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Original Research

Comparison of two different suture materials on postoperative morbidity after bilateral impacted mandibular third molar surgery

¹Sheikh Tafazul Habib, ²Itrat Hussain, ³Ajaz A Shah, ⁴Najma Banoo, ⁵Nusrat Batool

^{1,4}PG 3rd year, ³Professor and Head, Department Oral and Maxillofacial Surgery, Government Dental College Srinagar, Jammu & Kashmir, India

²Senior Research Associate (CSIR), Government Dental College, Srinagar, Jammu & Kashmir, India ⁵MDS, Private Practitioner, Srinagar, Jammu & Kashmir, India

ABSTRACT:

Background: To compare the effects of two different suture materials with respect to postoperative sequelae of pain after surgical removal of bilateral impacted mandibular third molars. **Materials & methods:** A total of 20 patients were enrolled. The age ranging from 18-35 years with bilateral mesioangular impacted mandibular third molars were included. The parameters evaluated were: Pain: A visual analogue scale from 0 to 10 was used. Wound dehiscence- Assessed by intra-oral examination. The results were analysed using SPSS software. **Results:** The results of the present study showed that pain was significantly more in group B when compared to group A on 1st, and 7th postoperative days with p- values of 0.006 and < 0.001 respectively. **Conclusion:** Suturing of the wound using vicrylsuture material shoud be preferred over mersilk. **Keywords:** third molar, mersilk, vicryl.

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Corresponding author: Itrat Hussain, Senior Research Associate (CSIR), Government Dental College, Srinagar, Jammu & Kashmir, India

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INTRODUCTION

Removal of impacted lower third molars is one of the most common surgical procedures in Oral Surgery.¹ Pain, swelling and trismus are considered as immediate postoperative tissue reactions following third molar surgery and they have been commonly related with the length of the surgical intervention, the surgical difficulty and operative trauma.^{2,3} In some cases, complications can occur, which are unwanted reactions that may not necessarily follow the surgical procedure, including: bleeding or hemorrhage, postoperative infections like dry socket, nerve injury, delayed healing and the creation of a periodontal pocket in the distal aspect of the adjacent second molar.⁴⁻⁶

Silk is the most commonly used suture material in oral surgery. Silk is cheaper than other materials and easy to manipulate, ⁷ while on the other hand, silk is comparatively prone to biofilm attachment and bacterial colonization. For these reasons, oral surgeons have sought a better replacement for silk

sutures in the last two decades. ⁸ In recent years, antibacterial-coated sutures were manufactured and introduced to the market and are used without adequate clinical studies and scientific evidence. Recently, the intraoral application of nylon suture material is claimed to be superior to the polyfilamentous suture materials in terms of microbial accumulation mainly since bacterial adhesion to the monofilament nylon is significantly less than silk, Vicryl, and polyester.⁹

Impacted third molars are developmental pathological medical deformities characteristic of modern civilization accounting for 98% of all impacted teeth. ¹⁰Studies have shown that there is significant deterioration in oral health related quality of life such as trismus, swelling, ¹¹ pain and delayed healing of extraction socket in the immediate post-operative periods following third molar surgery. Economically, much fund is being spent on analgesics and antibiotics to reduce the post-operative morbidity associated with lower third molar surgery.^{12,13} Hence, this study was

conducted to compare the effects of two different suture materials with respect to postoperative sequelae of pain after surgical removal of bilateral impacted mandibular third molars.

MATERIALS & METHODS

A total of 20 patients were enrolled. The age ranging from 18-35 years with bilateral mesioangular impacted mandibular third molars were included. A thorough history of all cases was recorded and informed written consent was obtained from all the patients. Clinical examination along with routine blood investigations were carried out. All mandibular left impacted third molars were assigned as group A, where suturing was done using vicryl suture material and all mandibular right third molar were assigned asgroup B, where suturing was done using mersilk suture material. All parameters were assessed on 1st, and 7th postoperative days. The parameters evaluated were: Pain: A visual analogue scale from 0 to 10 was used. Wound dehiscence- Assessed by intra-oral examination. The results were analysed using SPSS software.

RESULTS

The results of the present study showed that pain was significantly more in group B when compared to group A on 1st, and 7th postoperative days with p-values of 0.006 and < 0.001 respectively. Wound dehiscence was significantly more among Group B compared to Group A with p-value of 0.04.

