

## Comparative Assessment Of Post-Obturation Pain After Single Over Multiple Visit Endodontic Procedure

Research Article

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### Abstract

**Introduction:** Successful endodontic procedure is depending on three dimensional obturation of the canal along with absence of any pathology and post-operative pain. Endodontic procedure can be done as single of multi visit procedure.

**Objectives:** This study was done to compare post-obturation pain at single over multiple visit endodontic procedure.

**Material and Method:** One hundred participants were participated in the present study. The sample size was classified into two groups i.e Group-I with 50 subjects with single visit endodontic procedure and Group-II with 50 subjects underwent two sitting endodontic procedure, who reported back with the VAS reporting form. Pain score was noted using a Heft- Parker visual analogue scale (VAS) method. Each patient was allotted a value between 0 and 170 on the VAS scale. Statistical evaluation was done using SPSS Inc., Chicago, IL, USA version SPSS 21 using Chisquare test at  $p < 0.005$

**Results:** There was no change in postoperative pain amongst participants treated in one appointment compared to those treated in two appointments. Most of the patients in both groups presented no pain or only slight pain within 24 to 48 hours of procedure.

**Conclusion:** Post-obturation pain after endodontic therapy was not uncommon after one day, second day but there was less pain or no pain after seven days. Amongst the teeth with post-obturation pain, the single-visit group had lower-intensity pain, after one day, two days and after seven days, than the multiple-visit group.

**Keywords:** Endodontic; Post-Obturation Pain; Single-Visit Root Canal; Treatment.

### Introduction

Successful endodontic procedure is depending on three dimensional obturation of the canal along with absence of any pathology and post-operative pain. Pain is a complex, personal experience and attempts to make valid assessments of it have been faced with difficulties. The visual analogue scale (VAS) is widely used for evaluating pain experience. The technique has also been beneficial to consideration after anxiety, sleep, quality of life, breathlessness, nausea, and attitudes concerning the environment [1]. Patients typically complain of post-obturation pain after endodontic procedure. The pain severity can range from mild to severe, and it is

extensively described as occurring in flare-ups. The duration of the pain can range from one day to few weeks and can be a main cause of patient disappointment [2].

Postoperative pain after nonsurgical root canal treatment has been described to range from approximately 3% to more than 50% [3]. Pain concern with root canal procedure is a poor presentation of pathosis and an even more variable predictor of long-term success [4].

One-appointment root canal treatment is usually considered to be efficient, but the incidence of postoperative pain and long-term healing continue unreturned. The majority of the investigation

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to date has exposed either no significant change in postoperative pain when 1-visit root canal treatment is compared with multiple-visit treatment or less pain with 1-visit treatment. But, numerous of these studies were prospective or retrospective studies without satisfactory controls or randomization. Prospective, randomized studies are usually thought to offer the maximum level of support for evidence-based clinical practice [1]. Wong et al from their study found no difference in pain with single or multiple visit endodontics after one day and seven-day post operatively [2].

Present study was done to evaluate the post-obturation pain at 1, 2 and 7 days after single-visit and multiple-visit endodontic treatment.

## Material And Methods

This study was done in the department of conservative dentistry and endodontics. The study consists of patients who visited the department for their endodontic treatment. Ethical consent was attained from the institutional ethics committee. This study was conducted from August 2017 to June 2019.

Inclusion criteria were; cases which presented with preoperative clinical signs like the presence of chronic periapical abscess with or without the sinus tract formation, tender on percussion, apical periodontitis, presence of pain and tooth mobility (1 mm in horizontal plane). As per the exclusion measures, teeth which have already undergone pulpotomy were omitted in present study. Apart from this, pregnant women, patients using antibiotics or corticosteroids at the time of treatment, immune compromised patients, patients with systemic conditions, were excluded from the study. One hundred subjects were included in the present study. The sample were divided into two groups i.e Group-I with 50 patients underwent single sitting endodontic procedure and Group-II with 50 patients underwent two sitting endodontic treatment, who reported back with the VAS reporting form. Pain score was recorded by using a Heft- Parker visual analogue scale (VAS) method.

The study was explained to the patient preoperatively and a written informed consent was obtained from each patient. For pain intensity recording, we used a 170 mm Heft- Parker visual analogue scale (VAS). The scale was clarified to the patient during the study. They could place a mark anywhere on the horizontal VAS scale and assign a value between 0 and 170. With this scale initially a preoperative pain level was assessed for each patient in front of the observer, to ensure that they understood the method of pain assessment. Later each patient was asked about their 1-day 2 days and 7-days post-obturation pain, using this assessment scale. They were given printed forms of the scale with a questionnaire and asked to rate their pain. These forms were collected from each patient on their 7th day visit to the department. A standard instrumentation and obturation technique was followed for all cases.

Obtained data was statistically analysed using SPSS 20 for Windows (SPSS Inc., Chicago, IL, USA) using Chi square test to compare the results of the groups and get the levels of significance. For evaluation of variables multivariate analysis was done.  $p < 0.005$  was considered as significant.

