ORIGINAL ARTICLE

e-ISSN: 2349-0659 p-ISSN: 2350-0964
doi: 10.21276/apjhs.2018.5.1.2

Neoplastic masses of nasal cavity, paranasal sinuses, and nasopharynx: A clinicopathological study

Arti, Pallvi Kaul, Kamal Kishore*, Priya Manhas, Pooja

Department of ENT and Head and Neck Surgery, Government Medical College, Jammu, Jammu and Kashmir, India

ABSTRACT

This prospective study consists of 24 patients with neoplastic masses of nasal cavity, paranasal sinuses, and nasopharynx who reported in the Department of Otorhinolaryngology, GMC, Jammu over 1 year, i.e., from November 2015 to October 2016. All the cases were assessed clinically and specimen sent for histopathological examination. Neoplastic masses classified were classified as benign and malignant. Various other parameters including age and sex clinical features were also assessed.

Key words: Histopathology, nasal cavity, neoplastic, paranasal sinuses

INTRODUCTION

Nose is the most prominent part of the face with great esthetic significance and functional importance. Non-neoplastic and neoplastic masses of nasal cavity, paranasal sinuses, and nasopharynx are very commonly encountered in routine clinical practice.[1] Common symptoms of sinonasal lesion are nasal blockage, nasal discharge, epistaxis, facial swelling, orbital, and ear symptoms.[2] A detailed history, clinical examination, and most importantly thorough histopathological examination are essential part of workup of patients so that a correct and timely intervention is done.

MATERIALS AND METHODS

The prospective study was conducted on 24 patients with neoplastic masses of nasal cavity, paranasal, and nasopharynx in the Department of Otorhinolaryngology, GMC, Jammu, over 1 year (from October 2015 to November 2016). A detailed data regarding age, sex, chief complaints, clinical examination, and histopathology were obtained. All received biopsies were fixed in 10% buffered formalin. After gross examination and Hematoxylin and Eosin staining, microscopic examination was done.

Observations

In this study of 24 patients with the neoplastic masses, 14 cases were classified as benign (59%) and 10 cases as malignant (41.6%).

Site: Of 12 benign cases, 85% (10 cases) were present in nasal cavity and paranasal sinuses, and 15% (2 cases) were present in nasopharynx [Table 1]. Among 10 malignant cases, 50% (5cases) were present in nasal cavity and paranasal sinuses, and 50% (5 cases) were present in nasopharynx [Table 2].

Sex Ratio

Neoplastic masses were predominantly present in males with male:female ratio of 1.6:1 [Tables 1 and 2].

Clinical Presentation

Neoplastic masses of nasal cavity, paranasal sinuses, and nasopharynx presented with nasal obstruction, epistaxis, nasal mass, and paranasal sinus swelling as shown in Table 3.

Benign Masses

Hemangioma was the most common among benign masses with the incidence of 42.8% (6 cases). It was present in all age group predominantly with male: female ratio of 2:1. Histopathological examination showed well-defined but uncapsulated lobules. Lobule was composed of capillary-sized, thin-walled, blood-filled vessels, surrounded by a layer of pericytes, separated by connective tissue stroma [Figure 1].

The second most common mass observed in our study was inverted papilloma with an incidence of 35.7% primarily in 4th and 5th decades. Histopathological findings showed inverted growth pattern of proliferating columnar epithelium [Figure 2]. Angiofibroma was seen in males only in 2nd decade of life with the incidence of 14% (2 cases), Histopathologically, there was the presence of mixture of fibrous stroma and blood vessels. Hematoma was seen in 1 male of 48 years age [Table 1].

Malignant Masses

Squamous cell carcinoma was predominant among malignant mass with the incidence of 70% (7 cases), with a peak age of presentation in 6th and 7th decades with male:female ratio of 1.3:1. Histopathology showed cells forming sheets and nest of keratin pearls. Other malignant tumors were transition cell carcinoma, olfactory neuroblastoma, and non-Hodgkin's lymphoma. Each had an incidence of 10% (1 case). Age of presentation was 5th and

Address for correspondence:
Dr. Kamal Kishore, Department of ENT and Head and Neck Surgery, Government Medical College, Jammu, Jammu and Kashmir, India.
Phone: +91-9419139288. Email id-drkamalkishore@gmail.com

