

Original Article**Endoscopic Septoplasty without Nasal Packing: An Experience in a Tertiary Hospital****Meenakshi Basnet*, Bedajit Rajkumar, Bibek Ghimire and Akriti Shrestha**

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Article Received: 24th February, 2019; Revised: 19th April, 2019; Accepted: 17th May, 2019DOI: <http://dx.doi.org/10.3126/jonmc.v8i1.24475>**Abstract****Background**

Deviated nasal septum (DNS) is easily caused by trauma and septal surgeries have evolved from forceful fractures to endoscopic surgery being the leading trend now. Endoscopic surgery has lots of advantage over the conventional headlight method in alleviating symptoms and reducing complications. Endoscopic septoplasty without the nasal packing significantly shorten the surgery time and hospital stay thus reducing the financial burden. Hence this prospective study done in Nobel Hospital and Teaching Center was an endeavour to see the indications, technique and outcome of the new surgical procedure.

Materials and Methods

Sixty-five patients irrespective of sex in the age group of 18-60 years were enrolled in the study from December 2017 to December 2018. All symptomatic DNS confirmed by 0° and 30° rigid endoscope were enrolled. Informed consent from patients and ethical clearance was taken.

Results

The maximum patients were in the age group of 18-30 years. The commonest symptoms of the patient was nasal obstruction in 51(78.46%), followed by post-nasal drip in 20(30.76%), hyposmia in 17(26.15%), headache in 15(23.07%) and epistaxis in 10(15.38%). According to Mladina classification, the commonest deviated septum was type V in 29(45%), followed by type VI in 12(18%), type II and IV in 7(11%) each, type VII in 6(9%) and least being type III in 4 (6%) patients. There were no patients with Mladina type I DNS in this study. The improvement in symptoms were 90% in nasal obstruction, 88% in hyposmia, 85% in post nasal drip, 90% in epistaxis and 100% in headache. The complications were haemorrhage in 1(1.5%), synechia 2(3.07%), mucosal tear 5(7.69%), haematoma 1(1.5%) and persistent DNS 5(7.69%). The average hospital stay was 48 hours.

Conclusion

Endoscopic septoplasty without post-operative packing is very convenient to the patient. Endoscopic septoplasty with trans-septal suture is safe, cost effective and a better alternative.

Keywords: *Endoscopy, Nasal obstruction, Septoplasty*

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Introduction

Nose is subject to easy trauma leading to deviated nasal septum (DNS). This deformity can lead to nasal obstruction, epistaxis, headache, decreased sense of smell, obstructive sleep apnea, post nasal drip and lots of pharyngeal and aural pathologies too.

Corrective septal surgery has evolved from forceful fracture, submucosal resection to conventional headlight septoplasty. With the introduction of endoscope in the field of rhinology, revolutionary changes have occurred in the field of nose and skull base surgery and endoscopic septoplasty is the leading trend now. Initially endoscopic septoplasty was described by Lanze and Stamberger et al in 1991 [1].

After septoplasty nose is usually packed with merocel or antibiotic soaked ribbon gauge for 48 hours. This can be very discomforting to patients and instead nasal splints, clips or figure 8 trans-septal sutures can be done as stated in Text book of Scott Brown [2]. Endoscopic septoplasty without nasal packing is a newer procedure claimed to very effective in preventing morbidity and sleep apnoea in elderly person. It also reduces the hospital stay thus reducing the financial burden to the patient. Hence this study was undertaken to see the indications, technique and outcomes of the recent surgical procedure.

Materials and Methods

This is a prospective study conducted in the department of ORL and HNS in Nobel Medical College and Teaching Hospital (NMCTH) from 2017 December to 2018 December. Sixty-five consecutive patients irrespective of sex were enrolled in this study to undergo endoscopic septoplasty surgery without nasal packing. Informed consent was taken from the patient and ethical clearance was taken from the IRC (Institutional Review Committee), NMCTH.

