Clinical Effect of Endoscopic Sinus Surgery on Fungal Sinusitis

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Abstract: Objective: To investigate the clinical effect of endoscopic sinus surgery on fungal sinusitis. Methods: 100 patients who came to our hospital for treatment from January 2019 to January 2022 were selected as the study subjects. The patients were divided into two groups using a random number table method, with 50 patients in each group. They were the experimental group and the control group. Patients in the control group can be treated with traditional Caldwell Luc surgery. The experimental group was treated with endoscopic sinus surgery. The total effective rate, specific airway resistance, olfactory function, incidence of postoperative infection, and recurrence rate of the two groups were compared. Results: The total effective rate of surgery in the experimental group reached 98%. Compared with the control group, the total effective rate of surgery was 78%. The difference was statistically significant (P<0.05). There was no statistically significant difference between the postoperative infection rate (2.53% vs 8.57%) and recurrence rate (2.86% vs 5.71%) between the two groups (P>0.05). Conclusion The treatment of fungal sinusitis with endoscopic sinus surgery is effective, which can significantly reduce nasal airway resistance, improve patients' olfactory function, and reduce postoperative infection and recurrence.

Keywords: Endoscopic Sinus Surgery; Fungal Sinusitis; Olfactory Function; Recurrence Rate

1. Introduction

1.1 General information

100 patients with fungal sinusitis admitted to our hospital were selected as the study subjects. Divide into two groups by random number table method, with 50 cases in each group. In the control group, there were 26 males and 24 females; Age: 22-68 years old, with an average age of (44.19 ± 7.48) years; The course of disease ranged from 1 to 15 years, with an average of (5.47 ± 2.14) years; Location of lesion: 18 cases were located on the left side, and 32 cases were located on the right side. In the experimental group, there were 31 males and 19 females; The age ranged from 24 to 67 years, with an average of (45.13 ± 2.34) years; The course of disease is 1-14 years, (7.71 ± 2.08) years; Location of lesion: 30 cases were located on the left, and 20 cases were located on the right. There was no statistically significant difference between the two groups in the course of disease, lesion location, and other data (P>0.05), which was comparable. And this study has been approved by the Medical Ethics Committee.

1.2 Inclusion and Exclusion Criteria

1.2.1 Inclusion criteria

(1) The chief complaint is unilateral nasal congestion, nasal discharge, orbital pain, or ophthalmoplegia; (2) The diagnosis was made after comprehensive diagnosis such as nasal examination and CT scan, and it conforms to the relevant

judgment basis in "Diagnosis and Treatment of Allergic Fungal Nasosinusitis"; (3) The patient is aware of the study content, and the patient's family agrees to abide by medical arrangements, and has signed the relevant consent agreement.

1.2.2 Exclusion criteria

(1) The patient has severe visceral and tissue diseases; (2) Patients with malignant tumors; (3) The patient has a history of nasal surgery; (4) The patient suffers from serious mental illness or intellectual abnormality; (5) Those who are unable to cooperate with the research therapy throughout the process.

1.3 Method

1.3.1 Control group

Patients in the control group were treated with traditional Caldwell Luc surgery. After routine disinfection and general anesthesia, the incision was positioned at the mucosa of the labial gingival sulcus, the periosteum of the anterior maxillary wall was separated, and the anterior maxillary sinus wall was fully exposed. At the cuspid fossa location, a window was drilled with an electric drill to expand the bone opening, and fungal masses in the surgical field were thoroughly removed. Then, 3% hydrogen peroxide and physiological saline were used to rinse the sinus cavity. After the stoma on the inner wall of the maxillary sinus was unobstructed, the water bag was filled into the maxillary sinus cavity through the lower nasal canal. After 48 hours, the water bag was removed, Sinus irrigation was given three days after surgery, and antibiotics were continuously used to prevent infection for 5 days.

1.3.2 Experimental group

Patients were treated with endoscopic sinus surgery. After routine disinfection and general anesthesia, the sulcus process is resected under endoscope. Depending on the extent of the lesion, the drainage opening of the affected sinuses is expanded or the sinuses are resected. Some patients are assisted with fenestration of the lower nasal tract to thoroughly remove fungal masses from the affected sinuses. During the operation, the mucus membrane of the sinuses is protected as much as possible. Then, anatomical variations that interfere with the ventilation and drainage of the ostiomeatal complex are treated. Polyps are removed if there is polyp. For nasal septum deviation "The anatomical variation of the middle turbinate was corrected. After completion, the sinus cavity was thoroughly rinsed with 3% hydrogen peroxide and physiological saline. Finally, a high molecular hemostatic cotton was taken and tamped for 48 hours. On the third day after surgery, with the assistance of nasal endoscope, the scab in the operative cavity was cleaned on time, and glucocorticoid was administered for nasal spray. Antibiotics were used to prevent infection for 5 days.".