Received: 12-11-2017 **Revised:** 25-11-2017 **Accepted:** 28-12-2017

Table 1: Type, incidence sex ratio, site, and age of presentation of benign lesions

Lesions	Number (% of cases) n=14	Males	Females	M: F ratio	Nasal cavity and pns	Nasopharynx	Age of presentation
Hemangioma	6 (42.8)	4	2	2:1	6		1st, 2nd, 3rd, 4th
Inverted papilloma	5 (35.7)	2	3	1:1.5	5		4th, 5th
Angiofibroma	2 (14)	2	0	Males only		2	1st
Hematoma	1 (7)	1		1:0	1		4th

Table 2: Type, incidence sex ratio, site, and age of presentation of malignant mases

Malignant masses	Number (% of cases) *n*=10	Male	Females	M: F	Nose and pns	Nasopharynx	Age of presentation
Squamous cell carcinoma	7 (70)	4	3	1.3:1	3	4	6th and 7th decade
Olfactory neuroblastoma	1 (10)	1		1	1		5th decade
Tcc	1 (10)		1	0:1	1		6th decade
Nhl	1 (10)		1	0:1		1	2nd decade

Table 3: Clinical presentation of nasal cavity, paranasal sinuses, and nasopharyngeal masses

Clinical symptoms	Benign n=14 (%)	Malignant n=10 (%)
Nasal obstruction	7 (50)	3 (30)
Rhinorrhea	2 (14)	0
Headache	1 (7)	0
Epistaxis	12 (85)	5 (50)
Mass	3 (21)	2 (20)

6th decades except non-Hodgkin's lymphoma which was seen in the 2nd decade of life in HIV-positive female. Histopathologically, transition cell carcinoma shows plexiform or ribbon-like growth pattern with cellular atypia, epithelial delineated by persistent basement with lack of keratinization. On the other hand, microscopy of olfactory neuroblastoma reveals neuroepithelium arranged in pseudorosettes and undifferentiated nuclei, fibrillar cords, an increased vascularity with palisading neuroepithelial cells around blood vessels [Figure 3 and Table 2].

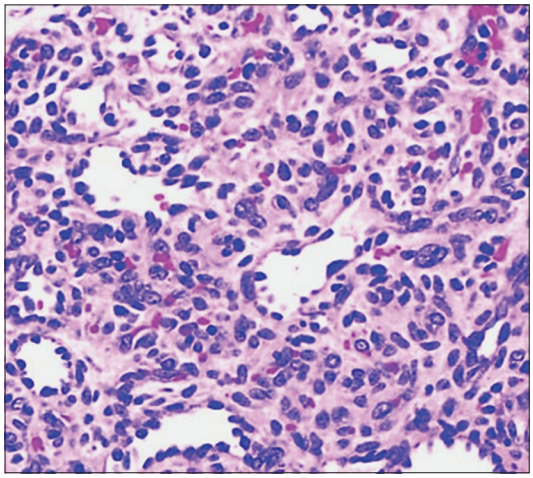

Figure 1: High-power micrograph of hemangioma showing thin-walled capillaries with flattened endothelium

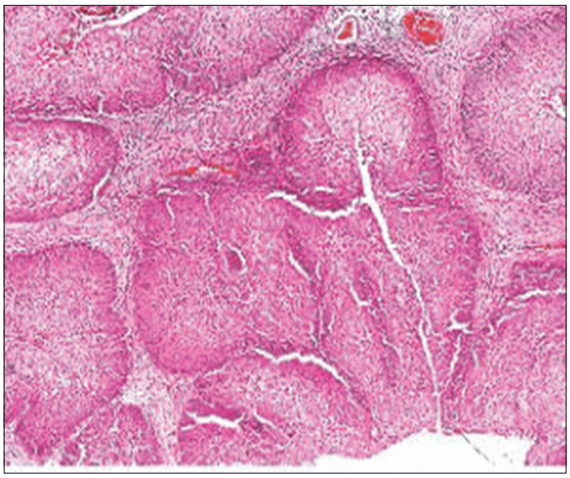

Figure 2: High-power micrograph if inverted papilloma showing atypia immature epithelium and architectural atypia

DISCUSSION

The swelling of nasal cavity, paranasal sinus, and nasopharynx has inflicted man from the time of immemorial. The presenting symptomatology of all tumor is similar, and using advanced imaging and computed tomography and magnetic resonance imaging, presumptive diagnosis is often made; however, a careful histopathological examination is necessary to decide the native of any particular lesion[3]. In the present study of 24 cases, 58.3% were benign and 41.7% were malignant. Comparative incidence of clinical presentation benign and malignant masses is shown in Tables 4 and 5.

