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Comparative study of conventional septoplasty and endoscopic septoplasty

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Abstract

Objective: To compare the outcome of endoscopic and conventional septoplasty and to evaluate the advantages, disadvantages and complications of conventional and endoscopic septoplasty.

Methods: We conducted a study on 122 patients with symptomatic Deviated nasal septum. They were equally randomized into 2 groups 61 each- CS (Conventional septoplasty group) and ES (endoscopic septoplasty group). Pre and post-operative evaluations were done by NOSE score, clinical examination, nasal endoscopy, CT scan.

Results: Endoscopic septoplasty showed significant improvement of symptoms and less complications when compared with conventional septoplasty.

Conclusion: we conclude that endoscopy assisted septoplasty is precise, limited excision of deviated part of septum with less trauma to nearby mucosa making the duration of surgery shorter with minimal postoperative complications.

Keywords: Deviated nasal septum, Conventional Septoplasty, Endoscopic Septoplasty, NOSE score.

Introduction

Nasal obstruction is one of the common presenting complaints in rhinology practice and deviated nasal septum is the most common cause of nasal obstruction. A significantly deviated nasal septum not only causes nasal obstruction but also causes headache, sinusitis, obstructive sleep apnea, epistaxis[1] etc. DNS is commonly associated with rhinosinusits, nasal polyps, external deformities like saddle nose, hump nose etc. Surgery is the only option for the relief of obstructive and symptomatic DNS. Over the years, the deviated nasal septum correction surgery progressed further. The increased incidence of complications with SMR leads to adoption of more conservative septoplasty[1]. Now septoplasty is one of the commonly performed procedures in ENT practice. It can be done alone or in combination with tuboplasty, FESS, rhinoplasty[2]. In the turn of 21st century, endoscope was introduced in to the otorhinolaryngology field for septal correction[3]. The endoscopic septoplasty has more advantages over conventional septoplasty. It offers better visualization, more focused flap dissection with isolated resection. The technique of endoscopic septoplasty is a fast-developing concept and is gaining popularity with an increasing trend towards endoscopic surgeries[4].

Methods

This was an observational study conducted in ENT department of Sree Gokulam Medical College and Research Foundation, Venjaramoodu, Thiruvananthapuram District in Kerala over 2 years (November 2018 – May 2020. All patients, above 10years of age, presenting to ENT OPD with features of symptomatic DNS were included in the study. Those Patients with acute rhino-sinusitis, those who are diagnosed with nasal mass, and those patients with previous nasal surgery were excluded from this study. After getting informed consent, Patients were equally randomized into two groups. Group 1- those who have undergone conventional septoplasty, Group 2- those who have undergone endoscopic septoplasty. Total of 122 patients were studied with 61 in each group. Detailed clinical history was taken from each patient and patients were asked to fill the NOSE score table to assess the severity of nasal obstruction preoperatively. The table consist of 5 symptoms and the patient is asked to rate the symptoms within a score of 0 to 4, where 0- not a problem, 1-very mild problem, 2- moderate problem, 3-fairly bad problem, 4-severe problem. Complete nasal examination including diagnostic nasal endoscopy was done in all cases to assess the site of deviation, associated spur, polyp, inferior turbinate hypertrophy, and middle turbinate status. A preoperative CT nose and paranasal sinus (axial, coronal, sagittal) were performed in all cases to assess the type of deviation, status of paranasal sinus and turbinate's. Preoperative evaluation-complete blood count, bleeding and clotting time, PT, INR, random blood sugar, renal function tests, urine routine, serology, ECG, and chest X-ray were done for all the patients. Pre anaesthetic checkup was done and anaesthetists' fitness for surgery was obtained.

All cases were operated under general anaesthesia. Topical anaesthesia of nasal cavity is achieved by packing the nasal cavity with 4% lignocaine with 1:1000 adrenaline in the ratio of 10:1 for 10 to15 minutes before surgery. The patient was laid supine in a reverse Trendelenburg position. The nose and adjacent areas were painted and then draped with sterile towels. Local infiltration with 1% lignocaine with 1:100,000 adrenaline was given into the nasal septum.

