

# An Experience of Steroid in Recurrent Ethmoidal Nasal Polyps at Tertiary Care Hospital

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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 classical intranasal Polypectomy.

**METHODS:** Fifty five patients of both genders with symptoms and signs of nasal polyps were included in this prospective study between January 2010 and December 2012. Their ages ranged between 20 and 65 years. The patients were divided into two groups. Group I constituted 30 patients treated by classical sinus surgery (simple nasal polypectomy and intra nasal ethmoidectomy) without oral and local steroid therapy. Group II consisted of 25 patients also treated by intranasal 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 twelve months after surgery. Any evidence of nasal polyp formation of whatever size was considered as recurrence.

**RESULTS:** Fifty five patients (35 male and 20 female) with sinonasal polyposis were included in this study. Male to female ratio was 1.75:1. The patients' age ranged from 20 to 65 years and median age was 45 years; median age was 43 years. Recurrence rates at three; six and twelve 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 intranasal polypectomy.

**KEY WORDS:** Intranasal Polypectomy, nasal polyp, steroids, Recurrence.

## INTRODUCTION

Nasal polyps are oedematous soft tissue outgrowths of the nasal mucosa and paranasal sinuses.<sup>1</sup> They are characterized macroscopically by a smooth, shiny, pink or grey surface, and microscopically by an oedematous stroma covered by respiratory or metaplastic squamous cell epithelium.<sup>2</sup> 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.<sup>3</sup> The prevalence of nasal polyposis in the general population varies from 1% to 5%.<sup>4</sup> Nasal polyps are usually manifested after the age of 20 years. Male to female ratio is 2 : 1.<sup>5</sup> Seventy-one percent of patients with nasal polyps have bronchial asthma,<sup>6</sup> although the mechanisms of nasal polyp formation and growth are still unclear and the role of allergy is controversial.<sup>7</sup> 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.<sup>8,9</sup> A short course of preoperative oral steroids greatly facilitates functional endoscopic sinus surgery by reduction of polyp size.<sup>10,11</sup>

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 surgery.

## METHODS

This prospective study was conducted at the Ear, Nose, Throat (ENT) Department at Liaquat University Hospital Hyderabad, Sindh Pakistan from Jan 2010 to Dec-2012. Fifty-five patients of both genders with symptoms and signs of nasal polyps were included in this study. The age of the patients ranged from 20 to 65 years (median age 43 years). Patients were divided into two groups:

Group I comprised 30 patients treated by nasal

polypectomy along with intra nasal ethmoidectomy without preoperative oral and postoperative local steroid therapy.

Group II comprised 25 patients treated by nasal polypectomy along with intra nasal ethmoidectomy who received preoperatively 60 mg prednisolone tablets daily in three equal divided doses (20 mg × 3) for one week and postoperatively by topical nasal steroid spray (Mometasone furoate suspension) 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 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 examination, 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. 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. Then follow up was taken after three months, six months and twelve months and assessed the nasal cavity endoscopically for the presence of nasal polyp.

**RESULTS**

Fifty-five patients (35 males and 20 females) with sinonasal polyposis were included in this study. Male to female ratio was 1.75:1. The patients' age ranged from 18 to 70 years and median age was 45 years. Nasal obstruction was the most common symptom present in 45 patients (81.8%), followed by rhinorrhea in 38 patients (69%), recurrent attacks of upper respiratory tract infection in 33 patients (60%), sneezing in 32 patients (58.1%), postnasal drip in 30 patients (54.5%), headache in 29 patients (52.7%), hyposmia in 20 patients (36.3%) and facial pain in 13 patients (23.6%) as shown in Table I.

Out of 30 patients in Group I who were treated by nasal polypectomy without pre- and postoperative steroids, recurrence was seen in 3 patients (10%) after three months of surgery compared with only one patient (8%) in the second group of patients who were given preoperative oral prednisolone and postopera-

tive topical nasal steroid spray (mometasone furoate suspension) twice daily. After six months of surgery the total recurrence was detected in 7 patients (23.3%) in the first group and in 3 patients (12%) in the second group of patients. After one year of follow-up the total number of recurrences in the first group was 12 patients (40%) compared with only 4 patients (16%) in the second group of patients. (Table II demonstrate the follow-up results up to one year). These results show a statistically 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 polyps' 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. 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 peri-orbital 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 was managed accordingly.

