## Original Article

# Factors associated with recurrent nasal polyps: A tertiary care experience

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## Abstract

**Objective:** To assess the factors associated with recurrence of nasal polyps in operated patients by endoscopic surgery.

**Methods:** A retrospective study was conducted on 192 patients operated for nasal polyps in a hospital set-up between 2001 and 2007. The median follow-up period was 24 months (range 12 months to 60 months). Ten variables were analyzed to study their association with polyp recurrence namely; age, gender, history of purulent nasal discharge, facial pain, anosmia, post nasal dripping (PND), headache, nasal allergy, asthma and computed tomography (C.T) staging. Analysis of recurrences was accomplished using independent sample t-test, chi-square and Fishers exact test. A probability value of $p < 0.05$ was selected as the level of significance.

**Results:** During the study period, recurrences developed in 36 patients, with a rate of 19%.No association of recurrence with age, gender, purulent nasal discharge, facial pain, anosmia, post nasal dripping, headache, nasal allergy, and asthma were observed. The C.T staging was significantly higher among the group with recurrence as compared to the group without recurrence. ( $p < 0.001$)

**Conclusion:** Patients presenting with extensive disease suggested by C.T scan staging are at higher risk for the development of recurrences after endonasal surgery for nasal polyps (JPMA 60:102; 2010).

## Introduction

Nasal polyps have been a medically recognised condition since the time of ancient Egyptians.[1] Prevalence of this condition is estimated to be between 1% and 4%,[2] but some studies report rates as high as 32%.[3] No single predisposing condition can be implicated for the formation of polyps, though they may be associated with several other diseases, notably cystic fibrosis, asthma and aspirin intolerance.[4] The role of infection is also thought to be an important cause in the genesis of polyps.[5] However, when it is difficult to manage, the conditions often necessitates both medical and surgical interventions.

Functional endoscopic sinus surgery (FESS) is now widely accepted for the treatment of nasal polyps, however, a high incidence of post surgical recurrences is documented.[6,7] The use of topical corticosteroids is considered by some specialists to be the best treatment for the prevention of recurrence.[8,9] However, prevention and prediction of its relapses is still a subject of much debate among clinicians and researchers. The present study was conducted to assess different clinical features which are associated with recurrence of nasal polyps.

## Methods

We conducted an observational study of 192 adult patients with nasal polyps who underwent functional endoscopic sinus surgery between 2001 and 2007 at the Aga Khan University Hospital, which is a tertiary care teaching hospital in Karachi, Pakistan. All patients had preoperative computed tomography (CT) scans of the sinuses. Only patients with a minimum of 24 months follow-up were included. Independent variables which were assessed included patients age, gender, purulent nasal discharge, facial pain, anosmia, post nasal drip, and headache. This information was collected from outpatient and inpatient notes. History of nasal allergy and asthma was also noted. Information about these variables was collected from preoperative anaesthesia evaluation form. Preoperative C.T staging was performed using Lund-McKay scoring system.[10]

Recurrence of polyps was based on office endoscopic evaluation during follow up visits, using grading system proposed by European position paper on rhino sinusitis and nasal polyps 2007.[10] Grade 2 and above was taken as a recurrence and patients with polypoidal mucosa or edematous mucosa due to sinusitis (Grade 1) were labeled as no recurrence.

The data was analyzed using SPSS for Windows 15. Patients with no recurrence and with recurrence were compared by age and C.T staging using independent sample t-test. Fisher's exact test was used for anosmia and nasal allergy and Chi-square test for the rest of the variables. A probability value of $p < 0.05$ was taken as the level of significance.

## Results

The records of 192 patients with nasal polyps, who underwent functional endoscopic sinus surgery, were reviewed. The study group included 120 male and 72 female patients. The mean age of patients was 34.01 years (SD ± 13.11). Polyps were removed using electrical debrider and maxillary and ethmoid sinuses were opened in all patients. Eighty five (44%) patients also underwent frontal or sphenoid sinusotomy. All patients were treated with postoperative antibiotics and steroids. All our patients received oral prednisolone (0.5 mg/kg/day) for 4 weeks postoperatively followed by topical steroids which were started after 4 weeks and continued for 5 months. Follow-up periods ranged from 24 months to 60 months, with a median of 38 months.

