

# Conventional Sinus Surgery for Nasal Polyp: Intra Nasal Polypectomy Vs Trans Antral Ethmoidectomy

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## ABSTRACT

**Aims:** To compare trans-antral ethmoidectomy is a preferable surgical procedure for removal of nasal polyp, regarding morbidity, complication and recurrence as compared to intranasal ethmoidectomy. Transantral ethmoidectomy is a preferable surgical procedure for removal of nasal polyps, regarding morbidity, complications and recurrence as compared to intra nasal polypectomy. A total of 100 patients presenting with nasal polyp were studied prospectively at ENT department of Mayo Hospital, Lahore. Patient input is from throughout Punjab and even other provinces. Surgery was performed in the operation theater under General Anesthesia on all 100 patients. A standard questionnaire was prepared and the history, examination, laboratory data and treatment were recorded on it for each patient. Male to female ratio was in the range of 1.5:1, which is slightly lower than the international statistics of 2:1. We found a higher incidence of nasal polyp in rural dwellers (73%) compared to urban population (27%). Patients of lower socio economic class were (40%), middle class (35%) and high socioeconomic class were (25%). Nasal blockage (100%) and post nasal drip (90%) were the commonest symptoms. The recurrence rate after trans-antral ethmoidectomy was (4%) and intra nasal polypectomy (18%).

**Keywords:** Nasal polyp, trans-antral ethmoidectomy, intranasal polypectomy

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## INTRODUCTION

The term polyp is a morphological term applied to any pedunculated mass attached to a surface. Nasal polyp is a hypertrophied mucosa and submucosa of nose and paranasal sinus. Nasal polyp is a common problem, it occurs between 1 and 2% of Caucasian. It affects 4% of population of the western world. There is a strong male predominance with male to female ratio 2:1 to 4: 1. The word polyps have come from Greek language, which means many footed (polypus). It was first recognized in India by 1000 B.C. Curettes had been devised to remove these polyps.

The relationship between asthma and nasal polyps has been recognized<sup>1</sup>. Nasal polyps are found in 7% of patients with asthma<sup>2</sup>. Statistically nasal polyps are more common in non-allergic asthma versus allergic asthma (1.3% vs. 5%). X-ray examination includes plain paranasal sinus (PNS), x-ray and chest x-ray in all patients. Skull lateral view and computerized tomography (CT) were done in those patients who presented with proptosis, Hypertelorosis or where cranial involvement was suspected.

**Surgery:** Two types of surgical procedures were adopted for these patients

1. TAE (Transantral Ethmoidectomy)

2. INP (Intranasal Polypectomy)

Total of hundred patients were divided in two groups

**Group A:** Comprising of 50 patients in which intranasal Polypectomy was carried out (they were operated for first time)

**Group B:** Comprising of 50 patients in which Transantral Ethmoidectomy was done. They already have intranasal polypectomy either once or twice

## RESULTS

There were 100 cases of nasal polyps, 62(62%) were male and 38(38%) were female, thus showing male to female ratio of 1.5: 1. The age of these patients ranged from 10 to 59 years with the mean of 31 years. There was some difference in sex with respect to age in the 5<sup>th</sup> decades of life where 13 male had the disease compare to 4 females. A total of 73 patients (73%) were rural dwellers compared graphs 27% who lived in urban areas, 40% belonged to the low class of population and 35% belonged to middle class, 25% belonged to high class. These findings were recorded according to patients own assessment about their socioeconomic status. Only 7% were found to be regular smokers.

**Symptoms:** All patients presented with some degree of nasal blockage. It was complete in 68% patients and partial in 32% patients. 74% patients had bilateral nasal blockage. 11% had left sided nasal blockage and 15% patients had right sided nasal

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blockage. 25% who had bilateral nasal blockage had partial blockage and rest of the 49 % had complete on the right side. All other patient with unilateral blockage had complete nasal blockage. The time elapsed between beginning of these symptoms and presentation to use ranged from one month to 8 years with a mean of 2 years. 40% patient had the problem aggravated at night. Others had this problem all day long.

