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ORIGINAL ARTICLE

Histopathological Profile of Nasal Cavity, Paranasal Sinuses, and Nasopharyngeal Masses in Hill State of Himachal Pradesh, India

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ABSTRACT

Introduction: Nasal masses are common finding in the ear, nose, and throat outpatient department. Most patients present with complaints of nasal obstruction. A sinonasal mass can have various differential diagnoses. They may be congenital, inflammatory, neoplastic (benign or malignant), or traumatic in nature. A careful histopathological examination is necessary to decide the nature of any particular lesion.

Materials and methods: The retrospective study was carried out between January 2011 and December 2013. A total of 185 cases diagnosed with masses of the nasal cavity, paranasal sinuses, and nasopharynx were included. Data from histopathological records were retrieved to confirm the diagnosis.

Observations: Among 185 cases, 75% were non-neoplastic and 25% were neoplastic. Among neoplastic masses, 57% were benign and 43% were malignant. The age of presentation ranged from first to eighth decade of life (mean age 37.74 years). The lesions had a stronger predilection for males (1.68:1). Among non-neoplastic lesions, nasal polyp was the commonest lesion followed by ethmoidal mucocele (1.44%) and lupus vulgaris (0.72%). Among benign lesions, inverted papilloma (30.77%) and nasopharyngeal angiofibroma (30.77%) were the commonest followed by capillary hemangioma (15.38%), osteoma (7.68%), nasopharyngeal lymphoepithelioma (3.85%), chondroma (3.85%), pleomorphic adenoma (3.85%), and schwannoma (3.85%). Squamous cell carcinoma (40%) was the commonest malignant neoplastic lesion observed followed by adenoid cystic carcinoma (20%), malignant melanoma (15%), nasopharyngeal carcinoma (10%), esthesioneuroblastoma (10%), and non-Hodgkin lymphoma (5%).

Conclusion: Among the noninflammatory lesion, nasal polyp is the commonest lesion. Nasal polyps are more common in hilly area may be due to exposure to pine pollens. There is no difference in the histopathological profile of benign and malignant lesions.

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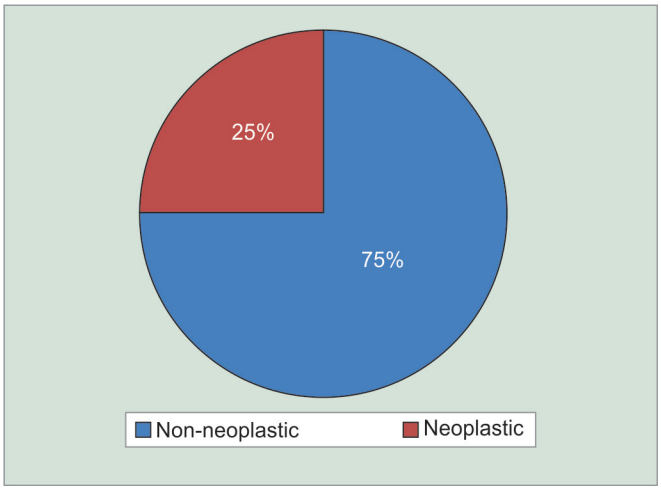
INTRODUCTION