1.4 Observation indicators

(1) Surgical efficacy: The proposed basis is selected according to the relevant standards of Haikou in 1997 [5]. The evaluation criteria for the efficacy of endoscopic sinus surgery are as follows: ① Significant effect: no related symptoms or purulent secretions, normal opening of the ostium, and epithelialization of the sinus mucosa Effective: Relevant symptoms have improved and purulent secretions have decreased, but there are still certain edema, hypertrophy, or new granulation growth in the sinus mucosa; ③ Ineffective: basically no symptom changes, there is purulent secretion, and there are polyps, adhesion of the surgical cavity, and small obstruction of the ostium. The evaluation criteria for the efficacy of traditional Caldwell Luc surgery are as follows: ① Significant effect: no related symptoms and purulent secretion, and the stoma is unobstructed; ② Effective: Relevant symptoms have improved, and the amount of purulent secretion is low; ③ Ineffective: basically no symptoms change, a large amount of purulent secretion, and stoma closure. Total effective rate=(number of significantly effective cases+number of effective cases)/34 × 100.00%。

(2) Nasal airway resistance (NAR): Before and 1, 3, and 6 weeks after surgery, it was measured using a forearm manometer (Mastr-PF-10 type in the United States). The higher the manometer value, the greater the NAR value and the more obvious the ventilation barrier.

(3) Olfactory function: Before and 1, 3, and 6 weeks after surgery, it was measured by olfactometer quantitative examination method [6]. A total of 8 concentrations (fecal odor, fruity aroma, spoilage, scorched taste, and floral aroma) were set, and the lowest threshold values of the nostrils on both sides of the patient were measured from low to high concentrations. A score of 0 to 1.0, 1.1 to 2.5, 2.6 to 4.0, 4.1 to 5.4, and 5.4 in turn indicated normal, slightly damaged, moderately damaged, severely damaged, and completely lost olfaction.

(4) Postoperative infection and recurrence: Count the number and incidence of postoperative infection in both groups, and follow up for 3-6 months to record the recurrence of patients.

2. Discussion

Fungi are a widely occurring pathogenic bacteria in nature. Under normal circumstances, the amount in the surface layer of the human nasal mucosa is relatively stable, and there will be no pathogenic problems. However, after the microenvironment in the nasal cavity and sinuses is destroyed, various fungi are prone to reproduce in large numbers and invade the tissues, ultimately inducing fungal sinusitis. Due to the existence of fungi, the internal structure of the nasal cavity is more complex, and various factors are involved. Considering the actual environmental factors, climate change, drug factors, and low immune function, in addition, middle turbinate stenosis, retention of sinus secretions, etc. are also common causes of chronic fungal sinusitis. In terms of treatment, the most effective and thorough treatment for fungal sinusitis is surgical surgery. Although traditional Caldwell Luc surgery can completely remove the diseased tissue, its treatment effect on the maxillary sinus ostium is limited, and there are problems such as significant trauma and slow postoperative recovery, which has a significant impact on the recovery of the physiological function of the sinus mucosa after surgery. Nasal endoscopic sinus surgery is a new surgery developed based on nasal endoscopy. Compared with traditional surgery, it has many advantages, such as small trauma, significant curative effect, rapid recovery, high safety, and low postoperative recurrence rate. It can more thoroughly remove the diseased tissue in the nasal sinus and reduce postoperative recurrence, while minimizing damage to the mucosal function of the nasal sinus.

Safety and recurrence rate are another important indicator of surgical efficacy. This study found that the incidence and recurrence rate of postoperative infection in the two groups of patients are relatively similar, suggesting that both of these two surgical methods for the treatment of fungal sinusitis can better ensure surgical safety and prevent postoperative recurrence; The reason why these two data in the observation group have a slight advantage over those in the control group may be related to the fact that endoscopic surgery can more thoroughly remove the diseased tissue and reduce the residual diseased tissue. Its less trauma and less stress response to patients may reduce the risk of postoperative infection to a certain extent.

3. Summary

In summary, endoscopic sinus surgery is used for the treatment of patients with fungal sinusitis. Compared to traditional surgical methods, this method can better reduce nasal airway resistance, accelerate the recovery of patients' olfactory function, and also have a certain role in preventing postoperative infection and reducing recurrence.

References

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