

"dropping" through the cortical plate was experienced), or when there seemed to be increased resistance to injection (possibly indicating a small cancellous bone space not connected with the mandibular nerve)

Limited effect could have been also due to the inflammation and / or aberrant nerve route that was part of the original problem.

The limited effect or partial success cases may become successful following a mesial intraosseous injection (a second injection using the same technique) or an intra-pulpal injection.

Although some patients report momentary pain at the initial flow of the anesthetic solution and a few experience a mild tachycardia immediately following or during the injection, none report any post-operative discomfort

Conclusion

A supplemental technique that achieves profound anesthetics for most endodontic treatments of mandibular molars was presented, including the armamentarium and comments by the author.

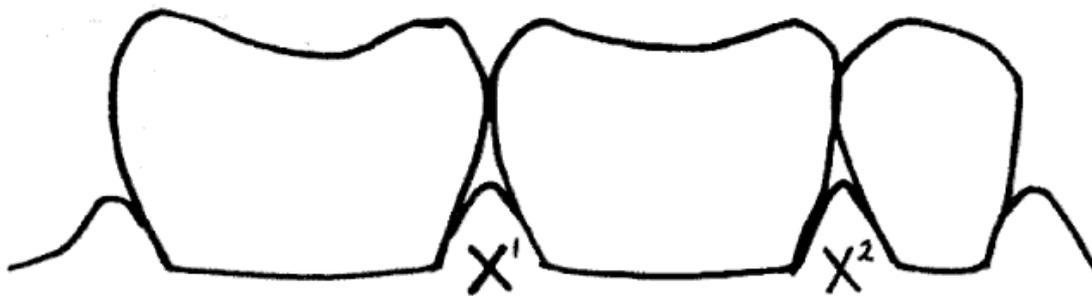


Fig. 1 – X-1 marks the spot of drill penetration of attached gingiva to anesthetized lower first molar [X-2 marks spot of second injection if needed].

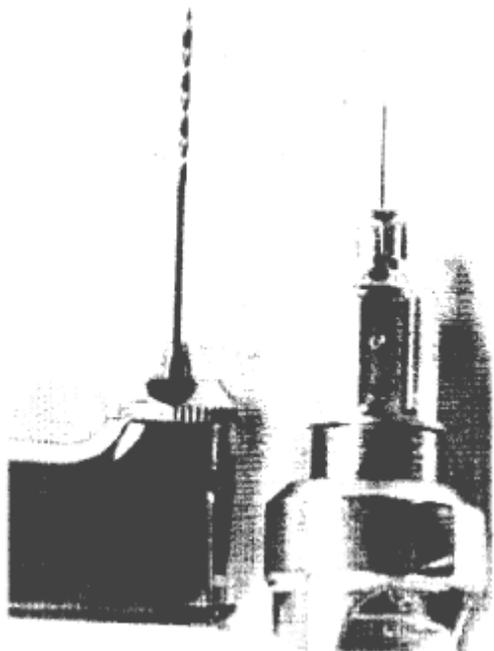


Fig. 2 – Armamentarium includes Beutelrock drill [Busch fig. 86-3], and 30 ga. Injection needle shortened to one half inch by scissors

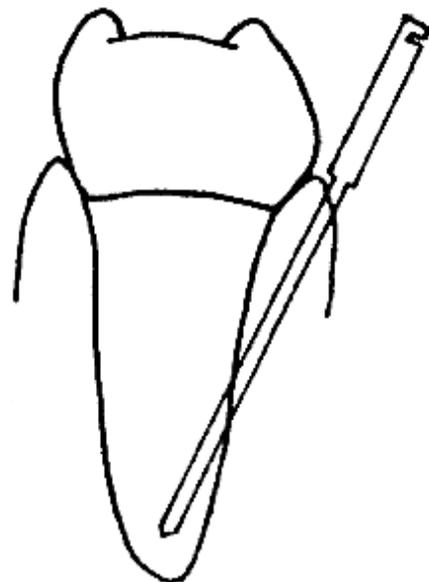


Fig. 3 – Drill tip should arrive near apical level [10-12 mm deep].