

HISTOPATHOLOGICAL STUDY OF LESIONS OF NOSE, PARANASAL SINUSES AND NASOPHARYNX

Pathology

Dr. Manish Verma Post Graduate Resident Jlnmc Ajmer

Dr. Tushar Bayla Post Graduate Resident, Senior Demonstrator

Dr. Kavita Post Graduate Resident

Dr. Geeta Pachori* Senior Professor & Head Jlnmc Ajmer *Corresponding Author

ABSTRACT

Introduction: Majority of the lesions of nose, paranasal sinuses and nasopharynx are polypoid. It is difficult to differentiate between neoplastic and non-neoplastic lesions clinically. Hence histopathological examination is essential for diagnosis. **Objective:** To study histopathological pattern of various sinonasal and nasopharyngeal lesions in relation to age, sex and site wise distribution of the patient. To compare this study with other similar studies. **Material and Methods:** A study was conducted in Department of Pathology, JLN Medical College, Ajmer from January 2023 to December 2023. Hospital based prospective study of nose, paranasal sinuses, nasopharynx lesions specimens received at histopathology section of department of pathology. **Results:** Out of 100 cases, 57 were males and 43 were females, 77 (77.00 %) were non neoplastic and 23 (23.00 %) were of neoplastic. Among non-neoplastic lesions, sinonasal polyp (42 cases) was most prevalent. Maximum proportion of benign lesions were diagnosed as sinonasal papilloma (Inverted type) (6 cases). Among malignant neoplastic lesions, 4 cases were squamous cell carcinoma and 2 cases were basal cell carcinoma. **Discussion/Conclusions:** Non neoplastic lesions were much more common than neoplastic lesions in the sinonasal tract and nasopharynx. Histopathological examination plays an important role in correct diagnosis and management.

KEYWORDS

Histopathology, Nose, Paranasal sinuses, Nasopharynx, Polyp

INTRODUCTION

Nose is the natural pathway for breathing. Nasal cavity, nasopharynx and paranasal sinus form a functional unit and it is principally involved in filtration and purification, temperature control of the inspired air and humidification.

Nasal cavity and paranasal Sinuses collectively referred as sinonasal tract which is anatomically and embryologically distinct from the nasopharynx.²

The sinonasal area is exposed to various infective agents, chemicals, antigens, mechanical influences, and many other influences. These deleterious exposures lead to the formation of tumour-like conditions, which can range from simple hypertrophied inferior turbinate, nasal polyps, granulomatous lesions, and malignant lesions and can present in all age groups.³

Majority of the lesions of nose, paranasal sinuses and nasopharynx are polypoid. Lack of differentiation between neoplastic and non-neoplastic, benign or malignant makes it neglected by the clinicians, as a result causing a delay in diagnosis and treatment.⁴

Thus, histopathological examination is necessary to decide the nature of any particular lesions including benign and malignant condition.⁵

MATERIAL AND METHODS

Present study was conducted in Department of Pathology, Jawahar Lal Nehru Medical college, Ajmer (Raj) from January 2023 to December 2023.

Study design: Hospital based prospective study.

Study duration: Duration from January 2023 to December 2023. A histopathological study of total 100 cases of nose, paranasal sinuses and nasopharynx lesions was done.

Tissue was processed and studied for Histopathological examination. The specimens were received in 10% formalin. The received specimens have been fixed in 10% formalin and kept overnight. After passing the tissue dehydration in graded alcohol for 6 hours each in three changes, clearing is done with two changes of xylene for hour each. Followed by this, impregnation and embedding in paraffin were done, blocks were prepared and 5µ sections were cut.

Then, the sections were stained with haematoxylin and eosin, dried and mounted in DPX and then microscopy was done. Special stain like Periodic Acid Schiff was used whenever required. The relevant clinical details and laboratory investigations were collected from the hospital case sheet.

RESULTS

In the present study 100 patients were subjected to histopathological examination. Among the study subjects 57 were male and 43 were females with male female ratio of 1.32 : 1. The most common age group affected is 21 to 50 years (56 %). **Table (1)**

Table 1: Age Distribution of the Patients

Age (years)	Male	Female	Total
11-20	08	06	14
21-30	13	08	21
31-40	11	08	19
41-50	09	07	16
51-60	07	06	13
61-70	06	05	11
>70	03	03	06
Total	57	43	100

Among study shows clinical symptoms in study subjects. The most common symptoms among the patients were Sinusitis (36%) followed by Mass (18%), Polyp (17%), DNS with sinusitis (13%) and least common Foul smelling of discharge (1%). **Table (2)**

Table 2: Distribution of Cases according to clinical symptoms

Clinical symptoms	NUMBER OF CASES	PERCENTAGE (%)
Sinusitis	36	36 %
Mass	18	18 %
Polyp	17	17 %
DNS with sinusitis	13	13 %
Mass with rhinorrhoea	06	6 %
Ulcer	04	4 %
Epistaxis	03	3 %
Growth	02	2 %
Foul smelling discharge	01	1 %
Total	100	100 %

