

ORIGINAL ARTICLE

ASSESSMENT OF FREQUENCY OF POST-TREATMENT PAIN AFTER SINGLE AND MULTIPLE SITTING ENDODONTIC THERAPIES: A COMPARATIVE STUDY

Karishma Mujawar¹, Monica Kedia², Archana Jain³, Chitral Chugh³, Komal Bajaj³, Gurinder Singh³

¹Senior Lecturer, Department of Conservative dentistry, Tatyasaheb Kore Dental College and Research Centre, Kohlapur, ²PG student, Department of Conservative dentistry, JCD Dental college, Sirsa, ³PG student, Department of Conservative dentistry, MM College of dental sciences & research, Mullana (Ambala).

ABSTRACT:

Background: Root canal therapy and tooth extraction are amongst the most commonly administered treatments for pain relief. Blocking the nociceptive impulses during root canal treatment is performed with the administration of local anaesthesia, whereas reducing the nociceptive input is managed by prescribing a medicament such as non-steroidal anti-inflammatory drugs to prevent prostaglandin formation at the site of injury. Hence, we plan the present study assess the relationship between the frequency of post-operative pain and the type of root canal therapy .i.e. single sitting or multiple sitting. **Materials & methods:** The present study included assessment of 100 patients undergoing single sitting and multiple sitting root canal therapies. All the patients were divided into two study groups. One group consisted of patients undergoing single sitting endodontic therapy while the other group consisted of patients undergoing multiple sitting endodontic therapies. Incidence of pain was assessed at different time intervals and compared. All the results were compiled and analyzed. **Results:** At pre-treatment time, VAS value for subjects in single sitting and multiple sitting groups was 28.32 and 32.57 respectively. Non- Significant results were obtained while comparing the VAS score sin between the two study groups at different time intervals. **Conclusion:** No significant reduction in the frequency of post-treatment pain occurs in patients undergoing multiple sitting root canal therapy.

Key words: Multiple sitting, Pain, Single sitting

Corresponding author: Dr. Karishma Mujawar, Senior Lecturer, Department of Conservative dentistry, Tatyasaheb Kore Dental College and Research Centre, Kohlapur

This article may be cited as: Mujawar K, Kedia M, Jain A, Chugh C, Bajaj K, Singh G. Assessment of frequency of post-treatment pain after single and multiple sitting endodontic therapies: A comparative study. J Adv Med Dent Scie Res 2017;5(1):95-98.

Access this article online

Quick Response Code 	Website: www.jamdsr.com
	DOI: 10.21276/jamdsr.2017.5.4.21

INTRODUCTION

Pain in the tooth is highly prevalent in the community that makes patients to seek for necessary pain-relieving treatments. Root canal therapy (RCT) and tooth extraction are amongst the most commonly administered treatments for pain relief.¹ During the past two decades new advances such as introduction of biomaterials, application of dental operating microscope during surgical and nonsurgical treatments and improvement of engine-driven instruments for root canal preparation have led to higher success rate in endodontic treatment.²⁻⁴ Pain management strategies during root canal treatment can be based on one or a combination of these mechanisms. Blocking the nociceptive impulses during root canal treatment is performed with the administration of local anaesthesia, whereas reducing the nociceptive input is

managed by prescribing a medicament such as non-steroidal anti-inflammatory drugs to prevent prostaglandin formation at the site of injury.⁵⁻⁷ Hence, we plan the present study assess the relationship between the frequency of post-operative pain and the type of root canal therapy .i.e. single sitting or multiple sitting.

