



## To Compare the Indications, Procedures, Efficacy and Complications of Endoscopic over Conventional Septoplasty in cases of Pathological Nasal Septum at Tertiary Care Centre of Central India

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### Abstract

*The present study was carried out in Tertiary Care Centre of Central India and total of 100 patients with clinical evidence of nasal obstruction were evaluated with CT scan PNS (coronal view) and by nasal endoscopy management included septoplasty surgery both conventional and endoscopic technique, comparison was done in both groups in terms of pre-op symptom, intra-op finding and post-op complication (immediate & follow-up).*

**Keywords:** Endoscopic, Conventional, Septoplasty, Nasal Septum.

### Introduction

ENT surgeries have always been notoriously known as selfish surgery. Because the assistant is not able to watch the surgical steps. Thus endoscopic septoplasty is a better technique as compared to conventional technique both in terms of patient and the surgeon.

It is also an established fact that the anatomy of nose and paranasal sinuses is the most varied of all the anatomy of entire body. It is hence very important to be cognizant of all the variations that can occur. Nasal obstruction is the most common complaint in rhinologic practice and a deviated nasal septum is the most common cause of nasal obstruction. The evaluation of septal deviation causing nasal obstruction depends heavily on physical examination and imaging (Dinis &

Haider, 2002)<sup>[1]</sup>. Apart from nasal obstruction, a significantly deviated nasal septum has been implicated in epistaxis, sinusitis, obstructive sleep apnea<sup>[3,4]</sup>, and headaches attributable to contact points with structures of the lateral nasal wall (Pannu et al, 2009)<sup>[2]</sup>.

**Study Design:** Observational Study

### Material & Method

The present study, carried out in Tertiary Care Centre of Central India, a total of 100 patients with clinical evidence of chronic rhinosinusitis were evaluated with Nasal endoscopy and CT scan PNS coronal view from June 2016 to Dec. 2017.

They were divided into group A and group B, with 50 cases in each group. Group A underwent conventional septoplasty and Group B underwent endoscopic septoplasty.

### Criteria for patients selection

- The study included those patients who present with Nasal obstruction, Headache and atypical facial pain with septal spur without any neurological or ophthalmic causes and were refractory to optimal medical therapy for a minimum of 3 months prior to undergoing nasal endoscopy and CT imaging.
- Patient with Sino nasal malignancy, acute infective Sino nasal diseases, mucocoeles protruding from sinuses into nasal cavity, radiation therapy to head and neck, general medical condition that precludes elective surgery (including pregnancy) were excluded from the study.

All patients with identifiable disease were subjected to detailed clinical examination, diagnostic endoscopy & CT scan PNS coronal section (axial section when required).

### I) History

A good clinical history is much more important than the physical examination since the sinuses are inaccessible in routine clinical examination. So, for all the patients, a detailed history of wide spectrum of presenting symptoms viz. facial pain, headache, nasal discharge (whether it is watery, mucoid, purulent or blood mixed), nasal obstruction (its duration, whether it is continuous or intermittent and whether it is associated with any external nasal deformity) were evaluated and a diagnosis was made.

The presence of other symptoms like postnasal discharge, sneezing, episodes, acute, chronic or serous otitis media were also noted in detail.

The complete personal, past and family history were also taken in addition with past medical/surgical history to know about any chronic use of antihistamines, steroid sprays and other medications in the past.

### II) Clinical Evaluation

All patients were subjected to thorough ENT examination with special emphasis on anterior and posterior rhinoscopy.

On anterior rhinoscopy, condition of nasal mucous membrane, nature of discharge, patency of nasal cavity, deviation of septum, status of middle and inferior turbinate as regards to hypertrophy, atrophy, paradoxical curvature and presence or absence of polyps were recorded.

On posterior rhinoscopy, the nature of discharge when present in choana and nasopharynx was noted, posterior ends of turbinates assessed, presence of mass or polyp with status of nasopharyngeal end of eustachian tube was recorded.

### III) Nasal Endoscopy

After preliminary anterior and posterior rhinoscopic examination patients were further evaluated clinically by subjecting them to diagnostic nasal endoscopy using rigid endoscopes 0° and 30° endoscopes.

Nasal packing was done in all cases with 4% lignocaine and and xylometazoline solution to achieve local anaesthesia and vasoconstriction.