Inclusion criteria:

1. All patients above 18 – 60 years with symptomatic DNS.
2. Impacted DNS confirmed by 4mm 00rigid endoscope.
3. Revision septoplasty

Exclusion criteria:

1. Patients below 18 years and above 60years
2. Caudal septal dislocation
3. DNS associated with any nasal mass.

4. Patients having upper respiratory tract infection
5. Bleeding disorder
6. Patients not giving consent for surgery
7. Patients not compliant for surgery

Detailed history and clinical examination was done for all the patients. Then rigid endoscopy was done under local anesthesia in the OPD to classify the DNS and also to see any disease in the nose. X-ray nose and paranasal sinus (PNS) was done to rule out any sinus pathology. DNS was classified according to The Mladina system [3,4].

The Mladina classification of DNS

- Type I: Midline septum or mild deviation in vertical or horizontal plane which does not extend throughout the vertical length of the septum.
- Type II: Anterior vertical deviation
- Type III: Posterior vertical deviation (OM and | middle turbinate)
- Type IV: 'S' septum posterior to one side and anterior to another side
- Type V: Horizontal spur on one side with or without high deviation on other side
- Type VI: Type 5 with deep groove on other side
- Type VII: Combination of more than one type from type 2-6.

Technique

After intubation patient was positioned in reverse Trendelenberg position at 30°. Painting and draping was done. Nasal cavity packed with merocel soaked in 4% xylocaine 10 minutes prior to surgery. Nasal cavity reexamined with 0° endoscope. 2% xylocaine with 1: 100,000 adrenaline infiltrated on the incision site. Incision was given on the concave side just anterior to the DNS. If the spur is in the floor then the incision is given above and parallel to it. Mucoperichondrial flap elevated with suction elevator a little beyond the deviated point and the deviated portion removed. If deviation is in the cartilaginous part then a part of the perpendicular plate of ethmoid and vomer was also removed with Luc's forceps. Bony maxillary spurs were removed with gouge and hammer. The mucoperichondrial flap was repositioned and figure suturing was done with catgut 3-0. The nasal cavity cleaned the next day, alkaline douching started and patient discharged on the 1st or the 2nd post-operative day under antibiotic coverage for 5 days. Patients were



followed on 1, 2, 4 and 12 weeks to see the outcomes and complications with 00 and 300 rigid endoscopes OPD procedure.

Results

There were 37 male and 28 female (1.3:1) (Figure 1). The age range of the patients was from 18-60 years with the mean age being 13 years. The maximum patients were in the age group from 18- 30 years (Figure 2).

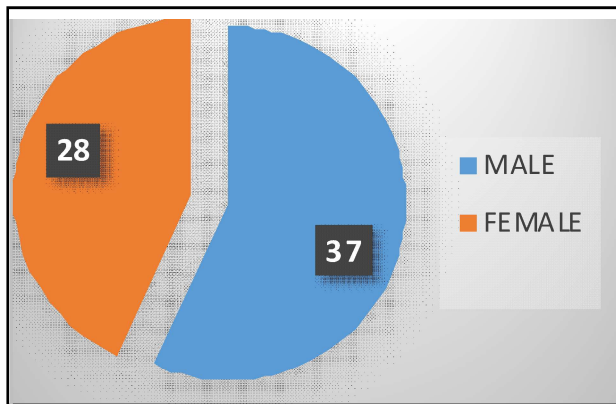


Figure 1: Gender distribution

Most of the patients were housewives followed by farmers, students and businessmen. The commonest symptoms presented by patients was nasal obstruction which was 51(78.46%), followed by post-nasal drip 20(30.76%), hyposmia 17(26.15%), headache 15(23.07%) and the least was epistaxis 10(15.38%) (Figure 3).

The types of DNS of the patients according to the Mladina classification, the commonest was type V in 29(45%), followed by type VI 12(18%), type II and IV were 7(11%) each, type VII 6(9%), with the least being type III 4(6%). There were no patients with Mladina type I DNS in this study (figure 4).

