ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 10, Issue – 2, April – 2025, Page No. : 20 – 28

Clinicopathological Study of Tumors and Tumor like Lesions of Nose, Paranasal Sinuses and Nasopharynx

[1]Dr.Nishi Rani Dixit, Assistant Professor, Department of Pathology, Sudha Medical College, Kota, Rajasthan.

[2]Dr.Geeta Pachori, Senior Professor, Department of Pathology, JLN Medical College, Ajmer, Rajasthan.

[3]Dr. Yogesh Gupta, Consultant Pathologist, Sudha Hospital and Medical Research Centre, Kota, Rajasthan.

Corresponding Author: Dr. Nishi Rani Dixit, Assistant Professor, Department of Pathology, Sudha Medical College, Kota, Rajasthan.

Citation this Article: Dr. Nishi Rani Dixit, Dr. Geeta Pachori, Dr. Yogesh Gupta, "Clinicopathological Study of Tumors and Tumor like Lesions of Nose, Paranasal Sinuses and Nasopharynx", IJMSIR - April – 2025, Vol – 10, Issue - 2, P. No. 20 – 28.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Objective: To find out the incidence, age, sex, site-wise distribution and various histopathological pattern of sinonasal and nasopharyngeal tumors and tumor like lesions.

Method: In three year study, from January 2014 to December 2016, total of 201 adequate biopsy are analysed. The biopsy samples are received in 10% buffered formalin, routinely processed for histopathological examination and section are stained by H & E stain. Special stain and IHC done whenever required.

Result: Among 201 samples, 158 are non-neoplastic and 43 are neoplastic lesions. Most common age group affected is 21-50 years (54.23%). Mean age is 38.06±19.19 years. The males (67.66%) are most commonly affected as compared to females (32.34%). Male to female ratio found to be 2.09:1. Nasal cavity (37.31%) is the most common site followed by maxillary sinus (25.37%). Most of the sinonasal masses are unilateral (70.15%) and rest are bilateral (29.85%). Sinusitis (34.33%) and mass with rhinorrhoea (28.86%) is the most common presenting symptom. Non-neoplastic lesions constituted about 84.48% cases. Amongst them Inflammatory Polyp is the most common accounting for a total of 112 cases (70.89%) followed by Allergic Polyp 20 cases (12.66%). Neoplastic lesion constituted about 21.39% cases. Out of which 14 cases (32.56%) are benign and 29 cases (67.44%) are malignant. Amongst benign, inverted papilloma 7 cases (50.00%) and amongt the malignant squamous carcinoma 11 cases (37.93%).

Conclusion: we concluded that Inflammatory polyp is the most common polypoidal lesion. Non neoplastic lesions are most common than neoplastic lesions. However, they share same clinical and radiological features, therefore require Histopathological confirmation.

Keywords: Inflammatory Polyp, Squamous papilloma, Squamous cell carcinoma, hematoxylin and eosin (H & E)

Introduction

The nasal cavity, nasopharynx and paranasal sinuses form a functional unit and is principally involved in filtering, humidifying and adjusting the temperature of

inspired air.[1]Nasal cavity and paranasal sinuses (maxillary, ethmoid, sphenoid and frontal) collectively reffered as sinonasal tract which is anatomically and embryologically distinct from the nasopharynx. [2] The epithelium of the sinonasal tract is ectodermally derived, while that of the nasopharynx is endodermally derived.

A variety of non-neoplastic and neoplastic conditions involving the nasal cavity, paranasal sinuses and nasopharynx are commonly encountered in clinical practice.[3] The clinical symptoms of all sinonasal masses are similar, i.e., nasal obstruction, rhinorrhea, blood stained nasal discharge, epistaxis, oral symptoms, facial swelling, orbital symptoms, ear symptoms, etc.[4] It is quite impossible to clinically distinguish between such lesions and therefore it is essential that it be removed from nose and paranasal sinuses and examined histopathologically.[5]

A sinonasal mass can have various differential diagnoses. They may be congenital, inflammatory, neoplastic (benign or malignant) or traumatic in nature.[6] A congenital nasal mass may present intranasally, extranasally, or as external nasal mass with or without nasal obstruction.[7] Congenital masses are predominantly mid line swellings and include dermoids, glioma and encephaloceles as common diagnoses.[8]