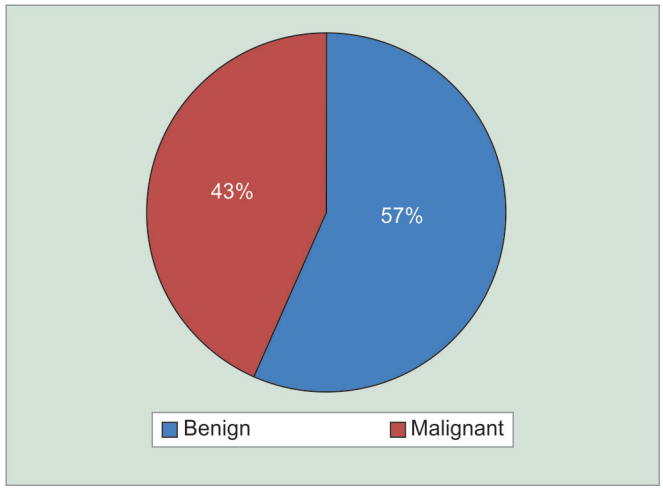
Nasal masses are common finding in the ear, nose, and throat outpatient department. Most patients present with complaints of nasal obstruction.[1] Other symptoms include nasal discharge, epistaxis, and disturbances of smell. A sinonasal mass can have various differential diagnoses. They may be congenital, inflammatory, neoplastic (benign or malignant), or traumatic in nature. A congenital nasal mass may present intranasally, extranasally, or as external nasal mass with or without nasal obstruction.[2] Congenital masses are predominantly midline swellings and include dermoids, glioma, and encephaloceles as common diagnoses.[3] Polyps are a common cause of nasal obstruction in adults, with a prevalence of about 4% in the general population.[4] The presenting symptomatology of all tumors is similar and using advanced imaging, computed tomography, and/or magnetic resonance imaging, a presumptive diagnosis is often made. However, a careful histopathological examination is necessary to decide the nature of any particular lesion. A variety of non-neoplastic and neoplastic conditions involve the sinonasal sinuses and nasopharynx, and these are very common lesions encountered in clinical practice.[5] A detailed history, clinical examination, and, most importantly, thorough histopathological evaluation are essential part of the workup of patients, so that a correct and timely intervention is done. The study aimed at analyzing the histopathological profile of cases presenting as mass in nasal cavity (NC), paranasal sinuses (PNS), and nasopharynx.

MATERIALS AND METHODS

The retrospective study was carried out at Indira Gandhi Medical College, Shimla, which is a tertiary care hospital



Graph 1: Histopathological distribution of lesions



Graph 2: Histopathological distribution of neoplastic lesions

in Himachal Pradesh, India. The total duration of study was 3 years between January 2011 and December 2013. A total of 185 cases diagnosed with masses of the NC, PNS, and nasopharynx were included. Data from histopathological records were retrieved to confirm the diagnosis. The cases were classified into non-neoplastic and neoplastic lesions. The neoplastic lesions were further classified as benign and malignant.

OBSERVATIONS

A total of 185 cases presented as mass in NC, PNC, and nasopharynx. One hundred and thirty-nine cases (75%) were non-neoplastic and 46 (25%) were neoplastic (Graph 1). Among neoplastic masses, 26 (57%) were benign and 20 (43%) were malignant (Graph 2).

The age of presentation ranged from first to eighth decade of life. The mean age of presentation was 37.74 years. The lesions of NC, PNS, and nasopharynx had a stronger predilection for males (116) as compared with females (69), the ratio being 1.68:1.

Non-neoplastic Lesions

Among 139 cases of non-neoplastic lesions, mean age of presentation was 36.01 years. The lesions of NC, PNS had a stronger predilection for males as compared with females. Nasal polyp (Fig. 1) was the commonest non-neoplastic lesion observed. It constituted 136 (97.84%) cases of all non-neoplastic cases. Among nasal polyp, majority were inflammatory polyp with 107 (78.67%) cases followed by allergic polyp with 24 (17.65%) cases, nasal polyp with angiomatous change with 4 (2.94%) cases, and 1 (0.74%) case of fungal polyp. The other non-neoplastic lesions were ethmoidal mucocele with 2 (1.44%) cases, lupus vulgaris with 1 (0.72%) case (Table 1).

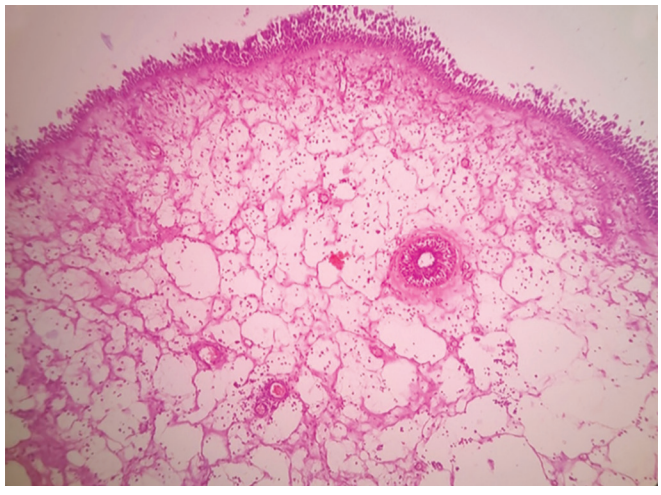


Fig. 1: Histopathology of nasal polyp (hematoxylin and eosin, 100×)

