

HISTOMORPHOLOGICAL STUDY OF SINONASAL AND NASOPHARYNGEAL LESIONS

Pathology

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ABSTRACT

Introduction: The nasal cavity, paranasal sinuses, and nasopharynx exhibit a wide spectrum of neoplastic and non-neoplastic lesions, commonly presenting with nasal obstruction, discharge, and epistaxis, particularly in middle-aged males. Histopathological examination is essential for accurate diagnosis, as benign lesions are more common than malignant tumors. **Aim and Objectives:** 1) To evaluate the frequency of nasal cavity, Paranasal sinuses and nasopharyngeal lesions correlate clinically 2) To analyse the histomorphological patterns into non-neoplastic and neoplastic lesions. **Material and Methods:** It is a 2 years retrospective and 1.5 years cross-sectional, with 185 cases. All received biopsies and resected specimens were examined with clinical details and gross evaluation. **Results:** Predominance of nonneoplastic lesions was observed. Benign tumors outnumbered malignant tumors. **Conclusion:** Histopathological examination is essential for definitive diagnosis of sinonasal and nasopharyngeal lesions due to overlapping clinical features. Imaging and immunohistochemistry are supportive, while early detection is crucial because of recurrence and potential malignant transformation.

KEYWORDS

Sinonasal And Nasopharyngeal Lesions, Neoplastic And Non-neoplastic Lesions

INTRODUCTION:

The nasal cavity, paranasal sinuses, and nasopharynx are sites for a wide variety of tumors and non-neoplastic conditions.¹ Neoplastic and non-neoplastic lesions of nasal cavity, paranasal sinuses and nasopharynx are very commonly encountered in routine clinical practice.²

Although clinical complaint of mass in the nose seems to be simple problem but it can give rise to large number of differential diagnosis in the mind of treating physician and diagnosing pathologist.³ Benign lesions of sinonasal region are common and lack of appreciation of these lesions can lead to radical surgeries. They have long clinical history with frequent local recurrence and thus relatively significant morbidity.³ Malignant lesions in nasal cavity, paranasal sinuses and nasopharynx accounts for not more than 3% of head and neck malignancies and less than 1% of all the malignant tumours.⁴ Sinonasal area is exposed to various infective agents, chemical antigens, mechanical and many other influences. These deleterious exposure lead to formation of tumour like and neoplastic conditions.⁵ Detailed history of the patient, clinical and imaging examinations provides a provisional diagnosis but for definitive diagnosis, Histopathological examination is mandatory, so that timely intervention can be done.⁶

Aim and Objectives:

1. To evaluate the frequency of nasal cavity, paranasal sinuses and nasopharyngeal lesions and correlate clinically.
2. To analyse the histomorphological patterns into non-neoplastic and neoplastic lesions.

Material and Methods:

The present histopathological study was from June 2021 to December 2024 (Retrospective 2 years and Descriptive cross sectional study 11/2 years) includes 185 cases.

Inclusion criteria: All cases of lesions of nasal cavity, paranasal sinuses and nasopharynx.

Exclusion criteria: Skin and bone lesions arising from area of nose and paranasal sinuses.

All the biopsies and resected specimen received in the histopathology section with clinical details and gross examination was done. The tissue was then processed with routine tissue processing and stained by haematoxylin and eosin. Special stains and immunohistochemistry were done wherever required.

Result and Discussion:

Frequency of lesions of sinonasal and nasopharyngeal lesion was 1.76% (185 cases out of 10,511 cases)

Graph :1. No. of histopathological specimens of lesions of sinonasal and nasopharyngeal region



Lesions of sinonasal and nasopharyngeal region showed male predominance with 57.8% of the cases compared to 42.16% in females (Ratio- 1.3:1).

In the present study lesions of sinonasal and nasopharyngeal region the most affected age group was 31-40 years accounting for (23.2%) of cases, followed by the age group of 41-50 years (21%) and 21-30 years (20.5%).

