

Original Article

The Effect of Preoperative Short Course of Oral Steroids followed by Postoperative Topical Nasal Steroids Sprays on Nasal Polyp Recurrence after Endoscopic Nasal Polypectomy

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Abstract:

Objective: To evaluate the effect of preoperative short course of oral steroids followed by postoperative topical nasal steroids sprays on nasal polyp recurrence after endoscopic nasal polypectomy.

Methods: Forty eight patients of both genders with symptoms and signs of nasal polyps were included in this prospective study between January 2006 and December 2009. Their ages ranged between 18 and 60 years. The sample was divided into two groups. Group I constituted 24 patients treated by endoscopic nasal polypectomy without oral and local steroid therapy. Group II consisted of 24 patients also treated by endoscopic nasal polypectomy but received preoperatively 60mg prednisolone tablets daily for one week and postoperatively topical nasal steroid spray (Mometasone furoate suspension) for three months. All patients were followed up for at least one year. Recurrence of nasal polyps was assessed endoscopically at three, six and 12 months after surgery. Any evidence of nasal polyps-formation of whatever size was considered as recurrence.

Results: Forty eight patients (32 males and 16 females) with sinonasal polyposis were included in this study. Male to female ratio was 2:1. Patients' age ranged from 18 to 60 years; median age was 42 years. Recurrence rates at three, six and 12 months after surgery for the first group of patients were 8.33% (2 patients), 25% (6 patients) and 41.6% (10 patients) accordingly, while the recurrence rates for the second group were 4.1% (1 patient), 8.3% (2 patients) and 12.5% (3 patients) accordingly.

Conclusions: Preoperative short course of oral steroid followed by postoperative nasal steroid spray show significant reduction in the recurrence rate of nasal polyps after endoscopic nasal polypectomy.

Key words: Endoscopic nasal polypectomy, Local steroids, Nasal polyps, Oral steroid

Introduction

Nasal polyps are oedematous soft tissue outgrowths of the nasal mucosa and paranasal sinuses.⁽¹⁾ They are characterized macroscopically by a smooth, shiny, pink or grey surface, and microscopically by an oedematous stroma covered by respiratory or metaplastic squamous ciliated epithelium.⁽²⁾ Sinonasal polyposis is a chronic disorder with major effects on the quality of life of the affected individuals. The management options for sinonasal polyposis are medical treatment, surgery or combined medical and surgical treatment. It is a common practice to use systemic or topical corticosteroids as the first

therapeutic choice, followed by surgery for resistant or recurrent cases.⁽³⁾ The prevalence of nasal polyposis in the general population varies from 1% to 5%.⁽⁴⁾ Nasal polyps are usually manifested after the age of 20 years. Male to female ratio is 2 : 1.⁽⁵⁾ Seventy-one percent of patients with nasal polyps have bronchial asthma,⁽⁶⁾ although the mechanisms of nasal polyp formation and growth are still unclear and the role of allergy is controversial.⁽⁷⁾ Nasal polyposis can be accompanied by troublesome or agonizing symptoms that markedly impair one's quality of life; they even can cause serious orbital and cerebral complication.⁽⁸⁾ The main

presenting symptoms are nasal blockage, rhinorrhea, sneezing, hyposmia, postnasal discharge and sometimes anosmia. Hypoxia, hypercapnia, snoring, sleep disorders and an increased risk of hypertension may develop in patients with nasal polyposis.⁽⁹⁾ Nasal polyps can cause obstruction of the sinuses resulting in sinusitis and further polyp growth.^(5, 10) Corticosteroids reduce inflammation by decreasing the infiltration of inflammatory cells, especially mast cells and eosinophils. They also diminish the hyper-reactivity and vascular permeability of the nasal mucosa, and they might decrease the reactive mediators from the mast cells.^(10, 11) A short course of preoperative oral steroids greatly facilitates functional endoscopic sinus surgery by reduction of polyp size.^(12,13) Recurrence of nasal polyps after endoscopic sinus surgery may be the result of severe inflammatory reactions during the mucosal healing period.⁽¹⁴⁾ Therefore, postoperative topical nasal steroid sprays are used to suppress these reactions and allow the reestablishment of the normal epithelial architecture and local defenses.^(15,16) They are also frequently used to manage persistent sinonasal symptoms after surgery⁽¹⁷⁾ and to decrease the recovery rate of bacteria from sinus cavity following functional endoscopic sinus surgery (FESS) surgery.⁽¹⁶⁾ Nowadays, FESS is one of the most common procedures performed by rhinologists.⁽¹⁸⁾ The incidence of serious complications of FESS has been reported to be 0.5% or less.⁽¹⁹⁾ The most common complications include bleeding, infection, orbital injury, cerebrospinal fluid leak, naso-lacrimal duct injury and carotid injury. The purpose of this study is to evaluate the benefit of a preoperative short course of oral steroids followed by postoperative topical nasal steroid sprays on decreasing the recurrence of nasal polyps after endoscopic nasal polypectomy.

