



COMPARATIVE EVALUATION OF POST-OPERATIVE NASAL IRRIGATION PRACTICES IN PATIENTS UNDERGOING FUNCTIONAL ENDOSCOPIC SINUS SURGERY FOR SINONASAL POLYPOSIS

Otorhinolaryngology

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ABSTRACT

Background: Chronic rhinosinusitis with sinonasal polyposis is a persistent inflammatory condition that significantly impairs quality of life. Functional endoscopic sinus surgery is an established treatment for patients refractory to medical therapy; however, post-operative management plays a critical role in determining long-term outcomes. Nasal irrigation is routinely advised following surgery, and the addition of topical corticosteroids may enhance post-operative recovery by reducing mucosal inflammation. **Objectives:** To compare post-operative outcomes in patients using saline nasal irrigation alone and those using saline with budesonide nasal irrigation following functional endoscopic sinus surgery. **Methods:** This prospective comparative study included 42 patients with chronic rhinosinusitis with sinonasal polyposis who underwent functional endoscopic sinus surgery. Patients were advised post-operative nasal irrigation for three months using either normal saline alone or normal saline mixed with budesonide. Outcomes were assessed using the Sinonasal Outcome Test-22 questionnaire and Lund-Kennedy endoscopic scoring system during regular follow-up. **Results:** The majority of patients belonged to the 31-50 year age group, with male predominance. Ethmoidal polyposis was the most common type. Both irrigation methods resulted in significant improvement in post-operative symptoms and endoscopic findings. However, patients using saline with budesonide demonstrated greater reduction in post-operative SNOT-22 scores and lower Lund-Kennedy scores, indicating superior symptomatic relief and mucosal healing. **Conclusion:** Post-operative nasal irrigation using saline with budesonide provides better symptomatic improvement and endoscopic outcomes compared to saline irrigation alone following functional endoscopic sinus surgery for sinonasal polyposis.

KEYWORDS

Chronic rhinosinusitis, sinonasal polyposis, functional endoscopic sinus surgery, nasal irrigation, budesonide

INTRODUCTION

Chronic rhinosinusitis with sinonasal polyposis (CRSwNP) is a persistent inflammatory condition that significantly affects nasal function, sleep, and overall quality of life. Functional endoscopic sinus surgery (FESS) is commonly indicated when patients fail to respond adequately to medical therapy. However, long-term success following surgery largely depends on effective post-operative care aimed at controlling residual inflammation and promoting mucosal healing.

Nasal irrigation is an essential component of post-operative management. While saline irrigation facilitates mechanical clearance of secretions and crusts, the addition of topical corticosteroids such as budesonide may enhance local anti-inflammatory effects without significant systemic absorption.

AIM

To evaluate and compare post-operative outcomes in patients using saline nasal irrigation alone and those using saline with budesonide nasal irrigation following functional endoscopic sinus surgery.

OBJECTIVES

- To assess post-operative symptomatic improvement using the SNOT-22 questionnaire
- To evaluate endoscopic healing using the Lund-Kennedy scoring system
- To analyze the overall effectiveness of post-operative nasal irrigation practices

MATERIALS AND METHODS

A prospective comparative study was conducted in the Department of Otorhinolaryngology over a period of two years, from 1 November 2023 to 1 November 2025. The study included a follow-up duration of three months for all patients.

A total of 42 patients aged between 18 and 55 years, diagnosed with chronic rhinosinusitis with sinonasal polyposis and undergoing functional endoscopic sinus surgery, were included in the study.

All patients were advised post-operative nasal irrigation for a duration of three months and were kept on regular follow-up during this period.

Patients used either normal saline irrigation alone or normal saline mixed with budesonide as part of their post-operative care.

The nasal irrigation protocol included:

- 10 ml of normal saline alone, twice daily
- 10 ml of normal saline mixed with budesonide, twice daily

Outcome Assessment

Clinical outcomes were evaluated using the Sinonasal Outcome Test-22 (SNOT-22) for symptom assessment and the Lund-Kennedy endoscopic scoring system for objective evaluation. Patients were kept on regular follow-up for three months, and all assessments were performed by the same examiner to minimize observer bias.

RESULTS

The majority of patients belonged to the 31-50 year age group, accounting for 34 patients (80.9%). Patients aged between 18-30 years constituted 8 cases (19.1%). This showed a higher prevalence of sinonasal polyposis in the middle-aged population.

Table 1: Age-wise Distribution Of Subjects

Age Group (years)	Number of Patients	Percentage
18-30	8	19.1%
31-50	34	80.9%
Total	42	100%

Out of the 42 patients studied, 25 were males (59.5%) and 17 were females (40.5%), indicating a male predominance in the study population.