Among 180 cases the majority of cases were from nasal cavity 116 (65%) followed by paranasal sinuses 56(31%) and nasopharynx 8(4%).

Among them, nasal obstruction was most common presenting symptom seen in 155 cases (83.7%) followed by nasal discharge in 83 cases (44.8%). Other clinical presentation were anosmia / hyposmia in 53 cases (28.6%), mass in the nasal cavity 52 cases (28.1%). Less common symptoms were epistaxis, facial swelling and pain, headache, eye related symptoms and aural symptoms were present respectively. Non-neoplastic lesions of sinonasal and nasopharyngeal region

(88.6%) were more common than neoplastic lesions (11.35%).

Non-neoplastic lesions of sinonasal and nasopharyngeal region:-
Among 164 non-neoplastic lesions, maximum cases were from nasal cavity (81.7 %), followed by paranasal sinuses (11.5%) and nasopharynx (6.7%).

Table 1: Comparison of distribution of non-neoplastic lesions of sinonasal and nasopharyngeal region according to histopathological diagnosis

Non-neoplastic lesions	Shivaji Birare et al ⁷ (2021) (n=82)	Ambrish Kumar et al ⁸ (2016) (n=52)	Savita dongapure et al ⁹ (2023) (n=135)	Present study (2024) (n=160)
Nasal Polyp	74	45 (86.5%)	81(60%)	110 (67.07%)
Fungal infections	01 (0.96%)	5 (9.6%)	6 (4.44%)	42 (25.6%)
Adenoid hypertrophy	-	-	-	11 (6.7%)
Rhinoscleroma	01 (0.96%)	-	1(0.74%)	1 (0.6%)

40 cases were of mucormycosis and 2 cases were of aspergillosis.

- 18 (41%) cases were having history of covid-19 viral infection .
- 15 (34%) cases were diabetic
- 9 (20%)cases were receiving chemotherapy
- 3 (5%)cases were having no other positive history.

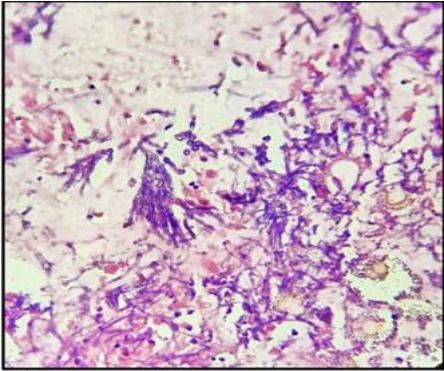


Fig 1: Aspergillosis

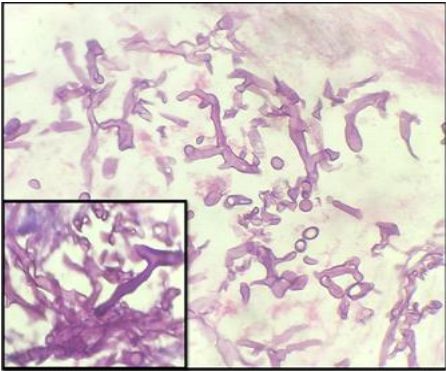


Fig 2: Mucormycosis. (Inset shows PAS positive hyphe)

In the present study, benign neoplastic lesions were more frequent (66.66%) than malignant neoplastic lesions (33.33%).Among 14 cases of benign neoplastic lesions, 8 cases were (57.14%) of inverted papilloma followed by hemangioma 3 cases (21.42%) and 2 cases (14.2%) of angiofibroma. We also reported a case of solitary fibrous tumor (7.1%).

