

Prevalence of Benign and Malignant Lesions in the Head Region: An Observational Study

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ABSTRACT

Objective: The objective of this study was to evaluate the frequency of head benign and malignant lesions with regard to age group, sex, site and type of lesion and clinical variety in a tertiary care hospital in Lahore.

Methodology:

Basic research design: An observational cross-sectional study, included collection and analysis of histopathological data over the last 4 years i.e. 2016-2019. Test of significance chi-square was done for data analysis in IBM SPSS v17.

Clinical setting: Pathology Departments of Sheikh Zayed Hospital (tertiary care hospital).

Results: Sample included a total of 952 patient records in this study, with 587 (61.7%) males and 365 (38.3%) females. There were 514 cases of the head region and 438 cases of the neck region. Out of 514 total head region cases, 66 were malignant and 458 were benign. Participants were divided into age groups (1-18, 19-35, 36-50, 51-70, 70+) years respectively.

The prevalence of benign cancers in head region was calculated in percentages according to which most patients were of nasal polyp at 26.3%, pleomorphic adenoma were 3.4%, with fibro-epithelial polyp were 9.5%. In the malignant category though Squamous cell carcinoma (SCC) was the most prevalent malignant lesion with highest frequency recorded in tongue region were 4.0%, rest with SCC nose were 0.6%, with SCC soft palate were 2.1%.

The results of the chi-square revealed that there was a significant difference found with regards to the prevalence of various benign lesions in the head region between males ($X^2 = 1003.041$, $P > .001$) and females ($X^2 = 593.937$, $P > .001$).

In addition, the difference among males and females was found statistically significant with regards to the prevalence of different types of malignant tumors in head region (for males, $X^2 = 238.447$, $P > .001$, for females, $X^2 = 112.641$, $P > .001$).

With regards to the age groups the prevalence of different types of benign cancers was found to be statistically significant at head region ($X^2 = 140.500$, $P > .001$), however there was a non-significant difference between the age-wise prevalence of different types of malignant cancers of head region ($X^2 = 44.702$, $P = .281$).

Conclusion: A reappraisal of neoplastic lesions of this important anatomical region in this study highlight the wide spectrum of tumors encountered along with its relative frequency. Squamous cell carcinoma constitutes the highest percentage of all the malignancies in the head region. Though head malignancies are a serious concern, good awareness, education, and early diagnosis can reduce their incidence.

INTRODUCTION

There are a number of various benign and malignant lesions that can arise within the anatomic region of head. Depending on various geographical locations, environmental influences and role of known and unknown etiological influences, the frequency of various lesions of this region varies in different parts of the world. (1)

It was estimated that there were 18.1 million new cases and 9.6 million cancer related deaths worldwide in 2018. (2) These malignant tumors represent significant diagnostic and therapeutic challenges. (3) These head and neck tumors account for approximately 5.7% of all body tumors in the USA. Almost double this figure has been reported from Middle East where the incidence of head and neck tumors ranges between 12.2 to 18.4% of the entire body tumors. (4)

In United States of America (USA), cancers of the oral cavity and oropharynx constitute 3% of all the malignancies in men and 2% in women. The estimated number of new cases in US, 2013 is 41,380 for oral cavity and pharynx cancer, 13,590 for tongue cancer and 11,400 for mouth cancer. In 2012, an estimated 26,064 (1.6%) new cases were diagnosed of lip and oral cavity cancer. (5)

Oral Cancer is the most common type of cancer in South Asian Countries like India, Sri Lanka, Pakistan and Bangladesh and contributes nearly one-fourth of all new cases of cancer. (6) In our country reports from south and north of country quote varying prevalence of head and neck tumors for e.g. in Karachi a high incidence of basal cell carcinoma (BCC) was reported in a study, with the most common site being the nose. (7) So far, no study about head and neck region tumor has come up from Lahore.

Where benign lesions are concerned, the global data on incidence is scanty compared to the malignant lesions. In the lip region the commonest type of benign lesion were hemangiomas (8) and in the salivary glands parotid gland being the most common site and pleomorphic adenoma the most common benign lesion (9).

Also, in the benign category, there are inflammatory lesions that are usually secondary to local or systemic infections. (10) FNA of head and neck masses is a useful tool in separating inflammatory lesions from cystic and neoplastic lesions with good certainty, reactive lymphoid hyperplasia and nonspecific lymphadenitis was reported 33% in a seven-year retrospective study of Saudi Arabia out of the head and neck masses biopsied. (11)

No such data has been collected for Pakistan.

