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Research Article

**POSTOPERATIVE PAIN AFTER SINGLE VISIT
ENDODONTIC RETREATMENT-AN EXPERIMENTAL
STUDY****Dr. Permanend¹, Dr. Sunny², Dr. Fozia Rajput³, Dr. Chander Kumar⁴,
Dr. Kelash Kumar⁵, Dr. Abdul Haseeb Kath⁶**¹ BDS, MSc, Assistant Professor Operative Dentistry, Bhitai Medical and Dental College, Mirpurkhas² BDS, FCPS II trainee Operative Dentistry, Liaquat University of Medical and Health sciences, Jamshoro³ BDS, FCPS, Associate Professor Operative Dentistry, Liaquat University of Medical and Health sciences, Jamshoro⁴ BDS, MCPS Associate Professor, Periodontology, Dow Dental College (DUHS), Karachi,⁵ BDS, FCPS, Assistant Professor Operative Dentistry, Baqai Dental College, Karachi⁶ BDS, Registrar Operative Dentistry, Baqai dental college, Karachi**Article Received:** November 2019 **Accepted:** December 2019 **Published:** January 2020**Abstract:****Objective:** Objective of the study was to assess the postoperative pain after single visit endodontic treatment.**Study design:** An experimental study, **Methodology:** Total 60 patients participated in the study. Before starting the treatment procedure, preoperative pain score was recorded using VAS scale. After local anesthesia teeth were isolated with rubber dam and previous filling material removed and access was gained to the orifice level. The removal of previous root canal fillings were performed with Gates Glidden drills, protaper retreatment files. Working length was measured with apex locator and verified with radiograph. Complete cleaning and shaping performed with protaper files with simultaneous irrigation with 2.5% NaOCl. Final irrigation was made with saline. Canals were dried with paper points and obturated with gutta percha single cone technique with sealapex. Orifices were sealed with Glass ionomer cement and temporarily restored. Patients were recalled after 24 hour and 7 days for the assessment of postoperative pain on VAS. On 7th day patients with severe postoperative pain and/or occurrence of swelling were taken as not effective and patients with no pain were nominated as effective. Data was statistically analyzed on statistical package of social sciences SPSS version 17. **Results:** Mean age of patients included in the study 30.92 ±7.301, with minimum 22 years and maximum 47 years. Male patients were 28 and female patients were 32. Preoperative pain recorded on VAS as 27% patients with mild pain and 33% with moderate pain. Postoperative pain after 24 hours recorded as 23% no pain, 29% mild pain and 8% moderate pain. Postoperative pain after 7 days recorded as 38% no pain, 21% mild pain and 1% moderate pain. **Conclusion:** It could be concluded that one visit endodontic retreatment reduces postoperative pain gradually in endodontically retreated symptomatic teeth.**Key words:** Postoperative pain, Single visit endodontic retreatment, endodontically treated teeth**Corresponding author:****Dr. Kelash Kumar,**

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INTRODUCTION:

Postoperative pain is very displeasing situation for the patients after root canal treatment and its occurrence is the poor indicator for the long-term success of the treatment. Several factors affect its occurrence includes, microbiological, biomechanical preparation of root canal, number of attempts either single or multiple visit, medication used and expertise of the dentist as well.¹

Postoperative pain has been studied several times in cases of primary endodontic treatment. In nonsurgical endodontic retreatment the rate of flare-up reported to be significantly higher than in primary treatment cases.² Endodontic retreatment procedures are cumbersome and time consuming. In spite of controlled biomechanical preparation confined to working length, previous root canal filling material, irrigants and debris extrude through the apical foramen and results in postoperative pain.³

Calcium hydroxide is the gold standard intracanal dressing material used in interappointment period during multiple visit treatment. However it is not effective against all microorganisms found in root canal. Single visit root canal treatment has been carried out as a primary mode of endodontic treatment since last few decades.⁴ The recent novelty of rotary nickel-titanium systems and developments in the understanding of irrigation dynamics have simplified the mechanical instrumentation and disinfection of the root canal, which makes a single-appointment treatment a more practical and acceptable treatment regimen than multiple appointments.⁵ For non-surgical endodontic retreatment single visit protocol is matter of concern these days and if it is performed following standard protocol. A single visit root canal treatment is more advantageous than multiple visits in terms of time and cost.⁶

The purpose of this study was to assess the occurrence of postoperative pain in endodontic retreatment cases. The hypothesis is that the intensity of postoperative pain is lower in single-visit retreatments than in multiple-visit retreatments.

METHODOLOGY:

A cross sectional study was conducted in department of Operative Dentistry, Bhitai medical and dental college, Mirpurkhas. The study population was selected from those patients requiring conventional endodontic retreatment who

presented at the out-patient department clinic from January 2019, through July, 2019. Total 60 patients were included having mild and moderate pain preoperatively, periapical index (PAI) 1 and 2 confirmed radiographically. The patients were excluded from the study having complicating systemic disease, severe pain and/or acute apical abscess, below 18 years of age, antibiotic or corticosteroid use.

