CLINICAL STUDY

USE OF ELECTROCAUTERIZATION REDUCES THE RISK OF SEPTAL HEMATOMA AFTER SEPTOPLASTY WITHOUT PACKING

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SUMMARY

Objectives: To decrease the rate of postoperative complications following septoplasty with quilting sutures.

Methods: Our study population was the patients aged 18 years and older who had undergone septoplasty at our institution from November 2014 through August 2015. Patients were randomized 1:1 into two groups, the cautery group consisted 30 males and 8 females with a mean age of 31.25±3.12 years, and the no-cautery group consisted of 28 males and 10 females with a mean age of 30.22±2.34 years. In the cautery group, electrocauterization was performed before the suturing process to the bleeding sites.

Results: Only two out of 38 patients was suffered postoperative complications in the cautery group. In the no-cautery group, 11 patients experienced postoperative complications postoperatively. The difference was statistically significant among the two groups (p=0.023).

Conclusion: In this study, by using electrocautery, we succeeded to decrease the complication rate of quilting sutures septoplasty and we believe that this technique will make quilting sutures more preferable than septoplasty with packing for the surgeons.

Keywords: Septoplasty; Quilting sutures; Packing; Septal hematoma

TAMPONSUZ SEPTOPLASTI OPERASYONU SONRASI KOMPLIKASYONLARI AZALTMAK IÇIN ELEKTROKOTERIZASYON KULLANIMI

ÖZET

Bu çalışma prospektif olarak ve tamponsuz septoplasti operasyonu sonrası komplikasyon oranlarını düşürmek amacıyla dizayn edildi. Çalışma grubu, Kasım 2014 ve Ağustos 2015 tarihleri arasında kliniğimizde tamponsuz septoplasti operasyonu geçiren, 18 yaş üstü hastalardan oluşturuldu. Hastalar 1:1 randomize edilerek iki gruba ayrıldı. Koter grubunda, 30 erkek ve 8 kadın hasta varken, non-koter grubunda ise 28 erkek ve 10 kadın hasta vardı. Koter grubundaki hastalara işlem sırasında kanama odaklarına bipolar elektrokoterizasyon uygulandı. Koter grubunda postoperatif dönemde yalnızca iki hastada komplikasyon (postoperatif hemoraji, septal hematom) izlenirken, non-koter grubunda 11 hastada izlendi. Aradaki fark istatistiksel olarak anlamlı idi (p=0.023). Sonuç olarak, tamponsuz septoplasti sırasında bipolar elektrokoterizasyonla kanama kontrolü sağlamak, bu tekniğin cerrahlar için tercih edilme oranını artıracaktır.

Anahtar Sözcükler: Septoplasti; Tampon; Koterizasyon

INTRODUCTION

Septoplasty is one of the most common operations in otorhinolaryngology. Septoplasty without nasal packing has become popular among otolaryngologists due to less pain and discomfort for the patient[1-8]. Intranasal packing is used to prevent nasal hemorrhage, to prevent septal hematoma and to reduce complications after nasal surgery[3]. Intranasal packing produces some quality-of-life problems for patients. These include problems with nasal respiratory function that can cause degrees of hypoxia, mouth dryness and sore throat[9-11]. Serious infections, aspiration and cardiologic complications may also occur[9-11]. Depending on the findings of current studies, quilting sutures achieved good results as nasal packing but the main concern is to avoid preoperative and postoperative hemorrhage and septal hematoma formation among surgeons who still use nasal packing.

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Received: 04 January 2016, revised for: 17 February 2016, accepted for publication: 04 March 2016

If intraoperative bleeding was adequately controlled, postoperative bleeding would not be excessive and packing would not be necessary. Proper suturing of the flaps is also important for the success of the operation. We used electrocautery during the surgery to achieve better hemostasis results both preoperative and postoperative period. In this study,we aimed to show that the use of electrocautery during septoplasty with quilting sutures reduces the risk of postoperative hemorrhage and septal hematoma formation.