Thirty six (19%) patients developed recurrent nasal polyps during the follow-up period. The median time to recurrence was 14 months (SD ± 6.3).

The mean age of patients with recurrence was (X = 34.61 ± 13.97 years) or without recurrence (X = 33.87 ± 12.94 years). This was not significantly different ( p = 0.759, [Table]). No association of recurrence was observed with sex ( p=0.181), purulent nasal discharge (p= 0.454), facial pain (p= 0.471), anosmia (p = 0.133) ,post-nasal drip (p = 0.347), headache (p= 0.139), allergy (p = 0.127) and asthma (p = 0.212) was observed.

The mean C.T staging score was higher among the group with recurrence (X = 22.78 ± 1.45) as compared to the group without recurrence (X = 13.25 ± 2.83) and was statistically significant (p < 0.001).

**Table: Demographic and clinical characteristics by recurrence status.**

| | No recurrence (n =156) n (%) | Recurrence (n =36) n (%) | p value |
|---|---|---|---|
| Age(years) † | 33 .87 (±12.94) | 34.61 (±13.97) | 0.75 |
| **Gender** | | | |
| Males | 94 (49%) | 26 (14%) | 0.81 |
| Females | 62 (32%) | 10 (5%) | |
| **Purulent Nasal discharge** | | | |
| Present | 30 (16%) | 5 (2%) | 0.45 |
| Absent | 126 (66%) | 31 (16%) | |
| **Facial Pain** | | | |
| Present | 19 (10%) | 6 (3%) | 0.47 |
| Absent | 137 (71%) | 30 (16%) | |
| **Anosmia** | | | |
| Present | 13 7%) | 0 | 0.13 |
| Absent | 43 (74%) | 36 (19%) | |
| **Post nasal drip** | | | |
| Present | 36 (19%) | 11 (6%) | 0.34 |
| Absent | 120 (62%) | 25 (13%) | |
| **Headache** | | | |
| Present | 74 (39%) | 22 (11%) | 0.13 |
| Absent | 82 (43%) | 14 (7%) | |
| **Allergy** | | | |
| Present | 12 (6%) | 0 | 0.12 |
| Absent | 144 (75%) | 36 (19%) | |
| **Asthma** | | | |
| Present | 73 (38%) | 21 (11%) | 0.21 |
| Absent | 83 (43%) | 15 (8%) | |
| C.T staging score † | 13.25 (2.83) | 22.78 (1.45) | < 0.001 |

† Mean(SD).

## Discussion

Extensive and radical procedures were recommended historically for the treatment of nasal polyps.[11] Recently, a more conservative surgical procedure like endoscopic debridement has been advocated.[12] Even endoscopic sinus surgery if used as a single modality, results in high recurrence, so additionally, medical modalities that include administration of corticosteroids are recommended.[13-15] Multiple studies have assessed factors associated with recurrence after functional endoscopic sinus surgery; and most have grouped patients with nasal polyps and chronic sinusitis.[16-19] However, in this study, we had included patients with nasal polyps only.

In our study with respect to specific symptoms, no particular symptom was predictive of eventual recurrence. Similar finding was also reported by Senior et al.[16] However, they found subjective olfactory change as an early

marker of recurrent disease. They also noted the need for revision surgery was correlated with preoperative CT stage. Our data was in accordance with this finding; as C.T staging was higher among the group with recurrence compared to the group without the recurrence.

Similarly, Watelet[17] suggested that initial disease severity was one of the best predictors for recurrence after sinus surgery. A CT scan is helpful to assess disease severity preoperatively.

Dursun[18] found allergy as a predictor of poor prognosis in long-term follow-up. In contrast, Garrel[19] suggested that pre-operative clinical stage of sinonasal polyp and asthma neither correlated with recurrence nor with the functional outcomes.

In conclusion, patients presenting with extensive disease as suggested by C.T stage are at higher risk for development of recurrences after endonasal surgery for nasal polyposis. Using this simple clinical information, patients at risk of recurrence could be defined preoperatively. These patients require special preoperative counselling, long term local steroid therapy and more vigilant follow up after surgery.

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