

Effect of 2% Lignocaine Solution in Pain During Removal of Nasal Pack

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ABSTRACT

Background: Nasal packing is commonly done after septal surgeries. Nonabsorbable nasal pack is used to minimize bleeding from surgery site, support the mucoperichondrial flaps, and minimize the risk of formation of septal hematomas and adhesions. However, these materials cause pain and discomfort in-situ as well as during removal. This study was done to evaluate the effect of 2% lignocaine rehydration of nasal pack on pain during pack removal. **Methods:** This prospective study was conducted on 60 patients who had undergone septoplasty. The patients were divided into 2 groups: Lignocaine and Normal saline group, with 30 patients each. In the Lignocaine group, 2.5 ml of 2% of lignocaine was diluted with 2.5 ml of distilled water and was injected into the nasal pack; and in Normal saline group, 5 ml of normal saline was injected into the nasal pack. Nothing was injected to the left nostril, which acted as a control, in both groups. All patients were asked severity of pain during removal of nasal packing by VAS. **Results:** In lignocaine group, mean pain score was 3.73 ± 1.63 on lignocaine side and 6.23 ± 1.69 on control side ($U=109.5$, $p<0.001$). In Normal saline group, it was 6.5 ± 1.7 on normal saline side and 6.23 ± 1.96 on control side ($U=425.5$, $p=0.711$). On comparing VAS between lignocaine and normal saline group, pain was significantly lower in the lignocaine group ($U=112.5$, $p<0.001$). **Conclusion:** Rehydrating nasal pack with 2% topical lignocaine is a useful method to reduce pain during nasal pack removal.

Keywords: lignocaine; local anesthetic; nasal pack; pain management; postoperative pain; septoplasty.

INTRODUCTION

Septoplasty, for symptomatic deviated nasal septum, is a commonly practiced surgery in ENT. After this surgery, nonabsorbable nasal packs have been commonly used to minimize bleeding from the surgery site. Additionally, they also support the septal mucoperichondrial flaps and minimize the risk of formation of septal hematomas and adhesions.^{1,2} One of the main concerns about using packing is that the removal is usually very painful and can be very bothersome. This procedure may even result in syncope by the activation of the vasovagal reflex system. There have been a few studies suggesting that nasal packs should not be used because removal from the nose causes serious discomfort and is painful.³⁻⁶ Many patients who have undergone nasal surgery report that the removal of the pack was the most painful part of the experience.^{5,7,8} Lignocaine is an amide group local anaesthetic effective in infiltration anesthesia and nerve block. It is not affected by heat, acids or alkalines. Commercial preparation of lignocaine 2% with adrenaline has a longer duration of action and decreases bleeding. It has a rapid onset of action, duration of action is medium. It has the ability to

penetrate the tissues rapidly. Mean plasma half-life is 2 hour.⁹ The aim of this study was to evaluate the effect of lignocaine and normal saline soaked nasal packing during removal of the packs.

METHODS

A hospital based, prospective, single blinded, comparative study was conducted in the department of Otorhinolaryngology and Head and Neck surgery in Dhulikhel Hospital, Kathmandu University Hospital, Kavre from October 2017 to September 2018. Approval from Institutional Review Committee of Kathmandu University School of Medical Sciences Dhulikhel Hospital was taken, and informed consent obtained from the patient before conducting the study. This study was carried out in patients who underwent septoplasty for deviated nasal septum under general anesthesia, and who were categorized as American Society of Anesthesiologists (ASA) grade I to II. All the patients were made familiar with a standard 10 cm visual analogue scale (VAS) on pre-operative visit, in which 0 represents no pain at all and 10 represents the

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worst pain imaginable. Conventional septoplasty was carried out under general anesthesia and in all patients and expandable polyvinyl acetate nasal packing that expand upon contact with fluid was used. The postoperative analgesia included Ibuprofen 400mg + Paracetamol 500mg combination thrice daily and Ketorolac 30mg intravenous when needed. The packs were removed on the second postoperative day. During nasal pack removal, the subjects were randomly divided into 2 groups: the Lignocaine group (2% lignocaine HCl) and the Normal saline group (0.9% NaCl) using lottery method. Subjects were blinded to which group they belong to and what medication they received. A 23-gauge needle was used for direct application of the treatment to the pack, with care taken not to touch the patient. In the Lignocaine group, 2.5 ml of 2% of lignocaine was diluted with 2.5 ml of distilled water, and the 5ml solution was injected into the nasal pack on right side 15 minutes before removal of the pack. Nothing was injected to the left nostril, which acted as a control, and pack removed 15 minutes later. In the Normal saline group, 5 ml of normal saline was injected into the nasal pack on right side 15 minutes before removal. Similarly, nothing was injected to the opposite nostril, and pack removed 15 minutes later. All patients were asked to evaluate the severity of pain during removal of nasal packing by VAS (range, 0-10; 0 = no pain and 10 = intolerable pain). Adverse events such as vomiting and nausea, if present, were recorded. These procedures were done by the same team to minimize observer variations. Inclusion criteria was: Symptomatic deviated nasal septum undergone Septoplasty surgery with bilateral anterior nasal packing, Age \geq 18 years of either sex. Exclusion criteria were: History of previous nasal surgeries, Nasal polyposis, Allergic rhinitis, Chronic sinusitis, Patient with neurological and psychiatric disease, Patient with sensitivity to anesthetic agent in study, Patients unwilling to enroll in the study, Patient using medication for chronic pain. The Shapiro-Wilk test was used to check the normality of the quantitative data distribution. Non-normally distributed variables with the Mann-Whitney test. Statistical values of $p < 0.05$ were considered significant. SPSS v. 21.0 for Windows (SPSS inc., Chicago, USA) was used for the statistical data analysis.