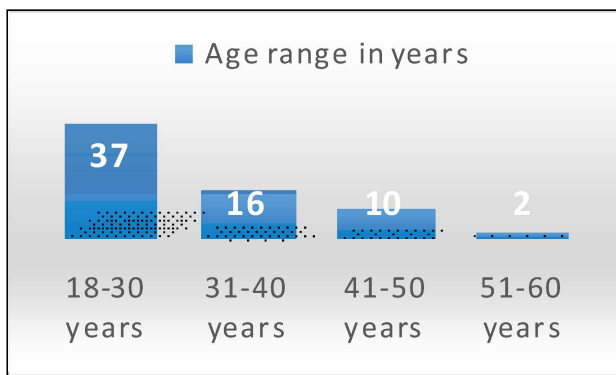


Figure 2: Age distribution

The improvement in symptoms of the patients were 90% in nasal obstruction, 88% in hyposmia, 85% in post nasal drip, 90% in epistaxis and 100%

in headache (Figure 5). There were few complications in this study, haemorrhage in 1(1.5%), synechia 2(3.07%), mucosal tear 5(7.69%), haematoma 1(1.5%) and persistent DNS 5(7.69%) (Figure 6). The average hospital stay was 48 hours.

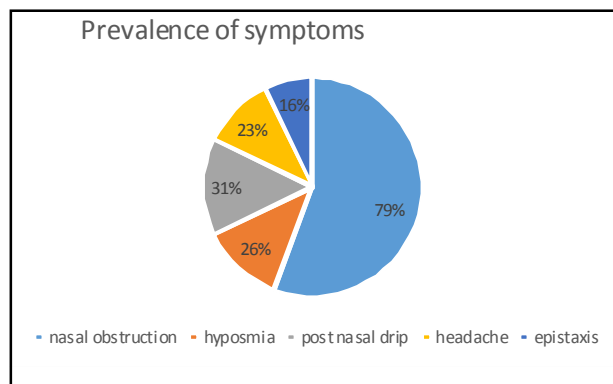


Figure 3: Prevalence of symptoms in DNS

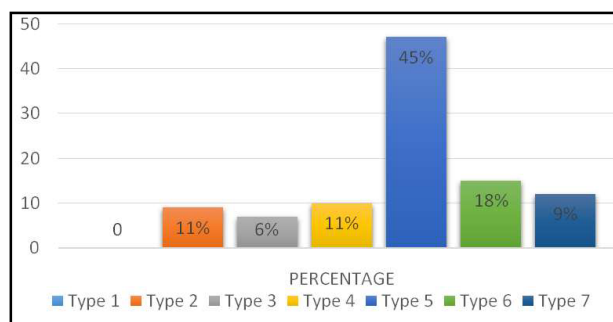


Figure 4: Mladina classification of DNS

Discussion

Septoplasty is one of the most common rhinological surgery performed [5]. With the invention of endoscope almost all nasal surgeries which were done by open technique has now been replaced by endoscopic technique. The endoscopic approach can be especially advantageous in revision septoplasty as it has better visualization of tissue planes due to high illumination [6, 7]. A relatively shorter time and limited extent of dissection is needed in endoscopic surgery which was shown by Giles GC et al in their study [8]. ENT surgeries have notoriously been known as selfish surgery as the assistant or the pupils of the surgeon could not properly see the operating field and so endoscope combined with a video monitor is the best teaching tool [6].

After septoplasty nasal cavity is usually packed with medicated ribbon gauge which led to many morbidities like mouth breathing, nasal pain, ear ache, lacrimation, synechia, hypoxia and toxic shock syndrome which is least common but fatal.