The objective of this observational study was to record the prevalence of benign and malignant lesions of head region in correlation to age group, sex, site, type, and the histopathological diagnosis of lesion (proforma attached) over a period of the past four years (2016 to 2019).

METHODOLOGY

An observational study was carried out at the Pathology Department of Sheikh Zayed Hospital, Lahore with the approval of IRB of this institute. The Histopathology lab of this institute maintain an up-to-date computerized records and clinical history records of all biopsy specimens received at this institute.

Study Design- Observational, cross-sectional study

Sampling technique- Non-probability convenience sampling

Data Collection: The data was retrieved from January, 2016 to December, 2019 and all the benign and malignant lesions of neck region were recorded. Information about the age, sex, anatomical site and histopathological diagnosis of lesion were recorded along with the biopsy reports.

Study Setting

- Pathology Department of Sheikh Zayed Hospital, Lahore.

Duration of Study: Study was completed in the 6 months following the approval of synopsis from the IRB.

Inclusion criteria: The inclusion criteria for the data collection is set at inclusion of patients of all ages, data of each patient having a single lesion (either benign or malignant) in the head or neck region only, will be recorded.

Exclusion criteria: Head and neck lesions or tissue with normal histology and lesions with no specific pathology were excluded from the study.

Data was collected and entered in data analyzing software IBM SPSS v17. The relative frequencies of various histological categories of the benign lesions were calculated and further analyzed individually as well as in correlation to age and gender along with their significant values. The statistical significance was evaluated by using the chi-square test and the P values derived.

Ethical Considerations: There are no ethical concerns for this observational study.

RESULTS

There were a total of 952 patient records in this study, with 587 (61.7%) males and 365 (38.3%) females. There were 514 cases of the head region and 438 cases of the neck region. Out of 514 total head region cases, 66 were malignant and 458 were benign. Out of total 438 neck cases, 138 were of malignant nature and 300 were benign. Data for neck lesions was excluded from the study. Participants were divided into age groups (1-18, 19-35, 36-50, 51-70, 70+) years respectively.

The prevalence of benign cancers in head region was calculated in percentages according to which most patients were of nasal polyp at 26.3%, pleomorphic adenoma were 3.4%, with fibro-epithelial polyp were 9.5%, with Cholesteatoma were 3.6%, with Papilloma were 3.8%, with Granuloma were 5.0%. Schwannoma + Glioma were 5.0%, with Sebaceous Cyst were 10.3%, Spindle Cell Lesion were 0.6, with Vascular Lesion were 3.1%, with Reactive Hyperplasia were 1.9%, with Mucosal Cyst were 2.5%. The least frequent lesions were osteoma with 0.2%, with Lipoma were 0.2%, and with Osteosclerosis were 0.2%. (Table 1) In the inflammatory lesions' category, most frequent were abscess cases at 5.0%, seborrheic keratosis were 1.9%, Sialolith 2.1%, lymphadenitis were 0.8, and lowest frequency of meningitis at 0.2%. (Table 1)

Prevalence of malignant tumors among the participants of the study in head region was calculated. Squamous cell carcinoma (SCC) was the most prevalent malignant lesion with highest frequency recorded in tongue region were 4.0%, rest with SCC nose were 0.6%, with SCC soft palate were 2.1%, with SCC ear were 0.4%, with SCC lip were 0.6%, least found was nasopharyngeal carcinoma (a type of SCC) were 0.2%, patients with glioblastoma multiform were 0.8%, with adenocarcinoma were 0.8%, with Melanoma were 0.2% and with basal Cell Carcinoma were 3.1%. (Table 1)

The results of the chi-square revealed that there was a significant difference found with regards to the prevalence of various benign lesions in the head region between males ($X^2 = 1003.041, P > .001$) and females ($X^2 = 593.937, P > .001$). In the eye, in males, 75% eye lesions were found with the most common being fibro-epithelial polyp (50%) whereas in females, only sebaceous cyst (11.8%). At tongue region, among males, 15.4% cases were of fibro-epithelial polyp, again being the most common type at this region, whereas among females, equal cases were found of fibro-epithelial polyp, papilloma, abscess, seborrheic keratosis and mucosal cysts i.e. 9.1%. The lesions at salivary glands region among males was categorized as Pleomorphic

adenoma (45.8%), also being the most common. Among females the percentage of most common lesion of salivary glands was pleomorphic adenoma (29.4%). In males, 23.1% cancer cases at lip region were granuloma whereas in females, 63.6% were fibro-epithelial polyps. At nose region, among males, 78.9% cases were of nasal polyp whereas among females, 61.3% cases were of nasal polyp among others. (Table 2)

