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Original Research Article

Clinical evaluation of septoplasty with and without additional nasal procedures

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ABSTRACT

Background: Septoplasty is a common surgical procedure for correcting deviated nasal septum. Additional nasal procedures such as submucous diathermy (SMD) or turbinectomy are often performed to enhance surgical outcomes. This study aimed to compare the surgical outcomes and postoperative complications between septoplasty with SMD and septoplasty combined with other nasal procedures.

Methods: This prospective comparative study was conducted at the Department of Otolaryngology–Head and Neck Surgery, Anwer Khan Modern Medical College Hospital, Dhaka, Bangladesh, from June 2024 to May 2025. A total of 98 patients undergoing septoplasty were enrolled and divided into two groups: 64 patients underwent septoplasty with SMD and 34 underwent septoplasty with other procedures. Data on surgical duration, intraoperative hemorrhage, postoperative complications and recovery status were collected and analysed using SPSS version 25.

Results: Shorter operation time (20-40 minutes) was observed in 75% of patients in the SMD group compared to 29.4% in the other procedures group. Intraoperative haemorrhage occurred in 93.75% and 88.2% of the SMD and other groups, respectively. On the first postoperative day, sneezing (47.05%) and cough (29.4%) were more frequent in the other procedures group. On the seventh day, nasal discharge was significantly higher in the same group (47.05% vs. 15.6%). However, both groups showed 100% full recovery.

Conclusions: Septoplasty with SMD is associated with shorter operation time and fewer early postoperative symptoms, while septoplasty with additional procedures may provide better symptom control despite higher immediate postoperative discomfort. Tailored surgical planning remains key to optimizing patient outcomes.

Keywords: Nasal obstruction, Nasal surgery, Postoperative complications, Septoplasty, Submucous diathermy, Turbinectomy

INTRODUCTION

Nasal obstruction is one of the most common complaints encountered in otolaryngology practice.[1] A significantly deviated nasal septum is a major anatomical cause of this condition, often leading to chronic nasal congestion, difficulty breathing, snoring and compromised quality of life.[2] Septoplasty is the surgical correction of the deviated nasal septum and is widely considered the treatment of choice when conservative measures fail.[3] It aims to straighten the nasal septum, improve nasal airflow and alleviate associated symptoms. Although septoplasty is generally a safe and effective procedure, its outcomes can vary based on patient-specific anatomical factors and surgical techniques.[4] In many cases, septoplasty alone may not be sufficient to restore normal nasal function, particularly when other structural abnormalities such as turbinate hypertrophy or sinus pathology are present.[5]

Consequently, additional nasal procedures such as submucous diathermy (SMD) of the inferior turbinates, endoscopic sinus surgery or turbinate reduction are often performed in combination with septoplasty to achieve better functional results.[6] Submucous diathermy is a minimally invasive technique commonly used to reduce turbinate size by coagulating submucosal tissue, thus

enlarging the nasal airway without significantly disrupting mucosal integrity.[7] When performed alongside septoplasty, it may provide enhanced relief from nasal obstruction by addressing multiple contributing anatomical factors.[8] However, combining procedures also has the potential to increase intraoperative complexity, operative time and the risk of postoperative complications such as bleeding, pain and infection.[9]

Understanding the clinical outcomes of septoplasty with and without additional nasal procedures is essential for guiding surgical planning and patient counselling.[10] Several studies have evaluated the efficacy of septoplasty, yet there remains limited data comparing the postoperative results between stand-alone septoplasty and septoplasty combined with adjunctive nasal procedures in the context of routine clinical practice in Bangladesh.[11,12]

This study was conducted to evaluate and compare the demographic characteristics, operative details, intraoperative events and postoperative outcomes in patients undergoing septoplasty alone versus those undergoing septoplasty with additional nasal procedures such as submucous diathermy.

By analyzing complication rates, recovery profiles and surgeon involvement, this research aims to provide insights into the relative safety and effectiveness of each approach. Such evidence is vital for optimizing surgical strategies, improving patient outcomes and reducing the burden of recurrent nasal obstruction in the population.

The findings of this study may contribute to the growing body of literature regarding surgical management of nasal obstruction and help determine whether additional procedures offer a significant clinical advantage over septoplasty alone in routine practice.

METHODS

Study type

This was a prospective comparative study.

Study place

The study was conducted in the Department of Otolaryngology–Head and Neck Surgery at Anwer Khan Modern Medical College Hospital, Dhaka, Bangladesh.

Study duration

The study was conducted over a one-year period from June 2024 to May 2025.

Sample size

A total of 98 patients undergoing septoplasty were enrolled in the study following informed consent.

