

## MEDICAL VERSUS SURGICAL TREATMENT OF NASAL POLYPS

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### ABSTRACT

**Objective:** To compare medical versus surgical treatment of nasal polyps in terms of frequency of success and recurrence.

**Study Design:** Randomized controlled trial.

**Place and Duration of Study:** This study was conducted at the department of ear nose throat (ENT), Combined Military Hospital (CMH) Peshawar over 2 years' period, from Jan 2000 to Dec 2002.

**Material and Methods:** During this period, 80 patients were diagnosed of nasal polyps. These patients were randomly divided into two treatment groups. Patients in group-A received medical treatment in the form of intra-nasal steroids while patients in group-B received surgical treatment depending upon the extent of disease. Outcome variables were frequency of successful resolution of nasal polyps after 1 month of treatment and frequency of recurrence upon 1 year follow-up.

**Results:** The age of the patients ranged from 15 years to 40 years with a mean of  $26.13 \pm 2.5$  years. There were 49 (61.25%) male and 31 (38.75%) female patients in the study group giving a male to female ratio of 1.6:1. There was no significant difference between the two study groups in terms of gender ( $p=0.818$ ) distribution. Bilateral intranasal polypectomy was the most frequently performed procedure (70.0%) followed by intranasal ethmoidectomy (12.5%), external ethmoidectomy (10.0%) and functional endoscopic sinus surgery (7.5%). The frequency of successful treatment was significantly higher with surgery (100% vs. 52.50%;  $p<0.001$ ) as compared to intra-nasal steroids at 1 month follow-up. However, over the long-term follow-up, the frequency of recurrence was significantly lower with intra-nasal steroids (4.8% vs. 30.0%;  $p=0.022$ ) as compared to surgery. There was no complication in the patients treated with intra-nasal steroids. While crusting (15.0%) followed by infection (10.0%) were among the few complications observed in the surgical group-B.

**Conclusion:** Though associated with significantly lower frequency of successful treatment, intranasal steroids were associated with significantly lower frequency of recurrence as compared to surgery. Moreover, their use was not associated with any complication as experienced with surgery. Due to these benefits and non-invasiveness, intra-nasal steroids become first line treatment of choice. It can be advocated on the basis of the present study, that patients with nasal polyps should receive a course of intra-nasal steroids and surgery should only be reserved for refractory cases.

**Keywords:** Intra-nasal steroids, Nasal Polyp, Recurrence, Surgery, Successful treatment.

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### INTRODUCTION

In addition to nasal congestion and chronic rhinosinusitis, nasal polyps (NP) are also frequently associated with nasal obstruction by either mechanically blocking or altering the normal flow of air through the nasal cavity<sup>1,2</sup>. Similarly, by blocking the normal drainage they also cause congestion, infection and inflammation of the paranasal sinuses<sup>3</sup>. Due to these direct and

indirect effects, NP affects the quality of life and are seen in patients with a wide range of symptoms<sup>1,4</sup>. The medical treatment options include topical and oral steroids, macrolide antibiotics, diuretic nasal washes and intra-polyp steroid injection<sup>5-7</sup>, while the surgical treatment options include polypectomy and functional endoscopic sinus surgery (FESS)<sup>8</sup>. The exact pathogenesis behind the development of nasal polypi is not clearly understood which makes their treatment difficult and challenging<sup>1-3</sup>. A high recurrence rate has been reported both after medical and surgical treatment<sup>1</sup>. Different studies

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have assessed improvement in quality of life score after medical and or surgical treatment of patients with nasal polyps, yet the evidence on frequency of successful resolution of polypi with medical versus surgical treatment was limited and contained conflicting results which necessitated the present study with a hope that the results of the present study could help in selecting better treatment option for patients in future.

### PATIENTS AND METHODS

This was a randomized control study conducted at the Department of ENT, CMH, Peshawar over 2 years period from January 2000 through December 2002. During this period, 80 patients were diagnosed of nasal polyps. These patients were divided into two treatment groups

the variables of the study by applying descriptive statistics. Chi-square test was applied to find out significant difference among the groups. A *p*-value for significance was kept <0.05.

### RESULTS

The total number of patients in study were (n) 80. The age of the patients ranged from 15 years to 40 years with a mean of  $26.13 \pm 2.5$  years. There were 49 (61.25%) male and 31 (38.75%) female patients in the study group giving a male to female ratio of 1.6:1. There was no significant difference gender (*p*=0.818) distribution as shown in table-I.

Bilateral intranasal polypectomy was the most frequently performed procedure (70.0%) followed by intranasal ethmoidectomy (12.5%),

**Table-I: Demographic features of study participants.**

Characteristic	Study Participant n=80	Medical Treatment n=40	Surgical Treatment n=40	<i>p</i> -value
Age (years, mean with SD)	26.13 ± 2.5	26.60 ± 2.5	25.65 ± 2.5	
Age Groups n(%)				
15-20 years	20 (25)	10 (25)	10 (25)	0.980
21-25 years	14 (17.50)	8 (20)	6 (15)	
26-30 years	27 (33.75)	13 (32.5)	14 (35)	
31-35 years	10 (12.50)	5 (12.5)	5 (12)	
36-40 years	9 (11.25)	4 (10)	5 (12)	
Gender n(%)				
Male	49 (61.25)	24 (60)	25 (62.5)	0.818
Female	31 (38.75)	16 (40)	15 (37.5)	

Chi-square test.