Benign

Hemangioma was the predominate benign mass with 38.36% and 33.3% incidence, respectively.[4,5] In the present study, it is the most common among the benign masses with a high incidence of 60%. Histopathology shows the presence of uncapsulated lobule of capillary size.[6] Inverted papilloma of nasal cavity and paranasal sinuses is a histopathological diagnosis. Although it is a benign lesion, clinically it behaves as a potentially notorious pathology, if not treated adequately and followed for length of time.[7] Age of

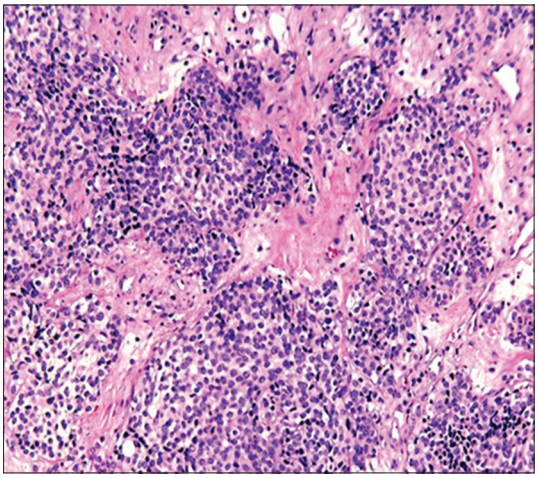

Figure 3: High-power micrograph of olfactory neuroblastoma showing band, hyperchromatic nuclei without prominent nucleoli

Table 4: Comparative incidence of presentation of benign masses

Symptoms	Humayun *et al.*	Swamy and Gowda (2004)	Present study
Nasal obstruction (%)	66	56	50
Rhinorrhea (%)	33	-	2
Epistaxis (%)	66	53	85
Headache (%)	35	40	7
Mass (%)	-	40	21

Table 5: Comparative incidence of presentation of malignant masses

Symptoms	Khan *et al.*	Humayun *et al.*	Present study
Nasal obstruction (%)	70	100	30
Epistaxis (%)	70	75	50
Mass (%)	-	-	20
Swelling over sinus (%)	64	-	20
Neck swelling (%)	-	-	20

presentation of inverted papilloma was 4th decade.[4] Microscopy of inverted papilloma reveals the presence of invaginated epithelium into the underlying stroma.[8] In our study incidence if angiofibroma was 14% predominent in 2nd decade of life close to the other study who reported 26% incidence with in age from 18 to 21 years.[9] On contrary, the study of 240 patients reported the incidence of 42% and its predominance among benign masses.[3] Microscopic picture of intricate mixture of blood vessels and stroma.[4,10]

Malignant

Squamous cell carcinoma is common neoplasm. There were 50% of cases of squamous cell carcinoma.[4,11] Average age for squamous cell carcinoma in sinonasal region was 51 years with male:female ratio of 1.5:1.[5] We observed the predominance of squamous cell carcinoma (70%) in the 5th decade onward with male:female ratio of 1.3:1. Other studies have reported the incidence of squamous cell carcinoma in 66.6% and 53%, respectively.[4,12] Microscopy showed the presence of polygonal cells, arranged in nests and sheets, with pleomorphic nuclei, prominent nucleoli, and numerous mitosis.[13] Other malignant tumors were neuroblastoma, transitional cell carcinoma, and non-Hodgkin lymphoma with each incidence of 10%. Non-Hodgkin lymphoma was reported to be most common non-epithelial malignancy involving sinonasal region.[3] The relatively increased incidence of lymphoma of sinonasal region might not be unconnected with increased HIV infection, which is one of the predisposing factors to malignant lymphoma.[14,15] The incidence of neuroblastoma was 8.33%.[5] Similar incidence was seen in our study. The presence of rossettes and prominent perivascular pallasidings in neuroblastoma with small and undifferentiating cells posessed by only short fibrils.[16] Transitional cell carcinoma is a rare histologic type among head-and-neck cancers, most of which are squamous cell carcinomas. This tumor comprises approximately 8% of carcinomas of the nasal cavity and paranasal sinus.[17]

CONCLUSION

From this study, we reached to an inference that benign neoplasm outnumbered the malignant ones but their clinical features overlap and it is difficult to differentiate it clinically. It gives only presumptive diagnosis. For definitive diagnosis, histopathology was considered to be gold standard for the proper management of patient and avoid unnecessary radical procedures.

