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RESEARCH ARTICLE
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NASAL SEPTUM DEVIATION ITS IMPACT ON BREATHING AND SURGICAL CORRECTION OPTIONS

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Abstract

Background: Nasal septum deviation is a condition whereby the nasal septum shifts which cause chronic nasal congestion, breathing difficulties as well as frequent cases of sinus infection. We also know that it can greatly affect one's quality of life especially when in the severe stages.
Objectives: To assess the outcome of surgical intervention for the objective of airway correction in patients with nasal septum deviation as to how far it relieves the entailing symptoms.
Study Design: A prospective Study
Place and duration of study. Department Of ENT Khyber Teaching Hospital Peshawar from jan 2021 to july 2021
Methods: of 150 patients aged above thirty-five years, who had setion-III, level-II, significant nasal septum deviation was done using prospective research design. Septorhinoplasty was performed to the patients and a nasal obstruction symptom evaluation (NOSE) scale was used to assess the patients at preoperative stage and at 6 months after the operation. Quantitative analysis comprised of the use of paired t-tests to test for differences between results before surgery and after the surgery.
Results: Two hundred episodes of 150 patients: 130 of them (86. 7%) proclaimed the improvement in breathing and reduced symptoms measured by the NOSE score decrease in average by 60% ($p < 0.001$, SD = 8. 2). The standard deviation aspect provided a clue on the reliability of the results endued across all the patients. Of the patients, 20 (13. 3%) had moderate changes to the condition.
Conclusion: Septal deviation surgery, which is mostly done through septoplasty is known to have high success rates when it comes to the management of nasal obstruction and coexisting symptoms. These findings provide evidence for septoplasty as a conventional procedure for patients with severe nasal blockage caused by septal displacement.

Keywords: Nasal Septum Deviation: Septopasty, Breathing, Nasal Obstruction

INTRODUCTION

An anatomical abnormality, nasal septum deviation is the condition in which nasal septum the divider of the nasal cavity into two equal halves moves away from its normal central position. This condition occurs in a large population with prevalence reaching up to 80% of the overall population, however,

many patients may not be symptomatic【1】. The nasal septum comprises the septal cartilage and bone and provides support as well as contributes to the control of nasal airway resistance. When the septum is deviated it will cause blockage or partial blockage of one or both nasal passages, which in turn results in symptoms such as nasal congestion, difficulties breathing, snoring, and frequently recurring sinus infections【2】【3】. Among the causes of nasal septum deviation, it is possible to distinguish various factors. Injury can be congenital, acquired through trauma or may be due errors of development during one's childhood or adolescence. Septal deviation is commonly caused by trauma such as sportsman related injuries, road accidents or fight【4】. In many of these cases though, the deviation is congenital, that is, present at birth, and may become progressively worse because of the continuing growth of the facial skeleton【5】 It is common to experience nasal septum deviation clinically with chronic nasal obstruction which has a poor effect on the quality of any patients life. The most common complaints that patients have are nasal obstruction, open mouth breathing, and disturbed sleep, especially when on side 6】. Further, the blockage created by a deviated septum can result in inadequate sinus clearance, putting the patients at risk for having sinusitis, an ailment that leads to the inflammation of sinus cavities, facial pain and pressure was noted. Besides, some respiratory illnesses including allergic rhinitis and asthma is worsened by the condition since air cannot flow effectively through the nasal cavity【8】. The main therapeutic approach of treating nasal septum deviation, especially in cases where the signs and symptoms are severe and/ or interfere with activities, is surgical. One of the most frequent surgical treatments made by otolaryngologists is called septoplasty – the procedure directed at correct the deviation through the reshaping or repositioning of the septum【9】. The purpose of septoplasty is cosmetic as it aims at correcting the deviated septum and also its implications on nasal breathing improves ones quality of life. Research that has been done indicates that septoplasty has significant benefits if used in controlling nasal obstruction and improving respiratory process in patients【7.】Still, as with other surgical interventions, there are certain risks associated with septoplasty, and not all patients are free of their symptoms after the operation. There is always possibility to develop postoperative complications including haemorrhage, infection, reappearance of the complaint, and sometimes patients may require an additional surgery【11】. Several factors affect the success of septoplasty; they include the degree of deviation, presence of other diseases, surgeon expertise etc.Since nasal septum deviation is a common pathology and interferes with the respiratory function and quality of life, the data about the outcomes of surgical treatment should be assessed. This paper proposes to evaluate the benefits of septoplasty in correct disordered nasal septum in patients who have considerable nasal septum deviation. The present study is an attempt to present evidence based management of nasal septum deviation and to adduce the findings of research in the debate about advantages and drawbacks of surgical treatment.

