Section: Pathology

Original Research Article

SPECTRUM OF HISTOPATHOLOGICAL LESIONS OF NASAL CAVITY, NASOPHARYNX AND PARANASAL SINUSES

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Received : 01/06/2024
Received in revised form : 04/06/2024
Accepted : 05/06/2024

Keywords:
Nasal cavity, nasopharynx and paranasal sinuses. neoplastic lesions.

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DOI: 10.47009/jamp.2024.6.3.74

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2024; 6 (3); 362-365

Abstract

Background: The objective is to a comparative histopathological study of lesions of nasal cavity, nasopharynx and paranasal sinuses. **Materials and Methods:** The present study was undertaken to a comparative histopathological study of lesions of nasal cavity, nasopharynx and paranasal sinuses at a tertiary care hospital of western Rajasthan in Dept. of Pathology, S.P. Medical College, Bikaner. This study was conducted on a total 143 number of cases. **Result:** Maximum 18.88 % patients belong to 41-50 yrs age group Male patients were 56.64% and female patients were 43.36%. 35 (0.40%) were nose and PNS biopsy and in last 5 years out of total biopsy 36576, 143(.39%) nose and PNS biopsy. 50(34.97%) were Neoplastic lesion and 93(65.03%) Non-neoplastic lesions. Out of 50 neoplastic lesions, 33(66.00%) were benign and 17(34.00%) malignant. The association between age group and type of lesion was found to be significant (P-value<0.05). The association between sex and type of lesion was found to be insignificant. **Conclusion:** Histopathological examination is a simple, reliable and cost effective diagnostic procedure for the detection of various lesions of nasal cavity, nasopharynx and paranasal sinuses. Non-neoplastic lesions were more common than neoplastic lesions.

INTRODUCTION

Paranasal sinuses are air filled spaces present within some bones around the nasal cavities. The sinuses are frontal, ethmoid, sphenoid and maxillary. All of them open into the nasal cavity through its lateral wall. Each is lined by mucoperiosteum which extends from the nasal cavity and is covered by the ciliated respiratory epithelium. The function of the sinuses is to make the skull lighter and add resonance to the voice.

The lower portion of the vestibule is lined by skin containing adnexal structures, including hair. Posterior to the vestibule, the nasal cavity, except for its uppermost portion, is lined by thick, highly vascularized, ciliated columnar epithelium. This mucosa, in conjunction with that of the paranasal sinuses, is often referred to as the Schneiderian membrane. Goblet cells may be present in the surface mucosa, and secretions from the sero mucinous glands beneath the surface drain into the nasal cavity through small ducts. The superior one third of the nasal septum, the superior turbinate, and the cribriform plate are covered with thinner olfactory mucosa. The latter develops at the embryonic stage from the respiratory mucosa. In infants, the olfactory mucosa is uniform and sharply demarcated; in adults, however, progressive atrophy leads to an irregular, patchy distribution with intervening islands of respiratory epithelium.

A variety of non-neoplastic and neoplastic conditions involve the nasal cavity and paranasal sinuses and these are common in humans. Lesions in these sites are important from clinical and pathological perspectives and they give rise to a variety of histological patterns and grades of malignancies. Lesions in these structures are associated with many of the specialized tissues present at this site, each with its own aberrations that exist in the region.[1] Clinically sometimes it becomes quite impossible to distinguish between inflammatory conditions presenting as simple polyps, polypoid lesions due to specific disease and

ISSN (O): 2687-5365; ISSN (P): 2753-6556

polypoid neoplasms (benign and malignant). For this reason it is essential that all the polyps and polypoid masses removed from the nose and nasal sinuses should be fully examined histopathologically. Inflammatory and benign lesions are more commonly found than the malignant ones. Primary nasal malignancies consist of 0.2% - 0.8% of all nasal malignancies consist of 0.2% - 0.8% of all malignant tumors and 3.6% of the malignant upper airway tumors.[2]The Need of this study was to identify the prevalence of benign nasal,paranasal and nasopharyngeal pathology to that of malignant pathology.