Table 1: Distribution of non-neoplastic lesions (n = 139)

Diagnosis		*Number of cases*	*Percentage*	*Male*	*Female*	*Age at presentation (decade)*	*Mean age (years)*
Nasal polyp (97.84%)	Inflammatory polyp	107	78.67	70	37	2nd–4th	36.01
	Allergic polyp	24	17.65	11	13	2nd–4th	
	Fungal polyp	1	0.74	0	1	3rd	
	Nasal polyp with angiomatous change	4	2.94	2	2	4th–5th	
Ethmoidal mucocele		2	1.44	1	1	3rd–4th	
Lupus vulgaris		1	0.72	0	1	4th	
Total		139	100	84	55		

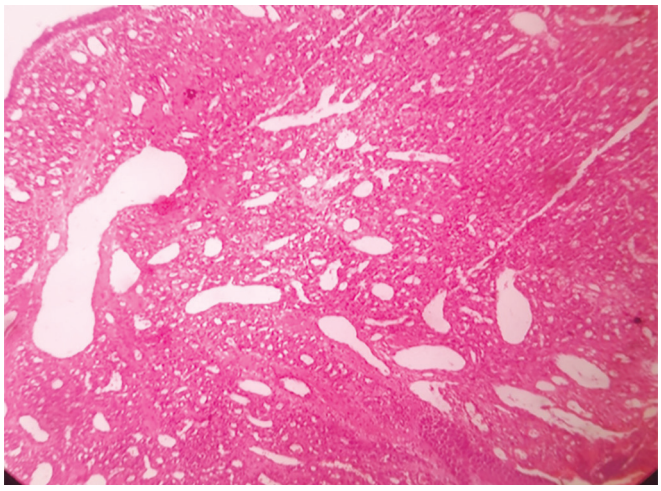


Fig. 2: Histopathology of capillary hemangioma (hematoxylin and eosin, 100×)

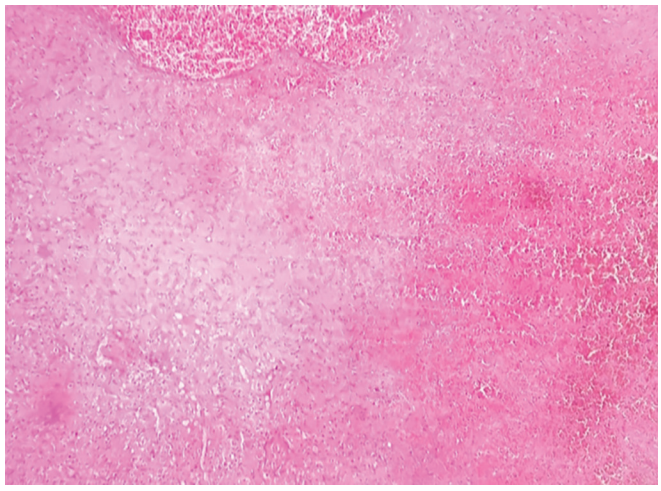


Fig. 3: Histopathology of angiofibroma (hematoxylin and eosin, 100×)

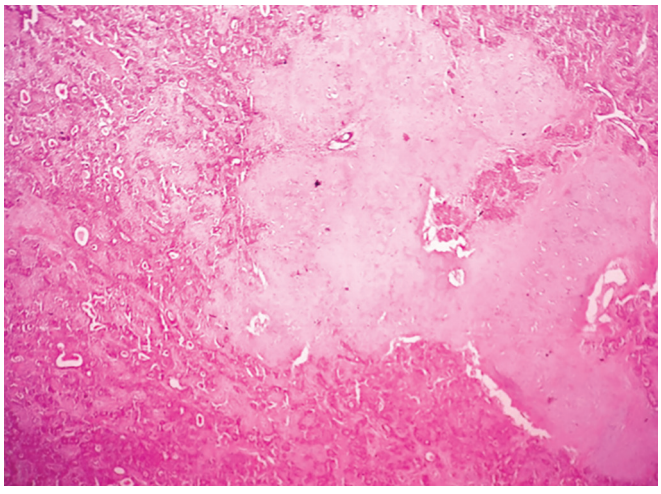


Fig. 4: Histopathology of pleomorphic adenoma (hematoxylin and eosin, 100×)

