Section: Miscellaneous

Original Research Article

ROLE OF ENDOSCOPIC SINUS SURGERY IN IMPROVING OCULAR SYMPTOMS IN PATIENTS WITH CHRONIC SINUSITIS

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ABSTRACT

Background: Chronic sinusitis is a long-lasting inflammatory disease of the paranasal sinuses that can spread beyond nasal symptoms to affect the orbit, causing eye problems as watering, pain, pressure, and visual discomfort. These symptoms have a major impact on quality of life and may not go away even with the best medical treatment. The current study sought to assess the efficacy of endoscopic sinus surgery (ESS) in alleviating ocular symptoms in individuals with chronic sinusitis.

Materials and Methods: A prospective interventional study was performed on 50 individuals diagnosed with chronic sinusitis with concomitant ocular symptoms. All patients received thorough otorhinolaryngological and ophthalmic assessments prior to surgery. Before surgery and three months after ESS, a standardized symptom scoring method was used to measure ocular complaints like epiphora, peri-orbital pain, eye strain, and visual discomfort. To see how well ESS worked, we evaluated the symptom scores before and after the surgery.

Results: The majority of the patients were male (60%), and their average age was 38.6 ± 11.4 years. Epiphora (60%), eye strain (46%), and peri-orbital pain (72%) were the most frequent ocular symptoms before surgery. At three months postoperatively, ocular symptoms showed a considerable improvement following ESS, with peri-orbital pain decreasing by 16%, epiphora by 14%, and eye strain by 10%. After the operation, the average score for ocular symptoms dropped dramatically from 6.8 ± 1.9 before to 1.9 ± 1.2 ($p < 0.001$). In total, 42 patients (84%) reported significant improvement in their eye problems following surgery.

Conclusion: The ocular discomfort caused by chronic sinusitis can be greatly alleviated by endoscopic sinus surgery. Surgical surgery improves the quality of life for patients by alleviating sinonasal illness and helping with orbital and ocular problems.

Keywords: Chronic sinusitis; Endoscopic sinus surgery; Ocular symptoms; Epiphora; Quality of life.

INTRODUCTION

Persistent mucosal inflammation that lasts longer than 12 weeks despite proper medical therapy characterizes chronic sinusitis, a common inflammatory condition of the paranasal sinuses. Common signs and symptoms include stuffy nose, runny nose, facial aches, and diminished scent. Chronic sinusitis can cause a range of eye symptoms because of the near proximity of the paranasal sinuses to the orbit.[1-3]

Chronic sinusitis can cause a variety of eye problems, including peri-orbital pain, pressure around the eyes, epiphora, strain on the eyes, and general visual discomfort. Inflammation that has progressed to the orbit, a blocked nasolacrimal duct, or trigeminal nerve irritation are the causes of these symptoms. Chronic eye pain can have a major impact on a person's ability to go about their everyday life and the quality of life they enjoy.[4,5]

The initial step in treating chronic sinusitis is with medical care, which may include antibiotics, nasal corticosteroids, antihistamines, and decongestants. Still, some patients do not get enough relief from conservative treatment, and their sinonasal and ocular problems remain. Surgical intervention is required in these instances.[6,7]

When it comes to restoring normal sinus drainage and ventilation while preserving mucosal function, endoscopic sinus surgery (ESS) has emerged as a minimally invasive and very effective method. While there is some evidence that it can alleviate sinonasal symptoms, there is little and inconsistent information about how it affects related ocular symptoms.[8,9]

The purpose of this research was to determine whether endoscopic sinus surgery is effective in reducing ocular symptoms in individuals suffering from chronic sinusitis and, if so, to what degree.

MATERIALS AND METHODS

This planned interventional trial was place in the Department of Otorhinolaryngology at a tertiary care institution over a set period of time. Fifty patients diagnosed with chronic sinusitis and with concomitant ocular symptoms were included following the acquisition of signed informed permission. The Institutional Ethics Committee gave their blessing to the study. Based on the patient's medical history, nasal endoscopy results, and CT scans of the paranasal sinuses, they were diagnosed with chronic sinusitis. All patients underwent a comprehensive ophthalmic assessment to record eye complaints and exclude primary ocular pathology.

Intervention: In accordance with established surgical procedures, every patient had endoscopic sinus surgery (ESS). In accordance with hospital norms, antibiotics, nasal saline irrigation, and topical nasal steroids were prescribed for postoperative medical treatment.

Inclusion Criteria

- Patients aged 18–60 years
- Diagnosed cases of chronic sinusitis
- Presence of ocular symptoms such as peri-orbital pain, epiphora
- Patients refractory to optimal medical management
- Willingness to participate and provide written informed consent

Exclusion Criteria

- Acute sinusitis
- Previous history of sinus surgery
- Primary ocular disorders causing similar symptoms
- Orbital complications requiring emergency intervention
- Systemic inflammatory
- Pregnant women

Data Collection and Follow-up: Both before surgery and three months after the procedure, patients had their ocular symptoms evaluated using a standardized rating method. There was a comparison and documentation of symptom improvement.