Technique of Conventional Septoplasty

Conventional septoplasty was performed using a headlight and nasal speculum. A vertical hemi transfixion incision was made 2mm from the caudal end of septum on concave side along the entire height. Mucoperichondrial flap and mucoperiosteal flap raised. Bony cartilaginous septum dislocated; periosteal flap raised on opposite side. Remove the deviated cartilaginous and bony septum. Inferior flap raised over the maxillary crest and removed the crest. Incision was sutured with catgut and soframycin soaked nasal packing was done.

Technique of Endoscopic Sepoplasty

Endoscopic septoplasty was done using 0degree 4mm Hopkins rod endoscope attached to Karl Storz CCD camera and light source. Endoscope was passed into nasal cavity to assess the septum. The endoscope held in left hand and instruments in the right hand. Here the incision was not extended as in conventional septoplasty. Limited mucoperichondrial–periosteal flap elevation was done over the most deviated part of septum. After resection, flap repositioned and incision was sutured with catgut. Nasal packing was done.

Intra operative Blood loss was recorded from the readings on the suction bottle. Fixed amount of saline was taken before surgery and at the end of surgery; amount of saline used for irrigation was deducted from the total collection in the suction bottle. Duration of surgery was estimated from local infiltration to suturing of incision.

Post-operative care: The patient was started on intravenous antibiotic such as amoxicillin-clavulanate 1.2 gm or ceftriaxone 1gm twice a day during the hospital stay and was continued orally for 1week after discharge. The anterior nasal pack is removed after 24 hours and patients were discharged after 3-5 days with decongestants and analgesics. The patients were instructed to review in OPD after a week. During this visit, nasal cavities were examined endoscopically.

Follow up: The patients were re-examined twice monthly for 1 month, then monthly for 3months. At each follow up diagnostic nasal endoscopy was done and looked for any persistence of DNS, perforation, synechiae, crusting, bleeding. The patients were again evaluated for nasal obstruction symptom improvement after surgery by NOSE Score when they came for review at 2nd week, 1st month and 3rd month postop.

Results

The mean age of study population was 35.86 years. In this study 56 were male (45.9%) and 66 were females (54.1%). In this study following nasal obstruction, nasal discharge (77%) and headache (76.2%) were the main issues. Post Nasal drip was 29.5%, epistaxis was 23%. The least was hyposmia (18%). DNS to left was the main pre- operative diagnostic nasal endoscopic finding (72 patients) followed by DNS to right (50 patients). Preoperative CT imaging showed 43 patients having pansinusitis (35.2%) along with DNS. 37 patients had concha bullosa (30.3%) and 28 patients had S shaped DNS. The mean intraoperative blood loss in conventional group was 56.28ml, while that of endoscopic group was 53.44ml. Blood loss was slightly less in endoscopic group which was not statistically significant. In this study the mean duration of surgery in conventional group was 57.98 min and 51.36 min in endoscopic group. The duration of surgery was less in endoscopic group compared to conventional septoplasty group and the p value <0.001 which was statistically significant (Table 1).

Table 1: Comparison of Duration of Surgery in conventional and endoscopic group

TYPE OF SX	N	DURATION OF SX (MIN)		t	p
		Mean	sd		
CONVENTIONAL SEPTOPLASTY	61	57.98	7.471	5.151	<0.001
ENDOSCOPIC SEPTOPLASTY	61	51.36	6.711		

In this study the mean preop NOSE Score was 16.31 in conventional group and 16.52 in endoscopic group (Table 2) (Fig 1).

