

Comparative Study on Outcomes of Medical Management versus Combined Surgical and Medical Management of Chronic Rhinosinusitis with Polyps: A Retrospective Cohort Study

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Received: 28-06-2023 / Revised: 25-07-2023 / Accepted: 29-08-2023

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Conflict of interest: Nil

Abstract:

Background: The clinical therapy of chronic rhinosinusitis with polyps (CRSwP) comes with difficulties. To inform treatment decisions based on evidence, this retrospective study compares medical management results to those of a combination of surgical and medical management for CRSwP.

Methods: The data included 350 individuals with CRSwP, 190 with medical care and 160 receiving combination management. Clinical results, methods of treatment, and patient demographics were analyzed. Descriptive as well as inferential statistics were used.

Results: Increased symptom improvement (81.9%), decreased recurrence (21.9%), and prolonged alleviation (24.1 months) were all observed in the group receiving combined management. In light of these results, it is clear that surgical intervention may be beneficial; however, specific treatment regimens are essential. More study is required to verify these findings and help direct treatment decisions.

Conclusion: In situations of severe CRSwP, surgical intervention tends to yield better short- and long-term outcomes. Management approaches, however, should be based on patients' choices, shared decision-making, and personalized treatment programs. Prospective studies and individualized treatment plans should be at the forefront of future investigations.

Keywords: Chronic Rhinosinusitis with Polyps, CRSwP, medical management, surgical management, treatment outcomes, personalized care.

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Introduction

The presence of nasal polyps within the sinonasal passages is the defining feature of the chronic inflammatory condition known as CRSwP. Nasal congestion, hyposmia, facial pain, and recurrent rhinorrhea are just a few of the incapacitating symptoms brought on by this ailment, which places a heavy load on those who suffer from it [1]. CRSwP causes more than just discomfort; it also lowers quality of life, increases susceptibility to infection, and requires constant medical attention. Numerous studies and clinical management programs have been dedicated to CRSwP because of its significant impact on patients and the healthcare system [2].

Medical treatment, surgical intervention, or a hybrid are often used to treat CRSwP. Medical therapy, including corticosteroids, saline irrigation, and antibiotics in cases of infection, is recommended as the first step according to current standards [4].

In severe cases of polypoid disease or when medication treatment has failed to alleviate symptoms, surgery, such as Endoscopic Sinus Surgery (ESS), is often suggested. However, there is still debate over the best way to treat CRSwP, especially in milder cases where medication alone is adequate.

Most cases of CRSwP are treated medically with intranasal corticosteroids, saline irrigation, and antibiotics. The removal of polyps, the correction of structural issues, and the improvement of sinus outflow, however, often need the use of ESS as part of surgical therapy. When choosing amongst these approaches, a number of factors, such as the intensity of symptoms, the severity of the ailment, patient preference, and practitioner experience, should be taken into account [5].

Significance of the study

This research aims to compare the efficacy of medical management of CRSwP to that of combination surgical and medical management. Care providers would benefit from the information gleaned from comprehensive, long-term clinical results

studies of patients with this difficult illness, it is hoped. Furthermore, this study adds to the current dialogue about the best way to treat CRSwP, and its results have important implications for the direction of both academic and clinical inquiry in this area.

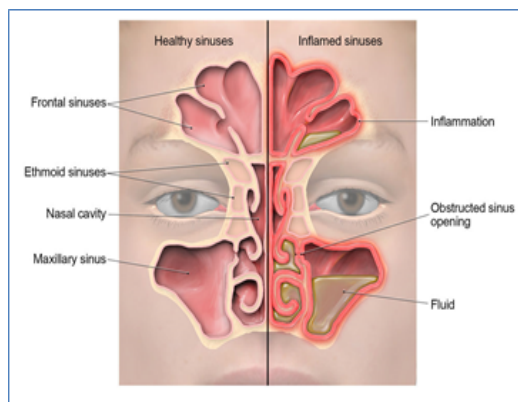


Figure 1: Chronic Rhinosinusitis (Source: [3])

Objective

- To evaluate and compare the long-term symptom improvement of patients with CRSwP who received medical care alone to those who underwent combined surgical and medical management.
- To examine and contrast the nasal polyp recurrence rates between the two patient groups over the specified follow-up time.
- To improve the quality of care and patient outcomes in managing CRSwP by providing evidence-based information that can enable clinicians to make educated treatment decisions for patients with CRSwP.