Methods

This prospective study was conducted at the Ear, Nose, Throat (ENT) Department at Dhaka national medical college & hospital from Jan 2006 to Dec-2009 .48 patients of both genders with symptoms and signs of nasal polyps were included in this study. The age of the patients ranged from 18 to 60 years (median age 42 years). Patients were divided into two groups:

1. Group I comprised 24 patients treated by endoscopic nasal polypectomy without preoperative oral and postoperative local steroid therapy.
2. Group II comprised 24 patients treated by endoscopic nasal polypectomy who received preoperatively 60 mg prednisolone tablets daily in three equal divided doses (20 mg × 3) for one week and postoperatively by topicalnasal steroid spray

(Mometasone furoatesuspension) of two 50 micrograms metered doses in each nostril twice daily (total daily dose 400 mcg) for one month then reduced to two metered doses in each nostril once daily (total daily dose 200mcg) for two months. All patients were followed up for at least one year. Recurrence of nasal polyps was assessed endoscopically at three, six and 12 months after surgery. Any evidence of nasal polyp formation of any size was considered as a recurrence. All patients underwent full medical examination including upper airway endoscopy, chest X-ray,pulmonary function tests, coronal and axial CTscans for sinuses. Patients with history of previous nasal polypectomy, hypertension, gastric problems, diabetes mellitus, cystic fibrosis, allergic fungal sinusitis, aspirin intolerance, herpes keratitis, glaucoma, psychiatric disorders, advanced osteoporoses and tuberculosis were excluded from this study. Endoscopic nasal polypectomy was performed under general anesthesia in a standard anterior to posterior approach. Anterior nasal packing was removed on the next day and all patients were discharged on oral antibiotics of one week course..

Results

48 patients (32 males and 16 females) with sinonasal polyposis were included in this study.

Table I. Symptoms of nasal polyps at presentation (N=48)

	Patients	%
Nasal obstruction	40	83.3
Rhinorrhea	36	75
Recurrent URTI	32	66.6
Sneezing	30	62.5
Postnasal discharge	28	58.33
Headache	26	54.16
Hyposmia	18	37.5
Facial pain	10	20.8

Table II. Percentage of recurrence in both groups

3 months 6 months 12 months

Patients % Patients % Patients %

	3 Months		6 months		12 months	
	Patients	%	Patients	%	Patients	%
Group 1	2	8.33	6	25	10	41.6
Group 2	1	4.1	2	8.3	3	12.5

Male to female ratio was 2 : 1. The patients’ age ranged from 18 to 60 years and median age was 42 years. Nasal obstruction was the most common symptom present in 40 patients (83.3%), followed by rhinorrhea in 36 patients (75%), recurrent attacks of upper respiratory tract infection in 32 patients (66.6%), sneezing in 30 patients (62.5%), postnasal

drip in 28 patients (58.33%), headache in 26 patients (54.16%), hyposmia in 18 patients (37.5%) and facial pain in 10 patients (20.8%) as shown in Table I. Out of 24 patients in Group I who were treated by endoscopic nasal polypectomy without pre- and postoperative steroids, recurrence was observed in 2 patients (8.33%) after three months of surgery compared with only one patient (4.1%) in the second group of patients who were given preoperative oral prednisolone and postoperative topical nasal steroid spray (mometasone furoate suspension) twice daily. After six months of surgery the total recurrence was detected in 6 patients (25%) in the first group and in 2 patients (8.3%) in the second group of patients. After one year of follow-up the total number of recurrences in the first group was 10 patients (41.6%) compared with only 3 patients (12.5%) in the second group of patients. (Table II demonstrate the follow-up results up to one year). These results show a statically significant

reduction in the number of recurrences of nasal polyps after one year in the second group in comparison with the first group. Even in patients with recurrence, there were important differences between the two groups. The npolyps' size, number and speed of growth were smaller in Group II patients which resulted in better nasal airways and more satisfaction from operation in comparison with patients with recurrence in Group I. It has been noted, also, that preoperative steroids decrease the edema of nasal mucosa and shrink the size of nasal polyps which greatly facilitates the access and makes the operation easier without increasing the risk of postoperative bleeding as expected (two patients in each group). No major complications were reported in both groups of patients. Minor complications included periorbital fat exposure (four patients in the first group and three patients in the second group) and postoperative bleeding (two patients in each group) without significant differences between the two groups. There was no increase of the usual side effects of prolonged use of intranasal steroid sprays such as headache, epistaxis, pharyngitis, nasal irritation and dryness more than it is stated in the drug's leaflet and were managed accordingly.

Discussion

This study emphasizes the role of preoperative short course of oral steroids followed by postoperative topical nasal steroid sprays on decreasing the recurrence of nasal polyps after endoscopic nasal polypectomy. It is well known that both medical and traditional surgical treatment methods of nasal polyps have high rates of recurrence, so many patients with nasal polyps require multiple surgical procedures. Based on many articles reviewed, intranasal corticosteroids appear to be safe and the benefits of their use outweigh their potential risks in appropriate patients.^(20,21) Many studies have been conducted to assess the effect of oral steroid and intranasal steroid in the

treatment of sinonasal polyposis. For example, Lildholdt *et al.* studied the efficacy of topical corticosteroid powder (budesonide) for nasal polyps in 129 patients and showed success in 82% of actively treated patients as opposed to about 43% in the placebo group.⁽²²⁾ Bross-Soriano *et al.* in their study on 162 patients concluded that the use of topical intranasal steroid (fluticasone propionate) after endoscopic resection of sinonasal polyps is not only effective in reducing recurrence (14% compared to 44.4% in control group), but also it is a safe and reliable and does not increase the prevalence of infection.⁽¹⁾ Kang *et al.* reported that high-dose topical corticosteroid therapy is more effective than lowdose topical therapy in preventing recurrent nasal polyps (7.1% opposed to 44%).⁽¹⁰⁾ Gulati *et al.* found that only patients who stopped using postoperative nasal sprays (10%) developed recurrence three months after surgery.⁽²³⁾ The results of the previous studies strongly support the results of our study and emphasize the importance of corticosteroid use to decrease the incidence of recurrent nasal polyps.

Conclusions

Administration of preoperative short course of oral steroids followed by postoperative topical nasal steroid sprays is safe and reliable for preventing recurrence of nasal polyps after endoscopic nasal polypectomy.

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