MATERIALS AND METHODS

This Hospital based study was performed among Patients with lesions of nasal cavity, paranasal sinuses and nasopharynx reporting to Dept. of Pathology, S.P. Medical College and P.B.M Hospital, Bikaner within study duration i.e 5yr from Jan. 2013 to Dec. 2017). This study was conducted on a total 143 number of cases.

Sampling method: Purposive non-probability sampling,

Methods of collection of Data: Data for retrospective study was obtained from departmental records and the medical records department. Tissue blocks and slides would be retrieved and reviewed. Data for prospective study will be obtained from clinical records and tissue specimens.

Clinical data was obtained from hospital records and requisitions submitted along with tissue specimens received in the department. Gross examination was carried out on specimens. Tissue bits were routinely processed. Three to five micron thick sections were made from paraffin blocks and were stained with H&E stain. Special stains shall be done whenever necessary.

Data Analysis: After entering data into Excel worksheet, it was analyzed with the help of frequency, proportion, mean, standard deviation and tests of significance wherever applicable.

RESULTS

Maximum 18.88 % patients belong to 41-50 yrs age group and minimum 2.80% patients belong to 0-10 years age group. Male patients were 56.64% and female patients were 43.36%. Most of (63.64%) patients belong to urban areas. In 2017 out of 8632 total biopsy, 35 (0.40%) were nose and PNS biopsy and in the last 5 years out of total biopsy 36576, 143(.39%) nose and PNS biopsy.

Table 1: Distribution of total nose and PNS biopsy cases (n=143).

Lesion	No. of cases	Percentage (%)
Neoplastic lesion	50	34.97%
Non-neoplastic lesions	93	65.03%
Total	143	100%

Out of 143 nose and PNS biopsy cases, 50(34.97%) were Neoplastic lesions and 93(65.03%) Non-neoplastic lesions.

Table 2: Distribution of neoplastic lesion of nose and PNS (n=50).

Lesion	No. of cases	Percentage (%)
Benign	33	66.00%
Malignant	17	34.00%
Total	50	100%

Out of 50 neoplastic lesions, 33(66.00%) were benign and 17(34.00%) malignant.

Table 3: Distribution of non-neoplastic lesion of nose and PNS (n=93)

Lesion	No. of cases	Percentage(%)
Inflammatory polyp	70	75.27%
Rhinoscleroma	01	1.07%
Rhinosporidiosis	01	1.07%
Fungal infection—phaeohyphomycosis	05	1.07%
Necrosis with Inflammatory cells	03	3.22
Acute or Chronic inflammatory cells	13	13.98
Total	93	100%

Out of 93 non-neoplastic lesions, maximum 70(75.27%) were inflammatory polyp and minimum 01(1.07%) Rhinoscleroma & Rhinosporidiosis respectively.

Table 4: Distribution of benign neoplastic lesion of nose and PNS (n=33)

Lesion	No. of cases	Percentage (%)
Capillary Haemangioma	01	3.03%
Inverted papilloma	09	27.27%
Angiofibroma	09	27.27%
Lobular Haemangioma	04	12.12%

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Haemangioma	10	30.30%
Total	33	100%

Out of total 33 neoplastic lesions maximum 30.30% haemangioma followed by 27.27% were angiofibroma & inverted papilloma each, 12.12% lobular haemangioma and 3.03% capillary haemangioma.

Table 5: Distribution of malignant neoplastic lesion of nose and PNS (n=17)

Lesion	No. of cases	Percentage(%)
Adenoid Cystic carcinoma	01	5.89%
SCC	16	94.11%
Total	17	100%

Out of 17 cases of neoplastic lesion, 94.11% cases were SCC and 5.89% were adenoid cystic carcinoma.

Table 6: Association between Age and type of lesion.