Polyps are a common cause of nasal obstruction in adults with a prevalence of about 4% in the general population while the diagnosis in children is so rare (0.1%) as to be questionable.[9] Nasal polyps most frequently occur in middle aged males. M, F ratio is 3;1.[10] It has a geographic tendency to affect the African, the Japanese, and the Arab. It is rarer in Western Europe and America.[11]

The nose and the paranasal sinuses are very rare sites of origin of head and neck tumors. Neoplasms of nasal cavity and sinuses account for 0.2-0.8% of all neoplasms, only 3% of those occur in the upper aerodigestive tract.[12]

The presenting symptomatology of all tumours is similar. Histopathological examination is necessary to decide whether any particular tumour is malignant.[13]

Aims &Objectives

1. To find out the incidence of occurrence of various sinonasal and nasopharyngeal tumors and tumor like conditions presenting at J.L.N. Medical College & Associated Group of Hospital, Ajmer (Rajasthan).
2. To study age, sex and site wise distribution of various sinonasal and nasopharyngeal lesions.
3. To classify the tumors according to W.H.O classification.
4. To compare study with other studies in India as well as abroad.

Material & Methods

The study "Clinicopathological study of tumor and tumor like lesion in nose, paranasal sinuses and nasopharynx**"** was carried out in Department of Pathology, JLN Medical College, Ajmer and Associated group of Hospitals, both retrospective (January 2014to June 2015) and prospective (July 2015 to December 2016) over a period of 3 years. Out of total 201 cases retrospective cases were 98 and prospective were 103.For the retrospective study, blocks were retrieved from the histopathological section and re-examined. For prospective study we received biopsy specimen in 10% buffered formalin. A properly completed surgical pathology requisition form containing the patient's identification, age, sex, essential clinical data and tissue submitted is checked. Then the specimen is allowed to fix in 10% buffered formalin for 12-14 hours at room temperature and the gross features like size, shape, colour, external surface, cut surface, consistency, color of cut section are noted and routinely processed. Section are

stained by H & E stain. Special stain and IHC done whenever required.

Observations and Result

Table 1: Histopathological pattern of sinonasal masses

Histopathological subtypes	Number	Percentage%
Acute inflammatory pathology	1	0.50
Chronic ns inflammation	12	5.97
Granulation tissue	1	0.50
Foregian body granulomatous reaction	3	1.49
Rhinolith	2	1.00
Rhinosporidiosis	1	0.50
Rhinophyma	1	0.50
Aspergillosis	1	0.50
Cryptococcosis	1	0.50
Dermoid cyst	1	0.50
Inflammatory polyp	112	55.72
Allergic polyp	20	9.95
Inverted polyp	1	0.50
Angiomatous polyp	1	0.50
Inverted papilloma	7	3.48
Squamous papilloma	1	0.50
Squamous papilloma with focal area show malignant transformation	1	0.50
Capillary hemangioma	2	1.00
Lobular capillary hemangioma	1	0.50
Mixed capillary & cavernous hemangioma	1	0.50
Pleomorphic adenoma	1	0.50
Well diff scc	6	2.99
Mod diff scc	4	1.99
Poorly diff scc	1	0.50
Verrucous carcinoma	1	0.50
Basal cell carcinoma	5	2.49
Nodular bcc	2	1.00
Undifferentiated nasophayngealcarcinoma	4	1.99
Lethal midline granuloma	1	0.50
Diffuse NHL, intermedietecell type	1	0.50
Small round cell tumor	1	0.50

Dermatosarcomaprotubrance	1	0.50
Adenoid cystic carcinoma	1	0.50
Angiofibroma	1	0.50
Grand total	201	100

Table 2: Age wise distribution of sinonasal masses

Age group(Years)	Number	Percentage%
0-10	13	6.47
11-20	28	13.93
21-30	36	17.91
31-40	37	18.41
41-50	36	17.91
51-60	19	9.45
61-70	21	10.45
71- 80	11	5.47
Total	201	100.00
mean±SD (min to max)	38.06±19.19(2 to 80 years)	

Table 3: Sex wise distribution of sinonasal masses

Sex	Number	Percentage%
Female	65	32.34
Male	136	67.66
	201	100.00

Table 4: Age and Sex wise distribution of sinonasal masses

Age (years)	Female		Male	
	No	%	No	%
Upto10	6	9.23	7	13
11 to20	12	18.46	16	28
21 to30	8	12.31	28	36
31 to40	16	24.62	21	37
41 to 50	14	21.54	22	36
51 to 60	4	6.15	15	19
61 to 70	2	3.08	19	21
71 to 80	3	4.62	8	11
Total	65	100.00	136	201

