

The palatal injection: A painless approach

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ABSTRACT

A painless approach to the well known painful palatal injection using topical application of pressure is described. Seventy dental patients requiring anesthesia of the palatal tissue (soft and hard) for surgical procedures were chosen for the study. A highly significant value ($p>0.01$) of a painless injection was noticed when the ipsilateral side was compared with the contralateral side in the same patient. Further studies on this approach are recommended to further evaluate its success.

Key Words: Palatal injection, palatal anesthesia.

الخلاصة

تم إجراء دراسة حول كيفية جعل حقن الإبرة المخدرة المؤلمة عادةً في سقف الحلق عن طريق استخدام الضغط الموضعي جاعلاً الحقن أقل إيلاًماً. تم اختيار (٧٠) مريضاً كانوا بحاجة إلى حقن مادة مخدرة في سقف الحلق لغرض إجراء عملية قلع للأسنان. أظهرت النتائج أن هناك فرق معنوي عالي تحت مستوى احتمال ($p>0.01$) للطريقة الجديدة باستخدام الضغط الموضعي عندما قورنت مع الطريقة التقليدية بدون استخدام الضغط الموضعي على نفس المريض. توصي هذه الدراسة بإجراء مزيد من البحوث لغرض تقييم مدى نجاح هذه الطريقة.

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INTRODUCTION

The palatal nerve injection has been notoriously known to be very painful as experienced by many patients⁽¹⁾. In spite of the fact that standard methods to obtain a painless injection (topical anesthesia, minimum volume used, slow injection and psychological encouragement) have been adopted, this particular injection remains the most painful out of all performed in the oral cavity⁽²⁾. This is due to the dense firmly attached mucoperiosteum into which the needle must penetrate and the very limited space into which the local anesthetic solution is deposited⁽³⁾.

In an attempt for making the palatal injection as painless as possible, Malamed⁽¹⁾, Jastak *et al.*⁽²⁾ described an approach where by application of pressure to the area which is to receive an injection is used thereby achieving anesthesia according to the Gate control theory⁽⁴⁾. The study conducted evaluated this approach and as recommended by authors mentioned above.

MATERIALS AND METHODS

The armamentarium adopted for this study were as follows:

- 1/Conventional stainless steel dental cartridge syringe.
- 2/Local anesthetic solution (2% lignocaine HCl with 1:80.000 adrenaline) of a standard expiry date.
- 3/Cotton applicator stick.
- 4/QD stainless steel dental needles (30-gauge long needle).

Seventy patients attending the Dept. of Oral Surgery, Dental Faculty, Mosul University were chosen for the study. The patients were of different ages (20-45) and sexes. All of them required palatal anesthesia for the purpose of extraction of a tooth after a final diagnosis have been made indicating an irrestorable case. The patients were all medically fit, had no previous history of allergic reactions to local anesthetic solutions and were informed of the purpose of this study before it was commenced. Topical anesthesia was not used to avoid masking of pain sensation.

The approach described was performed as follows and as recommended by Malamed⁽¹⁾ and Jastak *et al.*⁽²⁾:

- ☞ With the patient in a comfortable position in the dental chair, the mouth is opened to its full for good visual and mechanical access.
- ☞ A cotton applicator stick is applied to the palatal tissue with considerable pressure over the area which was to receive a needle injection.

- ☞ The stick should be pressed firmly enough to produce blanching of the normally pink tissues over the injection site.
- ☞ Pressure should be present for at least 30 seconds before needle penetration and should be maintained throughout the time the needle remains in the palatal soft tissue.
- ☞ With the stick firmly applied and dental needle placed in position beneath the palatal soft tissue, a few drops of local anesthetic solution is deposited slowly and any pain sensed was stated by the patient.

In regard to pain score level, pain experienced was evaluated according to a numerical value indicating its severity and as stated honestly by the patient⁽³⁾.

The score was as follows:

0 = No pain experienced at all

1-3 = Mild pain only, not bothering

4-6 = Moderate pain, bothering but bearable

7-10 = Severe unbearable pain

For the purpose of comparison and for reducing the variable pain response as much as possible between different subjects, another palatal injection on the contralateral side of palate on the same patient was performed in the usual conventional way. All of injections were performed by the researcher to avoid any operator-mediated errors. The approach is shown in figures (1), (2) and (3).