Age group (Yrs)	Neoplastic lesion		Non-neoplastic lesion		Total	
	No.	%	No.	%	No.	%
0-10 Yrs	2	50%	2	50%	4	2.80%
11-20 Yrs	6	24%	19	76%	25	17.48%
21-30 Yrs	7	26.92%	19	73.8%	26	18.18%
31-40 Yrs	4	19.05%	17	80.95%	21	14.69%
41-50 Yrs	8	29.63%	19	70.37%	27	18.88%
51-60 Yrs	11	50.00%	11	50.00%	22	15.38%
More than 60 Yrs	6	33.33%	12	66.67%	18	12.59%
Total	50	34.97	93	65.03	143	100%
P-value =0.0182						

Out of 50 neoplastic lesions maximum lesion (11) in the 51-60 yrs age group and maximum non-neoplastic lesion(27) in 41-50 Yrs age group.
The association between age group and type of lesion was found to be significant (P-value<0.05).

Table 7: Association between Sex and type of lesion.

Sex	Neoplastic lesion		Non-neoplastic lesion		Total	
	No.	%	No.	%	No.	%
Male	32	39.51%	49	60.49%	81	56.64%
Female	18	29.03%	44	70.97%	62	43.36%
Total	50	34.97	93	65.03	143	100%
P-value =0.218						

Out of 81 male, 39.51% were neoplastic & 60.49% were non-neoplastic lesions and out of 62 females, 29.03% were neoplastic & 70.97% were non-neoplastic lesions . The association between sex and type of lesion was found to be insignificant.

DISCUSSION

Maximum 18.88 % patients belong to the 41-50 yrs age group. Male patients were 56.64% and female patients were 43.36%.
Shikha Ngairangbam et al,[3] found that maximum patients were 51-60 Yrs age group & most of the patients were male than female and maximum patients were from urban areas. Ghosh and Bhattacharya,[4] reported a maximum number of tumor-like lesions in the second and third decades.
In our study out of total biopsy, 39% was nose and PNS biopsy. This is consistent with the findings of Dasgupta et al,[5] who reported an incidence of 17.4 cases per year. However, the incidence reported by Tandon et al,[6] was 10 cases per year.
Out of 143 nose and PNS biopsy cases, 50(34.97%) were Neoplastic lesions and 93(65.03%) Non-neoplastic lesions in our study. Shikha Ngairangbam et al,[3] found that 57.84% were non-neoplastic and 42.16% neoplastic.
In this study, non-neoplastic lesions constituted 65.03% of cases with inflammatory polyp being the predominant type. There was male preponderance. Similar observations were made by other authors.[7]Kalpana et al,[8]Mysorekar et al.[9]
A study conducted by ShikhaNgairangbam et al,[3] found that out of 100 cases studied, 43 cases of neoplastic lesions were found out of which 65.12% were malignant and 34.88% benign.
Narayana Swami et al,[10] also reported 13% incidence of inverted papilloma amongst all benign tumors. Amongst non-epithelial tumors, 13.34% each of hemangioma and angiofibroma were seen whereas other studies showed higher incidence.[11]
Out of a total 17 cases of malignant neoplastic lesion, 94.11% cases were SCC and 5.89% were adenoid cystic carcinoma in our study. Shikha Ngairangbam et al,[3] found that Among the malignant neoplasms, undifferentiated carcinoma was common and seen in 78.58% of the cases followed by squamous all carcinoma.

ISSN (O): 2687-5365; ISSN (P): 2753-6556

The neoplastic lesions were predominant in the fifth, sixth and seventh decades with majority cases occurring in this age group in the present study. Ghosh and Bhattacharya6 reported that the majority of malignancies at this site occur in the fifth to seventh decades, with which the findings of the present study correlate.

CONCLUSION

Most common lesions where Nasal Polyps may be due to dry and desert areas. Male preponderance was observed, while most of the cases were presented in 41-50 Yrs of age group. Non-neoplastic lesions were more common than neoplastic lesions. Among neoplastic lesions benign lesions were more common than malignant. The most common histological type of malignancy encountered was squamous cell carcinoma.

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ISSN (O): 2687-5365; ISSN (P): 2753-6556