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Spectrum of histopathological lesions of nasal cavity, paranasal sinus and nasophrynx at tertiary care centre

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Abstract
Introduction: The lesions of nasal cavity and paranasal sinuses provides problems in their diagnosis, prognosis and management because of limited anatomical space and certain unusual clinicopathological features.
Materials and Methods: The present study was carried out on 50 patients. Types of samples include biopsies or total specimens from nose, para nasal sinuses and nasophrynx received in histopathology section of the pathology department. The cases were diagnosed based routine H& E stained section slide via light microscopy.
Aims and Objectives: To study the incidence of various non neoplastic and neoplastic lesion with, age and sex distribution along with their clinical presentation and various Histopathological patterns.
Results: A total of 50 specimens from representative areas were studied. Age distribution varied from 0 to >70 years with male preponderance. Non - Neoplastic lesions were common comprising of 32 cases (54%) while neoplastic lesions were 23 (46%). Among non neoplastic lesions inflammatory polyp (12 cases) was common followed by allergic polyp (10 cases). In neoplastic lesions, squamous cell carcinoma (06 cases) predominated.
Conclusion: It shows wide range of non neoplastic lesion in the complex region of nose, paranasal sinus and nasophrynx. Non neoplastic lesions were far common as compared with neoplastic lesion. Radiological studies and other investigation can help provide a differential diagnosis, but the final diagnosis can only be given on Histopathological examination. Definite diagnosis is essential for further management and to determine the prognosis of the patient. Therefore histopathology plays an integral role and remains gold standard for establishing the diagnosis of sinonasal tract pathology.

Keywords: Non neoplastic, neoplastic, polyp, histopathology, nasal, paranasal, sinonasal

Introduction
'Sinonasal tract' is a collective turn used for nasal cavity and paranasal sinuses [1]. The main functions of the sinonasal tract are filtering and humidifying inhaled air. The nasal cavity also has specific olfactory receptor for airborne odorant molecules. The paranasal sinuses additionally gave the functions of acting as resonating chamber during speech and reducing the relative weight of the skull [2].
The nose and paranasal sinuses form a complex system of airway [3]. It comprises of epithelial, glandular, lymphoid, fibro vascular connective tissue cartilage and bony elements [4]. It is the site of origin of some of the more complex, histologically diverse group of lesions which causes problems in their diagnosis, prognosis and management because of certain unusual clinicopathological features. The lesions of nasal cavity and para nasal sinus were described by Hippocrates and galen [5].
It forms a single functional unit with common pathological process, most of which are inflammatory. Cancers of the nose and para nasal sinus account for less than 1% of all malignancies and about 3% of all head and neck cancer.

Aim and Objectives
To study the incidence of various non neoplastic and neoplastic lesion with, age and sex distribution along with their clinical presentation and various Histopathological patterns.

Type of Study: Retrospective study.

Materials and Methods

Place of study: The present study was carried at the department of pathology in Histopathology section of our hospital.

Design of study: A retrospective study.
Duration of study: 1 year
Sample size: Total 50 cases.

Method

The material for present study was obtained from the biopsies received in the pathology department of tertiary care academic institute. In case of nasal polyp biopsies of the poly or total polypectomy specimen was sent. The biopsies and surgical specimens were received in 10% formalin along with requisition form which included the clinical data after taking informed consent. The material was processed as routine. Five-micron thick sections were cut and stained with haematoxylin and eosin. Special stain such as periodic acid Schiff were done whenever required. The Histopathological and clinical data of 50 cases were analysed. The lesions were classified as non-neoplastic and neoplastic.

Inclusion criteria

All biopsies and specimens taken from nose, paranasal sinuses and nasophrynx.

Exclusion criteria

Inadequate material for reporting and Autolyzed tissue.

Result

Lesions of the sinonasal tract commonly affected the age group 31-40 years 12(24.00%) cases followed by 21-30 year 10(20.00%) cases. Maximum patients of non-neoplastic cases belonged to 31-40 (07 cases) and 21-30 (06 cases) year's age groups. Benign lesions were mostly noted in fourth decade of life 3 cases. Whereas a high proportion of malignant lesions were reported in 61-70myears age groups (3 cases).

Sinonasal tact lesions were commonly seen males. 28 (56.00%) out of 50 cases were males and 22 (44.00%) were females.

Of the total 50 cases included in this study, the non-neoplastic cases (32 cases) outnumbered the neoplastic cases (18 cases) Cases diagnosed as benign 10 were marginally higher than those diagnosed as malignant 08 cases.

