International Journal of Otorhinolaryngology and Head and Neck Surgery
Nanda MS et al. Int J Otorhinolaryngol Head Neck Surg. 2017 Jan;3(1):77-81
http://www.ijorl.com
pISSN 2454-5929 | eISSN 2454-5937

Original Research Article

DOI: http://dx.doi.org/10.18203/issn.2454-5929.ijohns20164788

Epidemiology of nasal polyps in hilly areas and its risk factors

Manpreet Singh Nanda*, Shenny Bhatia, Vipan Gupta

Department of Otolaryngology – Head and Neck Surgery, Maharishi Markandeshwar Medical College & Hospital, Kumarhatti, Solan, Himachal Pradesh, India

Received: 09 December 2016
Accepted: 22 December 2016

***Correspondence:**
Dr. Manpreet Singh Nanda,
E-mail: u_tell_me_80@yahoo.co.in

ABSTRACT

Background: Nasal polyps are common nasal disorders with unknown etiology and high recurrence and high prevalence of 1-4% which affect the quality of patient life. The aim of the study was to find out the prevalence of nasal polyps in our hilly region and find out its etiological or risk factors for better prevention and cure of the disease.
Methods: 60 patients with nasal polyps were included in this study and were assessed for age and sex distribution, types of polyps, main clinical symptoms and their duration, their major etiological or risk factors through detailed history taking, physical and nasal examination, anterior and posterior rhinoscopy, diagnostic nasal endoscopy and computerized tomography scan.
Results: Nasal polyps are more common in males and in middle age group. Most of the common types are bilateral and ethmoidal polyps. Most of the patients were symptomatic with nasal obstruction and nasal discharge as main symptoms. There was strong correlation between nasal polyps and recurrent nasal infection, allergy and asthma. In this region we found familial inheritance of this disease and high rate of polyp recurrence after medical or surgical therapy.
Conclusions: Nasal polyps are common in hilly region with high rate of recurrence with nasal infection, allergy and asthma being the important etiological factors.

Keywords: Allergy, Asthma, Epidemiology, Nasal polyps, Non-steroidal anti-inflammatory drugs

INTRODUCTION

Nasal Polyps are common ENT disease affecting 1-4% of adult population.[1] They are characterised as chronic inflammatory disease of nose and paranasal sinuses with pedunculated oedematous mucosa.[2] The etiology of nasal polyps is multifactorial or unknown.[3] They can be associated with other respiratory diseases like allergy, asthma or aspirin sensitivity.[4] They can also be clinically silent.[5] Nasal Polyps also have a high recurrence rate.

There have been fewer studies in literature regarding the prevalence of nasal polyps particularly in hilly region. Hilly areas because of different climatic and geographical condition are believed to have a different epidemiology of nasal polyps. The causes or risk factors of polyps could also be different in hilly regions. Due to paucity of accurate information regarding epidemiology of nasal polyps in hilly region, there is need for a study to know the incidence and prevalence of these polyps. So we had taken up this study to know the prevalence of polyps in our region and to study their etiological or risk factors for aim of prevention and control of this disease.

METHODS

This study was conducted in Department of ENT of our Medical College and Hospital from December 2015 to November 2016. 60 patients with nasal polyps above the age of 18 years were enrolled in the study after obtaining written consent from the patients. The study was approved by the Institutional Ethics Committee. All the patients were examined and assessed by the authors performing this study.

All the 60 patients who gave consent underwent detailed history taking, physical examination, local examination of nose and nasopharynx, anterior and posterior rhinoscopy, diagnostic nasal endoscopy and computerised tomography of nose and paranasal sinuses.

The assessment points were –

- Age and sex distribution of the patients with nasal polyps.
- Types of nasal polyps and their laterality
- Percentage of clinically silent or asymptomatic disease in this region
- Major clinical symptoms of the patients and their duration
- Correlation between nasal polyps and major etiological or risk factors like asthma, allergy and infection
- Degree of recurrence of nasal polyps in our hilly region
- Familial or genetic inheritance of nasal polyps

RESULTS

60 patients who gave written consent were enrolled in this study. Only adult patients above the age of 18 years were enrolled in this study as the study involved subjective evaluation. All the patients underwent detailed history taking, physical and nasal examination, anterior and posterior rhinoscopy, diagnostic nasal endoscopy and computerized tomography scan. Data was collected on all patients and analysed.

The majority of the patients were in the middle age group of 41-60 years. The youngest patient in our study was of 24 years age and eldest of 69 years age. There was male predominance with M:F ratio of 1.6:1 as shown in Table 1.

Table 1: Age and sex distribution.