by random sampling technique. Patients in group-A received medical treatment in the form of intra-nasal steroids while patients in group-B received surgical treatment depending upon the extent of disease. Outcome variables were frequency of successful resolution of nasal polyps after 1 month of treatment and frequency of recurrence upon 1 year follow-up. Patients suffering from immotile cilia syndrome, cystic fibrosis and Youngs syndrome were excluded. A written informed consent was obtained from every patient. SPSS-19 was used for analysis of all

external ethmoidectomy (10.0%) and functional endoscopic sinus surgery (7.5%) as shown in table-II. The frequency of successful treatment was significantly higher with surgery (100% vs. 52.50%; *p*<0.001) as compared to intra-nasal steroids at 1 month follow-up. However, over the long term follow-up, the frequency of recurrence was significantly lower with intranasal steroids (4.8% vs. 30.0%; *p*=0.022) as compared to surgery as shown in table-III.

There was no complication in the patients treated with intra-nasal steroids. While crusting

(15.0%) followed by infection (10.0%) were among the few complications observed in the surgical group-B as shown in table-IV.

## DISCUSSION

The treatment of nasal polyps ranges from non-pharmacologic and conservative medical measures to more extensive surgical procedures with variable frequency of success, side effects and recurrence. There is no universally accepted protocol for the management of nasal polypi

presenting with nasal polyps at The Aga Khan University Hospital, Karachi, Pakistan. They also observed similar male predominance with male to female ratio of 1.52:1<sup>9</sup>. Irshad-ul-Haq et al. reported mean age of  $31.56 \pm 6.18$  years and male to female ratio of 2.03:1 among patients presenting with NP at Department of ENT, Sheikh Zayed Hospital, Rahim Yar Khan<sup>10</sup>. Baloch et al. also observed a similar mean age of  $27.3 \pm 12.98$  years however; they observed a female predominance with male to female ratio of

**Table-II: Frequency of various surgical procedures performed.**

S. No	Various surgical procedures performed	Frequency n(%)
1	Intranasal polypectomy (bilateral)	28 (70)
2	Intranasal ethmoidectomy	5 (12.5)
	Bilateral	1 (2.5)
	Right side	1 (2.5)
	Left Side	3 (7.5)
3	External ethmoidectomy	4 (10)
	Bilateral	1 (2.5)
	Right side	1 (2.5)
	Left Side	2 (5)
4	Functional endoscopic sinus surgery	3 (7.5)

**Table-III: Response of the two groups to treatment and reoccurrence.**

Response	Medical Treatment n=40	Surgical Treatment n=40	p-value
Successful treatment	21 (52.50)	40 (100)	<0.001
Recurrence	1 (4.8)	12 (30)	0.022*

Chi-square test, \*observed difference was statistically significant

**Table-IV: Complications of surgical treatment.**

Various Complications of Surgery	Frequency n(%)
Infection	4 (10)
Crusting	6 (15)
Loss of sense of smell	1 (2.5)
Adhesion formation in nose	3 (7.5)
Pain/ numbness face, teeth, gums	2 (5)

owing to great degree of controversy in the existing literature about these treatment options<sup>4-8</sup>. The purpose of the present study was to compare medical versus surgical treatment in terms of frequency of success and recurrence to determine better treatment option for future cases of nasal polyps.

Akhtar et al. in a local study reported the mean age of  $33.87 \pm 12.94$  years among patients

1:2.8<sup>11</sup>. There was no significant difference between the two study groups in terms of mean age ( $p=0.427$ ,  $p=0.980$ ) and gender ( $p=0.818$ ) distribution confirming effective randomization of the study sample.

The frequency of successful treatment was significantly higher with surgery (100% vs. 52.50%;  $p=0.001$ ) as compared to intra-nasal steroids at 1 month follow-up. However, over the

long term follow-up, the frequency of recurrence was significantly lower with intra-nasal steroids (4.8% vs. 30.0%;  $p=0.022$ ) as compared to surgery. Our results are in line with those of Malik et al. who also observed significantly higher frequency of successful treatment of nasal polypi with surgical (90% vs. 66%;  $p=0.02$ ) as compared to medical treatment<sup>12</sup>. Rohail et al. in another local study observed similar significant difference between surgical and medical treatment (100% vs. 52.0%;  $p<0.05$ ). They however observed significantly higher frequency of recurrence with medical treatment (82% vs. 37.3%;  $p<0.05$ ) as compare to surgery<sup>13</sup>. Nores et al. reported frequency of successful treatment to be 68.5% with a recurrence rate of 31.5% after intra-nasal steroids<sup>14</sup>. Ahmed and Hammed reported a recurrence rate of 33% after intranasal ethmoidectomy<sup>15</sup>. Friedman reported an overall recurrence rate of 30.9% following intranasal ethmoidectomy, in patients with polyp who had undergone nasal polypectomy previously<sup>16</sup>. Schaitkin et al. reported successful treatment in 21% patients and recurrence rate of 36% following surgical treatment of nasal polyps<sup>17</sup>.

## CONCLUSION

Though associated with significantly lower frequency of successful treatment, intranasal steroids were associated with significantly lower frequency of recurrence as compared to surgery. Moreover, their use was not associated with any complication as experienced with surgery.

## RECOMMENDATION

Due to these observed benefits of this study and being a non-invasive approach, use of intra-nasal steroids is being considered first line treatment of choice. On the basis of present study it may be reasonable to consider that future patients should first receive a course of intra-

nasal steroids and option of surgery should only be reserved for refractory cases.

## CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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