

<https://doi.org/10.34883/PI.2024.14.4.033>



Aso Ahmed Flamarz

College of Medicine, University of Garmian, Kalar, Iraq

Trans-Septal Suturing Versus Splinting and Nasal Packing in Septoplasty

Conflict of interest: nothing to declare.
The article is published in author's edition.

Submitted: 26.06.2024

Accepted: 12.11.2024

Contacts: aso.ahmad@garmian.edu.krd

Abstract

Introduction. Septoplasty is a common surgical procedure which associated with numerous complications namely pain and hemorrhage for which nose is packed. Despite all its advantages, nasal packing is also associated with some disadvantages. Quilting suturing technique is suggested to obviate the need for packing after surgery.

Purpose. To assess the efficacy of quilting suture technique in preventing or reducing complications associated with nasal splinting and packing and to evaluate it as an alternative for nasal packing.

Materials and methods. A prospective, comparative study conducted on 100 patients who underwent septoplasty in Sulaymaniyah teaching center and Shar teaching hospital. The average age of patients ranged from 17–58 years, divided in two groups of 50 patients for each, splint and packing group and quilting suture technique.

Results. Postoperative complication rates of (bleeding, septal hematoma, imperfectly corrected septum, synechia and septal perforation) were more common in packing and splint group, There was significant difference between the two groups regarding pain in (early and intermediate) and nasal obstruction in (early) where it was more common in splinting and packing group than quilting suture group.

Conclusion. There were no significant difference in the postoperative complications between the splint and packing technique and quilting suture technique, although the postoperative complications were more in nasal splint and packing technique.

Keywords: deviated nasal septum, nasal splinting, trans-septal suture, septoplasty, septal hematoma

Азо Ахмед Фламарз

Медицинский колледж Университета Гармиана, Калар, Ирак

Наложение транссептальных швов vs шинирование и тампонада носа при септопластике

Конфликт интересов: не заявлен.

Статья опубликована в авторской редакции.

Подана: 26.06.2024

Принята: 12.11.2024

Контакты: aso.ahmad@garmian.edu.krd

Резюме

Введение. Септопластика – распространенное хирургическое вмешательство, которое сопряжено с определенными осложнениями, в частности с болевыми ощущениями и кровотечениями, для устранения которых проводят тампонаду носа. Несмотря на положительные стороны, тампонада носовой полости не лишена определенных недостатков. Применение техники матрацных швов позволяет обходиться без внутриносовой тампонады после хирургического вмешательства.

Цель. Оценить эффективность техники матрацных швов в предотвращении и/или уменьшении осложнений, связанных с шинированием и тампонадой носовой полости, и изучить возможность ее применения в качестве альтернативы назальной тампонаде.

Материалы и методы. В проспективном сравнительном исследовании приняли участие 100 пациентов, перенесших септопластику в учебном центре Сулеймании и учебной больнице Шара. Средний возраст пациентов составил от 17 до 58 лет. Пациентов распределили в две группы по 50 человек в каждой: в группу шинирования и внутриносовой тампонады или в группу техники наложения матрацных швов.

Результаты. Послеоперационные осложнения (кровотечение, септальные гематомы, дефекты коррекции носовой перегородки, синехии и перфорация носовой перегородки) чаще встречались в группе тампонады и шинирования. Была выявлена достоверная разница между двумя группами в оценке болевых ощущений (на ранних и промежуточных стадиях) и непроходимости носовых путей (на ранних стадиях), которые чаще отмечались в группе шинирования и тампонады, чем в группе матрацных швов.

Заключение. Несмотря на то что достоверных различий в уровне послеоперационных осложнений при применении шинирования и тампонады и матрацного шва не установлено, при применении назального шинирования и тампонады послеоперационные осложнения были более выражены.

Ключевые слова: искривление носовой перегородки, назальное шинирование, транссептальный шов, септопластика, гематома носовой перегородки

■ INTRODUCTION

Septoplasty is an operation designed to reposition a deviated nasal septum in the mid position by dividing almost of its attachments and leave the quadrilateral

cartilage attached to a flap of mucosa to preserve its viability [1]. It is including six steps: 1) gaining access to the septum; 2) correction of pathology; 3) removal of pathology; 4) shaping removed cartilage and bone; 5) reconstruction of the septum; 6) stabilizing the septum [2].