Other modes of presentation are given in Table 3 and depicted in Fig. 3. Other mode of presentation are given in table 3 and depicted in Fig. 3. Postnasal drip (PND) occurred in 90% of patients. In the majority it was yellow in color followed by white, green and brown in decreasing frequency. Rhinorrhea was present in 87% of patients and was related to some triggering stimulus like dust smoke, mosquito bite, meat, mite, eggs and cold wind etc, in 27(27%) cases.

The following symptoms were considered with detail. Nasal blockage was considered when continuously present for some time. The degree of obstruction and any change in relation to time of day or season were recorded. Rhinorrhea, consisting of profuse clear secretion from the anterior nares occurring at least once a week was considered. Its total duration, with increase in relation to time and day and seasonal variation and triggering stimuli were recorded. Sneezing attacks, consisting of uncontrolled bouts of sneezing occurring once per week and relationship with change of season and triggering stimuli along with the total duration was asked. Post nasal drip and watering of eye was also considered.

**Past medical history:** Drugs hypersensitivity was divide in to four groups – patients with penicillin hypersensitivity, Aspirin, hypersensitivity, sulfonamides hypersensitivity and reaction to other drugs. Asthmatic history was also considered

**Family history:** Family history of nasal polyps, allergy, asthma and other familial disorders were asked for.

**Surgical history:** Surgical history prior to this admission was considered and any operation of nose was considered. Nasal surgery that was asked for specifically included polypectomy, ethmoidectomy, Caldwell-Luc's and trans-antral ethmoidectomy. Patients were asked to bring their previous medical record. 50 out 100 patients had previous history of intranasal polypectomy.

**Clinical examination:** General physical examination including pulse, temperature, B.P, and respiratory rate were taken and account. The site, color, consistency and sensitivity of nasal polyps were assessed. Almost all the patients had their nasal polyps originating from middle meatus, and 33% had

their polyps originating from superior meatus in addition to middle meatus. Posterior rhinoscopy findings were recorded in every patient. Ear and throat were examined and finding noted. Systemic examination included detailed examination of respiratory systems and cardiovascular system, GIT and CNS.

## MATERIAL AND METHOD

A total of 100 patients presenting with nasal polyp were studied prospectively at ENT department of Mayo Hospital, Lahore. Patient input is from throughout Punjab and even other provinces. Surgery was performed in the operation theater under General Anesthesia on all 100 patients. A standard questionnaire was prepared and the history, examination, laboratory data and treatment were recorded on it for each patient (appendix I).

**Epidemiological data:** This included the name, age, sex, complete address, ethnic group, caste, marital status, socio economic status, education status and if the patient took alcohol or was a smoker with duration.

**Symptoms:** Loss of smell was present in 83cases (83%), partial loss was present in 51cases (51%) and complete loss was present in 32 cases (32%). Only 17 cases (17%) had normal smell sensation. History of earache and ear blockage was present in 37 patients (37%). It was bilateral in 27cases (27%), unilateral 10 cases (10%), right sided in 7 cases (7%) and left side in 3 cases (3%). Sneezing was present in 60cases (60%). Itching and watering of eye occurred in 53patients (53%).

**Past medical history:** Twenty patients (20%) had history of eczema during some time of there lives. Twenty five patients (25%) gave history of some kind of drug sensitivity. Five patients (5%) were penicillin sensitive. Aspirin and sulphonamide sensitivity was found in 10 patients (10%). The reaction in majority of these cases consisted of rash. Ten patients were found to be asthmatic (10%).

**Family history:** Family history of nasal polyp was present in only 9% (9 cases). Family history of allergy occurred in 38 % (38 cases) and asthma was present in family members of 10 % (10 cases)

**Surgical history:** Fifty patients (50%) were having first time polypectomy whereas 50(50%) were admitted for a recurrence. thirty four (34%) patients had one previous polypectomy and 16(16%) had two previous polypectomy. later on these 50 cases were selected for TAE (Trans-antral Ethmoidectomy). Only 16(16%) patients had other NT surgery besides Polypectomy. Four patients had BAWO and SMR, 4 had BAWO alone and 2 patients had SMD alone. Six patients had tonsillectomy done previously.