Before starting the treatment procedure, preoperative pain score was recorded using VAS scale. After local anesthesia with lidocaine 2% with adrenaline 1:80,000 teeth were isolated with rubber dam and previous filling material removed and access was gained to the orifice level. The removal of previous root canal fillings were performed with Gates Glidden drills, protaper retreatment files. Working length was measured with apex locator and verified with radiograph. Complete cleaning and shaping performed with protaper files with simultaneous irrigation with 2.5% NaOCl. Final irrigation was made with saline. After confirming the working length with master cone radiograph, canals were dried with paper points and obturated with gutta percha single cone technique with sealapex. Orifice were sealed with Glass ionomer cement and temporarily restored. The patients were instructed to take mild analgesics if they experienced pain. Patients were recalled after 24 hour and 7 days for the assessment of postoperative pain on VAS. On 7th day patients with severe postoperative pain and/or occurrence of swelling were taken as not effective and patients with no pain were nominated as effective. Data was statistically analyzed on statistical package of social sciences SPSS version 17.

RESULTS:

Total 60 patients were included the study.

Mean age of patients included in the study 30.92 ±7.301, with minimum 22 years and maximum 47 years as shown in Table.1

Male patients were 28 and female patients were 32 as shown in Table.2

Preoperative pain recorded on VAS as 27% patients with mild pain and 33% with moderate pain as shown in Table.3

Postoperative pain after 24 hours recorded as 23% no pain, 29% mild pain and 8% moderate pain as shown in Table.4

Postoperative pain after 7 days recorded as 38% no pain, 21% mild pain and 1% moderate pain as shown in T able.5

Table-1 : Age of Patients

	N	Minimum	Maximum	Mean	Std. Deviation
AGE OF PATIENTS	60	22	47	30.92	7.301

Table-2: Gender of Patients

	Frequency	Percent
MALE	28	28.0
FEMALE	32	32.0
Total	60	60.0

Table-3: Preoperative pain

	Frequency	Percent
Mild Pain	27	27.0
Moderate Pain	33	33.0
Total	60	60.0

Table-4: Postoperative pain after 24 hour

	Frequency	Percent
No Pain	23	23.0
Mild Pain	29	29.0
Moderate Pain	8	8.0
Total	60	60.0

Table-5: Postoperative pain after 7 days

	Frequency	Percent
No Pain	38	38.0
Mild Pain	21	21.0
Moderate Pain	1	1.0
Total	60	60.0

DISCUSSION:

The aim of this cross sectional study was to assess the postoperative pain after single visit root canal retreatment. Patients participated in the study were male and female with mean age of 30.92 ± 7.301 . Patients with mild and moderate pain were included for the treatment as patients with severe pain may have risk of flare up during retreatments cases. Among them, the visual analog scale (VAS)

is considered to be a valid and reliable ratio scale for measurement of pain. However, it is well known that pain perception is a highly subjective and variable experience modulated by many factors. Therefore, in this study, the level of discomfort was rated in only 4 categories such as no pain, mild pain, moderate pain and severe pain, in order to simplify pain rating. Calcium hydroxide is commonly used for intracanal medication.

However, specific microorganisms, such as *E faecalis* and *Candida albicans* are resistant to Ca (OH)₂.⁷

Preoperative pain was recorded in patients as mild pain 27% and moderate pain 33% and postoperative pain after 24 hours reduced to 23% no pain, 29% mild pain and 8% moderate pain. This lies in agreement with the study given by Siqueira *et al* and Mattscheck *et al*.^{9,10}

In the study by Walton and Fouad, **no** difference in terms of interappointment flare-ups between single versus multiple visits and conventional versus retreatment was found, even though they did not use any interappointment medicaments, dressings, or disinfectants.¹¹

Postoperative pain after 7 days of treatment resulted in more reduced cases of pain severity in this study.

The results of this study showed that the 1-visit root canal treatment without interappointment Ca(OH)₂ dressing could be more effective in eliminating pain than the 2-visit root canal treatment in previously symptomatic retreatment cases. But it should be remembered that microbial injury to the periapical tissues is not the single cause of postoperative pain. Apical extrusion of contaminated debris, irrigants and medications or over instrumentation may also cause postoperative pain.

In recent years, 1-visit endodontic therapy has gained popularity. The popularity of single-visit treatment can be credited to favorable reports which showed no difference in treatment complications or success rates when compared with teeth treated in multiple visits.⁹

CONCLUSION:

According to the results of this study, it could be concluded that one visit endodontic retreatment reduces postoperative pain gradually in endodontically retreated symptomatic teeth.

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