

The Difference in Pain And Swelling Experienced By The Patient Undergoing Bilateral Mandibular Impaction Surgery: Difference Between Grafted And Non Grafted Side

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ABSTRACT

INTRODUCTION

Pain and swelling are common phenomenon after third molar surgeries that have been successfully assessed with pain scales. The visual analog scale being the most commonly followed scale has been used for evaluation of pain and swelling.

MATERIALS AND METHODS

VAS was used. Scale was put to use after surgical removal of impacted teeth. T-test was put to use for statistical analysis.

RESULTS

The difference between the post-operative pain and swelling values on 2nd and 7th day of surgery on both the grafted side and control side were statistically significant. The difference of pain and swelling between the grafted side and the control side on the 2nd and 7th postoperative day were statistically insignificant.

CONCLUSION

Addition of grafts in bilateral mandibular impaction surgeries were not associated with any kind of enhanced pain or swelling as compared to the control side.

KEYWORDS: Bilateral impaction, Grafted side, Non-grafted side, Pain, Swelling

INTRODUCTION

Pain and swelling after third molar surgery as experienced by both patient and surgeon have been widely used to determine the degree of inflammatory reaction to the operative trauma.¹ Major progress has been made in the

management of pain, but still postoperative pain remains a major clinical problem.²

The International Association for the Study of Pain's widely used definition states: "Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue

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damage, or described in terms of such damage." A commonly used model for evaluation of drug effect on the pain response has been the bilateral removal of mandibular third molars. Pain being an exclusively subjective experience has been successfully assessed with pain scales. There are various pain scales that are available for assessing the pain experienced by the patient. These include the Visual Analog Scale (VAS), Wong Baker FACES pain rating scale, Numeric pain rating scale, Pain Quality Assessment Scale, Mc Gill Pain Questionnaire etc.

MATERIALS AND METHODS

Multiple assessments are impractical both in the clinical and the research settings.³ The visual analog scale being the most commonly followed scale has been used for evaluation of pain and swelling. VAS test allows the use of parametric tests and has therefore widely been used.⁴ The following criteria involved the questionnaire of visual analog scale.

Criteria for post – operative follow up (PAIN)

- 0- No pain – the patient feels well
- 1- Slight pain- if the patient is distracted , he or she does not feel the pain
- 2- Mild pain- the patient feels the pain even if concentrating on some activity
- 3- Severe pain- the patient is very disturbed but nevertheless can continue with normal activities
- 4- Very severe pain- the patient is forced to abandon normal activities
- 5- Extremely severe pain – the patient must abandon every type of activity and feels the need to lie down

Criteria for post – operative follow up (SWELLING)

- 0- No swelling- patient does not detect the slightest swelling

- 1- Slight- patient detects a slight swelling but it is not very noticeable
- 2- Mild swelling- the swelling is noticeable but does not interfere with normal mastication and swelling
- 3- Severe swelling- the swelling is evident and hinders normal mastication
- 4- Very severe swelling- the swelling is marked. Mastication is hindered but there is no reduction in the mouth opening
- 5- Extremely severe swelling- the swelling is very evident and mouth opening is reduced

Surgical Technique: The surgical site was prepared with savlon and betadine and the patients were draped in the conventional manner. A standard pre-sterilized minor oral surgery kit was used in all cases.

Anesthesia: Bilateral pterygomandibular nerve block were administered using 2% lignocaine hydrochloride with 1:200000 adrenaline

Incision: Standard Terence Ward's incision was followed. Reflection of mucoperiosteal flap was done judiciously. Removal of bone was done with stainless steel burs (no.8). Buccal and distal bone was removed and in some cases a notch was made in bone near the cemento-enamel junction of impacted tooth for elevation. Constant irrigation with saline was used while removing bone to prevent thermal necrosis. Tooth was luxated with the help of straight elevator and then extracted with molar forceps employing minimal forces. In some cases sectioning of tooth was done. The surrounding bone was smoothed with round bur. The wound was gently irrigated with sterile saline solution and checked for any small detached fragments of bone or tooth pieces. Graft material (Hydroxyapatite with collagen) was taken and packed into either one of the extraction socket while the other extraction site

of the contralateral 3rd molar was treated as the control site. The irregular margins of the wound were trimmed and wound was closed with 3-0 black braided silk interrupted sutures. Pressure pack was given.