## Results

Table 2 shows pain scoring response. It was found that 32.2% of cases in Group 1 and 58.8% cases in Group 2 presented with preoperative pain with a mean VAS score of 52.23 and 63.43 respectively. Post-operative pain after 1 day was observed 28.03 % in group1 and 30.4% in group 2 patients with a mean VAS score of 22.75 and 31.24 respectively. When compared with the variable features used in the study it was found that teeth which were vital, presented lower incidence of post-obturation pain after one day of the treatment. Later Post-operative pain recorded after 2 days was 10.9% in group1 and 13.5 % in group 2 patients with a mean VAS score of 12.13 and 15.12 respectively and after that 7 days was 4.3% for group 1 and 8.7 % for group 2, with a mean VAS score of 7.22 and 10.31 respectively (Table-2).

## Discussion

The incidence of postoperative pain is the major worry of the endodontist for the purpose of assessing the success of the procedure. Multiple visit endodontic procedure has been usually used by the endodontist. But with the success rate of single visit endodontics, this method has also become common in clinical practice. Post operative pain is based on multiple influences and variables [2].

It is well known that Pain is a complex experience which is affected by many intrinsic and extrinsic factors. Several approaches have been used for valuation of pain till date by different researchers. The visual analogue scale (VAS) is one of such psychometric response pain assessment scale, which has been proven to show superior metrical characteristics than other discrete scales used for pain assessment. Thus due to its improved results and reliability this scale has been extensively used by many investigators. In present study we used modified Heft-Parker VAS scale as used by Di Renzo et al., in their study for pain assessment [3]. In this scale word values ranging from 0-170 can be recorded for pain intensity [4, 5]. Heft and Parker stated that the unsatisfactory spacing of words on the scale represents an accurate reproduction of how patients perceive spacing [6, 7].

Fox et al., in their study found no significant correlation between pulp vitality and the incidence of postoperative pain, similar to our findings [8]. Our results are consistent with those of the majority of the published reports on this topic that is, postoperative pain related with one appointment root canal treatment is generally the same as postoperative pain associated with multiple-visit treatment [9-13]. In conflicting to our findings DiRenzo et al stated that pulp extirpation alone is the most significant factor in reduction of postoperative pain, regardless of other variables [3]. It is well recognized that pain responsiveness is a vastly subjective and variable experience moderated by multiple psychological and physical factors. Ali et al., observed from their study that post obturation pain was 4% for initial 48 hours and it reduces after 24 hours [14]. Su et al similar to our finding observed less frequency of short-term post-obturation pain after single-visit than those having multiple-visit root canal treatment [15]. Mattigatti et al evaluated Attitude, Knowledge, and Beliefs on Single Visit vs Multi-Visit Endodontics and found that many of the participants consider a single visit is a speciality job and younger generation adopted recent equipment and techniques [16]. In present study we observed decrease of pain intensity with time in both the groups.

Table 1. Variables used in the study.

Variables	Group 1 (n=50)	Group 2 (n=50)
GENDER:		
Male	28 (56%)	24 (48%)
Female	22 (44%)	26 (52%)
AGE (mean)	37.3 yrs	36.2 yrs
TOOTH:		
Anterior	10 (20%)	08 (16%)
Posterior	40 (80 %)	42(84 %)
ARCH:		
Maxillary	24(48 %)	21 (42 %)
Mandibular	26 (52 %)	29 (58 %)
TOOTH VITALITY:		
Vital	33 (66 %)	12 (24 %)
Non vital	17 (34 %)	38 (76 %)

n- number,

Table 2. Mean VAS intensity at different time intervals for both the groups.

Time interval	Percentage of Patients Presenting Pain in each Group		Mean VAS score (0-170)	
	Group 1 (N=50)	Group 2 (N=50)	Group 1	Group 2
Preoperative Pain	32.20%	58.80%	52.23	63.43
24 Hours (1 day) Postoperative Pain	28.03%	30.40%	22.75	31.24
48 Hours (2 days) Postoperative Pain	10.90%	13.50%	12.13	15.12
7 Days Postoperative Pain	4.30%	8.70%	7.22	10.31

VAS-visual analogue scale; n- number; test used-chi square test

It is quite tough to correlate results from numerous studies because instrumentation and obturation techniques vary widely, mainly in studies that are more than several years old. The incidence of postoperative pain is one of the major concerns when evaluating endodontic treatment alternatives [3]. Under the conditions of this prospective study, we observed no variance in postoperative pain between patients treated in 1 appointment and patientstreated in 2 appointments, nevertheless of preoperative diagnosis or tooth location.

Our results are helpful in clinical management of the patients requiring endodontic treatment. Further clinical research is required on larger sample size in diverse population in different geographic location to evaluate the pain perception.

## Conclusion

In present study, post-obturation pain after endodontic procedure was common after one day, but there was lower pain or no pain

after 7 days. There was no significant alteration in the incidences of post obturation pain after 1 day, 2 day and 7 days between single-visit and multiple-visit endodontic therapy.

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