#### • First pass

Endoscope was passed along the floor of the nasal cavity accessing the inferior meatus for nasolacrimal duct and then backwards upto posterior choanae to view the nasopharynx, eustachian tube orifice for post-nasal discharge and any peritubal mucosal edema.

#### • Second pass

Traversed between septum and posterior end of middle turbinate, directed superiorly to examine superior turbinate, superior meatus, sphenoidal recess and sphenoidal ostium.

#### • Third pass

Performed by gently guiding telescope into middle meatus to view the uncinate process, frontal recess area to look for any discharge, mucosal edema, inflammation, polyp or obstructive anatomic variations like septal

deviation, septal spur, agger nasi cell, uncinate bulla, malposition of uncinate process etc.

Detailed assessment of middle turbinate was made in each nasal cavity to record the presence or absence of concha bullosa, paradoxically bent middle turbinate and hypertrophy.

During endoscopic evaluation care was taken not to damage nasal mucosa and fogging of lens was prevented by using concentrated savlon solution or any other anti fogging agent.

#### IV) Radiological Assessment and CT Scan PNS Coronal Section

After nasal endoscopy, patients were subjected to CT scan PNS coronal section (axial section when required).

The term "Coronal CT Scan PNS" is applied to advanced radiological imaging modality in which contiguous coronal slices or sections of nose and PNS are obtained, which optimally displays subtle structure of ostiomeatal unit and all paranasal air cells.

Coronal planes were selected, as it is the plane in which anatomy and pathology are examined almost identical to view of endoscopist and it best displays both the ostiomeatal changes and relationship of brain to ethmoid sinus.

All PNS CT Scan examinations were performed on *CT Max 64 (VIPRO-G) scanner* using 5 mm contiguous slice thickness for adults and 2 or 3 mm slice thickness in paediatric cases in coronal plane from sphenoid sinus to frontal sinus in prone position using both bone and soft tissue windows.

For optimal demonstration of delicate bony morphology of ostiomeatal area, scanning was centred only on nasal cavity and PNS.

#### Surgery

##### • Pre-Operative Patients Counselling

The patients were explained in detail about alternative modes of treatment, nature of surgery, outcomes of surgery including benefits as well as possible complications of surgery. They were also counseled for the importance of regular post operative follow up to monitor healing and to avoid post operative complications. To ensure that

the patients fully comprehend to realities of surgical treatment and to avoid any legal litigation a written informed consent was obtained from each patient prior to surgery. Patients suffering from allergy were counselled about the precautions and recurrence of symptoms (if any) even after the surgery.

Preoperatively patients were given appropriate broad spectrum antibiotics and anti -histaminics.

#### Pre medications

In highly uncooperative adults, general anesthesia was given and the surgery was carried out and in rest all patients surgery was performed under sedation and local anesthesia.

#### ▪ Equipments

##### Light source, optical instruments and septoplasty instruments

- 1) Storz cold light source with double outlet.
- 2) Fiber optic light cable.
- 3)Fiber optic rigid telescopes (0,30,70 degree).
- 4) Operating fiber optic head light.
- 5) *ST. Clair thomson's* long blade nasal speculum.
- 6) Freer's elevator.
- 7) Uncinectomy scissors.
- 8) lack's tongue depressor.
- 9) Ballenger's swivel knife.
- 10) Mallet and chisel.
- 11)Straight and curved suction tips for suction.
- 12) blade handle.

#### Results & Observation

**Table No. 1:** Age and sex distribution among group B (Endoscopic Septoplasty)

Gender	18-25year	26-35year	36-45year	46-55year
Male	9	10	4	3
Female	5	10	9	0
Total	14	20	13	3

Out of 50 cases 26 were male and 24 were female.

Male: Female ratio 1.08 :1

- In the present study conventional septoplasty group (Group A= Total 50) constituted of 30 males and 20 females while the endoscopic septoplasty group

(Group B= Total 50) had 26 males and 24 females.