Age group	Male	Female	Total
18-40 years	10	5	15
41-60 years	20	15	35
> 60 years	7	3	10
Total	37	23	60

Regarding types of polyps, which was assessed by diagnostic nasal endoscopy and computerised tomography scan, the majority (90%) were ethmoidal polyps while the remaining 10% were antro chonal. Among the ethmoidal polyps, the majority were bilateral. Among the unilateral ethmoidal polyps, there was almost equal distribution between right and left sided polyps as in Table 2.

Regarding the patient's complaints only 6 patients (10%) were found to be asymptomatic. They were having silent nasal polyposis which was diagnosed accidentally on anterior rhinoscopy and confirmed by diagnostic nasal endoscopy while the patients had come with other complaints to ENT OPD. Remaining 90% patients were symptomatic for nasal polyposis as presented in Figure 1.

Table 2: Types of nasal polyps.

Type	Laterality	Right/ Left	Number of patients	%	Total (%)
Ethmoidal	Bilateral		37	62	90
	Unilateral	Right sided	9	15	
		Left sided	8	13	
Antro-choanal		Right sided	3	5	10
		Left sided	3	5	

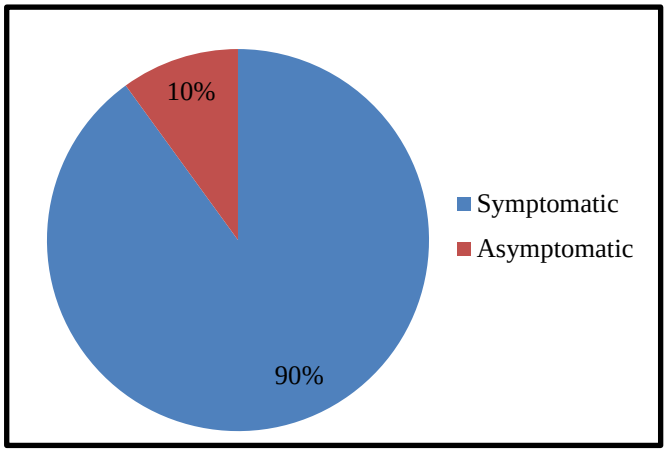

Figure 1: Percentage of patients symptomatic for nasal polyps.

Regarding clinical symptoms of the patients with nasal polyps, the most common complaint was nasal obstruction seen in 87% of patients. The other common complaint seen in 71% of patients was rhinorrhoea or nasal discharge. There were other complaints like sneezing, snoring, headache and loss of smell as in Table 3.

Table 3: Clinical symptoms of patients with nasal polyps.

Clinical symptom	Number of patients	%
Nasal obstruction	52	87
Nasal discharge	43	71
Sneezing	25	41
Snoring	20	33
Headache & facial pain	16	27
Post nasal discharge	14	23
Loss of smell	12	20
Nasal bleed	3	5

Regarding duration of symptoms, the majority of patients (40%) had duration of 1-3 years. There was one patient with the history of nasal polyps from the last 10 years as shown in Figure 2.

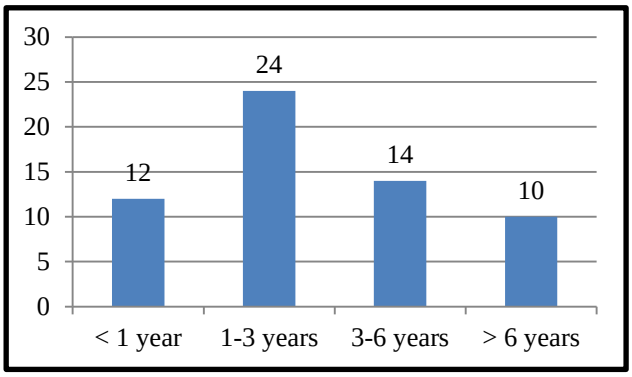

Figure 2: Duration of symptoms of patients with nasal polyps.

Regarding various etiological or risk factors, 40% of patients gave history of recurrent nasal infections. One third patients had history of nasal allergy, and 25% patients with nasal polyposis had history of asthma. Nearly one fourth of patients had family history of nasal polyps. There was high rate of recurrence (26%) of nasal polyps after previous medical and surgical treatment in our study as shown in Table 4.

Table 4: Detailed history taking findings.

History findings	Number of patients	%
Recurrent nasal infection	24	40%
Nasal allergy	20	33%
Polyp recurrence	19	31%
Family history of nasal polyps	16	27%
Asthma	15	25%
Intolerance to NSAID	6	10%

DISCUSSION

The prevalence of nasal polyps in our hilly region and its risk factors was investigated in this study. The primary aim of the study was to know the incidence and prevalence of various types of nasal polyps in the local population of this hilly region and the symptoms and etiological factors associated with nasal polyps, for the ultimate aim of prevention and cure of the disease in this hilly region. All the patients underwent detailed history taking, physical and nasal examination, anterior and posterior rhinoscopy, diagnostic nasal endoscopy and computerized tomography scan.