RESULTS

Total of 60 patients were enrolled in the study with 30 each in Lignocaine and Normal saline group with age ranging from 18-53 years (mean age of 29.25 ± 9.58 years). There were total 35 male (58.3%) and

25 females (41.7%) in the study. In Lignocaine group 14 male and 16 female, and in Normal saline

Table 1. Patient demographics.

Variable	Lignocaine group (n=30)	Normal saline group (n=30)
Sex		
Male	14(46.67%)	21(70%)
Female	16(53.33%)	9(30%)
Age (year)	27.57 \pm 8.77	29.47 \pm 11.14

Values are presented as mean \pm SD

group 21 male and 9 female (Table 1). Pain score was recorded with VAS during nasal pack removal. In lignocaine group, mean pain score was 3.73 ± 1.63 on lignocaine side and 6.23 ± 1.69 on control side ($U=109.5$, $p < 0.001$). In Normal saline group, mean pain score was 6.5 ± 1.7 on normal saline side and 6.23 ± 1.96 on control side ($U=425.5$, $p=0.711$) (Figure 1).

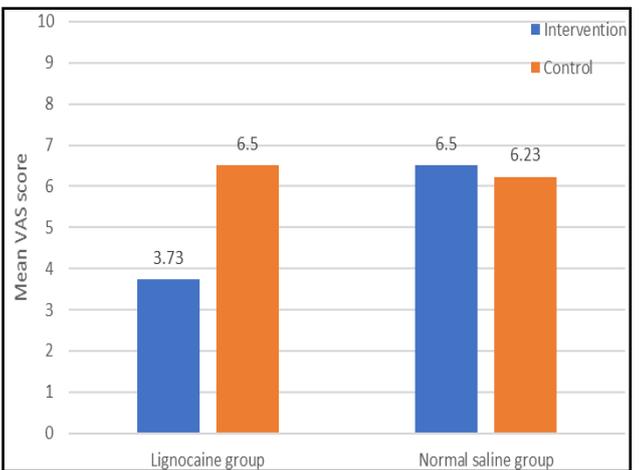


Figure 1. Pain scores during nasal pack removal.

On comparing VAS between lignocaine and normal saline group, pain was significantly lower in the lignocaine group ($U=112.5$, $p < 0.001$).

DISCUSSION

Nasal packing is commonly done after septal surgeries. Nonabsorbable nasal pack is used to minimize bleeding from surgery site, for support to the mucoperichondrial flaps, and minimize the risk of formation of septal hematomas and adhesions. However, these materials cause pain and discomfort in-situ as well as during removal. It's been reported that even absorbable materials for nasal packing cause nasal discomfort and pain in the duration of nasal packing. Patients have described the pack removal event as the most unpleasant aspect of the perioperative experience.

Various methods have been tried to decrease pain and make patient comfortable during pack removal.^{1,6,10-16} In our study, we used 2% topical lignocaine to rehydrate the nasal pack to investigate its analgesic effect during pack removal. Lachanas et al suggested that rehydration of Merocel packing with tetracaine solution 0.25% is effective in decreasing pain during nasal pack removal following septoplasty.¹ Karaaslan et al concluded that adding meperidine to prilocaine 15 minutes before nasal pack removal helps by decreasing pain and provides mild sedative effect which lowers anxiety associated with the event.¹⁷ Buchanan et al used bupivacaine and Kuo et al used 5% lidocaine ointment in their nasal packs during surgery and found they reduced early post-operative pain. But this method didn't help in reducing pain during pack removal.^{18,19} Lavy et al used 4% lignocaine solution to rehydrate Merocel pack and compared it with normal saline. They reported a reduction in the pain score on study side but the reduction wasn't statistically significant.¹⁰ Durvasula et al used 2% lignocaine solution or normal saline for rehydrating nasal pack before removal. They didn't find any reduction of pain with both these methods.²⁰ Our study had a different design than previous studies with intervention in one nostril and the other nostril

being kept as a control in the same patient. This would help to reduce confounding variables. We found there was significant reduction in pain score between the lignocaine and control side, and also between lignocaine and normal saline group. This study has some limitations. Firstly, rate of systemic absorption in cases of topical lignocaine application from nasal mucosa is not known. This is required to use the maximal dose of drug for pain relief without causing unwanted side effects. Second, the sample size of our study was relatively small.

CONCLUSION

In our study, we rehydrated nonabsorbable nasal pack in patients, who underwent septoplasty, with Lignocaine and normal saline before removal. We conclude that topical lignocaine application to nasal packs provide better analgesia and less discomfort during pack removal. Therefore, 2% topical lignocaine application to nasal packs would be a safe, inexpensive, and effective method to reduce pain during nasal pack removal in patient who have undergone septoplasty.

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