Septorhinoplasty is sometimes indicated solely for functional reasons. A majority of such noses have been damaged by trauma earlier in life. The high-septum or tension nose, on the other hand, is a congenital problem often associated with a straight septum. Rhinoplastic techniques are used to lower the high nasal dorsum with osteotomies to close the "open dorsum" that hump removal creates; thus the internal nasal angles and nasal physiology are improved [3, 4].

An understanding of the nasal septum is important in obtaining consistently good results with cosmetic rhinoplasty. Alterations in nasal dimensions that are invariably associated with rhinoplasty can increase nasal obstruction if the septum is not straightened at the time of rhinoplasty. This can be done by intranasal or external rhinoplasty approaches. A compromise in nasal physiology should not be considered an acceptable part of cosmetic rhinoplasty. In fact, the nose should function at least as well, if not better, after surgery [5, 6].

■ PURPOSE OF THE STUDY

To assess the efficacy of quilting suture technique in preventing or reducing complications associated with nasal splinting and packing and to evaluate it as an alternative for nasal packing.

■ MATERIALS AND METHODS

Design and Setting

This is a prospective and comparative study was conducted on 100 patients with nasal NSD who underwent septoplasty surgery in Al-Sulimaniyah teaching center and Shar teaching hospital from November 2019 to September 2022. Phone number and address taken from the patients. Patients were divided into two groups, those in whom nasal splint and packing were inserted after septoplasty – group A (n=50) and group B (n=50), whom quilting suture used.

Patients were assessed according to the questionnaire which is put in appendices with regarding to: history of the present illness with special note on the presence or absence of symptoms like nasal obstruction, post nasal drips, nasal discharge, facial pain and nose bleeding. Some cases sent for C.T scan to exclude any associated pathology in the nose and Paranasal sinuses. A general physical examination and examination of the nose by anterior rhino scope were carried out, preoperative assessment for nasal obstruction done by cottle's test, a nasal endoscopic examination under local anesthesia using rigid 0° and 30° nasal endoscopes were carried out.

Inclusion Criteria

- Septoplasty operation alone.
- Age between 17–58 years.
- Nasal obstruction or with external cartilaginous nasal deformity.

Exclusion Criteria

- <17 years.
- Past history of surgery to the nose.
- Unwilling to participate.

Preoperative Preparation

Hematological investigations done for all the patients and preoperative assessment done by anesthesiologist for fitness for general anesthesia, informed consent obtained from all patients.

Technique of Surgery

The surgery was carried out under GA and Trans-oral endotracheal intubation, as shown in the Fig. 1.

Postoperative Care

After the surgery all patients received broad spectrum antibiotics like ampiclox vial 500 mg four times daily, oral analgesics like paracetamol tablets 500 mg four times daily, the dose of analgesia were given according to the body weight of the patients. The nasal packs were removed within 48 hours, and nasal douching with normal saline for at least 3 weeks the nasal splints were removed 7–8 days after the surgery, assessment done for pain, nasal obstruction, bleeding, septal hematoma, imperfectly corrected NSD, synechia and septal perforation.

Postoperative Follow Up

After pack removal, patients were followed on 0 to 3, 10 to 14, 30 days post-operative, further follow-up were done monthly up to 3 months. The patients were evaluated for the results of surgery, symptoms improvement and the presence post-operative complications (pain, nasal obstruction, bleeding, septal hematoma, imperfectly corrected NSD, synechia