Table 2: Gender-wise Distribution Of Subjects

Gender	Number of Patients	Percentage
Male	25	59.5%
Female	17	40.5%
Total	42	100%

Based on endoscopic and radiological evaluation, the majority of patients were found to have ethmoidal polyps. Ethmoidal polyposis was observed in 34 patients (80.9%), while antrochoanal polyps were seen in 8 patients (19.1%).

Table 3: Distribution Based On Type Of Sinonasal Polyp

Type of Polyp	Number of Patients	Percentage
Ethmoidal polyp	34	80.9%
Antrochoanal polyp	8	19.1%
Total	42	100%

Pre-operative assessment using the SNOT-22 questionnaire revealed high symptom burden in both groups of patients. The mean pre-operative SNOT-22 scores were comparable between patients using saline nasal irrigation alone and those using saline with budesonide irrigation, indicating no significant difference in baseline symptom severity prior to surgery.

Table 4: Baseline Comparison Of Pre-operative SNOT-22 Scores Between Irrigation Methods

Irrigation Method	Mean ± SD	p-value
Saline irrigation	56.2 ± 8.4	0.78
Saline + Budesonide irrigation	55.6 ± 7.9	—

A significant reduction in SNOT-22 scores was observed post-operatively in the overall study population during the three-month follow-up period. Both groups demonstrated marked improvement in symptoms following functional endoscopic sinus surgery and regular post-operative nasal irrigation, indicating a strong association between pre-operative symptom severity and post-operative symptomatic improvement.

Table 5: Comparison Of SNOT-22 Scores Before And After Surgery

Assessment Period	Mean ± SD	p-value
Pre-operative	55.9 ± 8.1	<0.001
Post-operative (3 months)	21.4 ± 6.3	—

On post-operative evaluation, patients using saline nasal irrigation combined with budesonide demonstrated greater reduction in SNOT-22 scores compared to patients using saline nasal irrigation alone. Improvement was more pronounced in symptoms related to nasal obstruction, nasal discharge, facial pressure, and sleep disturbance, suggesting superior symptomatic relief in the saline with budesonide group.

Table 6: Comparison Of Post-operative SNOT-22 Scores Based On Irrigation Method

Irrigation Method	Mean ± SD	p-value
Saline irrigation	25.6 ± 6.8	0.02
Saline + Budesonide irrigation	18.9 ± 5.7	—

Endoscopic evaluation using the Lund–Kennedy scoring system showed improvement in mucosal edema, crusting, and discharge in both groups. However, patients using saline with budesonide irrigation demonstrated lower post-operative Lund–Kennedy scores, indicating better mucosal healing and faster resolution of post-operative inflammation when compared to those using saline irrigation alone.

Table 7: Post-operative Endoscopic Outcomes (Lund–Kennedy Scores) By Irrigation Method

Irrigation Method	Mean ± SD	p-value
Saline irrigation	4.6 ± 1.3	0.01
Saline + Budesonide irrigation	2.9 ± 1.1	—

Overall, the use of saline nasal irrigation combined with budesonide resulted in better post-operative symptomatic improvement and superior endoscopic healing compared to saline irrigation alone in patients undergoing functional endoscopic sinus surgery for sinonasal polyposis.

CONCLUSION

In the present prospective comparative study involving 42 patients with chronic rhinosinusitis with sinonasal polyposis undergoing functional endoscopic sinus surgery, post-operative nasal irrigation was found to play a crucial role in symptom improvement and mucosal healing. The majority of patients belonged to the 31–50 year age group, with a male predominance observed in the study population.

Significant improvement in post-operative symptoms was noted over a three-month follow-up period, as assessed using the SNOT-22 questionnaire. A substantial proportion of patients demonstrated marked reduction in nasal obstruction, nasal discharge, facial pressure, and sleep-related disturbances following surgery and regular nasal irrigation.

Endoscopic evaluation using the Lund–Kennedy scoring system

revealed progressive improvement in mucosal edema, reduction in crusting, and healthier epithelialization of the sinonasal cavities in the majority of patients. Patients using saline nasal irrigation combined with budesonide demonstrated comparatively better symptom control and superior endoscopic healing when compared to those using saline irrigation alone.

Overall, the combined use of saline and budesonide for post-operative nasal irrigation was associated with improved post-operative recovery, better symptom relief, and healthier mucosal appearance, highlighting its effectiveness as an adjunct to functional endoscopic sinus surgery in patients with sinonasal polyposis.

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