REFERENCES

1. Zafar U, Khan N, Afroz N, Hasan SA. Clinicopathological study of non-neoplastic lesions of nasal cavity and paranasal sinuses. Indian J Pathol Microbiol 2008;51:26-9.
2. Somani S, Kamble P, Khadkear S. Mischievous presentation of nasal masses in rural areas. Asian J Ear Nose Throat 2004;2:9-17.
3. Khan N, Zafar U, Afroz N, Ahmad SS, Hasan SA. Masses of nasal cavity, paranasal sinuses and nasopharynx: A clinicopathological study. Indian J Otolaryngol Head Neck Surg 2006;58:259-63.
4. Kulkarni AM, Mudholkar VG, Acharya AS, Ramteke RV. Histopathological study of lesions of nose and paranasal sinuses. Indian J Otolaryngol Head Neck Surg 2012;64:275-9.
5. Humayun AH, Huq AH, Ahmed SM, Kamal MS, Khin UK, Bhattacharjee N. Clinicopathological study of sinonasal masses. Bangladesh J Otorhinolaryngol 2010;16:15-22.
6. Fu SY, Perzin H. Non epithelial tumors of the nasal cavity, paranasal sinus and nasopharynx: A clinicopathological study. Cancer 1974;33:1275-88.
7. Taneja HC, Singh AP. Inverted papilloma of nose and para nasal sinuses, a clinical study. Indian J Otolaryngol Head Neck Surg 1997;49:27-31.
8. Garg D, Mathur K. Clinico-pathological study of space occupying lesions of nasal cavity, paranasal sinuses and nasopharynx. J Clin Diagn Res 2014;8:42-8.
9. Swamy KV, Gowda BV. A clinical study of benign tumours of nose and paranasal sinuses. Indian J Otolaryngol Head Neck Surg 2004;56:265-8.
10. Stiller D, Kuttna K. Growth pattern of juvenile nasopharyngeal fibromas: A histological analysis on the basis of 40 cases. Allg Pathol 1988;134:409-22.

11. Lajja-Goldenberg D, Golz A, Fradis M, Martu D, Netzer A, Joachims HZ. Malignant tumours of nose and paranasal sinuses: A retrospective review of 291 cases. Ear Nose Throat J 2001;80:272-7.
12. Panchal L, Vaideeswar P, Khatpal D, Madiwale CV, Prabhat DP. Sinonasal epithelial tumours: A pathological study of 69 cases. J Postgrad Med 2005;1:30-4.
13. Raj JA, Sharmila PS, Shrivastava M, Mahantachar V, Rajaram T. Morphological spectrum of lesions in the sinonasal region. J Evol Med Dent Sci 2013;2:7175-86.
14. Dolcetti R, Boiocchi M, Gloghini A, Carbone A. Pathogenetic and histogenetic features of HIV-associated hodgkin's disease. Eur J Cancer 2001;37:1276-87.
15. Clarke CA, Glaser SL. Epidemiologic trends in HIV-associated lymphomas. Curr Opin Oncol 2001;13:354-9.
16. Kadish S, Goodman M, Wang CC. Olfactory neuroblastoma, a clinical analysis of 17 cases. Cancer 1976;37:1571-76.
17. Robin P, Powell DJ, Stansbie JM. Carcinoma of the nasal cavity and paranasal sinuses: Incidence and presentation of different histologic types. Clin Otolaryngol Allied Sci 1979;4:431-56.

How to cite this Article: Arti, Kaul P, Kishore K, Manhas P, Pooja. Neoplastic masses of nasal cavity, paranasal sinuses, and nasopharynx: A clinicopathological study. Asian Pac. J. Health Sci., 2018; 5(1):9-12.

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