Statistical Analysis: Microsoft Excel was used for data entry, and SPSS, or the Statistical Package for the Social Sciences, was used for analysis. Categorical variables were represented as frequencies and percentages, whilst continuous variables were shown as mean ± standard deviation. Using a paired Student's t-test, we compared the symptom scores before and after surgery. A statistically significant result was defined as a p-value less than 0.05.

RESULTS

Endoscopic sinus surgery was performed on 50 individuals with chronic sinusitis and related ocular symptoms. The findings are displayed in five tables including demographic information, preoperative ocular symptoms, postoperative enhancement, symptom score comparison, and overall results.

Table 1: Demographic Characteristics of the Study Population

Parameter	Number (n)	Percentage (%)
Mean age (yrs)	38.6 ± 11.4	—
Male	30	60
Female	20	40

The majority of patients were in the productive age group, and their mean age was 38.6 ± 11.4 years. There was a small male majority, with 60% of the sample population being male.

Table 2: Preoperative Ocular Symptoms in Patients with Chronic Sinusitis

Ocular symptom	Number (n)	Percentage (%)
Peri-orbital pain	36	72
Epiphora	30	60
Eye strain	23	46
Pressure sensation around eyes	21	42
Visual discomfort	14	28

Seventy-two percent of patients reported peri-orbital pain as an ocular complaint, with epiphora coming in at sixty percent and eye strain at forty-six percent. Several individuals complained of various eye problems.

Table 3: Postoperative Ocular Symptoms at 3-Month Follow-up

Ocular symptom	Number (n)	Percentage (%)
Peri-orbital pain	8	16
Epiphora	7	14
Eye strain	5	10
Pressure sensation	6	12
Visual discomfort	4	8

After endoscopic sinus surgery, patients reported significantly fewer ocular problems. There was a marked improvement in symptoms, with a drop in peri-orbital pain from 72% before surgery to 16% after, and in epiphora from 60% to 14%.

Table 4: Comparison of Mean Ocular Symptom Scores Pre- and Post-ESS

Parameter	Mean score ± SD
Preoperative score	6.8 ± 1.9
Postoperative score	1.9 ± 1.2
p-value	<0.001

After the procedure, there was a marked improvement in the average ocular symptom score. Significant improvement was indicated by the statistically significant drop from 6.8 ± 1.9 preoperatively to 1.9 ± 1.2 postoperatively, which occurred after ESS.

Table 5: Overall Outcome Following Endoscopic Sinus Surgery

Outcome	Number (n)	Percentage (%)
Marked improvement	42	84
Partial improvement	6	12
No improvement	2	4

After ESS, 84% of patients reported significant relief from their eye problems. The effectiveness of surgical surgery was shown by the fact that 12% of patients noticed partial improvement and only 4% exhibited no meaningful change.

DISCUSSION

This study found that endoscopic sinus surgery (ESS) significantly helped with the ocular symptoms of chronic sinusitis. Consistent with other research on chronic sinusitis, this study's demographic profile consists mostly of middle-aged adults and young people, with a little male preponderance.[10-12]

Of the eye symptoms that participants in this study experienced, peri-orbital pain, epiphora, and strain were the most common. Prior research has also shown similar symptom patterns, with the underlying causes including orbital and nasolacrimal structures involvement, poor sinus drainage, and persistent inflammation of the paranasal sinuses.[13-15]

Following ESS, participants in the current trial reported significantly fewer ocular problems. The marked reduction in peri-orbital pain and epiphora following surgery provide credence to previous findings that have linked surgical intervention to appropriate sinus ventilation and drainage, which in turn alleviates inflammation and pressure effects on the orbit.[16-18]

A statistically significant reduction in the mean ocular symptom score following surgery was seen in this study, suggesting a notable enhancement in patient-reported outcomes. Supporting the effectiveness of surgical care in individuals who do not respond to medicinal treatment, prior research has also shown comparable decreases in symptom levels after ESS.[19-21]

The majority of patients in this study reported significant relief from their ocular problems, whereas a minority reported only mild or no relief at all. These results are in line with earlier research that has shown that ESS is effective in alleviating ocular problems that accompany sinonasal symptoms.[22,23]

CONCLUSION

Endoscopic sinus surgery considerably improved ocular symptoms in patients with chronic sinusitis, according to the present study. There was significant improvement in peri-orbital discomfort, epiphora, and eye strain for the majority of patients after surgery. In order to improve overall quality of life and alleviate ocular problems, these findings emphasize the significance of immediate surgical intervention in adequately selected individuals

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