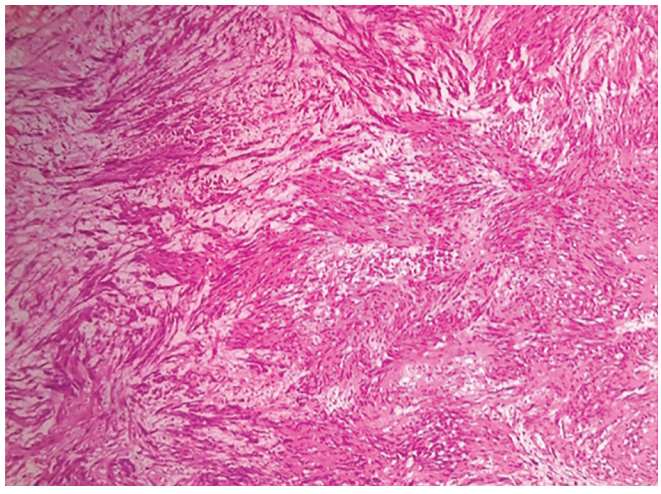


Fig. 5: Histopathology of schwannoma (hematoxylin and eosin, 100×)

Neoplastic Lesions

Among 46 cases of neoplastic lesions, 26 were benign and 20 were malignant.

Benign Neoplastic Lesions

Among 26 cases of benign lesions, majority were males. Inverted papilloma with 8 (30.77%) cases and nasopharyngeal angiofibroma (Fig. 2) with 8 (30.77%) cases were the commonest benign neoplastic lesion observed. The other benign neoplastic lesions were capillary hemangioma (Fig. 3) with 4 (15.38%) cases, osteoma with 2 (7.68%) cases, nasopharyngeal lymphoepithelioma with 1 (3.85%) case, chondroma with 1 (3.85%) case, pleomorphic adenoma (Fig. 4) with 1 (3.85%) case, and schwannoma (Fig. 5) with 1 (3.85%) case (Table 2).

Table 2: Distribution of benign lesions (n = 26)

Diagnosis	*Number of cases*	*%*	*Male*	*Female*	*Age at presentation (decade)*	*Mean age (years)*
Inverted papilloma	8	30.77	7	1	5th–7th	58.12
Capillary hemangioma	4	15.38	3	1	3rd	29.75
Nasopharyngeal angiofibroma	8	30.77	8	0	2nd	21
Nasopharyngeal lymphoepithelioma	1	3.85	1	0	5th	47
Osteoma	2	7.68	1	1	2nd	21
Chondroma	1	3.85	1	0	1st	6
Pleomorphic adenoma	1	3.85	0	1	5th	50
Schwannoma	1	3.85	1	0	7th	64
Total	26	100	22	4		

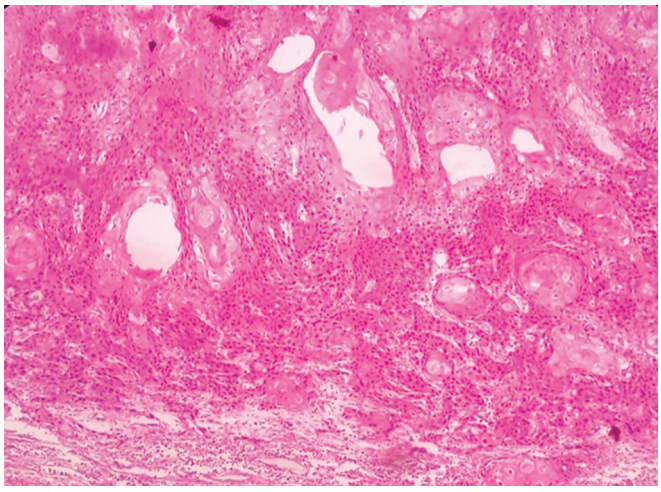


Fig. 6: Histopathology of squamous cell carcinoma (hematoxylin and eosin, 100×)