Chi-square = 13.181 with 7 degrees of freedom; P = 0.069

Table 5: Distribution of sinonasal masses according to the clinical presentation

Clinical symptoms	Number	Percentage%
Sinusitis	69	34.33
Mass with rhinorroea	58	28.86
Mass	37	18.41
Dns with Sinusitis	17	8.46
Ulcer	14	6.97
Epistaxis	4	1.99
Foul smelling discharge	2	1
Total	201	100

Table 6: Site wise distribution of sinonasal masses

Site	Number	Percentage%
Nasal cavity	75	37.31
Maxillary sinus	51	25.37
Ethmoidal sinus	42	20.9
Lateral wall of nose	14	6.97
Nasopharynx	14	6.97
Root of nose	3	1.49
Dorsum of nose	1	0.5
Tip of nose	1	0.5
Total	201	100

Table 7: Distribution of sinonasal masses according to laterality

Unilateral or bilateral	Number	Percentage%
unilateral	141	70.15
bilateral	60	29.85
Total	201	100

Table 8: Age distribution in neoplastic lesion

Age (Years)	Neoplastic			
	Benign		Malignant	
	No	%	No	%
Upto 10	3	21.43	4	13.79
11 to20	0	0.00	1	3.45
21 to30	1	7.14	0	0.00
31 to40	3	21.43	2	6.90

41 to 50	1	7.14	6	20.69
71 to 80	1	7.14	3	10.34
51 to 60	3	21.43	6	20.69
61 to 70	2	14.29	7	24.14
	14	100.00	29	100.00
Chi-square	6.216 with 7 df; P = 0.547 NS			

Table 9: Incidence of nonneoplastic and neoplastic sinonasal masses

Type of lesion	Total cases	Percentage
Non Neoplstic	158	78.61
Neoplstic	43	21.39
Benign	14	32.56
Malignant	29	67.44
	201	100

Table 10: Age wise distribution of non-neoplastic and neoplastic lesions

Age (Years)	Non neoplastic lesions		Neoplastic lesions	
	No	%	No	%
Upto 10	6	3.8	7	24.14
11 to20	27	17.09	1	3.45
21 to30	35	22.15	1	3.45
31 to40	32	20.25	5	17.24
41 to 50	29	18.35	7	24.14
71 to 80	7	4.43	4	13.79
51 to 60	10	6.33	9	31.03
61 to 70	12	7.59	9	31.03
	158	100	43	100
Chi-square	7.775 with 7 df; P <0.001S			

Discussion and Conclusion

Total of 201 cases of which 98 are retrospective and 103 are prospective of sinonasal lesions are studied to observe the spectrum and distribution of various sinonasal lesions in the Department of Pathology J.L.N. Medical College and Associated Groups of Hospitals, Ajmer over a period of 3 years, which include 1.5 years (January 2014to June 2015) of retrospective and 1.5 years (July 2015 to December 2016) of prospective study.

Our study shows that out of 201 patients, 158 patients (78.61%) are non-neoplastic, 43 patients (21.39%) are neoplastic. Among neoplastic lesions benign are 14 cases (32.56%) and 7 patients (11.66%) are malignant. N. Khan et al in their study shows that non neoplastic lesions were 60% and neoplastic lesions were 40%.

Amongst the neoplastic cases, 23.33% were benign and 16.67% were malignant.[3] A. Lathi et al in their study shows that those non neoplastic lesions were 71.4% and neoplastic lesions were 28.6%. Amongst the neoplastic cases 16.96 % were benign and 11.60% were malignant.[6] Beigh Ambreen et al in their study shows that non neoplastic lesions were 62.98% and neoplastic lesions were 28.6%. Amongst the neoplastic cases 25.41 % were benign and 11.60% were malignant.[14] Ambrish Kumar in their study shows that non neoplastic lesions were 82.2% and neoplastic lesions were 28.6%. Amongst the neoplastic cases 6.66 % were benign and 5.55% were malignant.[15]

Our study shows that most common non neoplastic lesion is Inflammatory polyp 112 cases (70.89%) followed by Allergic polyp 20 cases (12.66%), Chronic ns inflammation 12 casese (7.59%), which is in concordance with the observation of study done by Nepal A et al(2013). Nepal A et al 2013in their study shows that Polyps were the commonest lesions constituting 70% cases followed by rhinosporidiosis 10%.[16] Ashok panchnoia et al 2014in their study shows that the commonest non neoplastic lesion was nasal polyp which comprised about 83.33% followed by rhinoscleroma.[17] Amit Kumar Bhardwaj et al 2014 in their study shows that among the non inflammatory lesion, nasal polyp was found in 76 cases (87.7%) and was the commonest lesion.[18]