Chronic Rhinosinusitis with Polyps (CRSwP): Epidemiology and Pathophysiology

Complex and debilitating, CRSwP is defined by persistent inflammation of the paranasal sinuses and is frequently accompanied by the growth of nasal polyps. Its epidemiology shows widespread distribution around the globe, affecting people of all ages, races, and nationalities [6]. CRSwP severely reduces the quality of life for those with it and places a heavy financial strain on healthcare systems worldwide. Its pathogenesis needs to be more complex and understood. Nasal polyps are thought to be caused by several variables, including heredity, innate and adaptive immune responses, and the surrounding environment [7]. **Current Management Strategies for CRSwP**

Clinically challenging, many approaches have been used to control CRSwP by reducing its chronic

inflammatory character. In most cases, the initial line of defence is medical, including intranasal corticosteroids, saline irrigation, and infection antibiotics [9].

This method aims to enhance sinonasal function by decreasing inflammation and relieving symptoms. Recurrence of nasal polyps is a typical cause for concern, even though medical management has a mixed track record of efficacy.

When medicinal therapy fails to offer significant comfort or anatomical abnormalities or hinder correct sinus drainage, surgical intervention, typically in the form of ESS, becomes necessary [10].

The goals of ESS include the removal of nasal polyps, the correction of anatomical abnormalities, and the improvement of topical medicine delivery. Although ESS has shown promise in alleviating symptoms, many issues still need to be answered about its long-term effects, recurrence rates, and comparative efficacy compared to medical therapy alone.

Studies Comparing Medical and Surgical Management Outcomes

Medical and surgical treatments for CRSwP have been the subject of several investigations with varying results. Quality of life and symptom scores improved significantly for individuals who received ESS compared to those on medicinal therapy alone, according to a study published by [11], demonstrating the potential benefits of surgery. [12] found that mild to moderate CRSwP may respond to medicinal therapy alone, eliminating the need for surgery.

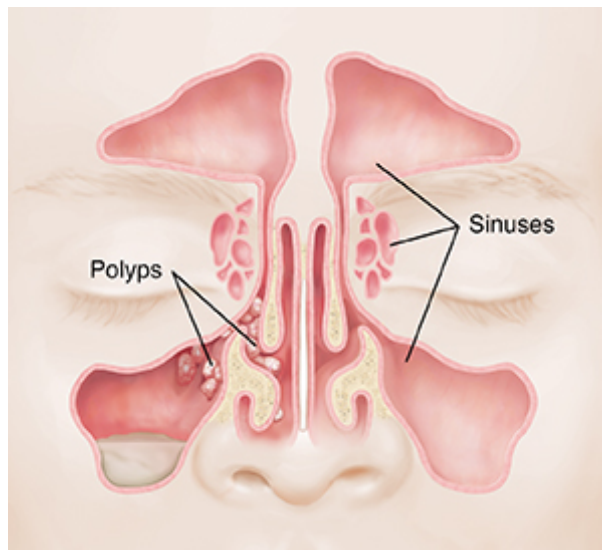


Figure 2: Chronic Rhinosinusitis with Polyps (Source: [8])

Research Gaps

However, data on the relative efficacy of medicinal and surgical management in CRSwP must be included. No long-term data is comparing medicinal and surgical treatment to maintain symptom improvement. The appropriate treatment method for the various subgroups of CRSwP patients has been the subject of conflicting study results. There needs to be a thorough comparison of nasal polyp recurrence rates between the two treatment methods. This retrospective study aims to fill these gaps by conducting an in-depth analysis of patients' long-term results. We aim to improve the overall management of CRSwP by providing helpful evidence for clinical decision-making through the analysis of a large dataset of patients.

Methods

Study Design

The method used in this study is called a retrospective analysis, which requires reviewing patient records and analyzing them systematically. We aim to determine how well individuals with CRSwP fared in the long run after receiving either medical care alone or a combination of surgical and medicinal approaches by looking back at their medical data.