MATERIAL and METHODS

This study was designed as prospective, randomized, procedural study. Our objective was to compare the incidence of postoperative complication rates in patients undergoing septoplasty without postoperative nasal packing with or without the use of electrocautery during the surgery. Our study population was the patients aged 18 years and older who had undergone septoplasty at our institution from November 2014 through August 2015. Exclusion criterias were a history of diabetes and bleeding disorders. Age and sex characteristics in the

two groups were similar (Table 1). Patients were randomized 1:1 into two groups, the cautery group consisted 30 males and 8 females with a mean age of 31.25±3.12 years, and the no-cautery group consisted of 28 males and 10 females with a mean age of 30.22±2.34 years. Patient' s characteristics are shown in table 1. All septoplasties were performed by the same surgeon. Anesthesia with lidocaine with 1:200,000 epinephrine was infiltrated submucosally 5 minutes before incision. Cottle septoplasty was performed in all patients. Septal quilting sutures with 3-0 Vicryl were applied with a straight needle to adhere the subperichondrial flaps. In the cautery group, electrocauterization was applied before the suturing process to the bleeding sites. The most common bleeding sites were over maxillary crest and the arterioles over the inner aspect of the elevated mucoperichondrium. In the non-cautery group, additional electrocautery was not performed during the procedure. For the bipolar electrocautery, the ELMED bipolar cautery tip was connected to the Valleylab Force 1C electrosurgical system. The bipolar was set to a power setting of 10 J/s. Immediately following surgery, patients in both groups were given the same analgesic drugs first day postoperatively, all the patients underwent a thorough examination of the mouth and nose using nasal endoscopy. During this examination, we looked for any postoperative bleeding, septal hematoma, and synechia formation, as well as signs of local infection.

RESULTS

Age and sex characteristics in the two groups were similar (Table 1). In both groups, there were no complications such as local infection and synechia formation. Only two out of 38 patients suffered septal hematoma and postoperative hemorrhage in the cautery group. In the no-cautery group, 11 patients experienced septal hematoma or postoperative hemorrhage postoperatively. The difference was statistically significant among the two groups (p=0.023) (Table 2).

Table 1. Characteristics of patients

Characteristics of patients		
Male/Female (total)	n=76	58/18
Age total mean (SD)	n=76	32.63±2,28
Male/Female (NCG)	n=38	30/8
Age mean (NCG) (SD)	n=38	30.22±2.34
Male/Female (CG)	n=38	28/10
Age mean (CG) (SD)	n=38	31.25±3.12

Test results are presented as means ± SDs. NCG; no-coagulation group, CG; coagulation group.

Table 2. Incidence of postoperative compications

Groups		Postoperative Complications	p*
NCG	n=38	11 (7; postoperative hemorrhage, 4; septal hematoma)	0.023
CG	n=38	2 (both postoperative hemorrhage)	

NCG; no-coagulation group, CG; coagulation group; * p=0.05 with the chi-square test**.**

DISCUSSION

Septoplasty is one of the most common operations in otorhinolaryngology, either done alone or in combination with other procedures such as inferior turbinoplasty, endoscopic sinus surgery and rhinoplasty. In the recent years, use of quilting sutures instead of nasal packing has become popular among surgeons. Different studies showed that septoplasty without nasal packing has some advantages over nasal packing[1-8]. Nasal packing is used primarily to control bleeding in all nasal surgeries. Packing also helps internal stabilization following operations on the cartilaginous/bony skeleton of the nose. Packing prevents complications such as hematoma, infection, abscess formation, and perforation in nasal surgery even though there were no published studies at the time to support these assumptions[9-11]. However, packing causes some complications like mucosal injury and septal perforation; sleep respiratory disturbances; decreased arterial oxygen saturation during sleep; displacement and aspiration of various packing materials; allergy; toxic shock syndrome; eustachian tube dysfunction[9-11]. Nasal packs are uncomfortable while they are in place and cause pain and bleeding when they are removed. Nasal packing has been routinely performed following septoplasty for many years. Stucker and Ansel was the first authors who questioned the benefits of nasal packing in 1978, afterwards, proposals of several alternatives to traditional packing have been made[4].