In present study most common benign lesion is inverted papilloma 7 cases (50%).Parajuli S. et al 2013 in their study shows that Inverted papilloma was most common benign neoplasm(31.57%).[19]Janice Jaison et al 2015 in their study shows that Inverted papilloma was most common benign neoplasm(30.76%).[17]

In present study most common malignant lesion is squamous cell carcinoma 11 cases (37.93%). Jyoti A Raj et al 2013 in their study shows that most common malignant lesion is squamous cell carcinoma (50%).[20] Dinesh Garg et al 2014 in their study shows that most common malignant lesion is squamous cell carcinoma (46.15%).[21]

Our study shows most common age group affected is 21 to 50 years (54.23% cases). The mean±SD (min to max) is38.06±19.19(2 to 80 years).The youngest patient is 2 years old and oldest is 80 years old. Aminu Bakari et al in their study shows most common age group affected was 21-50 years, mean age 33.3 and age range was 5-64 years.[22]A.Lathi et al in their study shows most common age group affected was 31-40 years, mean age 31.2 and age range was 8-70 years. [6]

In our study male (67.66%) are most commonly affected as compared to females (32.34%) i.e. male prepordance is observed in the study. Male: female ratio was 2.09:1.Amit Kumar Bhardwaj et al in their study shows that male (66.03%) were most commonly affected as compared to females (33.96), with male to female ratio was 1.9:1.[23]Ranbir Kumar Panday et al in their study shows that male (68.4%) were most commonly affected as compared to females (31.6), with male to female ratio was 2.16:1.[15]

Our study shows that most common presentation is Sinusitis (34.33%) followed by Mass with rhinorroea (28.86%) ,Mass (18.41%), Dns with Sinusitis (8.46%), Ulcer (6.97%), Epistaxis (1.99%) and Foul smelling discharge (1%). Aminu Bakari et al in their study shows that main presenting symptoms were nasal blockage97.4%, rhinorrhea 94.7%, allergic symptoms 52.6%, anosmia 34.6%.[22] Manish Kumar Sachan et al in their study shows that 91% of the patients had symptoms of nasal obstruction, nasal mass in 37%, headache in 20%, rhinorrhoea in16%, sneezing in 14%, epistaxis in 13% and anosmia in 10 %. [24]

Our study shows that most common site affected is Nasal cavity (37.31%) followed by Maxillary sinus (25.37%), Ethmoidal sinus (20.9%), Lateral wall of nose and Nasopharynx were (6.97%), Root of nose (1.49%), Dorsum and tip of nose (0.5%) each. N.Khan et al in their study shows that most common site affected was Nasal cavity (65%) followed Paranasal sinuses (20%) and Nasopharynx (15%).[3] Shaila N Shah et al in their study shows that majority of lesions occur in nasal cavity (69%) followed by paranasal sinuses (25%) and nasopharynx (6%).[25]

Our study shows that most of the sinonasal masses are unilateral (70.15%) and rest are bilateral (29.85%). Aminu Bakari et al in their study shows that Sinonasal masses were found to be bilateral in 44.7%, left sided in 24(31.6%) and right sided in 18 (23.7%) patients.[22] A.Lathi et al in their study shows that Unilateral nasal masses was present in 47.7% patients, while the remaining patients had bilateral nasal masses.[6]