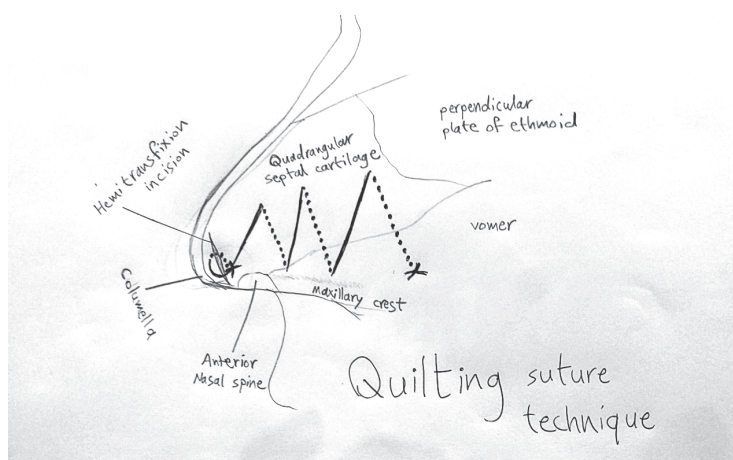


Fig. 1. Quilting suture technique

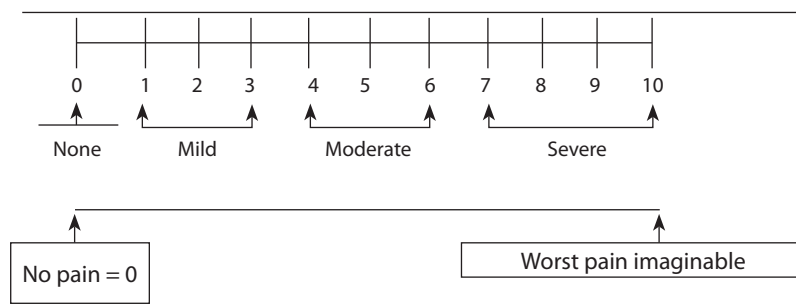


Fig. 2. Visual analog scale

and septal perforation). In post-operative period pain assessment did according to visual analogue scale (VAS).

VAS: using a ruler, score was determined by measuring the distance (cm) on the 10-cm line between "no pain" and "most severe pain" providing a range of scores from 0–10. A higher score indicates greater pain intensity, based on distribution of pain VAS scores in postsurgical patients who described their postoperative mid facial pain intensity as (none, mild, moderate, or severe) the following cut points on pain VAS have been recommended: no pain (0 cm), mild pain (1–3 cm), moderate pain (4–6 cm), and severe pain (7–10 cm), see Fig. 2.

Statistical Analysis

The statistical analysis was performed by SPSS program, version 21 (IBM SPSS Statistical Package for the Social Sciences). Chi-square tests were used to compare the categorical data between these two groups. P-values of 0.05 were used as a cut off point for significance.

■ RESULTS

The most prevalent complaint was nasal obstruction (100%) and the least common was epistaxis (27%) as in shown Table 1.

On examination, 55% of the nasal septums were deviated to the right and 45% were deviated to the left. Regarding deviation types, the most common type was bony cartilaginous (49%) and least was bony (8%) as shown in Fig. 3.

Table 1
Presenting symptoms of patients (n=100)

Symptoms	No.	%
Nasal Obstruction	100	100
Facial Pain	42	42
Post nasal drip	31	31
Nasal Discharge	28	28
Epistaxis	27	27

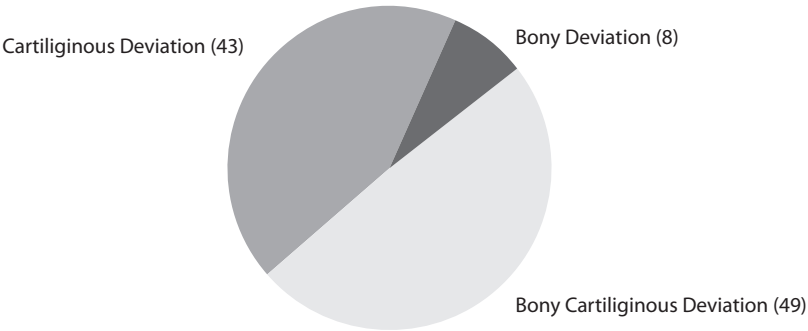


Fig. 3. The NSD types

With regard to the deviation shape most common was C shape (64%) and least common was impacted (12%) as shown in Fig. 4.