**Clinical examination:** 3 patients were found to be hypertensive with diastolic blood pressure above 100mmHg. 74(74%) patients had bilateral nasal polyps, 15(15%) patients had right sided nasal polyps and 11(11%) patients had left sided nasal polyps only. Single nasal polyps was presents in 44(44%) cases 56(56%) cases had multiple nasal polyps. All of the polyps were soft and insensitive. 47(47%) also had deviated nasal septum, out of these 12 had deviation to the left and 35 had deviation to the right. Chronic pharyngitis was diagnosed in 67(67%) cases. 16 (16%) of these cases also had recurrent tonsillitis. Seven (7%) patients had acute pharyngitis and the throat was completely normal in 10(10%). 16 patients (16%) had bilateral dull retracted tympanic membranes and 6(6%) patients had left and 12(12%) patients had right dull retracted tympanic membrane. Three (3%) patients had central perforations. Voice was normal in 83(83%) cases and hypo nasal in 17(17%) cases. Hypertelorosis was present in 6(6%) patients had proptosis of eye and one patient also had oedema of upper lid on the side of proptosed eye.

**Investigations:** Paranasal sinus (PNS), x-ray was carried out in all 100 cases. 43(43%) had opacity of only right maxillary sinus and 18(18%) patients had opaque left maxillary sinus. Thirty nine (39%) patients had bilateral opacity. C. T scan was also carried out in certain cases particularly where erosion of bone was suspected.

**Results of surgery**

Transantral Ethmoidectomy 50

Intranasal Polypectomy 50

**Intranasal polypectomy:** Intranasal polypectomy was done in 50 patients. These patients were operated for the first time. Out of these 50%, 30 % polyps were arising from middle meatus and 20% from superior meatus. Follow up was done periodically in regular intervals from 2 years and recurrence was observe in 9 patients out 50 (18%). (According to international studies it is 40%)

**Transantral ethmoidectomy:** Trans-antral ethmoidectomy was done in 50 patients who already had intranasal polypectomy either once or twice. These patients too were regularly followed up for two years. Out of these 50 cases recurrence was found in 2(4%) (According to international studies it is around 20%)

Table1: Age and sex distribution and Nasal polyps (n=100)

Age in years	Male	Female	Total	%age
10-19	8	12	20	20
20-29	20	10	30	30
30-39	18	9	27	27
40-49	13	4	17	17
50-59	3	3	6	6
Total	62	38	100	100

Table 2: site and degree of nasal blockage (n=100)

Side	Blockage		Total	%age
	Partial	Complete		
Bilateral	25	49	74	74
Left	4	7	11	11
Right	3	12	15	15
Total	32	62	100	100

Table 3: Common modes of presentation nasal polyp

Presentation	=n	%age
Nasal blockage	100	100
PND	90	90
Rhinorrhea	87	87
Loss of smell	83	83
Ear block &/ or ear ache	37	37
Sneezing	60	60
Itch and watering of eyes	53	53
Irritation in nose & /or facial pain	35	35

Fig.2a Community distribution of nasal polyps.

