POLYPOIDAL LESIONS IN THE NASAL CAVITY

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Objective: Study the incidence, distribution and histology of various polypoidal lesions in the nasal cavity in this geographic area.

Setting: Department of Pathology, MS Ramaiah Medical College, Bangalore, India.

Subjects and Design: A total of 145 polypoidal lesions in the nasal cavity received for histopathology over the last 8 years. Relevant clinical data was recorded in each case.

Results: Of the 145 lesions examined, 102 (70.3%) were non-neoplastic while 43 (29.7%) were neoplastic; 21 (48.8%) of these being benign and 22 (51.2%) malignant. True nasal polyps, both inflammatory and allergic, together comprised 86 (59.2%) of the polypoidal lesions in the nasal cavity. Angiofibroma was the most frequent in the benign tumor category, accounting for 15 of the 22 benign tumours encountered (71.5%). Malignant tumours involved the maxillary sinus in most cases. Of the malignant tumors, majority (9, ie. 40.9%) were of the squamous cell variety. Non-neoplastic lesions and benign tumours were more common in younger age groups whereas malignant tumours were more common in older patients. Except for angiofibroma which was distinctly preponderant in young males, none of the other lesions showed significant sex predilection.

Conclusion: The majority of polypoidal lesions in the nasal cavity are non-neoplastic.

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A large number of neoplastic and non-neoplastic lesions of the nose, paranasal sinuses and nasopharynx present as polypoidal lesions in the nasal cavity. In general, three types of polyps have been described in the nose[1]. These are simple mucous polyps (the commonest variety), fungal polyps (rhinosporidiosis) and neoplastic polyps (benign and malignant). Other lesions producing polypoidal masses in the nasal cavity include: a) chronic hypertrophic rhinitis resulting from repeated attacks of acute rhinitis, where the nasal mucosa becomes hyperaemic and oedematous with inflammatory exudate, b) rhinoscleroma, a chronic granulomatous disease caused by the bacterium klcbsiella rhinoscleromatis, c) giant-cell reparative granuloma, a non-neoplastic lesion, probably an inflammatory reaction, composed of giant cells and a spindle-cell stroma, d) tuberculosis and e) retension cysts.

Clinically, it is often difficult to determine whether the lesion is neoplastic or non-neoplastic. Hence, histopathological examination becomes mandatory to decide the mode of treatment and judge the prognosis of these lesions.

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The present study was conducted to evaluate the incidence, distribution and histology of various polypoidal lesions in the nasal cavity in Bangalore, India.

METHODS

The present study included 145 cases of polypoidal lesions in the nasal cavity received for histopathology in the Department of Pathology, MS Ramaiah Medical College, Bangalore, India during the last 8 years. The tissue was processed in the conventional manner. Haematoxylin and Eosin (H & E) stained sections were studied in each case. Special stains were used where required. The age, sex, clinical symptoms, anatomic site of origin of the lesion, radiological and histological findings were recorded in each case. The tumours were classified according to the WHO International classification[2].

RESULTS

All the patients in this study presented with nasal obstruction. Many, also had epistaxis or nasal discharge while a few complained of headache and anosmia. When the lesion was located in the maxillary or sphenoidal sinus the patients had facial swelling and visual disturbances.

Table 1. **Distribution of the various lesions in males and females**

Type of lesion	*Males*	*Females*	*Total No. of cases*	*% of total cases*
1. Non-neoplastic lesions:				
Inflammatory polyp	25	24	49	33.7
Allergic polyp	21	16	37	25.5
Rhinosporidiosis	5	0	5	3.4
Rhinoscleroma	2	2	4	2.8
Mucormycosis	1	1	2	1.4
Chronic hypertrophic rhinitis	1	3	4	2.8
Giant cell reparative granuloma	0	1	1	0.7
2. Neoplastic lesions:				
a) Benign tumours -				
Inverted (transitional) papilloma	2	0	2	1.4
Haemangioma	1	3	4	2.8
Angiofibroma	14	1	15	10.3
b) Malignant tumours -				
Squamous cell carcinoma	6	3	9	6.2
Adenocarcinoma	1	2	3	2.1
Adenoid cystic carcinoma	2	2	4	2.8
Anaplastic carcinoma	3	2	5	3.4
Olfactory neuroblastoma	1	0	1	0.7
Total	**85**	**60**	**145**	**100.0**