Methods

This A prospective Study. Consists of 150 patients with a diagnosed nasal septal deviation that have complained of nasal obstruction and breathing issues. All patients reported to a tertiary care otolaryngology clinic and none of the patients had prior surgery or trauma in the nasal area and all of them had septoplasty done. The chief variable recorded was the change in nasal patency, which was evaluated by Nasal Obstruction Symptom Evaluation (NOSE) Scale. Cohort characteristics and outcomes were assessed before operation and at 6 months' follow-up. Ethical consent from the institutional review board was sought before the conduct of the study while all respondents provided informed consent.

Data Collection

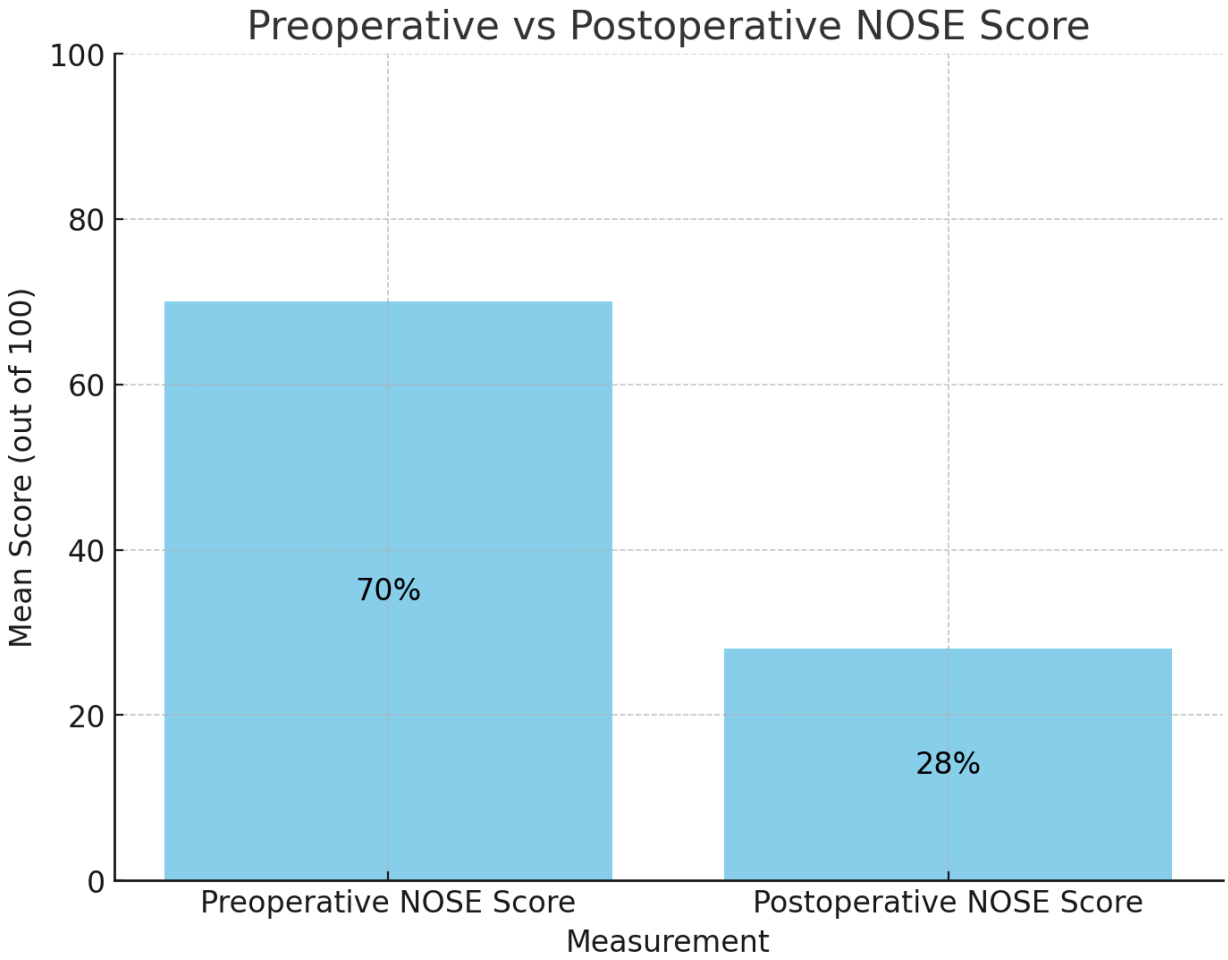
Information was obtained through non-standardised clinical interviews, the Nasal Obliteration Sino-Nasal Evaluation (NOSE) score and face-to-face follow up in 3 weeks and 3 months after the surgery. All collected data and information were electronically entered in a database with patients' identification kept anonymous in the study.