In term of frequency, the non-neoplastic lesions of sinonasal tract diagnosed were, in descending order, sinonasal poly which include inflammatory poly and allergic poly, chronic non-specific inflammation and fungal rhinosinusitis. Benign lesions composed of haemangioma or pyogenic granulomas, inverted sinonasal poly angiofibroma and schwannoma. Squamous cell carcinoma and nasopharyngeal carcinoma were the malignant lesion noted.

Table 1: Distribution according to age (n=50)

Age Group	Non-Neoplastic	Benign	Malignant	Frequency
0-11	03	00	00	03
11-20	04	00	00	04
21-30	06	03	01	10
31-40	07	04	00	12
41-50	04	03	03	10
51-60	02	00	01	03
61-70	03	00	03	06
>70	03	00	00	03
Total	32	10	08	50

Table 2: Distribution of various Non Neoplastic lesions (n=32)

No	Type of lesion	Number of cases
1	Inflammatory poly	12
2	Allergic polyp	10
3	Chronic non-specific inflammation	08
4	Mucormyocosis	02

Table 3: Distribution of various Neoplastic lesions (n=50)

No.	Benign	Frequency	Malignant	Frequency
1	Pyogenic granulomas	04	Squamous cell carcinoma	06
2	Inverted sinonasal papilloma	03	Nasopharyngeal carcinoma	02
3	Angiofibroma	02	-	-
4	Schwannoma	01	-	-
5	Total	10	-	08

Discussion

In present study, age of presentation showed a wide range from 1 to 80 years. Maximum cases were noted in between fourth and fifth decade (12 cases) followed by the the third decade 10 cases. Raj *et al.* [6] found maximum cases in the third decade (32.79%) followed by fourth decade (21.31%).[6] In the study conducted by mane *et al.* [8], the most common age group was 21-30 years (35 cases, 27.78%) followed by 31-40 years (31 cases 24.60%).

Male to female ration of 1.27:1 was calculated in this study. Similar findings of male preponderance were observed in studies conducted by Tondon *et al.* [8], Khan *et al.* [9], and Kulkarni *et al.* [10].

We observed higher frequency of non-neoplastic lesions (32 cases) in comparison with neoplastic (18 cases). Our findings was in concordance with khan *et al.* [9], Kulkarni *et al.* [10]. and Mane *et al.* [7]. However dasgupta *et al.* [11] an almost equal proportion of non-neoplastic and neoplastic lesion.

The increase number of cases in younger age may be because of frequent exposure to infection due to more outdoor activities. Total 32 non neoplastic lesion out of them, 12 cases of inflammatory polyp followed by 10 cases of allergic polyp, 08 cases of chronic non-specific inflammation and 02 cases of mucormycosis comparable with Tondon *et al.* [8] and modh *et al.* [12]. Total 18 cases of neoplastic lesion out of them, 10 cases were benign in which 04 cases of pyogenic granulomas followed by inverted sinonasal papilloma, 02 cases of angiofibroma and 01 case of schwannoma. Total 08 cases were malignant out of them 06 cases were squamous cell carcinoma followed by 02 cases of nasopharyngeal carcinoma. Present study observed predominance of benign tumours as compared to malignant

tumours which were similar to Lathi *et al*. (2011) [13], Rawat *et al*. [14], Modh *et al*. [12] and Gupta *et al*. (1997) [15]. Out of total 10 benign neoplastic cases 04 cases of capillary haemangioma followed by 02 cases of inverted sinonasal papilloma, 02 cases of angiofibroma and 01 case of schwannoma.

The present study observed maximum number of capillary hemangioma which were comparable with Bjerregaard *et al*. (2011) [16], Dasgupta *et al*. (1997) [15], and lathi *et al*. (2011) [13] also observed hemangioma as predominant benign tumour as 395, 45%, and 47% respectively. Out of total 08 cases of malignant lesion 06 cases of squamous cell carcinoma and 02 cases of nasophryngeal carcinoma were noted in present study. Malignant tumor were commonly seen in 61-70 years age group 03 cases. Which was comparable with Rawat *et al*. (2013) [14].

Conclusion

It shows wide range of non-neoplastic lesion in the complex region of nose, paranasal sinus and nasophrynx. Non neoplastic lesions were far common as compared with neoplastic lesion. Radiological studies and other investigation can help provide a differential diagnosis, but the final diagnosis can only be given on Histopathological examination. Definite diagnosis is essential for further management and to determine the prognosis of the patient. Therefore histopathology plays an integral role and remains gold standard for establishing the diagnosis of sinonasal tract pathology.

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Conflict of interest

None identified so far.

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