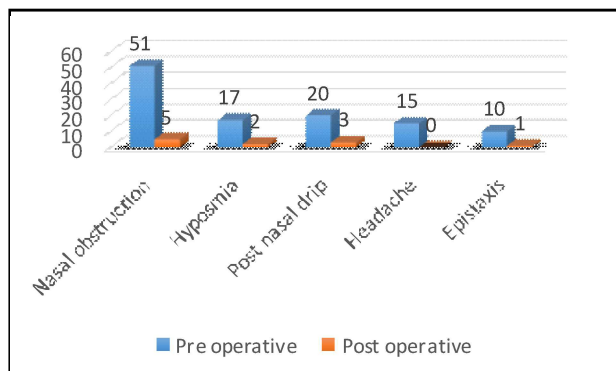


Figure 5: Post-operative improvement in symptoms

The necessity for any kind of nasal packing or splinting is to stabilize the septum otherwise it will lead to unwanted complications. Therefore various materials have been described for packing including medicated packs like ribbon gauge, fingerstall, merocel, balloon tamponade by Rowan V et al [9]. Other less invasive are Splints and Clips [10,11]. In our study we gave trans-septal figure 8 suture which was found to be cost effective, safe and better alternative to packing. Similar technique has been described by Cukurova et al; Eski E and Yilmaz land Varghese GM [12-14]. However, this view was not subscribed by Sashikanth JA et al [15]. According to them avoiding packing or splint does not increase the incidence of complications.

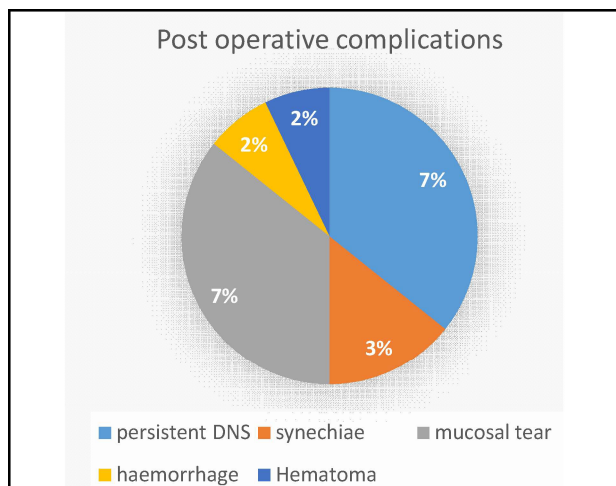


Figure 6: Post operative complications

In our study the sex distribution of male and female was 1.3:1.0 which was similar to that of Mandour ZM16 The age group of the patients in this study were maximum in 2nd to 3rd decade of life which was comparable to a study done by Mandour ZM; Dodia MN et al [16,17]. The most common complaints presented by patients in this study was nasal obstruction 51(78.46%) which

was similar to the studies done by Rajguru R et al and Singla K et al [18,19]. It was followed by post-nasal drip 20(30.76%), hyposmia 17 (26.15%), headache 15 (23.07%) and epistaxis 10 (15.38%) which was similar to study done by Mandour ZM; Gupta M and Motwani G but headache was the second common complaint in Gupta M and Motwani's study [16,20]. The types of DNS of the patients according to the Mladina classification, the commonest was type V in 29 (45%), type VI 12 (18%), type II and type IV 7(11%) each, type VII 6 (9%), type III 4 (6%) patients. There were no patients with Mladina type I DNS in this study. These findings were consistent with the study of Singla K et al [19].

The improvement in symptoms of the patients were 90% in nasal obstruction, 88% in hyposmia, 85% in post nasal drip, 90% in epistaxis and 100% in headache which was similar to the studies described by Rajguru R et al and Singla K et al [18,19]. The complications in this study were haemorrhage 1(1.5%), synechia 2 (3.07%), mucosal tear 5 (7.69%), haematoma 1(1.5%) and persistent DNS 5 (7.69%) which were similar to studies done by Hwang et al; Chung et al; Eski E and Yilmaz but haemorrhage was higher in study by Eski E [6,7,13]. The average hospital stay of our patients was 48 hours which was similar to studies done by Gupta M and Motwani Gin the endoscopy group [20].

Conclusion

Evolution of endoscopic nasal surgery is a boon for the rhinologists. This study depicts that endoscopic septoplasty is a minimally invasive surgery because better illumination and precise vision of the anatomy of the nasal cavity enable the surgeon to have a targeted approach. More over in the present study as there was no nasal packing, it was safe cost effective and good alternate. This being the first study of its kind in our institute larger series and long term follow up are necessary to know about the usefulness and limitations of this surgical procedure.