With regard to the septal spur were seen in (71%) of cases as shown in Fig. 5.

The side, type and shape of the NSD, in addition to the presence of the spur as shown in Table 2.

Complications (0–72 hours) seen in both groups during follow-up.

The pain (facial and nasal) were the complaint of 92% in group A, and in 50% in group B. With regarding to bleeding (mostly in the form of few drops that stopped spontaneously in most cases) was present in 36% in group A and 26% in group B, repacking done in 14% in group A and 12% of group B (repacking done after using of primary aids for managing nasal bleeding and most of the cases the packing removed after 24 hours), as shown in Fig. 6.

Septal hematoma (treated by aspiration, incision and drainage under local anesthesia) found in 6% of group A and 4% of group B as shown in Table 3.

Nasal obstruction and breathing difficulty (assessment done after pack removal in group A after 48 hours) found in 56% of group A and 12% of group B, as shown in Fig. 7.

The final outcome of early 0–72 hours shown in Table 4.

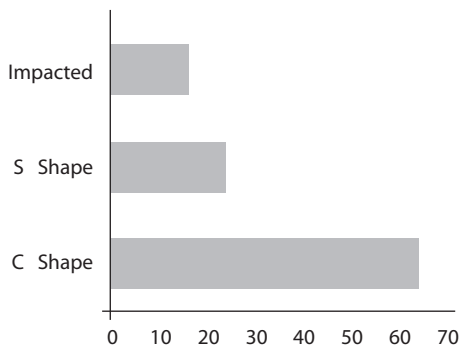


Fig. 4. Shapes of NSD

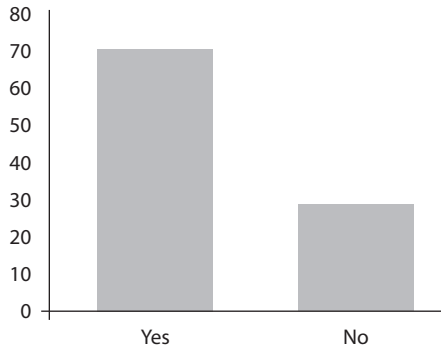


Fig. 5. Nasal spurs

Table 2
Side, Type, and Shape of the NSD, in addition to the presence of the spur

Variables		No. (%)
Deviated Septum	Rt	55
	Lt	45
Deviation Type (Type of deviation)	Bony Deviation	8
	Bony Cartiliginous Deviation	49
	Cartiliginous Deviation	43
Deviation Shape (Shape of Deviation)	C Shape	64
	S Shape	24
	Impacted	12
Spur	Yes	71
	No	29
Spur site	Rt	43
	Lt	28

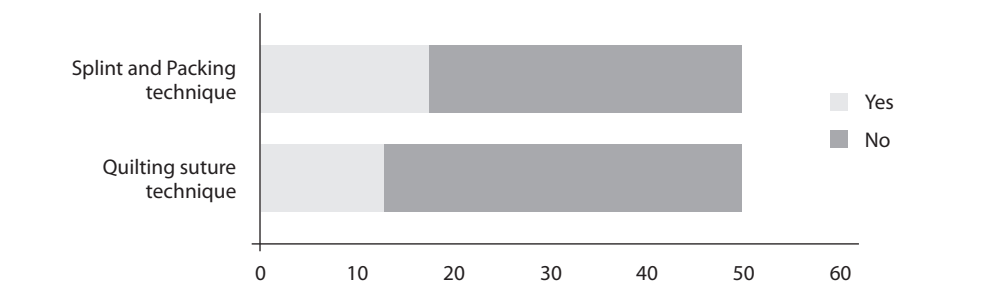


Fig. 6. Epistaxis in 0–72 hours postoperatively

Table 3
Septal hematoma in first 72 hours postoperatively

Septal hematoma (first 72 hours)	Yes	No	P-value
Splint and packing technique	3	47	0.65
Quilting suture technique	2	48	
Total	5	95	100