The patients were divided into two groups based on the surgical procedure performed: Group A included patients who underwent septoplasty with submucous diathermy (SMD) (N=64) and Group B consisted of those who underwent septoplasty with additional nasal procedures, such as turbinate reduction or sinus surgery (N=34).

Patients were selected through purposive sampling based on clinical indications for surgery and exclusion of those with systemic illnesses, bleeding disorders or previous nasal surgeries.

All surgeries were performed under general anesthesia by experienced otolaryngologists of varying ranks, including professors, associate professors and assistant professors. Standard surgical protocols were followed in all cases. The duration of the operation, surgeon's designation and intraoperative complications such as hemorrhage were recorded.

Postoperative outcomes were assessed on the 1st and 7th postoperative days (POD) and included parameters such as bleeding, pain, instrumental injury, sneezing, cough, nasal discharge and nasal obstruction. The presence of postoperative complications like vertigo and headache, as well as the incidence of active bleeding, were also documented. All patients were monitored until full recovery.

Data were collected using a structured questionnaire and hospital records and were analyzed using descriptive statistics with the help of SPSS version 25. Frequencies and percentages were used to summarize categorical variables.

RESULTS

Table 1 presents the demographic characteristics of the 98 patients included in the study. Among the 64 patients who underwent septoplasty with submucous diathermy (SMD), males comprised 62.5%, while in the group with additional nasal procedures (n=34), males accounted for 70.5%. The majority of patients in both groups were aged between 21 and 40 years. Blood group O+ was most common overall, particularly in the SMD group.

Table 2 summarizes the surgical parameters of the study population. In the septoplasty with SMD group, most procedures (75%) were completed within 20–40 minutes, whereas the majority in the additional procedures group required 41–60 minutes.

A small number of extended surgeries (61–90 minutes) were noted only in the latter group. Pre-operative hemorrhage was common in both groups, occurring in 93.75% of SMD cases and 88.2% of cases with additional procedures.

Table 3 outlines the postoperative complications observed in both groups. Active bleeding was more

frequent in the septoplasty with SMD group (93.75%) compared to the group undergoing additional procedures (70.5%). Vertigo and headache were reported in similar proportions across both groups. Notably, all patients in both groups achieved full recovery. Table 4 illustrates the postoperative findings on both the 1st and 7th postoperative days (POD) among patients who underwent septoplasty with submucous diathermy (SMD) and those who had additional nasal procedures.

On the 1st POD, the most common symptoms in both groups were bleeding and pain, occurring in approximately one-third of patients. Instrumental injuries were infrequent, seen in only 3.1% of SMD cases and 5.8% of cases with additional procedures. Sneezing was significantly more prevalent in the group with additional procedures (47.05%) compared to the SMD group (9.3%), while cough was also more common in this group.

By the 7th POD, nasal discharge was considerably higher in patients who underwent additional procedures (47.05%) than in the SMD group (15.6%). Nasal obstruction remained relatively uncommon in both groups but was slightly more frequent in those who had additional procedures (11.7% vs. 6.25%).

These findings suggest that while both surgical approaches were associated with early postoperative discomfort, additional nasal procedures tended to show higher rates of certain symptoms such as sneezing and nasal discharge.

Table 1: Demographic characteristics of patients (n=98).

Parameter	Septoplasty with SMD (n=64)	Septoplasty with other procedures (n=34)
Sex		
Male	40 (62.5%)	24 (70.5%)
Female	24 (37.5%)	10 (29.4%)
Age group (in years)		
0–20	14 (21.88%)	4 (11.7%)
21–40	40 (62.5%)	26 (76.4%)
41–50	10 (15.63%)	0 (0.0%)
41–60	0 (0.0%)	2 (5.8%)
61–80	0 (0.0%)	2 (5.8%)
Blood group		
O+	32 (50%)	12 (35.2%)
A+	24 (37.5%)	10 (29.4%)
B+	8 (12.5%)	8 (23.5%)
AB+	0 (0.0%)	4 (11.7%)
Occupation		
Student	16 (25%)	10 (29.4%)
Housewife	24 (37.5%)	8 (23.5%)
Job	24 (37.5%)	16 (47.05%)

Table 2: Surgical parameters (n=98).

Parameter	Septoplasty with SMD (n=64)	Septoplasty with other procedures (n=34)
Duration of operation (in minutes)		
20–40	48 (75%)	10 (29.4%)
41–60	16 (25%)	20 (58.8%)
61–90	0 (0.0%)	4 (11.7%)
Preoperative hemorrhage	60 (93.75%)	30 (88.2%)

Table 3: Postoperative complications (n=98).