MATERIALS & METHODS

The present study was conducted in the department of conservative dentistry of the dental institution and included assessment of pain in patients undergoing single sitting and multiple sitting root canal therapy. Ethical approval was taken from the institutional ethical committee and written consent was obtained after explaining in detail the entire research protocol. Exclusion criteria for the present study included:

- Patients with history of any other systemic illness,
- Patients with any known drug allergy,
- Patients who were pregnant,
- Patients taking antibiotics or corticosteroids at the time of treatment,
- Patients with immune-compromised state,
- Patients with age less than 18 years

Just a single tooth with a solitary base of every patient was incorporated, and the pulpal imperativeness assurance depended on both the consequences of electric mash analyzer. The imperativeness of pulps was at last affirmed by direct clinical perception of drain in the trench, without considering the clinical conclusion just like an ordinary mash, reversible pulpitis, or irreversible pulpitis. All teeth had totally framed foramina and no calcified waterways, which were to begin with assessed by preoperative peri-apical radiographs. A total of 100 patients aged between 18 to 40 years were included in the present study. Patients were randomly divided into two study groups. One groups consisted of patients which underwent single sitting root canal therapy while the other group consisted of patients who underwent multiple sitting root canal therapy. Modified Heft Parker visual analog scale was used in the present study. Patients were told to put a blemish on the even scale to speak to the force of torment understanding; moreover, they were made a request to utilize the verbal descriptors as a guide. Patients recorded their pre-agent torment level by utilizing a VAS within the sight of a clinician to guarantee that they comprehended the directions. After treatment, the patients were given the VAS shapes and reached by phone at each post-obturation interim to remind them to finish and restore the structures. In the wake of getting the VAS frames, the information was recorded for the staying four interims, which related to post-obturation times of 6, 12, 24, and 48 hrs. The standard method for both gatherings at the primary visit included neighborhood anesthesia, elastic dam seclusion, mash extirpation and standard get to arrangement. Taking after trench patency affirmation when an electronic apical area "0" perusing was accomplished by a size 10 K-record, channels were set up with a mix of hand documents and ProTaper motor driven revolving nickel-titanium records taking after the producer's direction. RC Prep was utilized as an oil. Water system was performed with 2.5% NaOCl after each instrument in all cases. Apical amplification was proficient by the completing instruments, which gone from F1 to F5 contingent upon the underlying width of the root waterways. At the main visit, all teeth were set up to working length and dried with paper focuses. Trenches in Group 1 were loaded with ProTaper widespread gutta-percha and AH in addition to sealer, utilizing a sidelong compaction method, and re-established with transitory helpful material, Cavit-G. Taking after instrumentation, teeth in Group 2 a clean dry cotton pellet was set in the mash chamber and the get to be briefly fixed utilizing

Cavit-G. Patients in Group 2 returned for the second visit 1 week later when the root waterways were filled and teeth briefly re-established utilizing an indistinguishable method and materials from in Group 1. Albeit, no systemic drug was recommended, the patients were told to take 600 mg ibuprofen just in the event that they encountered terrible torment. They were made a request to record the most extreme agony level before they took the analgesics. Any patient with insufferable torment was asked for to visit the clinician for crisis treatment. Forty-eight hrs after obturation, every one of the patients come back to the center with the VAS frames and detailed the event of post-obturation torment.

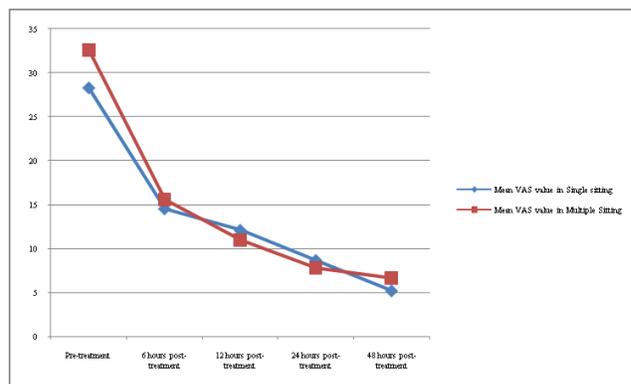
RESULT

VAS values for all the cases are shown in **Table 1** and **Graph 1**. At pre-treatment time, VAS value for subjects in single sitting and multiple sitting groups was 28.32 and 32.57 respectively. At 6 hours' time post-operatively, the mean VAS values in single sitting and multiple sitting groups are 14.56 and 15.62 respectively. Non- Significant results were obtained while comparing the VAS score sin between the two study groups at different time intervals.

