

## Original article

# Comparison between conservative approach and endoscopic surgery for chronic Rhinosinusitis

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### Abstract

**Introduction:** Chronic rhinosinusitis (CRS) is a persistent inflammatory condition of the paranasal sinuses, impacting quality of life. Treatment options include conservative management with medications and endoscopic sinus surgery (ESS). This study compares the efficacy and outcomes of these two approaches in patients with CRS.

**Methods:** This retrospective observational study included 40 patients diagnosed with CRS over one year. Group A (n=20) received conservative management, while Group B (n=20) underwent ESS. Symptom resolution, recurrence rates, and complications were assessed using patient records and follow-up visits. Statistical analysis was performed to compare treatment outcomes.

**Results:** Patients in the ESS group experienced greater symptom improvement, with nasal congestion scores decreasing from  $4.1 \pm 0.4$  to  $1.2 \pm 0.4$ , compared to a reduction from  $3.8 \pm 0.5$  to  $2.4 \pm 0.6$  in the conservative group. Recurrence was significantly lower in the ESS group, with 80% reporting no recurrence, compared to 40% in the conservative group. Minor complications were slightly higher in the ESS group but were manageable.

**Conclusion:** ESS provided superior symptom relief and lower recurrence rates compared to conservative management, making it a more effective option for patients with refractory CRS.

**Keywords:** Chronic rhinosinusitis, endoscopic sinus surgery, conservative management

### Introduction:

Chronic Rhinosinusitis (CRS) is a persistent inflammatory condition affecting the paranasal sinuses, characterized by symptoms such as nasal congestion, facial pain, loss of smell, and postnasal drip lasting for more than 12 weeks. It can significantly impact a patient's quality of life, leading to the need for effective management strategies. Traditionally, the conservative approach, including the use of nasal corticosteroids, saline irrigation, and antibiotics, has been the first-line treatment aimed at reducing inflammation, controlling infection, and alleviating symptoms.(1,2)

However, for patients unresponsive to medical therapy, endoscopic sinus surgery (ESS) has become a widely accepted alternative. ESS is a minimally invasive procedure designed to restore normal sinus drainage by removing obstructions and diseased tissue. This surgical option is typically reserved for patients with severe CRS or those who have developed complications. Several studies have compared the outcomes of conservative treatment and ESS, highlighting factors such as symptom resolution, recurrence rates, and overall patient satisfaction.(3) While the conservative approach remains beneficial for early or less severe cases, ESS is increasingly favored for long-term relief in patients with refractory CRS. This comparison aims to provide insights into the efficacy, safety, and patient outcomes associated with both treatment modalities.

**Methodology:**

The study was a retrospective observational analysis conducted over a period of one year to compare the outcomes of conservative management and endoscopic sinus surgery (ESS) in patients diagnosed with chronic rhinosinusitis (CRS). A total of 40 patients were included in the study. The inclusion criteria required that patients had been diagnosed with CRS, based on clinical symptoms persisting for more than 12 weeks, as well as radiological evidence of sinus involvement. Patients were divided into two groups: Group A, which underwent conservative management, and Group B, which received ESS.

Patients in Group A were managed using standard conservative treatment methods. These included a regimen of nasal saline irrigation, intranasal corticosteroids, and antibiotic therapy when indicated. Regular follow-up visits were conducted to assess symptom resolution and any need for further medical intervention. The primary outcomes assessed in this group were symptom improvement, frequency of exacerbations, and need for surgical intervention after failure of medical therapy.

Group B patients underwent endoscopic sinus surgery after failing to respond to the conservative management approach. The surgery was performed under general anesthesia, and the primary aim was to restore normal sinus drainage by removing any obstructions or diseased tissues. Post-operatively, these patients were followed up for a minimum of six months, during which their symptom relief, recurrence of symptoms, and any complications were documented. The post-surgical management included nasal irrigation and topical corticosteroids to enhance recovery.

Data were collected using patient medical records, pre- and post-treatment symptom scores, and radiological findings. Statistical analysis was performed using SPSS software to compare the effectiveness of conservative treatment versus ESS. Variables such as symptom resolution, recurrence rates, and overall quality of life improvements were compared between the two groups. Ethical approval was obtained prior to the commencement of the study, and written informed consent was acquired from all participants.

**Results:**

**Table 1: Demographic Characteristics of the Study Population**

Characteristic	Group A (Conservative) (n=20)	Group B (ESS) (n=20)	Total (n=40)
Mean Age (years)	38.4 ± 9.2	40.6 ± 8.5	39.5 ± 8.8
Gender (Male/Female)	12/8	13/7	25/15
Duration of Symptoms (months)	14.2 ± 3.5	16.1 ± 4.0	15.2 ± 3.8
Smoking Status (Smokers)	4	5	9
Allergic Rhinitis (%)	6 (30%)	7 (35%)	13 (32.5%)

**Table 2: Symptom Score Before and After Treatment**

Symptom	Group A Pre-Treatment	Group A Post-Treatment	Group B Pre-Treatment	Group B Post-Treatment
Nasal Congestion	3.8 ± 0.5	2.4 ± 0.6	4.1 ± 0.4	1.2 ± 0.4
Facial Pain	3.6 ± 0.7	2.6 ± 0.8	3.9 ± 0.6	1.3 ± 0.5
Postnasal Drip	3.4 ± 0.6	2.2 ± 0.5	3.7 ± 0.5	1.4 ± 0.4
Loss of Smell	3.0 ± 0.9	2.7 ± 0.7	3.5 ± 0.8	1.5 ± 0.5

Symptom scores: 1-5 scale (1 = no symptom, 5 = severe symptom).