Table 1| Occurrence of different types of benign and malignant lesions in head region

		Frequency (n)	Percentage (%)
Benign	Pleomorphic Adenoma	18	4
	Cholesteatoma	19	3.6
	Papilloma	20	3.8
	Granuloma	26	5
	Schwannoma + Glioma	26	5
	Nasal Polyp	138	26.3
	Fibro-epithelial Polyp	50	9.5
	Osteosclerosis	1	0.2
	Spindle Cell Lesion	3	0.6
	Vascular Lesion	16	3.1
	Mucosal Cyst	13	2.5
	Sebaceous Cyst	54	10.3
	Reactive Hyperplasia	10	1.9
	Lipoma	1	0.2
Osteoma	1	0.2	
Inflammatory	Seborrheic Keratosis	10	1.9
	Meningitis	1	0.2
	Sialolith	11	2.1
	Lymphadenitis	4	0.8
	Abscess	26	5
Malignant	Glioblastoma Multiform	4	0.8
	Adenocarcinoma	4	0.8
	SCC Tongue	21	4
	SCC Nose	3	0.6
	SCC Soft Plate	11	2.1
	SCC Ear	2	0.4
	SCC Lip	3	0.6
	Nasopharyngeal Carcinoma	1	0.2
	Melanoma	1	0.2
	Basal Cell Carcinoma	16	3.1
	Total	514	100

The prevalence of lesions at sinuses region among males was categorized as nasal polyp (23.8%) being most common. Among females the percentage of sinus lesions was nasal polyp (38.5%). At Ear region, among males, 37.5% cases were of fibro-epithelial polyp, whereas among females, 35.7% cases were of cholesteatoma among other kinds of benign lesions. At scalp region in males, 53.2% benign lesions were sebaceous cysts, whereas in females, 63.6% cases were of sebaceous cysts.

The prevalence of benign lesions at soft palate region among males was were found to be equal for fibro-epithelial polyp (20.0%), Granuloma (20.0%), and papilloma (20.0%), among females this percentage of spindle cell lesions was 40.0%. (Table 2)

At the buccal mucosa, among males, fibro-epithelial polyp cases were 15%, in females, the occurrence of fibro-epithelial polyp was 17.3%. At gingival region among males equal frequencies of papilloma (33.3%), reactive hyperplasia (33.3%), and vascular lesions (33.3%) was found. Among females this percentage at gingiva was fibro-epithelial polyps (50.0%), and mucosal cysts (50.0%). At brain region the occurrence of benign cancers among males were of four types and Schwannoma and Glioma (73.3%) were most common, whereas in females, fibro-

epithelial polyps cases were 33.3% and Schwannoma and Glioma cases were 33.3% as well among all the patients came to the hospital. (Table 2)

The difference among males and females was found statistically significant with regards to the prevalence of different types of malignant tumors in head region (for males, $X^2 = 238.447$, $P > .001$, for females, $X^2 = 112.641$, $P > .001$). Among males, only patients with basal cell carcinoma were found, (25%), at eye region whereas among females, no cancer case was found. At tongue region, SCC cases were 34.6% whereas 3.0% cases of SCC were reported in females. Among males, squamous cell carcinoma under salivary gland cancer prevails in 45.8% patients and no salivary gland cancer cases were found in females. 2.6% cases of squamous cell carcinoma at lip region were found in male whereas no patient with lip cancer under malignant cancer category was found for females. At nose region, 6.4 % squamous cell carcinoma cases were reported among males. Moreover, adenocarcinoma and nasopharyngeal carcinoma cases among males were 0.9% each at nose region whereas no female case was found of these types. Among males, basal cell carcinoma was found in 1.8% cases whereas in females, the percentage was 8.1%. At sinuses region, only female cases with adenocarcinoma (7.7%) were found. Female cases with squamous cell carcinoma (11.8%) and basal cell carcinoma (11.8%) at ear region was found. At scalp region, basal cell carcinoma (4.3%) and adenocarcinoma (2.1%) cases among males were found whereas among females, adenocarcinoma (27.3%) cases and basal cell carcinoma (6.1%) were found. Among males, at soft palate region, melanoma (20%) and basal cell carcinoma (20%) cases were found whereas among

females, Glioblastoma Multiform (20%) and Squamous cell carcinoma (15.4%) cases were found. Glioblastoma Multiform (11.8%) cases were found among females at buccal mucosa. At brain region, 3.3% basal cell carcinoma cases were found among males whereas 16.7% Glioblastoma Multiform cases were found in females. (Table 3)