Table 2: Comparison of Drop in mean NOSE Score in conventional and endoscopic group

Group	N	Pre-Op mean NOSE score	Post-Op mean NOSE score (3rd month)	Drop in mean NOSE score (SD)	t	df	P value
CS	61	16.31	4.15	12.16 (1.976)	48.07	60	<0.0001
ES	61	16.52	1.13	15.39 (1.977)	60.80	60	<0.0001

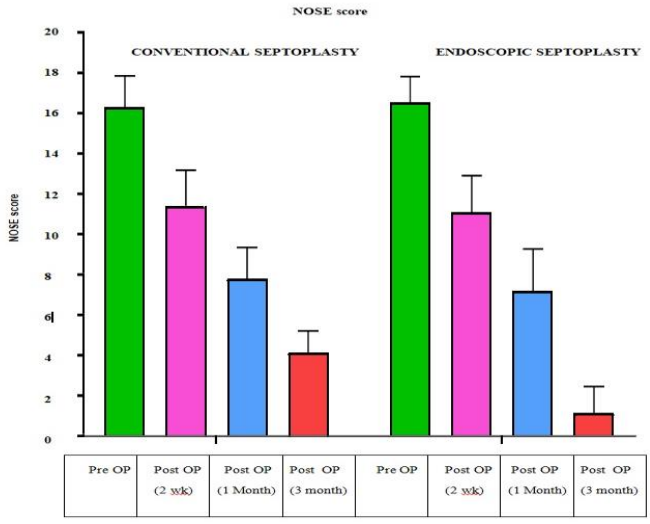

Fig 1: Comparison of fall in NOSE Score in conventional and endoscopic group.

The 2nd week, 1st month and 3rd month postop NOSE Score in conventional group were 11.41, 7.79, and 4.15 respectively. In endoscopic group 2nd week, 1st month and 3rd month postop NOSE Score were 11.08, 7.18 and 1.13 respectively (Table 2).

Table 3: Comparison of pre-op and post-op NOSE Score in conventional and endoscopic group

Nose score	CONVENTIONAL SEPTOPLASTY		ENDOSCOPIC SEPTOPLASTY		PERCENTAGE OF FALL IN MEAN NOSE SCORES from Pre OP	
	mean	sd	mean	sd	CONVENTIONAL SEPTOPLASTY	ENDOSCOPIC SEPTOPLASTY
PRE-OP	16.31	1.544	16.52	1.286		
2nd WK Post OP	11.41	1.764	11.08	1.819	30.0	32.9
1st MONTH Post OP	7.79	1.561	7.18	2.078	52.3	56.5
3rd MONTH Post OP	4.15	1.062	1.13	1.323	74.6	93.2

In conventional group total of 14 among 61 had complications- 4 had crusting, 3 had bleeding, 3 had persistence of deviation, and 1 had perforation and 3 had synechiae. In endoscopic group total of 6 among 61 had complications- 2 had crusting, 3 had bleeding, 1 had synechiae, and none had perforation and persistence of deviation. (Fig 2)

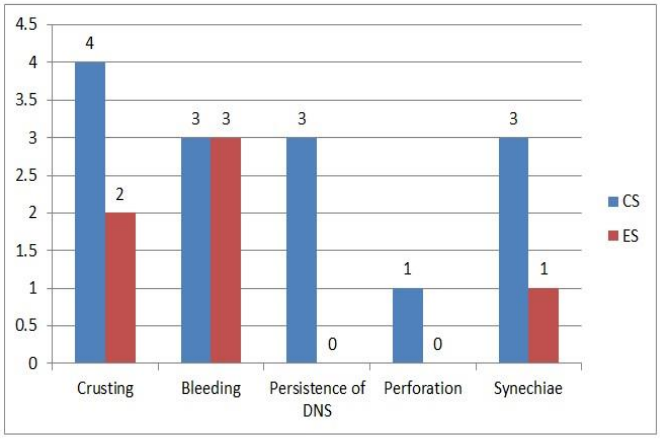

Fig 2: Post-operative complications in conventional and endoscopic septoplasty.