References

1. Nelson G. Oronez, Juanrosai. Respiratorytract. in: Rosai and Ackerman's surgical pathology. 9thedition.mosby; et al2004,vol.1;308-324.
2. Wenig Bm, Pilch Bz. Tumors of the upper respiratory tract part a. In :Fletcher Cdm, ed. Diagnostic histopathology of tumors. 2nd ed. Churchilllivingstone; 2005;87–138.
3. Zafar U, Khan n, Afroz N, Hasan SA. Clinicopathological study of non-neoplastic lesions of nasal cavity and paranasal Sinuses. Indian j patholmicrobiol. 2008;51:26–9.
4. Somani S, Kamble P, Khadkear S. Mischievous presentation ofnasal masses in rural areas. Asian J ear nosethroat. 2004;2:9–17.
5. Harshad Baburao Sutar "Clinicopathological study of nasal polypoidal masses" Annals of International Medical and Dental research;1 (3):315-319.
6. Lathi A, Syed MMA, Kalakoti P, et al. Clinico-pathological profile of sinonasal masses: a study from a tertiary care hospital of India. Actaotorhinolaryngolital 2011;31(6):372-377.
7. Harley Eh. Pediatric congenital nasal masses. Ear nose throat J 1991;70:28-32.
8. Valencia MP, Castillo M. Congenital and acquired lesions of the nasal septum: a practical guide for differential diagnosis. Radio graphics 2008;28:205-23.
9. Hedman J, Kaprio J, Poussa T, et al. Prevalence of asthma, aspirin intolerance, nasal polyposis and chronic obstructive pulmonary disease in a population-based study. Int J Epidemiol1999;28:717-22.
10. Friedmann I, Bennett MH, Piris J. Inflammatory conditions of nose. In Friedmann's systemic pathology, vol.1 nose, throat and ears. Edinburglondon, churchilllivingstone, 3rd edition; 1986:19-45.
11. Settipane GA: Epidemiology of nasal polyps. Allergy asthma proc1996, 17:231-6.
12. Christensen FC and Hoover LA. Malignant tumors of the nasal cavity. Am. J. Rhinol. 1994;8(3):129-137.
13. Rhowedder J. Upper respiratory tract tuberculosis. Sixteen cases in a general hospital. Ann Intern Med. 1974; 80:708-13.
14. Ambrish Kumar "Lesions of nasal cavity, paranasal sinuses and nasopharynx: A clinicopathological study" international journal of medical research and review 2016; 4 (8);1302-1306.
15. Ranbir Kumar Pandey, Dheeraj Kumar, NishaShrivastava, Nishant Kumar "Clinico-

epidemiological evaluation of patients with sinonasal massesattending a tertiary care hospital in Jharkhand: A three year retrospective study" Int Jotorhinolaryngol head neck surg. 2017 ;3(1):132-134

16. Aloke Bose Majumdar, Gautam Sarker, Dipayan Biswas, Somyadipta Dey, Ashok Prasad, Ranabir Pal "Clinicopathological study of sino-nasal masses" National journal of otorhinolaryngology and head & neck surgery 2014; 2(11);19-22.
17. Janice Jaison, Deepa Topandas Tekwani: Histopathological lesion of nasal cavity, paranasal sinuses and nasopharynx: Annal of applied bio-sciences 2015 ,2(2);41-44.
18. Dr.Aftab Ahmed Soomro , Dr. Pirbux Magsi , Dr. Hamid Ali Sangi , Dr. Haresh Chand "Non-malignant lesions; clinico-pathological profile of nasal cavity and paranasal sinuses" Professional Med J 2014;21(1): 191-196.
19. Parajuli S, Tuladhar A "Histomorphological spectrum of masses of the nasal cavity, paranasal sinuses and nasopharynx" journal of pathology of Nepal 2013; vol. 3, 351 -355.
20. Jyoti A. Raj, Sharmila P S, Mitika Shrivastava, Mahantachar V, T Rajaram :Morphological spectrum of lesions in the sinonasal region: journal of evaluation of medical and dental sciences 2013;2 (37):7175-7186.
21. Dinesh Garg, Kusum Mathur "Clinico-pathological study of space occupying lesions of nasal cavity, paranasal sinuses and nasopharynx" journal of clinical and diagnostic research. 2014;8(11): 04-07.
22. Aminu Bakari, Olushola A Afolabi, Adeyi A Adoga, Aliyu M Kodiya, Babagana M Ahmad "Clinico-pathological profile of sinonasal masses: An experience in national ear care center Kaduna, Nigeria" BMC research notes 2010, 3:186,3-5.
23. Amit Kumar Bhardwaj, Amit Kumar Kiwari, Tapas Ranjan Behera, Amar Bahadur Singh, MaikalKujur5 "spectrum of sinonasal mass at a tertiary level hospital" J. Evid. Based med. Healthc. 2016; 3(91) ; 5001-5004.
24. Manish Kumar Sachan, A.K Jain, R. Nigam, Freni J.K " Sinonasal masses: A clinico pathological study at tertiary care centre" J of Evolution of Med and Dent sci 2014;3(29) :5021-5025.
25. Shailla N. Shan, Yatish Goswami: Study of lesion of nasal cavity, nasopaharyx and paranasal sinuses by histopathological examination: gujarat medical journal 2012; 67(2);70-72.