With regards to the age groups the prevalence of different types of benign cancers was found to be statistically significant at head region ($X^2 = 140.500$, $P > .001$). Pleomorphic Adenoma cases were found in three age groups i-e., group 2 with group 3 with age ranges from 36-50 years (4.8%) having the highest frequency. Nasal polyp cases were found in all age groups with group 2 being highest frequency with age ranges from 19-35years (33.7%). Fibro-epithelial polyp cases were found in all age groups with highest frequency in group 1 with age ranges from 1-18years (22.0%) Cholesteatoma cases were found in three age groups with highest frequency in group 2 with age ranges from 19-35years (6.4%). Lymphadenitis cases were found in three age groups with highest frequency in group 3 with age ranges from 36-50 years (1.4%). Papilloma cases were found in all age groups with highest frequency in group 3 with age ranges from 36-50 years (4.8%). Granuloma cases were found in all age groups with highest frequency in group 5 with age ranges from 70+years (12.0%). Schwannoma & Glioma cases found in four age groups with highest frequency in group 4 with age ranges from 51-70 years (7.5%). Sialolith cases found in four age groups with highest frequency in group 3 with age ranges from 36-50 years (2.7%).

Table 2: Occurrence of different types of benign lesions in head region

Gender	Type of Benign lesion	Head Region (%)												
		Eye	Tongue	Salivary glands	Lip	Nose	Sinuses	Ear	Scalp	Soft palate	Buccal mucosa	Gingiva	Brain	
Male	Pleomorphic adenoma	-	-	45.8	-	-	-	4.2	-	-	5.0	-	-	
	Nasal polyp	-	-	-	-	78.9	23.8	-	-	-	-	-	-	
	Fibro-epithelial polyp	50.0	15.4	-	7.7	3.5	9.5	37.5	6.4	20.0	15.0	-	3.3	
	Cholesteatoma	-	-	-	-	0.9	14.3	25.0	2.1	-	-	-	-	
	Lymphadenitis	-	-	4.2	7.7	-	-	4.2	-	-	-	-	-	
	Papilloma	-	7.7	-	-	0.9	4.8	4.2	6.4	20.0	-	33.3	-	
	Granuloma	-	3.8	-	23.1	3.5	19.0	-	2.1	20.0	5.0	-	-	
	Schwannoma + Glioma	-	-	-	-	0.9	-	-	2.1	-	-	-	73.3	
	Sialolith	-	-	29.2	-	-	-	-	-	-	-	-	-	
	Sebaceous cyst	25.0	-	-	-	-	-	4.2	53.2	-	10.0	-	-	
	Osteoma	-	-	-	-	-	-	-	2.1	-	-	-	-	
	Abscess	-	7.7	4.2	7.7	2.6	14.3	4.2	8.5	-	10.0	-	6.7	
	Seborrhic keratosis	-	3.8	-	-	-	-	4.2	2.1	-	5.0	-	-	
	Reactive hyperplasia	-	-	4.2	-	0.9	4.8	-	2.1	-	-	33.3	-	
	Lipoma	-	3.8	-	-	-	-	-	-	-	-	-	-	
	Vascular lesion	-	3.8	-	15.4	-	-	4.2	4.3	-	10.0	33.3	-	
	Mucosal cyst	-	-	-	15.4	2.6	-	-	-	-	5.0	-	-	
	Meningitis	-	-	-	-	-	-	-	-	-	-	-	3.3	
	Total	75.0	46.2	87.5	76.9	94.7	90.5	91.7	91.5	60.0	65.0	99.9	86.7	
	$X^2 = 1003.041, P > .001$													
	Female	Pleomorphic adenoma	-	-	29.4	-	-	-	-	-	-	-	-	-
nasal polyp		-	-	-	-	61.3	38.5	-	-	-	-	-	-	
Fibro-epithelial polyp		-	9.1	5.9	63.6	4.8	-	7.1	3.0	-	17.6	50.0	33.3	
cholesteatoma		-	-	-	-	-	23.1	35.7	-	-	-	-	-	
Lymphadenitis		-	-	5.9	-	-	-	-	-	-	-	-	-	
papilloma		-	9.1	-	9.1	9.7	-	-	3.0	-	5.9	-	-	
granuloma		-	-	11.8	9.1	3.2	15.4	-	6.1	-	11.8	-	-	
Schwannoma + glioma		-	-	-	-	-	-	-	-	-	-	-	33.3	
Sialolith		-	-	23.5	-	-	-	-	-	-	-	-	-	
Sebaceous cyst		11.8	-	-	-	-	-	-	63.6	-	11.8	-	-	
Abscess		-	9.1	5.9	-	4.8	-	7.1	-	-	5.9	-	-	
Seborrhic keratosis		-	9.1	-	-	3.2	-	14.3	3.0	-	-	-	-	
Reactive hyperplasia		-	-	-	-	1.6	-	-	3.0	20.0	11.8	-	-	
Osteosclerosis		-	-	-	-	-	-	7.1	-	-	-	-	-	
spindle cell lesion		-	-	-	-	-	7.7	-	-	40.0	-	-	-	
vascular lesion		-	-	-	-	1.6	-	14.3	12.1	-	-	-	-	
mucosal cyst		-	9.1	11.8	9.1	-	7.7	-	-	-	5.9	50.0	-	
Total	11.8	45.5	94.1	90.9	90.3	92.3	85.7	93.9	60.0	70.6	0.0	66.7		
$X^2 = 593.937, P > .001$														