Discussion

In this study, among 122 patients, the most common age group affected was 21- 30 followed by 31-40, i.e.; 2nd and 3rd decades. This was in concordance with the study by Krishna Chaithanya V et al[12]. A study by Shreshta et al showed, mean age group was 29.5+-1.2 with maximum patients belongs to age group of 21-30 years. In this study, total of 122 patients- 56 was male (45.9%) and 66 were females (54.1%). Male: female ratio was 1:1.17. Similarly, study conducted by Hardy et al showed male: female ratio was 1:1.4.[8]Mandal et al showed male: female was 1.3:1. In the current study, of the total 122 cases the most common complaint was nasal obstruction (100%) followed by nasal discharge (77%), headache (76.2%). And the least common presentation was hyposmia (18%). In the studies conducted by Dr. Chilukuri et al[11], Uzdan et al, Ankita singh et al, showed that most common presentation was nasal obstruction (100%). [5,6] In this study, pre-operative mean NOSE Score of conventional septoplasty group was 16.31 and 16.52 in endoscopic group. similar results was obtained in a study by Ankita singh et al(16.36 and 17.0). In a study by Uzdan et al 12.5 in conventional septoplasty and 12.6 in endoscopic septoplasty[6]. In this study, DNS to left was the predominant finding on endoscopic examination (59%) followed by DNS to right (41%). Similar result was obtained in a study by khan et al (DNS to left- 55%, DNS to right-36.5%). In the current study, CT scan of the patients with DNS showed pansinusitis (35.2%) was the associated finding followed by concha bullosa (30.3%). In a study by Dr. Chilukuri et al showed ITH (26%) was the associated finding.

In this study intraoperative blood loss was 51-60ml range in both the groups. The Mean intra op blood loss in endoscopic group was 53.44 ml, while in conventional group was 56.28ml. Similar result was obtained in a study by Mohammed wafaie et al - intra op blood loss in endoscopic group was 41.25+-13.46 and in conventional group was 59.5+-14.5ml[9]. Ankita Singh et al showed 50.23ml in endoscopic group and 48.18ml in conventional group. [5]In a study by Mandal et al 53.23ml was in endoscopic group and 87.53ml in conventional group. In this study, time taken for surgery in endoscopic group was 51.36 min and in conventional group was 57.98min. In a study by Mohammed wafaie et al also showed less duration of surgery in endoscopic group than conventional group (25-55min in endoscopic group and 40-70min in conventional group).[9]

In my study, 3rd month post op NOSE score was 4.15 in endoscopic groups and in conventional group was 1.13. Similar result was obtained in a study Ankita Singh et al also (4.18 and 1.23).

In this study both groups showed improvement of symptoms which were statistically significant. Endoscopic group was showed significantly more improvement than conventional group. Ankita Singh et al also showed the same results.

In my study, complication rate in endoscopic group (9.8%) was lesser than conventional group (23%). Similar results was obtained in Ankita Singh et al (13.6% in endoscopic group), khan et al[13](6.67%), jain et al(3%), Gupta et al(2.08%).[5,7] Synechae were less formed in endoscopic group than conventional group in khan et al 6.67%, Amina Iqbal et al[14] 0%, and Jain et al 0%.In the present study also synechae formed was lesser than conventional group (1.6%).(Table IV).

Table 4: Improvement in NOSE Score among various studies

Journal	Conventional	Endoscopic
In this study	12.16	15.39
Ankita et al	12.18	15.77
Uzdan et al	8.6	8.1
Paradis& Rotenberg	8.9	7