RESULTS

PAIN

Table No.1 shows postoperative pain on visual analog scale for group G (mean score) to be 1.40 ± 7.54 on 2nd postoperative day which reduced to $.250 \pm .444$ on 7th postoperative day and the difference between the two values is statistically significant (p value .001). Similarly Table No.1 shows postoperative pain on visual analog scale for group C (mean score) to be $1.25 \pm .639$ on 2nd postoperative day which reduced to $.200 \pm .410$ on 7th postoperative day, and the difference between the two values is statistically significant (p value .001). Table No.1 also shows the difference of pain between the grafted side group G and the control side group C on the 2nd postoperative day. The value is statistically insignificant (p value .330). Finally Table No.1 shows the difference of pain between the grafted side group G and the control side group C on the 7th postoperative day. The value is not statistically significant (p value .748).

		Paired Differences			t	df	p
		Mean	SD	Std Er Mean			
Pair 1	Pain2G- Pain7G	1.1500	.58714	.13129	8.759	19	.001
Pair 2	Pain 2C- Pain 7C	1.0500	.82558	.18460	5.688	19	.001
Pair 3	Pain 2G- Pain 2C	.15000	.67082	.15000	1.000	19	.330
Pair 4	Pain 7G- Pain 7C	.05000	.68633	.15347	.326	19	.748

Table No.1*: Comparison of Pain

* G- Grafted side , C- Control side

SWELLING

Table 2 shows postoperative swelling on visual analog scale for group G (mean score) to be $1.55 \pm .605$ on 2nd postoperative day which reduced to 0.650 ± 0.587 on 7th postoperative day and the difference between the two values is statistically significant (p value .001)

Similarly table 2 shows postoperative swelling on visual analog scale for group C (mean score) to be $1.55 \pm .510$ on 2nd postoperative day which reduced to $.750 \pm .444$ on 7th postoperative day, and the difference between the two values is statistically significant (p value .001)

Table 2 also shows the difference of swelling between the grafted side group G and the control side group C on the 2nd postoperative day. The value is statistically insignificant (p value 1.000)

Finally table 2 shows the difference of swelling between the grafted side group G and the control side group C on the 7th postoperative day. The value is not statistically significant.

		Paired Differences			t	df	p
		Mean	SD	Std Er Mean			
Pair 1	Swelling 2G- Swelling 7G	.900	.55251	.12354	7.285	19	.001
Pair 2	Swelling 2C- Swelling 7C	.800	.52315	.11698	6.839	19	.001
Pair 3	Swelling 2G- Swelling 2C	.000	.64889	.1451	.000	19	1.000
Pair 4	Swelling 7G- Swelling 7C	.100	.71818	.16059	-.623	19	.541

Table No.2*: Comparison of Swelling

* G- Grafted side , C- Control side

DISCUSSION

Various grafting materials have been advocated to fill bone defects or stimulate bone healing. Hydroxyapatite with collagen provides a suitable osteoconductive alternative to the use of autogenous bone as a graft. Placement of graft in an extraction socket provides a scaffold for the ingrowth of cellular and vascular components to form new bone of acceptable quality and quantity.

But, does the addition of alloplastic bone graft add to the pain and swelling experienced by the patient? So far to the best of our knowledge, no study has focused the relationship between the two factors.

Pain is a subjective complex experience, and there is not any tool to measure it objectively.⁵ Pain rating scales have an important role in the research related to pain.^{6,7,8} In our study we used the visual analog scale used by D. Pasqualini et al⁹ in their study to evaluate pain and swelling. The VAS has also been established as a reliable and sensitive method for recording pain after oral surgery procedures. The results of our study showed that the difference of Pain on the grafted side on the 2nd postoperative day and on the control side was not statistically significant. Similarly the difference of pain on the 7th postoperative day on the grafted side and the control side was also not statistically significant. The measurements were made using visual analog scale (VAS).

Swelling has until now been measured with various mechanical devices, ultrasound and photographic techniques. These methods are characterized by the fact that they only take into account the visible, extraoral swelling. In our study the patients were asked to look in the mirror when assessing the swelling and were suggested the use of Visual Analog Scale, as was suggested by Henrikson et al.¹⁰ In our study

none of the patients found any difficulty in using the VAS to express their subjective feeling of swelling. It was apparently equally easy to use VAS for swelling as for pain as was also shown by Trond Inge Berge et al.¹

CONCLUSION

In our present study the difference of swelling on the 2nd post operative day between the grafted side and the control side was not statistically significant. Similarly the difference between the swelling on the 7th post operative day between the grafted side and the control side was also not statistically significant.

Thus the addition of graft was not associated with any kind of enhanced pain or swelling as compared to the control side.

The twenty cases undertaken for the study were not informed about which side the graft was placed. The side selected was random and decided prior to placement of graft only. This ensured the study to be single blind and unbiased. A randomized clinical trial was instituted using a split mouth design where the subjects served as their own controls.

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