Table	1:	VAS	scores	in	grou	ps
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	Group A	Group B	P - value
VAS score	Mean	Mean	
Day 1	6.20	7.18	0.006
Day 7	1.52	2.45	< 0.001

Table 2: w	ound dehiscence
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Wound	Gro	P- value	
dehiscence	Group A	Group B	
Absent	10	9	0.04
Present	0	1	

DISCUSSION

The mandibular third molar is the most common tooth extracted by surgical procedures, which causes an interruption in tissue integrity and wound formation. maximal wound repair and decreasing ¹⁴For morbidity, surgeons must have enough information about significant factors that affect wound repair.¹⁵ One of these major factors is the selection of suture material which may cause wound infection by improper utilization.¹⁶ It also can be the route of bacterial transmission to the wound site due to bacterial adhesion. This bacterial adhesion partly depends on the bacterial species, characteristics, and chemical structure of the suture material.¹⁷ Hence, this study was conducted to compare the effects of two different suture materials with respect to

postoperative sequelae of pain after surgical removal of bilateral impacted mandibular third molars.

In the present study, showed that pain was significantly more in group B when compared to group A on 1st, and 7th postoperative days with pvalues of 0.006 and < 0.001 respectively. A study by Hafiz M et al, 30 patients with an age range of 18-35 years were included. Facialmeasurements were recorded preoperatively. Vicrylwas used on all right sided impactions and mersilk on all left sided impactions. All the above mentioned parameters were evaluated on 1st, 3rd and 7th postoperative days. Secondary infection was evaluated on 3rd, 5th and 12th postoperative days. Postoperative sequelae after third molar surgery has been found to be associated with many factors. It has been concluded from the study that in comparing two different suture materials on reducing postoperative complications that are observed after impacted mandibular third molar surgery, suturing of the wound using vicrylsuture material shoud be preferred over mersilk. 18

In the present study, wound dehiscence was significantly more among Group B compared to Group A with p-value of 0.04. Another study by Sh ME et al, 27 patients were included in double-blinded randomized clinical trial study. Surgical extraction of the mandibular wisdom tooth was done, and the incision was managed by randomly using Vicryl Plus and Vicryl (Ethicon Inc) sutures. After 7 days, sutures were removed and assessed microbiologically. Indicator species of Streptococcus mutans and Lactobacillus were assessed, and the total number of colonies on each suture was counted. There was a significant difference between the two suture materials in the colony number-length ratio of Lactobacillus (P = 0.031) and total bacterial colonies (P = 0.016), but not for S. mutans species (P = 0.201). Antibacterial Vicryl suture can be a useful tool to reduce bacterial accumulation on the suture material in third molar extraction surgery.¹⁹ Gay- Escoda C et al,a prospective, randomized, crossover clinical trial was conducted in 40 patients aged from 18 to 45 years who underwent surgical extraction of impacted lower third molars at the Department of Oral Surgery in the Odontological Hospital of the University of Barcelona during the year 2011. Patients were randomly divided in 2 groups. Two different techniques (hermetical closure and partial closure of the wound) were performed separated by a one month washout period in each patient. Postoperative pain, swelling and trismus were evaluated prior to the surgical procedure and also at 2 and 7 days post operatively. No statistically significant differences were observed for pain (p<0.06), trismus (p<0.71) and swelling (p<0.05) between the test and the control group. However, the values of the three parameters related to the test group were lower than those for the control group. Partial closure of the flap without suturing the relieving incision after surgical extraction of lower third molars reduces operating time and it does not produce any

postoperative complications compared with complete closure of the wound.²⁰Egbor P et al,72 patients who had surgical extraction of impacted mandibular third molars. The subjects were divided into two groups of A and B. Group A had total closure (primary closure) and Group B had whitehead varnish dressing of the socket. Pain, swelling and trismus were evaluated preoperatively using visual analogue scale, flexible tape measuring method and inter-incisal distance measurement with Vernier Callipers respectively as well as post-operatively on 1st, 2nd, 3rd, 5th and 7th day. The study participants consisted of 27 males and 45 females in a ratio 1:1.7. With a mean age of 24.7 \pm 4.9 years (range 19-33 years) for Group A and 25.5 \pm 4.3 years (range 20-39 years) for Group B. Postoperative pain was not significantly affected by the closure techniques (P > 0.05). Dressing was found to significantly reduce the degree of swelling and trismus peaking on the 2nd day (P = 0.0207 and P =0.010 respectively). The use of dressing was more effective than primary closure to reduce the degree of swelling and trismus though its effect on postoperative pain reduction was not significant.²¹

CONCLUSION

Suturing of the wound using vicrylsuture material shoud be preferred over mersilk.

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