Among study shows that most common site affected is Nasal cavity (42%) followed by Maxillary sinus (23%), Ethmoidal sinus (18%), Nasopharynx (7%), Lateral wall of right nose (6%), Root of nose (2%), Dorsum of nose (2%). **Table (3)**

Table 3: Distribution of Cases according to Site-sinonasal/nasopharyngeal lesions

Site-sinonasal/nasopharyngeal lesions	Number of cases	Percentage (%)
Nasal cavity	42	42%
Maxillary sinus	23	23%

Ethmoidal sinus	18	18%
Nasopharynx	07	7%
Lateral wall of right nose	06	6%
Root of nose	02	2%
Dorsum of nose	02	2%
Total	100	100.00

As shown in table 4, out of 100 patients, 77 cases of non-neoplastic lesions, among non-neoplastic lesions, sinonasal polyp (42 cases) was most prevalent. Out of total 11 cases of benign neoplastic lesions. Maximum proportion of benign lesions were diagnosed as sinonasal papilloma (Inverted type) (7 cases). Out of total 12 cases of malignant lesions. Among malignant neoplastic lesions, 4 cases were squamous cell carcinoma and 2 cases were basal cell carcinoma and rest is so on. **Table (4)**

Table 4: Distribution of cases according to histopathological diagnosis

Histopathological diagnosis	Numbers	Percentage (%)
Non neoplastic		
Sinonasal polyp	42	42%
Chronic ns inflammation	22	22%
Aspergillosis	05	5%
Mucormycosis	03	3%
Foreign body granulomatous reaction	02	2%
Cryptococcosis	02	2%
Rhinosporidiosis	01	1%
Total	77	77%
Neoplastic (Benign)		
Sinonasal papilloma (Inverted type)	06	6%
Capillary haemangioma	03	3%
Angiofibroma	01	1%
Fibrous dysplasia	01	1%
Total	11	11%
Neoplastic (Malignant)		
Squamous cell carcinoma	04	4%
Basal cell carcinoma	02	2%
Nasopharyngeal papillary adenocarcinoma	02	2%
Undifferentiated Pleomorphic sarcoma	01	1%
Adenoid cystic carcinoma	01	1%
Sinonasal undifferentiated carcinoma	01	1%
Verrucous carcinoma	01	1%
Total	12	12%
Total no. of cases	100	100%

DISCUSSION

The masses in nasal cavity form a heterogeneous group of lesions with a broad spectrum of histopathological features. A variety of these non-neoplastic and neoplastic lesions are quite impossible to differentiate clinically and they are clinically diagnosed as nasal polyp.¹³ The lack of differentiation between neoplastic and non-neoplastic, benign or malignant makes it neglected by the clinicians, as a result causing a delay in diagnosis and treatment.¹⁴

A male predominance was observed in present study with a male to female ratio of 1.44:1 which was consistent with study done by Vijaya v mysorekar et al. Similar findings were reported by T. Dinesh singh et al, in which male to female ratio was 1.33:1. S. R. Dafale et al, reported male to female ratio as 1.8:1 and Harshad's study reported male to female ratio was 2.06:1 which were also in accordance with the present study. present histopathological study included 100 polypoidal lesions of the nasal cavity, encountered during the period of one year. In our study non-neoplastic lesions (77%) formed the largest group of polypoidal lesions, followed by neoplastic lesions (23%). These findings were consistent with the observations made in other studies.⁸

The non neoplastic polyps were more common in males than in females. In another study similar findings were observed.⁹

The histopathological findings of these lesions correlated with the findings in other studies.^{10,11}

In present study 03 (3.75%) cases of mucormycosis were present which was consistent with S. R. Dafale et al, Hemant chopra et al and

Vijaya V mysorekar et al study.¹²

There were 03(27.27%) cases of hemangioma found in present study. The result related well with other study groups, Parajuli and Tuladar's study (26.32%), Hemant chopra et al (27.27%) and Nepal A. et al (28.95%). Out of total 11 benign neoplastic cases.⁵

The neoplastic polyps were common in males than in females. Similar findings were observed in one more study, where males accounted for 61.11% and females 38.88%.⁷

We had 4 cases (4%) of squamous cell carcinoma seen in male aged 55 years and a female of 60 years. Another study also found squamous cell carcinoma occurring in 2% of cases.⁶

CONCLUSION

Non neoplastic lesions were much more common than neoplastic ones in the sinonasal tract and nasopharynx. Histopathological examination plays an important role in correct diagnosis. Hence categorizing the lesions of nasal cavity and paranasal sinuses according to histopathological examinations into various types helps the clinicians for the best management and clinical outcome of the disease.