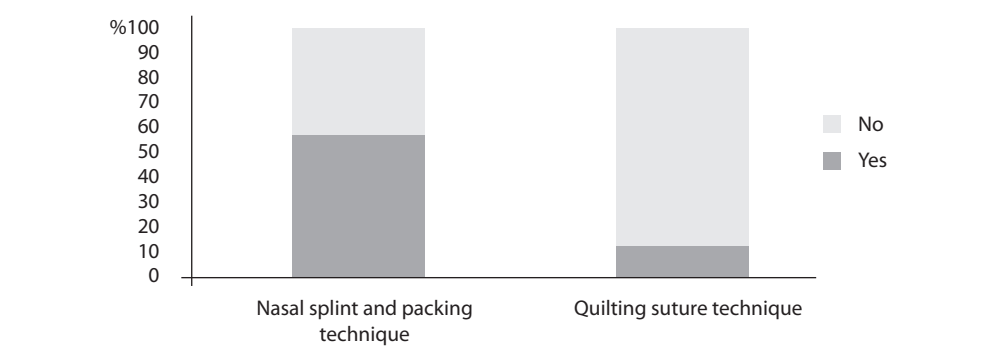


Fig. 7. Nasal obstruction in 48–72 hours postoperatively

Table 4
Early complications in (0–72 hours) postoperatively

Variable		Method surgery		P-value
		Splint and packing technique	Quilting suture technique	
Pain (facial and nasal) (0–72 hours)	No.	46	25	0.04
	%	92	50	
Pain Severity (0–72 hours)	Mild	50	60	0.11
	Moderate	50	40	
Epistaxis (0–72 hours)	No.	18	13	0.28
	%	36	26	
Repacking (0–72 hours)	No.	7	6	0.77
	%	14	12	
Septal hematoma (0–72 hours)	No.	3	2	0.65
	%	6	4	
Nasal Obstruction (48–72 hours)	No.	28	6	<0.001
	%	56	12	

Complications seen in both groups during 10–14 days postoperatively: Imperfectly corrected deviation following seen in 10% in group A and 4% in group B, Nasal obstruction was seen in 8% of group A and 2% in group B, pain was seen in 48% of group A 4% in group B. Nasal bleeding (in the form of few drops stopped spontaneously) seen in 8% of group A and 2% of group B. No cases of septal perforation or synechia were seen in both groups, the outcome of 10–14 days post operatively shown in Table 5.

Complications seen in both groups after one month postoperatively: Imperfectly corrected deviation seen in 8% in group A (the drop from 10% in 10–14 days to 8% after one month may be related to the effect of healing process and resolution of edema and decreasing in nasal secretions) and 4% in group B, pain was significantly more common in group A than group B. Nasal obstruction was seen in 8% of group A and 4% in group B. No cases of septal perforation or synechia were seen in both groups, as shown in the Table 6.

Table 5
Complications in both groups (10–14 days) postoperatively

Variables (10–14 days) postoperatively		Method surgery		P-value
		Splint and packing technique	Quilting suture technique	
Imperfectly corrected deviation	No.	5	2	0.24
	%	10	4	
Pain	Mild	44	0	0.01
	moderate	4	2	
Nasal Obstruction	No.	4	2	0.17
	%	8	4	
Epistaxis	No.	4	1	0.17
	%	8	2	
Septal Perforation	No.	0	0	1.0
	%	0	0	
Synechia	No.	0	0	1.0
	%	%	0	

Table 6
Complications in both groups one month postoperatively

Variable after one month		Method surgery		P Value
		Splint and packing technique	Quilting suture technique	
Imperfectly corrected deviation	No.	4	2	0.4
	%	8	4	
Pain (facial and nasal)	No.	7	0	0.01
	%	14	0	
Nasal obstruction	No.	4	2	0.4
	%	8	4	
Septal Perforation	No.	0	0	1.0
	%	0	0	
Synechia	No.	0	0	1.0
	%	0	0	