Table 2: Histopathological diagnosis of benign neoplastic lesions

Benign Lesion	Ambrish kumar et al ⁸ (2016) (n=6)	G Sarumath y et al ¹⁰ (2021) (n=14)	Sudeep Regmi et al ¹¹ (2021) (n=73)	Ruth Alemayehu et al ¹² (2023) (n=83)	Present study (2024) (n=13)

Inverted papilloma	66.7%	42.86%	20.8%	41%	57.14%
Lobular capillary hemangioma	16.7%	28.57%	17.1%	26.5%	21.42%
Nasopharyngeal angiofibroma	16.7%	28.57%	5.9%	16.9%	14.2%
Solitary fibrous tumor	-	-	-	-	7.1%

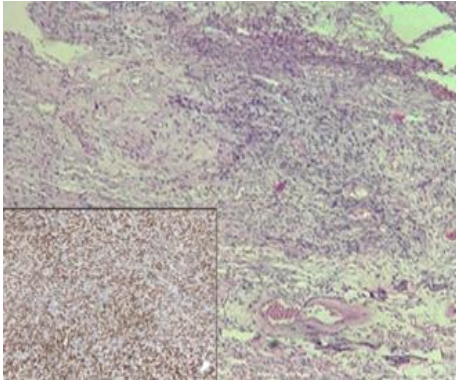


Figure 3 : Solitary fibrous tumor showing round to spindle cells and collagenous and fibrous stroma. Prominent vascular component seen. (40x,H&E)) and inset shows Immunohistochemistry showing nuclear expression for STAT 6 strongly positive.

Malignant neoplastic lesions
7 neoplastic cases (57.14%) were found with male preponderance mosty found in sinonasal and nasopharyngeal region.

Table 3: Comparison of distribution of malignant neoplastic lesions of sinonasal and nasopharyngeal region with respect to histopathological diagnosis

Malignant lesions	Sudeep Regmi et al ¹¹ (2021) (n=60)	Ruth Alemayehu et al ¹² (2023) (n=82)	G Sarumathy et al ¹⁰ (2021) (n=8)	Present study (2024) (n=7)
Squamous cell carcinoma	12 (8.9%)	21(25.6%)	4 (50%)	3 (37.5%)
Sinonasal undifferentiated	5 (3.7%)	7 (8.5%)	-	2 (25 %)
Adenoid cystic carcinoma	3 (2.2%)	-	1 (12.5%)	1 (12.5 %)
Non-Hodgkins lymphoma	5 (3.7%)	4 (4.8%)	2 (25 %)	1 (12.5 %)

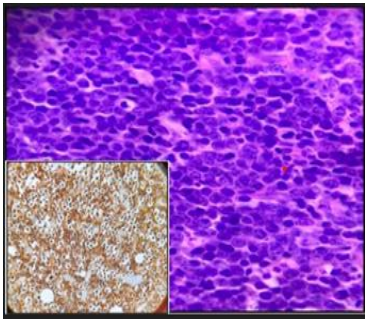
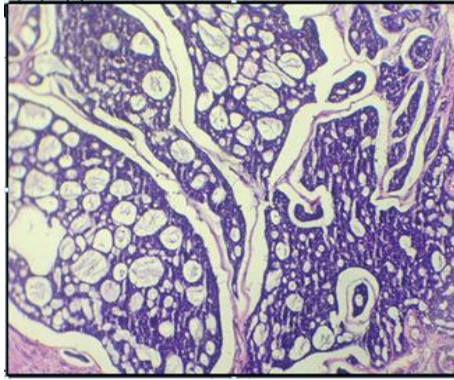


Figure 4: Non-Hodgkin lymphoma and inset shows cytoplasmic and membranous positivity for CD45 on IHC.

Figure 5: Adenoid cystic carcinoma of lateral wall of nose showing classical cribriform pattern.



CONCLUSION:

Clinical symptoms are overlapping in sinonasal and nasopharyngeal lesions underscoring the necessity of histopathological examination for accurate diagnosis. Given the potential for recurrence and malignant transformation, especially in inverted papillomas and high-grade carcinomas, early recognition and appropriate management based on histological evaluation are essential for optimal patient outcomes.

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