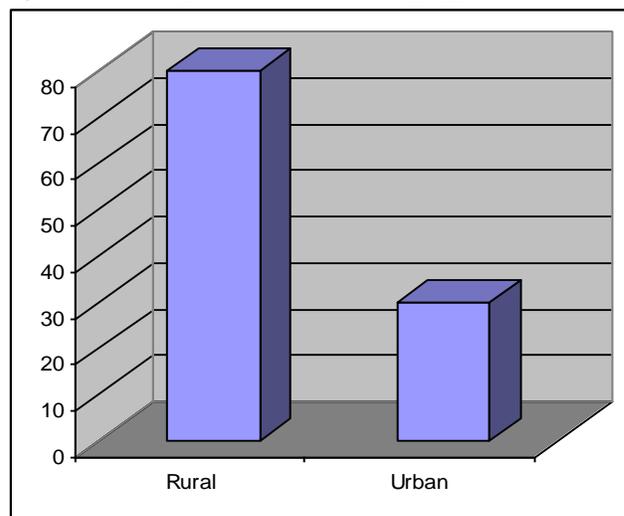


Fig 2b. Distribution of nasal polyps according to socioeconomic status

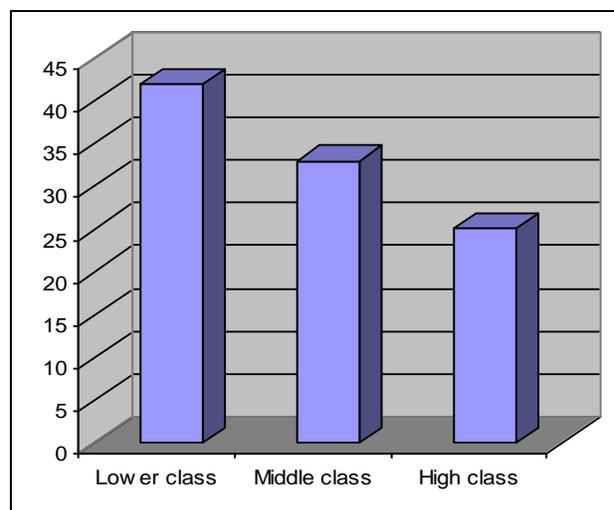


Table 4: Past medical history analysis (n=100)

Presentation	=n	%age
Eczema	20	20
Drug sensitivity		
Penicillin	5	5
Aspirin	10	10
Sulpha	10	10
Asthma	10	10
Other medical illnesses	9	9
ASA triad	10	10

Table 5: Family history of nasal polyps and related disorders (n=100)

Family history	=n	%age
Nasal polyp	9	9
Allergy	38	38
Asthma	10	10

Table 6: Distribution of patients with past polypectomy (n=100)

Past Polypectomy	=n	%age
Patients with one previous polypectomy	34	34
Patients with two previous polypectomy	16	16
Patients with two previous polypectomy	16	16

## DISCUSSION

Nasal polyps are a common clinical condition which despite differing theories of etiology remains a poorly understood disease. The two main theories regarding pathogenesis of nasal polyps are the infective and the allergic. Of the 100 cases seen in the department of ENT at Mayo Hospital, Lahore the male to female ratio was in the ratio of 1.5:1. Which is slightly lower than the international statistics of 2:1 to 4:1, but the male predominance is still there.

Drak Lee et al (1984) reports mean age of onset as 42 years<sup>3</sup>, so does McFadden et al (1990)<sup>4</sup>. Our patients had mean age of 31 years, with comparatively higher number of patients in third and fifth decade. A higher incidence of nasal polyps has been reported in rural dwellers (portenko, 1988)<sup>5</sup>. We to found higher incidence of nasal polyps in rural population (73%) compared to urban population (27%).

Nasal blockage was present in (100%) of our cases and the second most frequent symptom was post nasal drip (PND) with a frequency of (90%). An incidence of (97%) for nasal blockage an (65%) is reported in foreign literature. Sneezing has been found to occur in (60%) of our cases, the same

analysis has been laid down by (Donovan et al, 1970)<sup>6</sup>. The incidence of penicillin allergy is between (3-5%) in general population (Sullivan et al, 1981)<sup>7</sup>. (5%) of our patients admitted were allergic to penicillin. Settupane (1983)<sup>8</sup> reports 23% polyps in patients having aspirin intolerance. We report a 10% incidence having aspirin intolerance in our study. Settupane (1996) records that about 40% of patients with nasal polypectomy have recurrence. In our study this recurrence rate was 18%.

Frieman and Katsontosis (1990) records a recurrence rate of less than 20% in more than 1300 intranasal ethmoidectomies and trans-antral ethmoidectomies performed for polyps. In our study the recurrence rate for nasal polyp after a trans-antral ethmoidectomy was 4%.

## CONCLUSION

This study has proved that the rate of recurrence for nasal polyp after trans-antral ethmoidectomy is much lower (4%) as compared to intra nasal polypectomy (18%).

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