Table 1: Correlation of VAS measurement for all the cases

Time interval	Mean VAS value in		p-value
	Single sitting	Multiple Sitting	
Pre-treatment	28.32	32.57	0.52
6 hours post-treatment	14.56	15.62	0.67
12 hours post-treatment	12.12	11.02	0.54
24 hours post-treatment	8.69	7.85	0.78
48 hours post-treatment	5.22	6.68	0.31

Graph 1: VAS measurement for all the cases



DISCUSSION

Torment administration amid and after root trench treatment is a noteworthy test for dental experts. Various abnormal states of confirmation examinations have been performed to defeat torment amid and taking after root trench treatment.^{8,9} Some of the time, a mediation may be

performed amid treatment to oversee post-agent torment for instance, to avert torment recognition in the focal sensory system which can be accomplished by both endorsing a NSAID and by utilizing a long acting analgesic operator.^{10- 12}Hence, we plan the present study assess the relationship between the frequency of post- operative pain and the type of root canal therapy .i.e. single sitting or multiple sitting.

In the present study, we observed that in patients undergoing multiple sitting root canal therapy, no significant decrease in the incidence of post-treatment pain occurs in comparison to patients undergoing single sitting root canal therapy. Wang C et al compared the incidence and intensity of post-obturation pain after one- or two-visit root canal treatment (RCT) on anterior teeth with vital pulps and a single root and canal in a randomized controlled trial. One hundred patients requiring RCT on permanent anterior teeth with vital pulps preoperatively were included. The patients were assigned randomly into two groups of 50 patients each. After local anaesthesia, isolation, access and pulp extirpation, the canals of all teeth were prepared using engine-driven rotary ProTaper nickel-titanium instruments in a crown-down technique and irrigated with 2.5% NaOCl. The teeth in group 1 (n = 50) were filled with AH Plus sealer and gutta-percha using a lateral compaction technique at the first visit, whilst those in group 2 (n = 50) were medicated with a calcium hydroxide paste, a sterile dry cotton pellet and Caviton and scheduled for a second visit 7 days later. A modified verbal descriptor scale was used to measure preoperative pain and post-obturation pain at 6, 24, 48 h and 1 week after operation. Eleven patients were excluded from the study as they failed to follow the scheduled revisit or their selected teeth had more than one root canal. Data were obtained from the remaining 89 patients. Forty-three patients were undergoing one-visit treatment (group 1) and 46 undergoing two-visit treatment (group 2). Most patients in both groups reported no pain or only slight pain within each post-obturation interval, only one in group 1 and one in group 2 had flare-ups and slight swelling. There was no statistically significant difference in the incidence and intensity of post-obturation pain experienced by two groups. The incidence and intensity of post-obturation pain experience following one- or two-visit RCT on teeth with vital pulps and a single canal were not significantly different.¹³

RaoKN et al investigated and compared the post-obturation pain after one-visit and two-visit root canal treatment in non-vital anterior teeth. One hundred forty eight patients requiring root canal therapy on permanent anterior non-vital teeth with single root were included in this study. Patients were randomly assigned to either the one-appointment or the two-appointment group. The standardized protocol for all the teeth involved local anesthesia, isolation and access, engine-driven rotary nickel-titanium canal instrumentation with 2.5% NaOCl

irrigation and obturation. Teeth in group 1 (n = 74) were obturated during the first appointment by using laterally condensed gutta-percha and resin sealer. Teeth in group 2 (n = 74) were given closed dressing and were obturated during the second appointment, 7 to 14 days later. A modified Visual Analogue Scale was used to measure pain after 6 hours, 24 hours, 48 hours and 7 days after the treatment. The incidence and intensity of post-obturation pain in both Group 'A' and Group 'B' gradually reduced over the study period. When the incidence of pain was compared in the single and two visit group, it was found that the single-visit group experienced slightly less pain than the two-visit group during all study intervals, but the difference found was not statistically significant. There was no difference in postoperative pain between patients treated in only one appointment and patients treated in two appointments. The majority of patients in both groups reported no pain or only minimal pain after 7 days of treatment.¹⁴

CONCLUSION

No significant reduction in the frequency of post-treatment pain occurs in patients undergoing multiple sitting root canal therapy. However, we recommend future studies for better exploration of this field of dentistry.