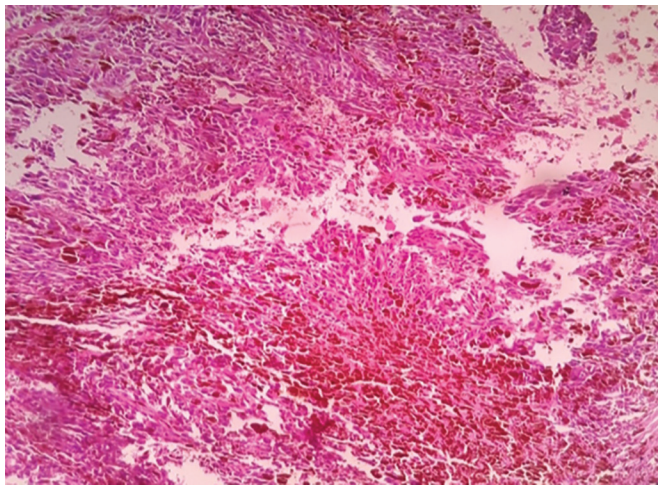


Fig. 7: Histopathology of malignant melanoma (hematoxylin and eosin, 100×)

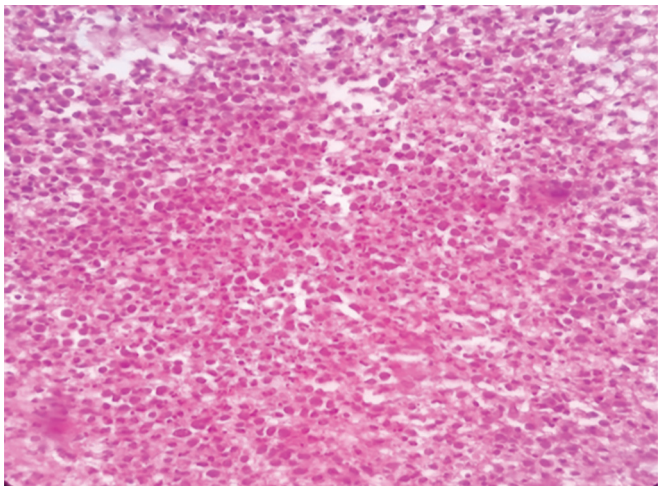


Fig. 8: Histopathology of non-Hodgkin lymphoma (hematoxylin and eosin, 400×)

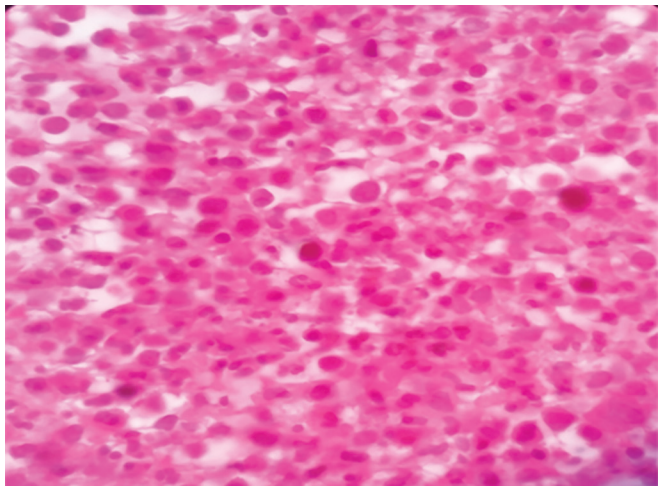


Fig. 9: Histopathology of non-Hodgkin lymphoma (hematoxylin and eosin, 1000×)

Malignant Neoplastic Lesions

Among 20 cases of malignant lesions, squamous cell carcinoma (Fig. 6) with 8 (40%) cases was the commonest malignant neoplastic lesion observed. The other malignant neoplastic lesions were adenoid cystic carcinoma with 4 (20%) cases, malignant melanoma (Fig. 7) with 3 (15%) cases, nasopharyngeal carcinoma with 2 (10%) cases, esthesioneuroblastoma with 2 (10%) cases, and non-Hodgkin lymphoma (Figs 8 and 9) with 1 (5%) case (Table 3).

DISCUSSION

In our study, sinonasal masses had predilection for males demonstrating M:F of 1.69:1 similar to the study by Khan et al,[6] i.e., 1.7:1, while the study by Bakari et al[7] and Parajuli and Tuladhar[8] revealed an opposite ratio, showing female preponderance (M:F ratio of 1:1.2 and 1:1.3 respectively).