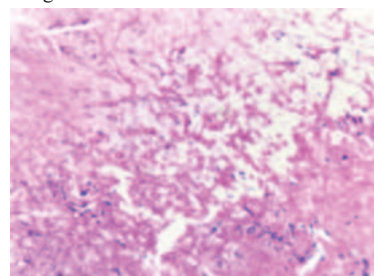


Figure 1 - Aspergillosis - Numerous septate hyphae branched at acute angle. (H&E, 40X)

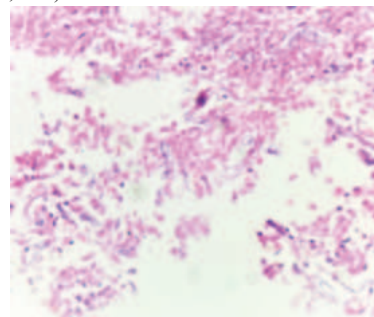


Figure 2 - Mucormycosis- Broad non septate ribbon like hyphae, irregular branching at 90 degrees. (H&E, 40X)

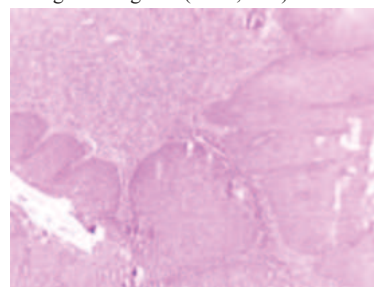


Figure 3 - Inverted papilloma of nasal cavity-(H&E, 10X)

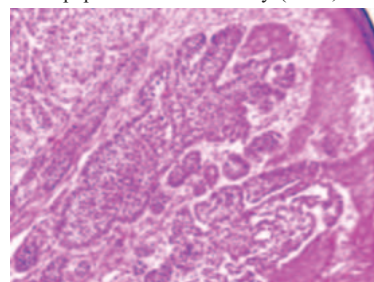


Figure 4 -Basal cell carcinoma dorsum of nasal cavity - (H&E,10X)

REFERENCES :

1. Nelson G. Oronez, Juan Rosai. Respiratory tract. In; Rosai and Ackermans surgical pathology. 9th edition. mosby; et al 2004, volume1; Page No. 308-324.
2. Wenig BM, pilch BZ. Tumors of the upper respiratory tract part A. In; Fletcher CDM, ed. Diagnostic histopathology of tumors. Second edition Churchill Livingstone; 2005; Page No. 87-138.
3. Das SK, Rashid MA. Non-epithelial tumors of the nose, nasopharynx, and paranasal sinuses—a clinic-pathological study. Indian J Otolaryngol Head Neck Surg (special issue) 2005;21:120–124.
4. Garg D, Mathur K. Clinico-pathological study of space occupying lesions of nasal cavity, paranasal sinuses and nasopharynx. J Clin Diagn Res. 2014; 8(11): Page No.42-48.
5. Parajuli S, Tuladhar A. Histomorphological spectrum of masses of the nasal cavity, paranasal sinuses and nasopharynx. J Pathol Nepal. 2013;3(5): Page No. 351-355.
6. Kale U, Mohite U, Rowlands D and Drake Lee AB. Clinical and histopathological correlation of nasal polyps: Are there any surprises? J Otolaryngol 2001; 26: 321-323.
7. Lumsden A, Wilson JA, McLaren K, and Maran A.G.D: Unusual polypoidal tumours of the nasal cavity:a clinicopathological review of 18 cases: Clinical Otolaryngology and Allied Sciences:1986; 11(1):3.
8. Ioannis I, Diamantopoulos, Nick S Jones, James Lowe. All nasal polyps need histological examination an audit-based appraisal of clinical practice. The Journal of Laryngology and otology. 2000; 114: 755-75.
9. Takayuki Nagakawa, Hideo Yamane, Toshinobu Shigeta. Tadayoshi Takashima, Yoshiaki Nakai. Interaction between fibronectin and eosinophils in the growth of nasal polyps. Laryngoscope. 1999; 109: 557-561.
10. Davidson A, Helquist HB. The so called 'Allergic' nasal polyp. J Otorhinolaryngol. 1993; 55(1): 30-35.
11. Kirtsreesakul V. Nasal polyps: the relationship to allergy, sinonasal infection and histopathological type. J. Med Assoc.
12. Dafale SR, Yenni VV, Bannur HB, Malur PR, Hundgund BR, Patil SY. Histopathological study of polypoidal lesions of the nasal cavity-A cross sectional study. AlAmeen J Med Sci. 2012;5(4):403-6.
13. Ackerman LY. Surgical pathology, 6th Edi. by Rosai. The Mosby Company St. Louis;1996:205.
14. Garg D, Mathur K. Clinico-pathological study of space occupying lesions of nasal cavity, paranasal sinuses and nasopharynx. J Clin Diagn Res. 2014;8(11):42-8.