

Do Patients have the Same Experience of Pain Following Tooth Extraction and Dental Implants?

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Abstract

Introduction: Postoperative pain is an important concern for patients who need dental implants. This study aims to compare the experience of pain in patients who undergo tooth removal and dental implant surgery. **Materials and Methods:** This is a crossover study. Patients who underwent a simple tooth extraction and dental implant surgery were studied. The pain severity was assessed using a visual analog scale at 12, 24, 48, and 72 h after procedures. The repeated measure test was used to compare pain severity between two treatment sessions. **Results:** Forty patients were studied. Patients reported higher pain levels in a tooth extraction at study times than implant surgery ($P = 0.001$). **Conclusion:** It seems patients who had experience of tooth extraction and a dental implant placement reported significantly lower pain in implant surgery.

Keywords: Dental anxiety, dental implants, pain, tooth extraction

INTRODUCTION

Patients' satisfaction following dental implant surgeries is an important part of treatment. Patients sometimes do not have any experience before dental implant treatments. One common question is regarding the amount of pain after surgery. Many patients who seek dental care suffer from anxiety.^[1] It was reported that 3%–5% of patients have dental phobia, whereas up to 40% are scared by dental treatments.^[2] Though pain experienced in dental implant treatment is mild and gradually reduces over time, anxiety leads to many patients being discouraged from this treatment option.^[3]

Most patient have previously experienced tooth extraction before dental implant surgery. Understanding the relationship between the pain experienced during tooth extraction and dental implant treatment will help dental surgeons better understand the reason behind the patient's anxiety.

The purpose of this study is to compare the pain experienced by patients undergoing tooth extraction and dental implant treatment. We hypothesized that patients had the same level of pain severity. Therefore, this study aims to compare the

experience of pain in patients who undergo tooth removal and dental implant surgery.

MATERIALS AND METHODS

The authors designed a crossover study. The sample was derived from the population of patients introduced to the Oral and Maxillofacial Surgery, Department of a teaching dental institution between September 1, 2017 and September 30, 2019. The committee has approved the research of the medical ethics group of the university (IR. SBMU. RIDS. REC.1396.599). Inclusion criteria included an unsavable mandibular first molar that underwent extraction and was replaced with a dental

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implant two months later. Patients were excluded from the study enrolment if they had an odontogenic infection, bone augmentation, or needed surgical tooth removal.

In session 1, patients underwent simple tooth extraction. Patients received Gelofen 400 mg 1 h before extractions. Chlorhexidine mouthwash was used before tooth extraction. Patients continue using Gelofen if they had severe pain.

In session 2, tissue-level dental implants (SP, Straumann, Switzerland) were placed. A crestal incision was made with two short releasing incisions. After subperiosteal dissection, drilling was done according to the Straumann guideline. A fixture with a 4.8-mm diameter was placed. The incision site was closed with 4-0 vicryl.

Pain severity was assessed as self-reported by using a visual analog scale (VAS) at 12, 24, 48, and 72 h after procedures. The pain severity was defined as mild,^[1-3] moderate,^[4-6] and sever^[7-10] based on VAS.

An oral and maxillofacial surgeon did all teeth extractions and implant surgeries. An examiner evaluated patients' reports on postoperative pain.

Statistical analysis

The statistical analyses were performed using the statistical package SPSS for PCs, version 21 (IBM Corporation, Armonk, New York, U.S.). The repeated measure test was used to compare pain severity between two treatment sessions. We considered value of *P* < 0.05 as statistically significant.

RESULTS

Forty patients (23 males and 17 females) were studied. The mean age was 43.45 ± 12.13 years. The mean of pain severity was 6.42 ± 0.90 in session 1 and 2.7 ± 0.90 in session 2 at 12 h after procedures. At 24 h after surgeries, the mean of pain severity was 5.1 ± 0.94 in session 1 and 1.67 ± 0.80 in session 2. The mean pain severity was 4.15 ± 0.83 in session 1 and 0.45 ± 0.68 in session 2 at 48 h after procedures. The mean of pain severity was 2.03 ± 80 in session 1 and 0.13 ± 0.33 in session 2 at 72 h after surgeries [Table 1 and Figure 1] The repeated measure test demonstrated significant differences for pain severity between sessions 1 and 2 (*P* = 0.001).