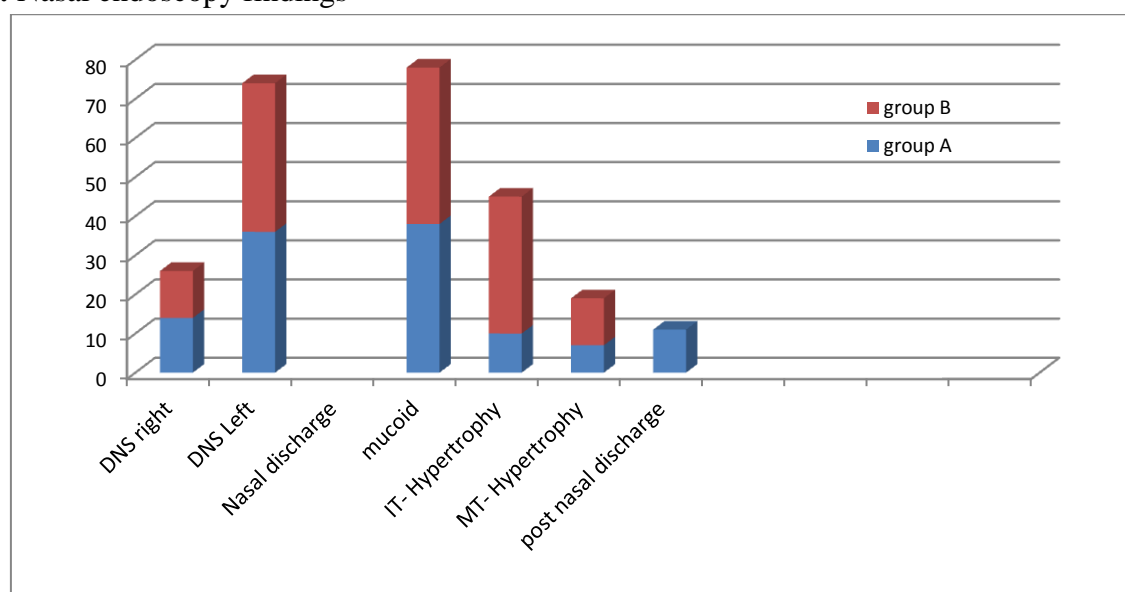
- The male to female ratio for deviated nasal septum was 1.5:1 in group A and 1.08:1 in group B.

- The most commonly affected subjects belonged to 26-35 year age group with average age 28.8 year and males are more commonly affected than females.

**Table No.2:** Nasal endoscopy findings

Endoscopic findings		Conventional septoplasty (group A) No. of patients(n=50) (%)	Endoscopic septoplasty (group B) No. of patients(n=50) (%)
DNS	Right	14(28%)	12(24%)
	Left	36(72%)	38(76%)
Nasal discharge	Mucoid	38(76%)	40(80%)
Inferior turbinate	Hypertrophy	10(20%)	35(70%)
Middle turbinate	Hypertrophy	7(14%)	12(24%)
Post nasal discharge		11(22%)	0(0%)

**Graph No .1:** Nasal endoscopy findings



- DNS was observed unilaterally in all cases with no bilateral DNS. Among the unilateral DNS left sided DNS showed predominance.
- Majority of cases had mucoid bilateral nasal discharge (80%) in group B and 76% in group A
- Inferior turbinate hypertrophy was observed in 70 % group B and 20 % in group A.
- Middle turbinate was found to be 24% in group B and 10% group A.

## Discussion

Numerous medical descriptions are available regarding the pathology and treatment of deviated nasal septum.

Another study done by Mundra et al in 2014 had a total of 61 patients 34 were male and 27 were female and majority were in the age group of 21-40 years.<sup>[5]</sup>

Tukaram et al (2015) conducted a study of 52 cases with age group of 10-60 years, Males comprised 39 patients (75%) and females 13 patients (25%).<sup>[6]</sup>

Satyaki et al in 2014 observed 50 cases the age of the patients was varying between 10 years and 60 years and in this group who underwent conventional septoplasty, the average age was 29.76 years and in endoscopic septoplasty group, the average age was 27.88 years with male predominance.<sup>[7]</sup>

## Conclusion

Evaluation of endoscopic septoplasty has been a major event in the history of septal surgery endoscopic septoplasty is performed with minimal incision and manipulation, which results in minimal damage to tissues and precise reconstruction. It gives better illumination and clear vision of the anatomy of nasal cavity. And hence helps in dealing with posterior deviation, high deviation and spurs.

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