Nasal polyps are said to be common in 4th to 7th decade of life.[2] According to Jiang et al, maximum prevalence is between 31 and 40 years.[6] They are said to be uncommon under age of 20 years.[7] According to a study by Larsen et al, incidence of nasal polyps increases with age.[8] In our study we found that the majority of the patients were in the middle age group of 41-60 years. The youngest patient in our study was of 24 years age and eldest of 69 years age as given in Table 1. Studies have shown incidence of nasal polyps to be more common in men than women.[8] Hashemian et al found that 60% of patients of nasal polyps were males and remaining 40% females.[9] Various studies have shown male predominance to be between 2:1 to 4:1.[1] But Settipane et al showed equal distribution between males and females.[10] In our study we obtained male predominance among the patients with nasal polyps as given in Table 1.

Regarding type of polyp according at a study only 15% were unilateral polyps.[11] Another study found antrochoanal polyps to constitute just 5% of total cases and rest were ethmoidal.[12] In our study we found that the majority (90%) were ethmoidal polyps while the remaining 10% were antro chonal. Among the ethmoidal polyps, the majority were bilateral. Among the unilateral ethmoidal polyps, there was almost equal distribution between right and left sided polyps as in Table 2. Regarding the etiology, 19% of polyps are said to be allergic.[13] Other studies put incidence of allergy in patients with nasal polyps at 10%, 54% and 68%.[14-16] According to Hedman et al, nasal polyps are more common in asthmatics than nonasthmatics.[17] One study says that 20-40% of nasal polyps coexist with asthma while another study puts this at 60%.[18,19] Widal et al in 1922 described the association between nasal polyps, asthma and aspirin hypersensitivity which was later known as samter's triad.[20,21] There is a correlation between aspirin hypersensitivity and nasal polyps in 8% of patients.[22] A study showed that 36% of patients with nasal polyps had insensitivity to non-steroidal anti-inflammatory drugs (NSAID).[1] Chronic infection also leads to nasal polyps.[23] It causes chronic persistent inflammation which leads to nasal polyps. In our study the most common risk factor found was recurrent nasal infection (40%). Other common factors were nasal allergy and asthma. 10% of patients also had intolerance to NSAID as in Table 4.

According to Drake – Lee recurrence rate of nasal polyps is 5%.[24] In our study we obtained a higher recurrence rate of 31% as shown in Table 4. The higher incidence of allergy and higher recurrence could be attributed to presence of large number of pine trees in this region and the cold climate in these hills. Patients easily develop pine and cold allergy which is difficult risk factor to be removed here. In a study, 25% of patients had a relative with nasal polyps.[25] Similar results were obtained in our study with family incidence at 27% as shown in Table 4.

The most common symptoms of nasal polyps are nasal obstruction, running nose, loss of smell, headache and sneezing.[12] Polyps are pale in colour and differentiated from other nasal masses by probe test. They can even be

clinically silent.[5] In our study we found nasal obstruction (87%) and nasal discharge (71%) to be the most common symptoms of patients with nasal polyps. Other symptoms were sneezing, snoring, headache, loss of smell as in Table 3. Only 10% of patients were asymptomatic where nasal polyps were accidental findings during routine nasal examination while the patients had come with other unrelated complaints as shown in Figure 1. Maximum number of our patients had nasal polyps for longer duration of 1-3 years as in Figure 2.

So we can conclude that nasal polyps are common in hilly region with nasal obstruction and nasal discharge being the main symptoms, more common in middle aged males. Majority of polyps are bilateral and ethmoidal. Most of the polyps are of long standing duration of more than one year with recurrent nasal infection being the main etiology. The other important risk factors are allergy and asthma. Nasal Polyps tend to have a strong familial inheritance and there is high rate of recurrence of nasal polyps among the population in this region. There is scope for further studies of these risk factors individually for obtaining better prevention and cure of this disease from our region.