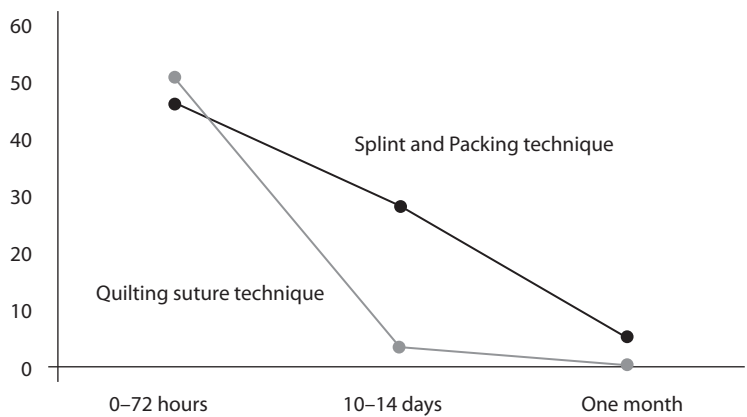


Fig. 8. Pain from immediate till one month postoperatively

Table 7
Complications in both groups (3 months) postoperatively

Variable after three months		Method surgery		P-value
		Splinting and packing technique	Quilting suture technique	
Imperfectly corrected deviation	No.	4	2	0.4
	%	8	4	
Nasal obstruction	No.	4	2	0.4
	%	8	4	
Septal Perforation	No.	0	0	1.0
	%	0	0	
Synechia	No.	0	0	1.0
	%	0	0	

With regard to the pain from immediate till one month post operatively shown in Fig. 8.

Complications seen in both groups after 3 months postoperatively: Imperfectly corrected deviation was seen in 8% in group A and 4% in group B. Nasal obstruction was seen in 8% of group A and 4% in group B, no cases of septal perforation or synechia were seen in both groups, as shown in Table 7.

■ DISCUSSION

Changing some routine surgical techniques may minimize the patient's postoperative discomfort. Intranasal packing is used to prevent nasal hemorrhage, to prevent septal hematoma and to reduce complications after nasal surgery [7]. In the present study, the findings contradict with work done by Abdul Khaliq et al. [8] and work done by Said et al. [9].

Most common complaints were nasal obstruction in 100%, this in agreement with work done by Ghimire et al. [10] were the most common patient complaint was nasal obstruction (90%) and least common was epistaxis (11%).

In our study, (55%) of the NSD were to the right, the type of NSD was bony cartilaginous were seen in (49%), deviated cartilaginous septum in (43%), both and bony deviation in (8%). This contradict with work done by Stewart MG et al. [11], this may be related to racial different of built of nose.

Comparing the early complications (0–72 hours) in both groups, the pain including facial and nasal pain was seen in 46 cases (92%) in group A, and in 25 cases (50%) in group B, assessment of pain done according to VAS, mild pain was seen in 50% in group A, and 60% of group B, moderate pain was seen in 50% of group A and 40% of group B. This agreement with work done by Cukurova et al. [12], this clearly indicate that the quilting suture group felt less pain than splint and packing group.

In current study bleeding was higher in group A (36%), compared to (26%) in group B. This coincide with work done by Cukurova et al. [12], also coincide with work done, Ardehali et al. [13], while Rao et al. [14] found that bleeding were more significant in patients without splints.

Repacking done after failure of primary methods like pinching of the alar cartilage and ice cold pack over the nasal bridge for 2 hours in most cases required in 7 cases of group A (14%) and 6 cases in group B (12%) and it was no significant difference, this is in contradict to Ghimire et al. [10].

Septal hematoma appeared in 3 cases in group A and in 2 cases in group B, was become apparent by pushing the splint aside and boggy swelling felt by palpation. These results in agreement with Siedek et al. [15] and in contradict to Ansari et al. [16].

Breathing difficulty and nasal obstruction, it was total in group A before pack removal but after pack removal after 48 hours were found in 28 cases in group A and 6 cases in group B in the early postoperative period, this is mostly due to insertion of nasal splint which lead to reduction in diameter of nasal passages and this reduction adversely affect naso-pulmonary reflex which have effect in oxygen saturation, in addition to the mucosal edema and increased nasal secretion, this in agreement with Ghimire et al. [10].

The late complications seen after 3 months included imperfectly corrected NSDs following the operation was seen in 4 cases (8%) in group A and 2 cases (4%) in group B, this in agreement with Ardehali et al. [13].