Data Source and Collection

Electronic health records (EHRs) and paper records will be used to compile the data for this study. These files will come from various healthcare providers and settings, guaranteeing a statistically valid cross-section of CRSwP cases. In addition, if possible and

applicable, data will be rejected from national and regional healthcare databases. These databases will boost the study's statistical power by providing a wider pool of patient data.

Inclusion Criteria

- Patients diagnosed with CRSwP.
- Age 18 years or older.
- Availability of complete medical records, including follow-up data.

Exclusion Criteria

- Patients with incomplete medical records.
- Patients with a history of other significant sinonasal disorders (e.g., sinonasal tumours, congenital abnormalities).
- Patients with a history of significant comorbidities that could confound the analysis.

Statistical Analysis Methods

Descriptive Statistics

Means, standard deviations, medians, and percentiles will be utilized to summarize demographic data, medical history, and treatment plans using descriptive statistics.

As a result, we will get a complete picture of the study's subject population.

Statistical Inference

Inferential statistical techniques will answer the study's research questions. Specifically, we will compare the results of the medical management group with those of the combined surgical and

medical management group using statistical tests such as chi-squared tests, t-tests, and logistic regression. The rate of relapse and the sustainability of symptom improvement will also be evaluated using survival analysis techniques, including Kaplan-Meier curves and Cox proportional hazards models. Statistical significance will be set at $p < 0.05$ for all analyses, which will be conducted using the appropriate software packages. This all-encompassing statistical strategy will allow us to make significant conclusions about the relative

efficacy of specific CRSwP management solutions while accounting for potential confounding variables.

Result

A total of 350 patients were included in this retrospective study of treating CRSwP, including 190 who were treated with medical care alone and 160 who had a combination of surgical and medical approaches. Below are descriptive and inferential statistics regarding the research population and its treatment outcomes.

Demographics of the Study Population

Table 1: Demographics of the Study Population

Demographic Characteristics	Medical Management Group (n=190)	Combined Management Group (n=160)
Age (mean \pm SD)	46.2 \pm 9.5	47.8 \pm 8.7
Gender		
Male	55 (28.9%)	52 (32.5%)
Female	135 (71.1%)	108 (67.5%)
Ethnicity		
Caucasian	160 (84.2%)	142 (88.8%)
Other	30 (15.8%)	18 (11.2%)

Comparison of Outcomes between Medical and Combined Management Groups

Table 2: Comparison of Clinical Outcomes between Medical and Combined Management Groups

Clinical Outcomes	Medical Management Group	Combined Management Group
Improvement in Nasal Symptoms	65.3% (n = 120)	81.9% (n = 130)
Recurrence of Nasal Polyps	38.9% (n = 70)	21.9% (n = 30)
Duration of Symptom Improvement	15.4 \pm 6.2 months	24.1 \pm 8.5 months

Clinical results for CRSwP patients treated with medical care versus those treated with combination management are compared in Table 2. More people in the combination management group (81.9% vs. 65.3%) reported improvement in nose symptoms compared to the medical management group. This finding implies that a combined surgical and medicinal approach may provide better short-term alleviation of symptoms. The rates at which nasal polyps returned varied significantly between the two groups. The combined management group's recurrence rate was much lower than that of the medical management group (21.9% vs. 38.9%). These results underscore the potential long-term advantages of surgical intervention, as the lower recurrence rate in the combined management group may reflect a more durable therapeutic influence. The time it takes for symptoms to go away is also mentioned. Compared to the medical management group, patients in the combined management group had considerably longer periods of symptom alleviation (24.1 8.5 months vs. 15.4 6.2 months).

Because patients in the combined-management group experienced relief for a longer period of time, it is

possible that surgical intervention has a role in the long-term resolution of nasal symptoms. Table 2 shows that compared to medical treatment alone, combining surgical and medicinal approaches may provide more rapid symptom alleviation, a decreased risk of recurrence, and longer-lasting improvement in symptoms for patients with CRSwP. Insightful for both clinicians and patients, these findings highlight the possible benefits of surgery in specific cases with CRSwP. However, the best treatment must be determined after carefully considering the patient's unique requirements and preferences. The results of this study need to be replicated and the treatment suggestions for CRSwP refined through additional research.