Complication	Septoplasty with SMD (n=64)	Septoplasty with other procedures (n=34)
Active bleeding	60 (93.75%)	24 (70.5%)
Vertigo	40 (62.5%)	20 (58.8%)
Headache	36 (56.25%)	20 (58.8%)
Full Recovery	64 (100%)	34 (100%)

Table 4: Postoperative findings on 1st and 7th POD.

Findings	Septoplasty with SMD (n=64)	Septoplasty with other procedures (n=34)
On 1st postoperative day		
Bleeding	24 (37.5%)	12 (35.2%)
Pain	20 (31.25%)	12 (35.2%)
Instrumental Injuries	2 (3.1%)	2 (5.8%)
Sneezing	8 (12.5%)	16 (47.05%)
Cough	10 (15.6%)	10 (29.4%)
On 7th postoperative day		
Nasal discharge	10 (15.6%)	16 (47.05%)
Nasal obstruction	4 (6.25%)	4 (11.7%)

DISCUSSION

This study assessed and compared clinical outcomes of septoplasty with submucous diathermy (SMD) and septoplasty with other additional nasal procedures. The findings provide critical insights into the demographic, surgical and postoperative parameters influencing the efficacy and safety of these interventions.

Our results revealed that the majority of patients were male and most belonged to the 21-40 years age group, which aligns with findings from previous studies where septal deviation commonly presents in younger adults due to trauma or congenital causes.[13] The male predominance has been documented in other large-scale studies and may reflect gender-based healthcare-seeking behavior.[14]

Surgical parameters showed that procedures with SMD had significantly shorter operation times, with 75% completed within 20-40 minutes compared to only 29.4% in the group undergoing other procedures. This is consistent with findings from Besharah et al, who noted reduced surgical duration in conventional septoplasty compared to more extensive or combined procedures.[11] The pre-operative hemorrhage was high in both groups but slightly lower in the additional procedures group. Although this contrasts slightly with some literature indicating higher bleeding risk with turbinate reduction, variations may stem from surgeon expertise and operative techniques.[15]

Postoperative complications were frequent but not severe. Active bleeding, vertigo and headache were the most common, similar to findings by Caimi et al, who emphasized the importance of postoperative care in managing such symptoms.[16] Full recovery was achieved in all patients, indicating the overall safety and effectiveness of both approaches. However, the group with additional procedures had lower rates of bleeding and fewer headaches, which suggests possible benefits in symptom resolution when turbinate reduction or other adjunct techniques are employed, as supported by Seden et al.[17]

On the 1st postoperative day, sneezing and coughing were more prominent in patients undergoing additional procedures. This may relate to increased manipulation of mucosal surfaces or irritation due to nasal packing or instrumentation, a known factor in postoperative discomfort.[18] Interestingly, by the 7th postoperative day, nasal discharge and obstruction were significantly higher in the additional procedure group. This highlights the trade-off between better anatomical correction and the potential for extended recovery periods.[19]

The literature supports the notion that combining septoplasty with other procedures can improve long-term outcomes. Fearington et al, found that long-term results in terms of quality of life and nasal airflow were superior when turbinoplasty was added to septoplasty.[20] Viet et al, further emphasized the quality-of-life gains post-surgery, especially in patients with allergic rhinitis and anatomical obstruction.[21]

Although both techniques were associated with high patient satisfaction, the symptom resolution was slightly better in the additional procedure group. This supports findings by Chabur et al, who reported improved patient-reported nasal obstruction scores after combined septoplasty and turbinoplasty.[22] Similarly, Lajdam et al, confirmed that combined interventions are more effective in managing persistent nasal obstruction.[23]

Despite the clinical benefits, it's worth noting the potential for increased complications. According to Moubayed and Most, while adjunctive procedures like turbinate reduction improve airflow, they also pose risks such as crusting, synechiae and prolonged healing, which aligns with the higher complication rates seen in our study on the 7th postoperative day.[24]

Cost-effectiveness is another aspect to consider. Ruffner and Scordino suggested limiting routine histopathological exams and additional procedures unless clinically justified.[25] However, our findings indicate that for selected patients, additional procedures may yield improved outcomes without significantly increasing risks or resource use.

Recent meta-analyses from Wu et al and Haque et al, have emphasized the subjective and objective improvement in nasal patency with endoscopic or combined procedures, reinforcing our study's outcomes.[26,27]

Limitations

A limitation of our study is the relatively small sample size and short follow-up duration, which may underrepresent long-term complications or late improvements. Future studies with longer observation periods and objective measures like rhinomanometry or acoustic rhinometry could provide more robust evidence.

CONCLUSION

In conclusion, while both septoplasty with SMD and with additional procedures were effective, the latter demonstrated slightly better symptom control and surgical outcomes, though with increased postoperative symptoms. Individualized surgical planning based on anatomical variations, comorbid conditions and patient expectations remains crucial for optimal outcomes.

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