Nasal obstruction was seen in 4 cases (8%) of group A and 2 cases (4%) in group B in our study this in agreement with Plasencia et al. [17] were more nasal obstruction and respiratory distress in packing group 11 cases (23.3%) than quilting suturing group 3 cases (6.5%), this may be related to the surgical technique like improperly elevated mucoperichondrial flap interference with the blood supply which lead to the atrophy of the mucosa and feeling of nasal obstruction and related with degree of correction of the NSD.

■ CONCLUSIONS

There was no significant difference in postoperative complication regarding, although they were more common in packing and splinting group. There was significant difference between the two groups regarding pain and nasal obstruction where more common in splinting and packing than quilting suture group. Although, nasal splints are widely used in the surgical practice, it seems that doesn't reduce complications or to be better than quilting suture technique.

■ REFERENCES

1. Cummings CW, Flint PW, Harker LA, et al. *Cummings otolaryngology, head and neck Surgery*. Philadelphia: Mosby; 2010; 483–97 p.
2. Michael Gleeson. Scott-Brown otolaryngology. 2007;2:1577–85.
3. Calder NJ, Swan IRC. Outcomes of septal surgery. *J Laryng Otol*. 2007;121(11):1060–3.
4. Guyuron B. Is packing after septorhinoplasty necessary? A randomized study. *Plast reconstr surg*. 1989;84:41–44.
5. Noah S, Richard E, Farhan T, Yuchiao C. Outcomes of septoplasty. *Otolaryngology Head Neck Surg*. 2000;122:228–32.
6. Tardy ME. *Surgical Anatomy of the Nose*. New York, NY: Raven Press, 1990.
7. Erkhan G, Ergin NT. Comparison of suture and nasal packing in rabbit noses. *Laryngoscope*. 2004;114:639–645.
8. Abdulkhalik Karim Amin, Dashti Ali Hasan, Dr. Ammar M. Saleh Jaff. Trans-septal suture method versus intranasal silicone splint in septoplasty. *International Journal of Technical Research and Applications*. 2015;3(3):159–165.
9. Said Mustafa Said, Abubakir F. Abdulrazzaq. Effect of trans-septal suture technique versus nasal packing after septoplasty. *International Journal of Technical Research and Applications*. 2015;3(4):33–40.
10. Ghimire A, Limbu TR, Bhandari R. Trans-septal suturing following septoplasty: an alternative for nasal packing. Department of Otolaryngology & Head Neck Surgery, Chitwan School of Medical Sciences, Bharatpur, Nepal. *Nepal Med Coll J*. 2012;14(3):165–168.
11. Stewart MG. Complications of the surgery for deviated nasal septum. *J. Coll Physicians Surg Pak*. 2003;13(10):565–8.
12. Cukurova I, Cetinkaya EA, Mercan GC, et al. Retrospective analysis of 697 septoplasty surgery cases: packing versus trans-septal suturing method. *Acta Otorhinolaryngol Ital*. 2012;32(2):111–4.
13. Ardehali S. Use of nasal packs and intranasal septal splints following septoplasty. *Int J Oral Maxillofacial Surgery*. 2009;38(10):1022–4.
14. Rao E, Serin GM, Polat S, Kaytaz A. Removing intranasal splints after septal surgery. *J Craniofac Surg*. 2005;22(3):1008–9.
15. Siedek Quine SM, Pfeleiderer AG. Nasal splints, revisited. *J Laryngol Otol*. 1999;113(8):725–7.
16. Murtaza Ahsan Ansari, Umairul Islam, Ismail Hirani, et al. Kashmiri. Trans-septal suturing technique without intra-nasal packing in nasal septal surgery. Dow University of Health Sciences, Civil Hospital, Karachi. *Pak J Surg*. 2013;29(2):123–126.
17. Daniel Pérez Plasencia, Juan Carlos Falcón, Silvia Borkoski Barreiro, et al. Transeptal suturing a cost-efficient alternative for nasal packing in septal surgery. *Braz J Otorhinolaryngol*. 2016;82(3):310–313.