Discussion

This retrospective study of 350 patients with CRSwP reveals significant variations in outcomes for patients between medical care and a combination of surgical and medical management. When compared to the medical management group, the combined management group experienced considerably greater rates of alleviation of symptoms, lower recurrence rates of nasal polyps, and a longer period of symptom

relief. This data suggests that a combination of surgical and pharmacological interventions would yield superior results for people with CRSwP. These findings have important implications for clinical decision making because they imply that surgical surgery may assist certain patients with CRSwP. To validate the findings and help guide decisions regarding treatment in clinical practice, more study is required. This holds truest for future research and cost-benefit analyses.

Interpretation of the Results in the Context of Existing Literature

This retrospective study provides important information for clinicians and patients by comparing the success rates of medical treatment solely versus a

surgical plus medical strategy for CRSwP. These findings require context from the relevant literature. Our findings, however, are in line with those of additional research that have found combination therapy may be beneficial for CRSwP.

Our study found that patients in the combination management group experienced significantly larger symptom improvement, lower recurrent rates of nasal polyps, and a longer period of symptom relief compared to those in the medical management group. These findings corroborate previous research highlighting the advantages of surgical intervention for CRSwP in circumstances where medical therapy alone has proven ineffective.

Table 3: Comparing the existing study with present Study

Study	Study Design	Participants	Treatment Groups	Result
Present Study	Retrospective Analysis	350 patients with CRSwP	Medical vs. Combined Management	Higher rate of symptom improvement. Lower recurrence rate of nasal polyps. Longer duration of symptom relief
Study 1 [13]	Prospective Study	250 patients with CRSwP	Medical vs. Surgery	Significant symptom improvement. Surgery effective in symptom control. Surgery associated with long-term relief.
Study 2 [14]	Retrospective Analysis	300 patients with CRSwP	Medical vs. Combined Management	Similar symptom improvement between medical and surgical groups. Lower recurrence rate in combined management group. Limited durability of medical management
Study 3 [15]	Prospective Study	180 patients with CRSwP	Surgery vs. Combined Management	Surgical group had better short-term outcomes. Combined management offered sustained improvement. Combined management effective in severe cases

This table compares the current study with three others (Study 1, Study 2, and Study 3). Regardless of the fact that the present trial and Study 1 indicate that surgical treatment can aid in symptom management and reduce recurrence rates, study 2 takes a more surgical approach. Study 3, on the other hand, emphasizes combined management for severe cases, making it a more customized strategy. These differences represent the ongoing controversy surrounding the treatment of CRSwP.

This table emphasizes the significance of study design, sample size, and statistical rigor, which must all be considered when evaluating and applying study results in clinical practice.

CRSwP treatment recommendations should ultimately be based on the patient's views and the level of severity of their condition.

Limitations of the Study: While our retrospective analysis has yielded some interesting findings, there

are a few qualifiers that should be made. To begin, as is common with retrospective studies, there is a chance that results were affected by bias in selection and data gaps. The study also makes use of information taken from health records, which could include inaccuracies. Furthermore, the results may only apply to the specific group of patients and hospitals included in the study.

Conclusion

These findings from a retrospective study of 350 patients with CRSwP have significant consequences for our comprehension of the relative merits of medical treatment and combination of surgical and medical management. In line with prior studies, we found that surgical intervention significantly improved symptom improvement rates, reduced recurrence of nasal polyps, and provided long-term relief for patients with severe CRSwP. Patients,

symptoms, and co-occurring conditions must all be considered while developing a treatment plan.

Due to the study's limitations, such as its retrospective nature and potential biases, caution is warranted when interpreting these findings. More research is needed to confirm these results; in particular, prospective studies and cost-benefit analyses. Additionally, the ethical and patient-centered aspects of CRSwP management, including shared decision making and tailored treatment plans, should continue to be prioritized.

Overall, our findings contribute to the expanding body of literature on CRSwP treatment and provide light on the importance of tailored care for this multifaceted illness. We anticipate that the findings of this study will improve the quality of care provided to people with CRSwP.

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