In our study, second to fifth decade of life are most vulnerable period for development of sinonasal masses with mean age of presentation 37.74 years, while Khan

Table 3: Distribution of malignant lesions (n = 20)

Diagnosis	*Number of cases*	*%*	*Male*	*Female*	*Age at presentation (decade)*	*Mean age (years)*
Squamous cell carcinoma	8	40	4	4	6th	57.62
Adenoid cystic carcinoma	4	20	2	2	5th–6th	47.75
Malignant melanoma	3	15	1	2	1st, 5th, 8th	43.67
Nasopharyngeal carcinoma	2	10	2	0	6th–8th	66
Esthesioneuroblastoma	2	10	1	1	2nd, 5th	30
Non-Hodgkin lymphoma	1	5	0	1	3rd	40
Total	20	100	10	10		

et al[6] had reported a peak incidence of 22.5 years. The studies by Humayun et al[1] and Bakari et al[7] showed mean age of presentation of 32.38 and 33 years respectively. Malignancies have been reported generally after fourth decade of life.

In our study, there are 75% non-neoplastic lesions and 25% neoplastic lesions, which is similar to the study by Tondon et al[9] (74.61 and 25.41%), whereas Khan et al[6] reported 60 and 40% respectively.

Non-neoplastic Lesions

In this study, nasal polyps are most common lesions of the NC (73.5%), which is higher as compared with the study by Dasgupta et al[10] (62.5%), but similar to the study by Parajuli and Tuladhar [8] (71.6%) – another study conducted in hilly area. This may be due to increased exposure to pine pollens in hilly areas.

We observed one case (0.5%) of lupus vulgaris, which is similar to the study done by Waldman et al[11] and Nayar et al,[12] who described sinonasal tuberculosis as rare entity.

We observed two cases (1.44%) of ethmoidal mucocele, which is not consistent with other studies.

There are no cases of rhinosporidiosis and rhinoscleroma in our study, whereas studies by Dasgupta et al[10] (31.5%) and Kulkarni et al[13] (14%) showed incidence for rhinosporidiosis and incidence of 1.2% and 15.84% for rhinoscleroma. Rhinosporidiosis and rhinoscleroma are more common in hot and humid environment.[14]

Benign Lesions

The commonest benign tumor in our study was angiofibroma (30.7%) of all the benign lesions, which is similar to the study done by Kulkarni et al[13] (30.76%).

Inverted papilloma is also common (30.7%) of all the benign lesions, which is similar to the study done by Khan et al[6] (26.8%).

In our study, capillary hemangioma was 15.4%, which is similar to the study done by Swamy and Gowda[15] who reported 10%.

Angiofibroma showed peak age of presentation in the second decade and inverted papilloma showed peak age of presentation in the fifth decade of life, which is similar to the study done by Synder and Perzin[16] and Dasgupta et al.[10]

We have also reported single rare case of schwannoma. Solitary nasal schwannomas are rare. Lesions presenting in the PNS and NC account for approximately 4% of head and neck schwannomas.[17,18] In the study by Dharia et al,[19] they found only 62 reported cases in the English language literature from 1943 to 2006.

In our study, we found two cases (7.68%) of osteoma, one case (3.85%) of nasopharyngeal lymphoepithelioma, one case (3.85%) of chondroma, and one case (3.85%) of pleomorphic adenoma, which is not consistent with other studies.

Malignant Lesion

Our study shows that squamous cell carcinoma was most common (40%) followed by adenoid cystic carcinoma (20%). Results are similar to the study done by Dasgupta et al,[10] which shows 36.6% and 19.5% of squamous cell carcinoma and adenoid cystic carcinoma respectively.

There were three cases of malignant melanoma (15%) similar to the study by Khan et al[6] (10%).

We have reported two cases (10%) of olfactory neuroblastoma, which is similar to the study done by Khan et al[6] (5%) and one case (5%) of non-Hodgkin lymphoma, similar to the result of the study done by Dasgupta et al[10] (4.9%).

CONCLUSION

Among the noninflammatory lesions, nasal polyp is the commonest lesion. Nasal polyps that are more common in hilly area may be due to exposure to pine pollens, whereas rhinosporidiosis and rhinoscleroma are more common in hot and humid environment (low altitude and coastal areas). There is no difference in histopathological profile of benign and malignant lesions.

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