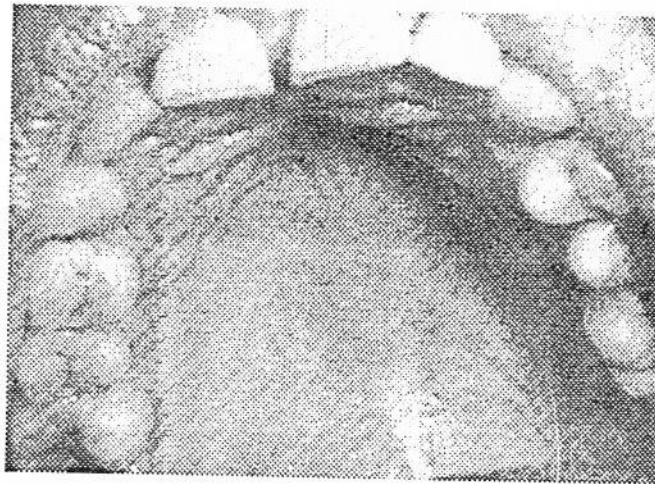


Figure (1): Full mouth opening is essential for visual and mechanical access

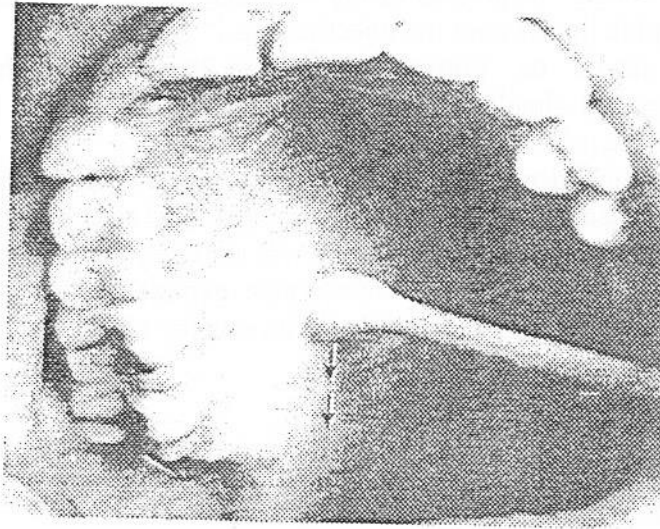


Figure (2): The cotton applicator is placed firmly over site of injection

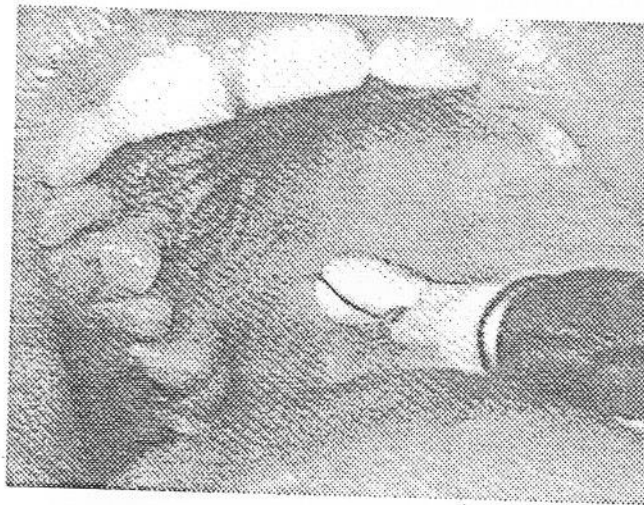


Figure (3): Continuous application of pressure during the injection is essential

RESULTS AND DISCUSSION

The number of males and females involved in the study is shown in table (1):

Table (1): The number of patients according to sex

| Males | Females |
|-------|---------|
| 45 | 25 |

The pain score level recorded on the contra lateral side on the same patient (conventional injection) is shown in table (2):

Table (2): Pain score level on the contra lateral side of same patient

| Pain Score Level | No. of Patients | % |
|------------------|-----------------|-----|
| 0 | 1 | 1.4 |
| 1-3 | 17 | 24 |
| 4-6 | 42 | 60 |
| 7-10 | 10 | 14 |

The pain score level recorded on the ipsilateral side of same patient (new approach) is shown in table (3):

Table (3): Pain score level on the ipsilateral side of same patient

| Pain Score Level | No. of Patients | % |
|------------------|-----------------|----|
| 0 | 52 | 75 |
| 1-3 | 18 | 25 |
| 4-6 | | |
| 7-10 | | |

The statistical analysis test conducted was the (F-test). The overall results showed a highly significant difference in success rate $p > 0.01$ for the ipsilateral side when compared with the contralateral side of same patient.

On the ipsilateral side, total absence of pain sensation was (75%) out of all injections when compared with only (1.4%) on the contralateral side.

This might indicate the success of pressure application hence the backup of the Gate control theory⁽⁴⁾.

Mild unbothering pain sensation was experienced by (25%) of patients on the ipsilateral injections and (24%) in contralateral injections. However, neither moderate nor severe unbearable pain was experienced on the ipsilateral side when compared to the contralateral side where (60%) of patients experienced moderate pain and (14%) experienced severe pain supporting the fact that conventional palatal injections are usually painful^(1,2,3).

In regard to mild pain experienced on the ipsilateral side (25% of injections), this may have indicated inadequate pressure applied hence the complete takeover of pressure sensation over pain sensation^(4,5).

As an overall, the majority of patients stated that this approach was very comfortable to them when they compared it with the contralateral injections performed on their palates. Some who remembered receiving a previous injection in the past also stated that the present one was very comfortable and suggested it to be used from now on.

No complication following this approach was reported. In addition, the ischemia produced by the pressure applied was only transient and disappeared after the cotton applicator stick was removed from the mouth.

With the kind exception of the authors who suggested this approach^(1,2), unfortunately, little current information is available in the literature describing the success of this approach^(5,6). However it is of extreme importance to state that adopting any new approach which is safe and comes for the total comfort and benefit of patient should not be ignored.

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