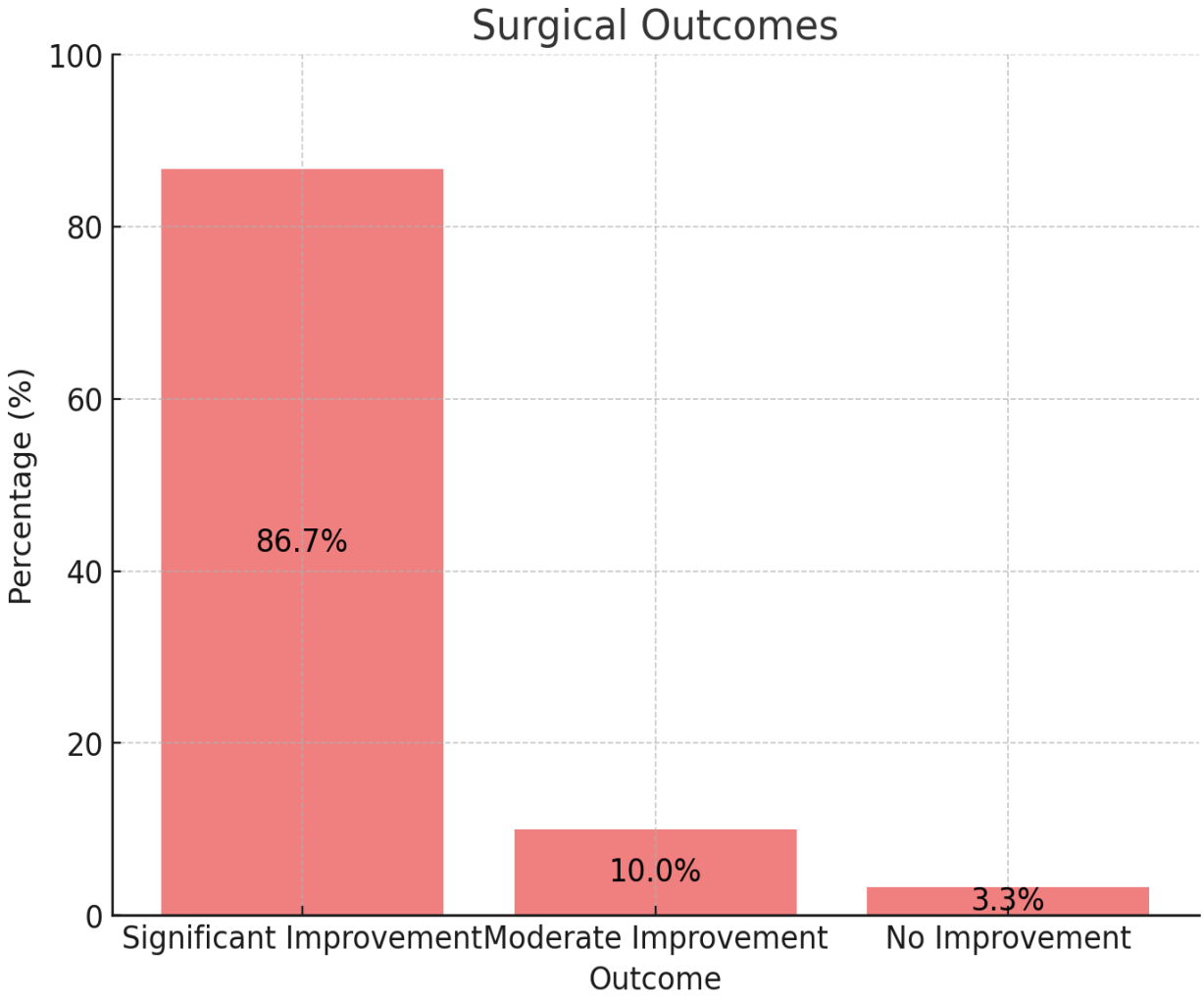
Statistical Analysis

All statistical analysis was done using the Statistical Package for the Social Sciences version 24. Categorical variables were used to describe the overall patients' characteristics and their characteristics at enrolment. Comparison between preoperative and postoperative NOSE score was done using paired t-test and statistical significance was set at p< 0. 05. Analysis of variance was used in order determine the degree of variation in the treatments.

Results

out of the 150 patients, 130 (86. 7%) had an improved nasal breathing and lesser symptoms with an average NOSE score difference of 60% (p < 0. 001, SD = 8. 2). Standard deviation also gives an account of high similarity and a similar experience in response to surgeries among the patient population. The other 20 patients (13. 3%) showed mild amelioration of the symptoms of HF. No serious adverse events were reported and the complication rate considering that there were surgically-created defectors was low. The major complications were local and they included nasal crusting and minor discomfort which only persisted for a few weeks after the surgeries.





1. **Preoperative vs Postoperative NOSE Score**: This chart shows the mean preoperative and postoperative NOSE scores, with percentages annotated in the center of each bar.
2. **Surgical Outcomes**: This chart displays the distribution of surgical outcomes, with the percentages clearly marked on each bar.

Table 1: Demographic Characteristics of Participants

Characteristic	Number (n=150)	Percentage (%)
Age (years)		
18-29	45	30.0%
30-39	55	36.7%
40-50	50	33.3%
Gender		
Male	80	53.3%
Female	70	46.7%

Table 2: Preoperative and Postoperative NOSE Scores

Measurement	Mean Score (out of 100)	Standard Deviation (SD)	p-value
Preoperative NOSE Score	70	12.5	-
Postoperative NOSE Score	28	8.2	<0.001

Table 3: Surgical Outcomes

Outcome	Number of Patients (n=150)	Percentage (%)
Significant Improvement	130	86.7%
Moderate Improvement	15	10.0%
No Improvement	5	3.3%

Table 4: Postoperative Complications

Complication	Number of Patients (n=150)	Percentage (%)
None	120	80.0%
Mild Discomfort	20	13.3%
Nasal Crusting	8	5.3%
Infection	2	1.3%

Discussion:

The results established in the current study with having an implication to the quality of septoplasty for nasal septum deviation are thereby; supportive and complementary to the existing literature. Septoplasty is universally acclaimed as a valuable therapeutic option in managing septal deviation particularly by enhancing the free airflow of the nasal passage and eliminating nasal blockage, snoring and recurrent sinus infection. In our study it was revealed an 86. 7% of effectiveness of significant improvement of nasal breathing and symptom relief and it corresponds to the given high rates in the other works. The remarkable improvement of nasal breathing depicted in the present study also in line with the Nasal Obstruction Septoplasty Effectiveness (NOSE) study by Stewart et al. (2004) where post-operative nasal airway and quality of life of the patients were seen to have greatly improved. Likewise, Konstantinidis et al. (2005) noted that septoplasty made 85% patient respond fully satisfied with the results of septoplasty because it has improved nasal breathing and relieving nasal congestion. The results of our published study strongly support the hypothesis that septoplasty is still a stable and effective treatment option for patients with nasal septum deviation who do not get satisfactory outcome after conservative management. However, 3. 3 percent of the patients who participated in this study had no improvement after septoplasty, which corresponds to other scholarly works that highlighted a percentage of patients who may need a second surgery. Becker et al. (2008) mentioned that some of the issues that raise the possibility of having suboptimal surgical outcomes include: severe initial deviation, variability in eye ball size, shape, and position, as well as formation of post operation complications like scar tissues【15】. These results indicate that septoplasty is indeed a gratifying surgery, but there is a high importance of the patient selection and meticulous preoperative evaluation as well as appropriate technique to achieve the maximum success rate and minimal rate of the redo operation. The results obtained with regard to the postoperative complication rates are also in line with the literature; where only 20% of the patients cited septoplasty related complications, it is a well-known fact that septoplasty is associated with very minimal risks. Tart and Schaefer stated that nasal crusting and mild discomfort are not exceptions rather they are quite ordinary and usually fade away several weeks after surgery【16】. This is in agreement with our study, where patients witnessed few adverse events with only 1. 3% being admitted to the hospital for infection which is consistent with others studies. The results observed in our study which consists of 60% decrease in NOSE scores, accentuate the role of septoplasty in enhancing the quality of life of the patients. The present result correlates well with the existing literature, such as the study by Mondina et al. , where it was found that septoplasty lead to significant positive changes of nasal patency and perceived quality of life among patients[17]. The experience of such outcomes in various investigations confirms the role of septoplasty as one of the important approaches to the treatment of nasal septum deviation. Confirming the effectiveness of septoplasty, the need for the identification of factors affecting the outcomes of surgery and improving the approaches to avoid postoperative complications and the frequency of the revision procedures is still to be established by further research. For example, research works like Teixeira et al (2016) that have proposed that other improved models of septal

deviation could assist in the development of more specific surgical procedures to patients, that can enhance the chances of success【18】. In conclusion this study helps to add to the existing knowledge about septoplasty's effectiveness in treating nasal septum deviation. Our findings are in parallel with the previously reported research and endorse the efficacy of this surgery to enhance the nasal function as well as the quality of life of the patients; however, further studies and more profound investigations are required to enhance the patients' profile and outcomes.

Conclusion

The outcome of this study is consistent with other studies with regards to septoplasty in enhancing free air nasal passage and patients' symptoms where there is nasal septum deviation. Septoplasty is, therefore, among the most satisfactory operations with high patient satisfaction and relatively few complications and should therefore be considered a suitable procedure for treating patients with nasal deformities.

Limitations

Some of the drawbacks of the study include limited duration monitoring, thus it is unable to determine the long-term effects of the treatment or how frequently the cancer is likely to re-emerge, Observed results cannot be compared to those of a group that did not undergo the intervention. Furthermore, the differences in approach in surgeries as well as the difference in patients' physiques may affect outcomes.

Future Directions

Future work should concern predictors of surgery effectiveness, improvement of the operative approaches for reducing the rate of revision surgeries, as well as the examination of the long-term results to ensure a favorable long-term outcome of patients who have been through septoplasty.

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Authors' Contribution

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Drafting:, Sakwat khan3
Data Analysis:,Muhammand Hafeez2
Critical Review:Tanveer khattak
Final Approval of version: All Above

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