Conclusion

DNS is one of the most common presentations and septoplasty is a commonly performed procedure in ENT practice. All the 122 patients were followed up for a period of 3 months post-operatively and the results were assessed in terms of symptomatic improvement, endoscopic findings and complications. Commonly seen age group was 2nd and 3rd decades, and the mean age was 35.86 years. There was no gender discrimination; both sex groups were equally affected. Nasal obstruction was the commonest symptom in all the patients in both groups followed by nasal discharge and headache. The left sided deviated nasal obstruction was found to be more common than right sided deviation on pre-operative endoscopic examination. The time taken for surgery was found to be significantly less in endoscopic group and the intra-operative blood loss was also found to be low in endoscopic group due to direct visualization of the deviated part with limited excision and less trauma to nearby mucosa. Both the groups showed improvement of symptoms at 3 month post-operatively. The endoscopic group showed significant improvement than conventional group. The post-operative complications were less in endoscopic septoplasty when compared to conventional septoplasty. Persistence of deviation was noted in 4.9% in conventional group and none in endoscopic group. Also the complications like crusting, synechae, perforation were found to be more in conventional group.

So, we conclude from this study that endoscopic septoplasty is an effective, conservative approach with better results and less complications as compared to conventional septoplasty.

References

1. Pannu K K, Chada, Kaur I P. Evaluation of benefits of nasal septal surgery on nasal symptoms and general health. Indian Journal of Otolaryngology& Head and Neck Surgery, 2009; 61(1): 59-65.
2. Manoukin PD, Wyatt JR, Leopold DA, Bass EB. Recent trends in utilization of procedures in otolaryngology-head and neck surgery. Laryngoscope 1997; 107:472-7.
3. Stammberger H. Functional endoscopic sinus surgery: The Messerklinger Technique. Philadelphia: BC Decker; 1991.p.432-3.
4. Siegel NS, Gliklish RE, Tagizadeh F, Chang Y. Outcomes of septoplasty. Otolaryngol Head Neck Surg 2000; 122(2):228-232.
5. Gupta N. endoscopic septoplasty. Indian J Otolaryngology Head and Neck Surg 2005 jul; 57(3):240-243.
6. Ankita Singh, NaliniBhat, Pallavi Bhandarkar, Rani Singh. A comparative study of conventional septoplasty and endoscopic septoplasty. Bengal Journal of otolaryngology and head and neck surgery 2018; 26(1):1-9.
7. Uzdan U Z, M D Gorkem ESKIIZMIR, MD; A Comparison of quality of life and outcomes of endoscopic and conventional septoplasty, KBB-Forum 2018;17(4),138-143.

8. Jain L, Jain M, Chouhan AN, Harshwardhan R. Conventional septoplasty verses endoscopic septoplasty: A Comparative Study. People J Sci Res 2011; 4:24-28.
9. Hardy Sirwan Mohammed, Hiwa Assad Abdulkareem: Endoscopic assisted septoplasty versus conventional septoplasty- A Prospective study. Journal of Kurdistan Board of Med Specialities 2019; vol 5. No.1: (91-96).
10. Mohammed Wafaie, GamalYousof, Mohammed Dahy. Comparative study between endoscopic septoplasty and conventional septoplasty. International Journal of Multidisciplinary Research and Development. September 2019; 6(9); 56-60.
11. Dr.Chilukuri Anita, Dr. Arunkumar C. Compare conventional septoplasty method with endoscopic septoplasty. IOSR Journal of Dental and Medical Sciences, Jan2018; vol17 issue1 ver16: 60-66.
12. V Krishna Chaitanya, N.Janardhanan, S.Rajesh Kumar, G.Rakesh. Does the use of an endoscope in conventional septal surgery provide benefit in patients of deviated nasal septum? Sch.J.Med.Sci., 2014;2(5E):1824-1827.
13. Khan M N, KripamoyNath, Shams uddin. A Clinical study of DNS with special reference to conventional septoplasty and endoscopic septoplasty. Int. J Res Med Sci 2016 Dec;4(12):5165-5171.
14. Dr. AminaIqbal, Dr. Hamd Zahra, Dr. MahparaAsif. Study to know the postoperative outcome comparison of conventional versus endoscopic septoplasty. IAJPS 2018; 05(10): 10612-10616.