Table 1 shows the relative distribution of the various lesions and their frequency in males and females. Table 2 and 3 shows the distribution of non-neoplastic and neoplastic lesions, respectively in the various age groups.

Out of 145 lesions studied, 102 (70.3%) were non-neoplastic. True nasal polyps, both inflammatory and allergic, were the commonest lesions encountered. They were almost equally frequent in males and females. Inflammatory polyps accounted for 49 (48.0%) of the non-neoplastic lesions and were more common in younger patients, 36 (73.4%) cases being between 0-40 years of age. Out of the 49 inflammatory polyps, 40 (81.6%) were antrochoanal, while 9 (18.4%) were ethmoidal polyps. Eight (16.3%) patients showed bilateral inflammatory nasal polyps. Allergic polyps formed 37 (36.3%) of the non-neoplastic lesions and were seen in all age groups. These patients had associated allergic rhinitis or bronchial asthma. Of these 37 patients, 7 (18.9%) had antrochoanal while 30 (81.1%) had ethmoidal polyps. Allergic polyps were bilateral and multiple in 16 (43.2%) patients. In general, it was found that ethmoidal polyps were more commonly bilateral and multiple. Out of the 86 patients with nasal polyps, 19 (22.1%) had history of recurrent nasal polyposis for which previous surgery had been done. Four (4.7%) cases had been clinically diagnosed as malignant tumours due to their large size.

Rhinosporidiosis and Rhinoscleroma were common in the

Table 2. **Distribution of non-neoplastic lesions in the various age groups**

Non-neoplastic lesion	*Age group (in years)*								*Total No.*	*Percentage of cases*
	0-10	*11-20*	*21-30*	*31-40*	*41-50*	*51-60*	*61-70*	*71-80*		
Inflammatory polyp	5	16	8	7	6	5	2	0	49	48.0
Allergic polyp	1	8	8	5	8	3	3	1	37	36.3
Rhinosporidiosis	0	0	4	1	0	0	0	0	5	4.9
Rhinoscleroma	0	0	4	0	0	0	0	0	4	3.9
Mucormycosis	0	0	0	0	0	1	1	0	2	2.0
Chronic hypetrophic rhinitis	0	2	0	2	0	0	0	0	4	3.9
Giant cell reparative granuloma	0	0	0	1	0	0	0	0	1	1.0
Total	**6**	**26**	**24**	**16**	**14**	**9**	**6**	**1**	**102**	**100.00**

Table 3. **Distribution of the neoplastic lesions in the various age groups**

Tumour	*Age group (in years)*								*Total No.*	*Percentage of cases*
	0-10	*11-20*	*21-30*	*31-40*	*41-50*	*51-60*	*61-70*	*71-80*		
Benign										
Inverted papilloma	0	0	0	1	0	1	0	0	2	9.5
Haemangioma	0	0	1	1	0	2	0	0	4	19.0
Angiofibroma	0	14	0	1	0	0	0	0	15	71.5
Total	**0**	**14**	**1**	**3**	**0**	**3**	**0**	**0**	**21**	**100.00**
Malignant										
Squamous cell carcinoma	0	0	0	2	3	3	1	0	9	40.9
Adenocarcinoma	0	0	1	1	1	0	0	0	3	13.6
Adenoid cystic carcinoma	0	0	0	1	2	1	0	0	4	18.2
Anaplstic carcinoma	0	1	0	2	1	1	0	0	5	22.7
Olfactory neuroblastoma	0	0	1	0	0	0	0	0	1	4.6
Total	**0**	**1**	**2**	**6**	**7**	**5**	**1**	**0**	**22**	**100.00**

third decade of life in the present study. Two cases, a 61 year old female and 56 year old male who had received renal transplants and were on immunosuppressive therapy had mucormycosis involving the ethmoidal sinus. A 35 year old female had a giant cell reparative granuloma of the nose and maxillary sinus, which was clinically diagnosed as a maxillary carcinoma.