REFERENCES

1. Torabinejad M, Parirokh M. Mineral trioxide aggregate: a comprehensive literature review--part II: leakage and biocompatibility investigations. *J Endod.* 2010;36(2):190–202.
2. Parirokh M, Torabinejad M. Mineral trioxide aggregate: a comprehensive literature review--Part III: Clinical applications, drawbacks, and mechanism of action. *J Endod.* 2010;36(3):400–13.
3. Levenson D. Higher powered magnification improved endodontic surgery outcomes. *Evid Based Dent.* 2012;13(4):109
4. Roane JB, Dryden JA, Grimes EW. Incidence of postoperative pain after single- and multiple-visit endodontic procedures. *Oral Surg Oral Med Oral Pathol.* 1983;55:68–72.
5. Eleazer PD, Eleazer KR. Flare up rate in pulpally necrotic molars in one visit versus two visit endodontic treatment. *J Endod.* 1998;24:614–6.
6. Mulhern JM, Patterson SS, Newton CW, Ringel AM. Incidence of postoperative pain after one-appointment endodontic treatment of asymptomatic pulpal necrosis in single-rooted teeth. *J Endod.* 1982;8:370–5.
7. DiRenzo A, Gresla T, Johnson BR, Rogers M, Tucker D, BeGole EA. Postoperative pain after 1-and 2-visit root canal therapy. *Oral Surg Oral Med Oral Pathol.* 2002;93:605–10.
8. Wang C, Xu P, Ren L, Dong G, Ye L. Comparison of postobturation pain experience following one-visit and two-visit root canal treatment on teeth with vital pulps: A randomized controlled trial. *IntEndod J.* 2010;43:692–7.
9. Dressman AS, Nusstein J, Drum M, Reader A. Anesthetic efficacy of a primary articaine infiltration and a repeat articaine infiltration in the incisive/mental nerve region of

- mandibular premolars: a prospective, randomized, single-blind study. *J Endod.* 2013;39(3):313–8.
10. Parirokh M, Rekabi AR, Ashouri R, Nakhaee N, Abbott PV, Gorjestani H. Effect of occlusal reduction on postoperative pain in teeth with irreversible pulpitis and mild tenderness to percussion. *J Endod.* 2013;39(1):1–5.
 11. Bernson JM, Hallberg LR, Elfstrom ML, Hakeberg M. 'Making dental care possible: a mutual affair': a grounded theory relating to adult patients with dental fear and regular dental treatment. *Eur J Oral Sci.* 2011;119(5):373–80.
 12. Kennedy S, Reader A, Nusstein J, Beck M, Weaver J. The significance of needle deflection in success of the inferior alveolar nerve block in patients with irreversible pulpitis. *J Endod.* 2003;29(10):630–3.
 13. Wang C1, Xu P, Ren L, Dong G, Ye L. Comparison of post-obturation pain experience following one-visit and two-visit root canal treatment on teeth with vital pulps: a randomized controlled trial. *IntEndod J.* 2010 Aug;43(8):692-7.
 14. Rao KN, Kandaswamy R, Umashetty G, Rathore VP, Hotkar C, Patil BS. Post-Obturation pain following one-visit and two-visit root canal treatment in necrotic anterior teeth. *J Int Oral Health* 2014;6(2):28-32.

Source of support: Nil

Conflict of interest: None declared

This work is licensed under CC BY: *Creative Commons Attribution 3.0 License.*