**Table 3: Recurrence of Symptoms at 6-Month Follow-Up**

Outcome	Group A (Conservative) (n=20)	Group B (ESS) (n=20)
No Recurrence (%)	8 (40%)	16 (80%)
Recurrence Requiring Medication (%)	7 (35%)	3 (15%)
Recurrence Requiring Surgery (%)	5 (25%)	1 (5%)

**Table 4: Complications and Adverse Events**

Complication/Adverse Event	Group A (Conservative) (n=20)	Group B (ESS) (n=20)
Epistaxis	1 (5%)	3 (15%)
Infection	0 (0%)	2 (10%)
Nasal Adhesions	0 (0%)	1 (5%)
Persistent Sinusitis	7 (35%)	2 (10%)
Need for Revision Surgery (%)	5 (25%)	1 (5%)

### Discussion

Chronic rhinosinusitis (CRS) is a persistent inflammatory condition that can significantly affect a patient's quality of life. The treatment modalities for CRS range from conservative medical management to more invasive procedures like endoscopic sinus surgery (ESS). This study aimed to compare the efficacy, safety, and outcomes of conservative management versus ESS in 40 patients diagnosed with CRS, with 20 patients in each treatment group. The results offer insight into the effectiveness of both approaches and the potential for long-term symptom resolution.(4,5)

### Demographic Characteristics

The demographic data in Table 1 indicate that the two groups—conservative management (Group A) and ESS (Group B)—were well-matched in terms of age, gender distribution, and symptom duration, allowing for a more reliable comparison. The mean age of the patients was 39.5 ± 8.8 years, with no significant age difference between the two groups. The majority of the participants were male, and the prevalence of allergic rhinitis was similar between the groups, further supporting the comparability of the groups.(6)

The demographic profile reflects that CRS commonly affects individuals in their late 30s and 40s, with a slight male predominance. The role of smoking and allergic rhinitis, which were present in a subset of the population, is consistent with established risk factors that contribute to chronic inflammation and persistent symptoms in CRS patients. These factors were evenly distributed across both groups, ensuring that confounding variables were minimized in the outcome analysis.(7,8)

### **Symptom Improvement**

The primary outcomes of interest in this study were symptom resolution and recurrence. As shown in Table 2, both conservative treatment and ESS resulted in significant improvement in CRS symptoms, including nasal congestion, facial pain, postnasal drip, and loss of smell. However, the extent of improvement varied between the two groups.

Patients in the conservative management group (Group A) showed moderate symptom improvement, with a reduction in nasal congestion scores from  $3.8 \pm 0.5$  to  $2.4 \pm 0.6$ , and similar trends in other symptoms. This suggests that medical management, including nasal saline irrigation, intranasal corticosteroids, and antibiotics, can be effective in controlling CRS symptoms to a certain degree. However, the post-treatment symptom scores remained higher than in the surgical group, indicating incomplete symptom resolution.

In contrast, the ESS group (Group B) experienced more pronounced symptom relief, with nasal congestion scores dropping from  $4.1 \pm 0.4$  to  $1.2 \pm 0.4$ , and similar improvements across all symptoms. The more dramatic reduction in symptom severity in this group suggests that ESS may be superior in providing long-term relief, particularly for patients who have failed conservative therapy. ESS works by directly addressing the anatomical issues contributing to sinus obstruction, which likely explains the more substantial improvement observed in this group. (9)

### **Recurrence of Symptoms**

One of the most important aspects of CRS management is the risk of symptom recurrence. Table 3 shows that recurrence was significantly lower in the ESS group compared to the conservative management group. Six months post-treatment, 80% of patients in the ESS group reported no recurrence of symptoms, compared to only 40% in the conservative group. Additionally, only 15% of patients in the ESS group required further medical treatment for recurrent symptoms, whereas 35% of patients in the conservative group required ongoing medication.

This stark contrast highlights the limitations of conservative management, especially in patients with more severe or refractory CRS. Despite initial improvement, the higher recurrence rate in the conservative group suggests that medical management may not be sufficient for long-term control of the disease in all patients. In cases where CRS is driven by anatomical abnormalities or chronic inflammation resistant to medical therapy, ESS appears to offer a more definitive solution.

Another critical finding is the difference in the need for additional surgical interventions. In Group A, 25% of patients eventually required surgery after failing conservative treatment, while only 5% of patients in Group B needed revision surgery after ESS. This supports the idea that ESS not only provides immediate symptom relief but also reduces the likelihood of requiring future interventions, making it a more durable solution for managing CRS.

### **Complications and Adverse Events**

Complications associated with both treatment modalities are a key consideration when weighing the risks and benefits of each approach. As shown in Table 4, the overall complication rate was low in both groups, but ESS was associated with a slightly higher incidence of epistaxis (15%) and infection (10%). These complications are well-documented in the literature and are typically manageable with appropriate post-operative care.

Nasal adhesions were observed in 5% of ESS patients, a known complication of sinus surgery that can potentially contribute to symptom recurrence if left untreated. However, these complications were relatively minor and did not significantly impact the overall success of the surgery. On the other hand, 35% of patients in the conservative group experienced persistent sinusitis, underscoring the limitations of medical management in achieving complete disease resolution.

Despite the slightly higher rate of minor complications in the ESS group, the overall success rate and lower recurrence of symptoms make ESS a favorable option, particularly for patients with severe or refractory CRS. Moreover, the need for revision surgery was minimal in the ESS group (5%) compared to the conservative group, further solidifying its role as a more definitive treatment for CRS.

### **Conclusion:**

In conclusion, this study suggests that while conservative management can be effective for some patients with CRS, ESS offers superior symptom relief and lower recurrence rates, particularly in patients who have failed medical therapy. Despite the slightly higher complication rate associated with ESS, the long-term benefits, including a reduced need for future surgical interventions, make it a highly effective option for managing chronic rhinosinusitis.

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