A study comparing nasal packing with septal suturing following septoplasty in 169 patients concluded that suturing had several advantages to nasal packing[6]. Another study conducted on 266 septoplasties with septal suturing and no packs reported good results with no complications and no patient discomfort[8]. Comparison of nasal packs and suturing the septum in rabbits has not shown any difference in the histological appearance of the nasal septum[12].

Postoperative bleeding was another issue in our study. We believe that another important factor in maintaining good hemostasis during septoplasty is the proper infiltration of lidocaine and epinephrine solution. If this can be done and the mucosal flap is elevated in the right plane, there is virtually no bleeding.

There are many studies that compare the complication rates of traditional packing septoplasty and septoplasty with quilting sutures[1-8]. All of these studies showed that the complication rates of the two techniques are almost the same.

This study was designed to reduce the risk of complication rates of quilting sutures technique. Electrocautery has been used in endonasal surgery especially for conchal interventions. It is shown by this study that adding electrocautery during the septoplasty with quilting sutures reduces the risk of postoperative complication rates postoperatively.

Although, studies showed no difference among two techniques, many surgeons still use the packing as a method of choice as a consequence of

the fear of complication that can occur without packing. We have had many patients saying, 'I have come to have surgery from you because I heared that you don't pack the nose'. Patients mostly prefer septoplasty with quilting sutures when they have the opportunity to choose the technique. In this study, by using electrocautery, we succeeded to decrease the complication rate of quilting sutures septoplasty and we believe that this technique will make quilting sutures more preferable than septoplasty with packing for the surgeons.

Acknowledgements

All the authors have made substantial contibution and received no grants or other scientific support related to the preparation of this manuscript.

Conflict of Interest

All authors disclose that there is no financial and personel relationships with other people or organizations that could inappropiately influence the work.

REFERENCES

1. Mane RS, Patil B, Mohite A. Comparison of septoplasty with and without nasal packing and review of literature. Indian J Otolaryngol Head Neck Surg 2013 ;65(2):406–408.
2. Awan MS, Moghira I. Nasal packing after septoplasty: A randomized comparison of packing versus no packing in 88 patients. Ear Nose Throat J 2008; 87(11):624-627.
3. Hari C, Marnane C,Wormald PJ. Quilting sutures for nasal septum. J Laryngol Otol 2008; 122(5):522–523.
4. Stucker FJ, Ansel DG. A case against nasal packing. Laryngoscope 2004; 114(9):1541-1544.
5. Orlandi RR, Lanza DC. Is nasal packing necessary following endoscopic sinus surgery? Laryngoscope 2004; 114(9):1541-1544.
6. Al-Raggad DK, El-Jundi AM, Al-Momani OS,Al-Serhan MM, Nawasrah OO, Qhawi MA, Husban AM. Suturing of the nasal septum after septoplasty,is it an effective alternative to nasal packing? Saudi Med J 2007; 28(10):1534-1536.
7. Sessions R.Membrane approximation by continuous mattress sutures following septoplasty. Laryngoscope 1984; 94(5):702-703.
8. Lemmens W, Lemkens P. Septal suturing following nasal septoplasty: A valid alternative for nasal packing? Acta Otorhinolaryngol Belg 2001; 55(3):215-221.
9. Fairbanks DN. Complications of nasal packing. Otolaryngol Head Neck Surg 1986; 94(3):412-415.
10. Iqbal A, Nabil R. Complications of the surgery for deviated nasal septum. J Coll Physicians Surg Pak 2003; 13(10):565-568.
11. Kaygusuz I, Kizirgil A, Karlidag T. Bacteriemia in septoplasty and septorhinoplasty. Rhinology 2003; 41(2):76-79.
12. Genç E, Ergin NT, Bilezikçi B. Comparison of suture and nasal packing in rabbit noses. Laryngoscope. 2004; 114(4):639-645.