ACKNOWLEDGMENTS

We would like to thank our Medical College and Hospital for its support and patients for cooperating with the study protocol. We would also like to thank our Institutional Ethics Committee for approving and supporting our study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Settipane GA. Epidemiology of nasal polyps. Allergy Asthma Proc. 1996;17:231-6.
2. Bateman ND, Fahy C, Woolford TJ. Nasal polyps: still more questions than answers. J Laryngol Otol. 2003;117:1-9.
3. Fokkens WJ, Lund VJ, Mullol J, Bachert C, Alobid I, Baroody F, et al. EPOS 2012: European position paper on rhinosinusitis and nasal polyps 2012. A summary for otorhinolaryngologists. Rhinology. 2012;50:1–12.
4. Alobid I, Cardelus S, Benitez P, Guilemany JM, Roca-Ferrer J, Picado C, et al. Persistent asthma has an accumulative impact on the loss of smell in patients with nasal polyposis. Rhinology. 2011;49:519-24.
5. Johansson L, Akerlund A, Holmberg K, Melén I, Bende M. Prevalence of nasal polyps in adults: The Sko¨vdepopulation-based study. Ann Otol Rhinol Laryngol. 2003;112:625-9.
6. Chukuezi AB. Nasal polyposis in Nigerian district hospital. West Afr J Med. 1994;13(4):231-3.
7. Jiang XD, Li GY, Li L, Dong Z, Zhu DD. The characterization of IL-17A expression in patients with chronic rhinosinusitis with nasal polyps. Am J Rhinol Allergy. 2011;25:171–5.
8. Larsen K, Tos M. The estimated incidence of symptomatic nasal polyps. Acta Otolaryngol. 2002;122:179-82.
9. Hashemian F, Farahani F. Frequency of nasal polyposis in chronic rhinosinusitis and role of endoscopic examination in correct diagnosis. Sci J Hamadan Uni Med Sci. 2005;12(3):20-3.
10. Settipane GA, Chafee FH. Nasal polyps in asthma and rhinitis: a review of 6, 037 patients. J Allergy Clin Immunol. 1977;59:17–21.
11. Tritt S, McMain KC, Kountakis SE. Unilateral nasal polyposis: Clinical presentation and pathology. Am J Otolaryngol. 2008;29(4):230-2.
12. Larsen PL, Tos M. Origin of nasal polyps. Laryngoscope. 1991;101:305-12.
13. Shatkin JS, Delsupehe KG, Thisted RA, Corey JP. Mucosal allergy in the absence of systemic allergy in nasal polyposis and rhinitis: a meta-analysis. Otolaryngol Head Neck Surg. 1994;111:553-6.
14. Delaney JC. Aspirin idiosyncrasy in patients admitted for nasal polypectomy. Clin Otolaryngol Allied Sci.1976;1:27-30.
15. Blumstein GI, Tuft Ll. Allergy treatment in recurrent nasal polyposis: its importance and value. Am J Med Sci. 1957;234:269-80.
16. English G. Nasal polyposis. In: GM E, Editors. Otolaryngology. Philadelphia: Harper and Row; 1985: 1-30.
17. Hedman J, Kaprio J, Poussa T, Nieminen MM. Prevalence of asthma, aspirin intolerance, nasal polyps and chronic obstructive pulmonary disease in a population based study. Inter J Epidemiol. 1999;28:717-22.
18. Malloney JR, Collins J. Nasal polyps and bronchial asthma. Br J of Diseases of the chest. 1977;71:1-6.
19. Ragab A, Clement P, Vincken W. Objective assessment of lower airway involvement in chronic rhinosinusitis. Am J Rhinol. 2004;18:15–21.
20. Widal F, Abrami P, Lermoyez J. Anaphylaxie et idiosyncrasie. 1992 [Anaphylaxis and idiosyncrasy. 1992]. Allergy Proc. 1993;14:373-6.
21. Samter M, Beers RF Jr. Concerning the nature of intolerance to aspirin. J Allergy. 1967; 40:281-93.
22. Samter M, Beers RP. Intolerance to aspirin. Clinical studies and consideration of its pathogenesis. Ann Internal Med. 1968;68:975-83.
23. Cimmino M, Carvaliere M, Mardone M, Plantulli A, Orefice A, Esposito V, et al. Clinical characteristics and genotype analysis of patients with cystic fibrosis and nasal polyposis. Clin Otolaryngol. 2003;28:125-32.
24. Drake-Lee AB, Lowe D, Swamston A, Grace A. Clinical profile and recurrence of nasal polyps. J. Laryngol Otol. 1984;98:783-93.

25. Cohen NA, Widelitz JS, Chiu AG, Palmer JN, Kennedy DW. Familial aggregation of sinonasal polyps correlates with severity of disease. Otolaryngol Head Neck Surg. 2006;134:601-4.

Cite this article as: Nanda MS, Bhatia S, Gupta V. Epidemiology of nasal polyps in hilly areas and its risk factors. Int J Otorhinolaryngol Head Neck Surg 2017;3:77-81.