Table 1: Comparison of pain severity between sessions 1 and 2

Study times	Session 1	Session 2	<i>P</i>
Pain severity at 12 h after procedures	6.42±0.90	2.7±0.90	0.001
Pain severity at 24 h after procedures	5.1±0.94	1.67±0.80	0.001
Pain severity at 48 h after procedures	4.15±0.83	0.45±0.68	0.001
Pain severity at 72 h after procedures	2.03±80	0.13±0.33	0.001

DISCUSSION

Fear of dental procedures is a common problem worldwide.^[2] The cause of dental anxiety is multifaceted and contains psychological, behavioral, and environmental factors.^[4] Dental implant candidates sometimes do not have any experience with dental implant surgery and are anxious about postsurgery pain, which leads to reluctance to undergo such treatments.^[3] However, the majority of them have experience of tooth removal. Knowledge of pain severity following implant surgery and comparison with previous experience of a tooth removal could persuade them to accept dental implant treatment. In this study, pain experience was studied in patients who had experience of tooth extraction and dental implant placement.

In this study, patients had 2.7 times more pain in tooth extraction rather than implant surgery at 12 h, 3.05 times at 24 h, 9.1 times at 48 h, and 15.61 times at 72 h after procedures. It can be explained that the pain of dental implant surgery declined faster than tooth extraction with time. It was reported that postimplant surgery pain is mild with moderate inflammation. Pain is more intense in older patients, in patients receiving several implants, and associated with regenerative techniques.^[5,6] Urban and Wenzel reported that patients experienced low-to-moderate pain in combination with marginally severe swelling after immediate implant placement in the molar area with the regenerative procedure. Smokers had more pain in contrast to being >50 years.^[7]

Dental implant surgery is less traumatic and more controllable procedure than a tooth extraction. It may be the reason for having lower pain in dental implant surgery rather than tooth removal. The surgeon's experience, surgical difficulty, females, and early pain were associated with self-reported pain following dental implant surgery.^[8] Al-Khateeb and Alnahr *et al.* studied pain experience after simple tooth extraction. They reported that 82% of patients experienced moderate pain in the evening of extraction day, and up to 16% of patients experienced pain even after a week.^[9]

Pain during surgery is predictive for pain at 24 h, and pain

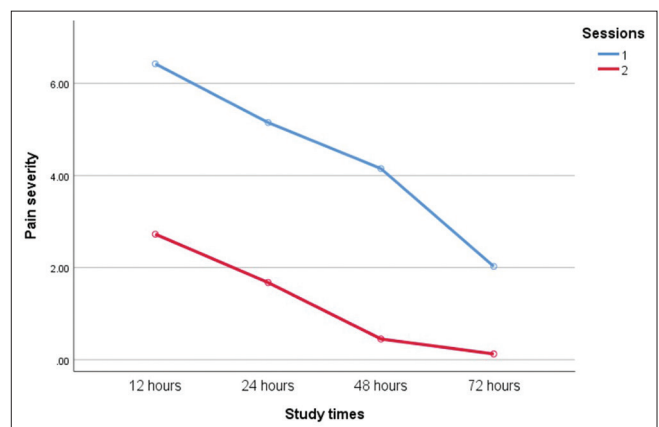


Figure 1: Pain severity in various study times in session 1 and 2

during 24 h for pain 1 week after implant surgery.^[3] The greater pain sensitization made by prior experiences explains why patients will have more pain after surgeries.^[10,11] Greater tissue damage is associated with higher self-reported pain level. Hence in several dental implant placements or combination with additional procedures such as bone grafting or regenerative procedures, patients have more pain than dental implant placement.^[12]

CONCLUSION

It seems patients who had the experience of tooth extraction and a dental implant placement reported significantly lower pain in implant surgery.

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Conflicts of interest

There are no conflicts of interest.

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