Benign tumours which were seen in 21 cases accounted for 14.5% of the total lesions and 48.8% of the neoplasms. Angiofibroma was the commonest benign tumour encountered and was found in 15 (71.5%) cases. Although majority of the angiofibromas were seen in teenage males, one case was a 12 year old female and another a 32 year old male.

Malignant tumours were seen in 22 (15.2%) of the patients and formed 51.2% of the neoplasms. Of the 22 malignant tumours, 12 were in the maxillary sinus, 3 in the ethmoid, 1 in the sphenoid sinus, 3 in the nasal cavity and 3 in the nasopharynx. Majority (9, ie. 40.9%) were squamous cell carcinomas, most of them being of moderate differentiation. A 12 year old girl who presented with nasal obstruction due to a polypoidal mass was found to have a nasopharyngeal undifferentiated carcinoma (lymphoepithelioma). An olfactory neuroblastoma was found arising from the spheno-ethmoidal region in a 26 year old male who presented with right-sided nasal obstruction and epistaxis of one month duration.

DISCUSSION

In a similar study carried out on 345 cases, Dasgupta et al[3] found 175 (50.7%) non-neoplastic lesions and 170 (49.3%) neoplasms. In their study, among the non-neoplastic lesions, true nasal polyps accounted for 110 (63.8%) cases; 74 (67.3%) being allergic and 36 (32.7%) inflammatory ones. Among 129 benign neoplasms they found that the maximum were haemangiomas which were seen in 59 (45.7%) cases and among the 41 malignant neoplasms, 15 (36.6%) were squamous cell carcinomas.

In the present study, true nasal polyps were the commonest lesions encountered, together accounting for 86 of the 145 lesions studied (59.2%). however, although allergic states are very common in this geographic area, inflammatory nasal polyps were surprisingly more common than allergic ones. Friedmann[4] mentions a high incidence (75%) of polyps in patients between 40-70 years of age with a male/female ratio of 3:1. In the present study, a large number of patients were between 0-40 years of age with males and females being equally affected. Rhinosporidiosis is endemic in India and Sri Lanka and the patients are predominantly male (male/female ratio of 2:1 to 6:1)[5]. In the present study 5 (3.4%) patients, all of whom were males, showed rhinosporidiosis.

Angiofibroma shows a remarkable preponderance among males between 10-25 years of age, probably due to the possible relation between the nasal erectile tissue and the erectile tissue of the genital organs. The angiofibroma is thought to be androgen-dependent and represents an anomalous hypertrophic response to the physiological hormonal changes associated with puberty. However, well documented cases in older patients and in females are on records[6] and were also encountered in the present study.

In the present study, majority of the malignancies were in the maxillary sinus, a finding which correlates with the observations of Cheng and Wang[7]. Microscopically most carcinomas were of the squamous cell type, as also described by Taxy[5]. Nasopharyngeal carcinoma has an average age of onset of about 50 years and is said to be unusual in children[5], but was found in a 12 year old girl in our study.

Olfactory neuroblastoma shows a wide range in age distribution (3 to 79 years), the median being about 50 years[8]. In the present study, a single case of this tumour was encountered in a 26 year old male.

CONCLUSION

The above study gives a broad idea about the prevalence and distribution of polypoidal lesions of the nasal cavity in Bangalore, India. The vast majority of polypoidal lesions in the nasal cavity are non-neoplastic.

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