References

- [1] Lanza DC, Kennedy DW, Zinreich SJ, Nasal endoscopic and its Surgical applications. In: Lee KJ, editor, Essential Otolaryngology: head and neck surgery, 5th edition. Appleton and Lange. (1991) 373-387.
- [2] Adriaan F, Van Olphen (2008) The Septum; Michael Gleeson, et al., Scott-Brown's Otorhinolaryngology Head and Neck Surgery; Seventh Edition;

- London, UK; Hodder Arnold. 1580: 185
- [3] Mladina R, The role of maxillar morphology in the development of pathological septal deformities. *Rhinology* 25:3 (1987) 199-205.
- [4] Mladina R, Krajina Z, The influence of the caudal process on the formation of septal deformities, *Rhinology*. 27:2 (1989) 113-118.
- [5] Gandomi B, Bayat A, Kazemei T Outcomes of septoplasty in young adults: the nasal obstruction septoplasty effectiveness study, *Am J Otolaryngol Head Neck Med Surg*. 31 (2010) 59-62.
- [6] Hwang PH, McLaughlin RB, Lanza DC, Kennedy DW, Endoscopic Septoplasty: Indications, technique and results, *Otolaryngol Head Neck Surg*. 120 (1999) 678-682.
- [7] Chung BJ, Batra PS, Citardi MJ, Lanza DC, Endoscopic septoplasty: revisitation of the technique, indications and outcomes, *Am J Rhinol*. 21 (2007) 307-311.
- [8] Giles WC, Gross CQ, Abraham AC, Greene WM, Avner TG, Endoscopic septoplasty, *Laryngoscope*. 104:12 (1994) 1507-09.
- [9] Valentine R, Wormald PJ, Sindwani R, Advances in absorbable biomaterials and nasal packing, *Otolaryngologic Clinics of North America*. 42:5 (2009) 813-28.
- [10] Tang S, Kacker A, Should intranasal splints be used after nasal septal surgery? *The Laryngoscope*. 122:8 (2012) 1647-8.
- [11] Veluswamy A, Handa S, Shivaswamy S, Nasal septal clips: an alternative to nasal packing after septal surgery? *Indian Journal of Otolaryngology and Head & Neck Surgery*. 64:4 (2012) 346-50.
- [12] Cukurova I, Cetinkaya EA, Mercan GC, Demirhan E, Gumussoy M, Retrospective analysis of 697 septoplasty surgery cases: packing versus trans-septal suturing method, *Actaotorhinolaryngologica italic*. 32:2 (2012) 111.
- [13] Eski E, Yilmaz I, Septoplasty without nasal packing: Functional Outcomes and Complications: A Prospective Clinical Study, *J Otolaryngol ENT Res*. 3:2 (2015) 00062.
- [14] Varghese GM, Septoplasty without Packing, Splints or Clip-Our Experience, *Int J Surg Surgical Tech*. 1:2 (2017) 000108.
- [15] Jonnalagadda S, Yu VM, Catalano P, Endo-nasal surgeries without nasal packing or splints-A retrospective review of postoperative bleeding complications in 300 patients, *The Laryngoscope*. 121:S5 (2011) S362.
- [16] Mandour ZM, What nasal endoscope adds in septoplasty, *Egyptian Journal of Ear, Nose, Throat and Allied Sciences*. 18:1 (2017) 11-5.
- [17] Dodia MN, Shah N, Shah A, Comparative Study of Endoscopic Septoplasty without and with Endonasal-Septal Suturing Techniques, *Journal of research in medical and dental science*. 3:3 (2015) 219-21.
- [18] Rajguru R, Singh I, Galagali JR, Singh A, Septoplasty techniques- conventional versus endoscopic: our experience, *Int J Otorhinolaryngol Head Neck Surg*. 3 (2017) 990-6.
- [19] Singla K, Singh B, Bhagat S, Verma BS, Endoscopic Septoplasty: Prospective Study in 50 Cases of DNS, *Clin Rhinol An Int J*. 6:2 (2013) 92-95.
- [20] Gupta M, Motwani G, Comparative study of endoscopic aided septoplasty and traditional septoplasty in posterior nasal septal deviations, *Indian Journal of Otolaryngology and Head and Neck Surgery*. 57:4 (2005) 309.