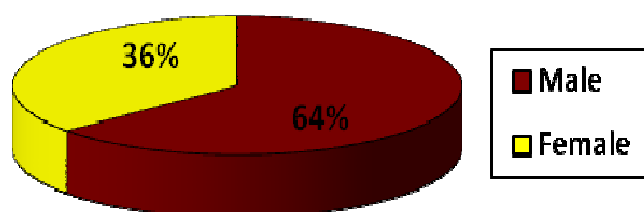
**TABLE I: SYMPTOMS OF NASAL POLYPS AT PRESENTATION (n=55) PATIENTS %**

Symptoms	Patients	%
Nasal obstruction	45	81.8
Rhinorrhea	38	69.0
Recurrent URTI	33	60
Sneezing	32	58.1
Postnasal discharge	30	54.5
Headache	29	52.7
Hyposmia	20	36.3
Facial pain	13	23.6

**TABLE II: PERCENTAGE OF RECURRENCE IN BOTH GROUPS (n = 55)**

	3 Months		6 months		12 months	
	Pa-tients	%	Pa-tients	%	Pa-tients	%
Group 1	3	10	7	23.3	12	40
Group 2	2	8	3	12	4	16

**GRAPH I: GENDER DISTRIBUTION**



**DISCUSSION**

Nasal polyps are typically benign pale-gray semi translucent grape-shaped masses in the nasal cavity that arise from the either the paranasal sinuses or from the mucosa of the nasal cavity. The prevalence of nasal polyp in the general population is about 4%; however nasal polyps occur most frequently in patients with asthma and in patients with aspirin sensitivity.

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.<sup>12</sup> The main presenting symptoms are nasal blockage, rhinorrhea, sneezing, hyposmia, postnasal discharge and sometimes anosomia. Hypoxia, hypercapnia, snoring, sleep disorders and an increased risk of hypertension may develop in patients with nasal polyposis.<sup>13</sup> Nasal polyps can cause obstruction of the sinuses resulting in sinusitis and further polyp growth.<sup>5, 8</sup>

Recurrence of nasal polyps after endoscopic sinus surgery may be the result of severe inflammatory reactions during the mucosal healing period.<sup>14</sup> Therefore, postoperative topical nasal steroid sprays are used to suppress these reactions and allow the reestablishment of the normal epithelial architecture and local defenses.<sup>15,16</sup> They are also frequently used to manage persistent sinonasal symptoms after surgery<sup>17</sup> and to decrease the recovery rate of bacteria from sinus cavity following nasal polypectomy, intra nasal ethmoidectomy and extra nasal ethmoidectomy. Nowadays, FESS is one of the most common surgical procedure performed by rhinologists.<sup>18</sup> The incidence of serious complications of FESS has been reported to be 0.5% or less.<sup>19</sup> The most common complications

include infection, orbital injury, cerebro spinal fluid leak, naso lacrimal duct injury and carotid injury.

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 their surgical removal. 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.<sup>20, 21</sup> Many studies have been conducted 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.<sup>22</sup> Bross-Soriano et al. in their study on 162 patients concluded that the use of topical intranasal steroid (fluticasone propionate) after 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.<sup>1</sup> Kang et al. reported that high-dose topical corticosteroid therapy is more effective than low dose topical therapy in preventing recurrent nasal polyps (7.1% opposed to 44%).<sup>8</sup> Gulati et al. found that only patients who stopped using postoperative nasal sprays (10%) developed recurrence three months after surgery.<sup>23</sup> 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. Accurate diagnosis of nasal polyp is important in order to obtain the best results from treatment. Treatment for nasal polyp mainly involves the use of topical or systemic corticosteroids and/or surgery to remove the nasal polyp, despite poor prognosis and prevent recurrence for better outcome.

**CONCLUSION**

Management of preoperative short course of oral steroids followed by postoperative topical nasal steroid sprays is secure and reliable for preventing recurrence of nasal polyps after intranasal polypectomy. Now a days the endoscopic sinus surgery is replacing the classical sinus surgery for lower complication rate and prevent the normal anatomical structures.

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