Table 3| Occurrence of different types of malignant tumors in head region

Gender	Type of Malignant cancers	Head Region (%)											
		Eye	Tongue	Salivary Glands	Lip	Nose	Sinuses	Ear	Scalp	Soft Palate	Buccal Mucosa	Gingiva	Brain
Male	Adenocarcinoma	-	-	-	-	0.9	-	-	2.1	-	-	-	3.3
	Squamous Cell Carcinoma	-	34.6	45.8	2.6	6.4	-	-	-	-	-	-	-
	Nasopharyngeal Carcinoma	-	-	-	-	0.9	-	-	-	-	-	-	-
	Melanoma	-	-	-	-	-	-	-	-	20.0	-	-	-
	Basal Cell Carcinoma	25.0	-	-	-	1.8	-	-	4.3	20.0	-	-	-
	Total	25	34.6	45.8	2.6	10	0.0	0.0	12.8	40	0.0	0.0	3.3
$X^2 = 238.447, P > .001$													
Female	Glioblastoma Multiform	-	-	-	-	-	-	-	-	20.0	11.8	-	16.7
	Adenocarcinoma	-	-	-	-	-	7.7	-	27.3	-	-	-	-
	Squamous Cell Carcinoma	-	3.0	-	-	-	-	11.8	-	15.4	-	-	-
	Basal Cell Carcinoma	-	-	-	-	8.1	-	11.8	6.1	-	-	-	-
	Total	0.0	3.0	0.0	0.0	8.1	7.7	23.6	36.4	35.4	11.8	0.0	16.4
$X^2 = 112.641, P > .001$													

Sebaceous cyst cases were found in all age groups with highest frequency in group 1 with age ranges from 1-18years (13.6%). Osteoma cases were found in only one age groups i.e., group 2 with age ranges from 19-35years (0.5%). Abscess cases were found in all age groups with highest frequency in group 3 with age ranges from 36-50 years (6.2%). Seborrheic Keratosis cases were found in four age groups with highest frequency in group 5 with age ranges from 70+ years (4.0%). Reactive Hyperplasia cases were found in four age groups with highest frequency in group 5 with age ranges from 70+years (4.0%). Lipoma cases were found in only one age groups i.e., group 4 with age ranges from 51-70 years (0.9%). Osteosclerosis cases were found in single age groups i.e., group 2 with age ranges from 19-35years (0.5%). Spindle cell lesions cases were found in three age groups with highest frequency in group 4 with age ranges from 51-70 years (0.9%). Cases of vascular lesions were found in four age groups with highest frequency in group 1 with age ranges from 1-18years (5.1%). Mucosal cysts cases were found in four age groups with highest frequency in group 1 with age ranges from 1-18years (5.1%). Meningitis cases were found in single age group i.e., group 4 with age ranges from 51-70 years (0.9%). (Table 4)

The results of chi-square test revealed a non-significant difference between the age-wise prevalence of different types of malignant cancers of head region ($X^2 = 44.702, P = .281$). Glioblastoma multiform cases were found in four age groups with highest frequency in group 5 with age ranges from 70+years (4.0%). Adenocarcinoma cases were found in two age groups with highest frequency in group 1 with age ranges from 1-18years (1.7%). Squamous cell carcinoma (SCC), at tongue region, cases were found in all age groups with highest frequency in group 4 with age ranges from 51-70 years (5.6%). At nose region, SCC cases were found in three age groups with highest frequency in group 5 with age ranges from 70+years (4.0%). SCC of soft palate cases were found in four age groups with highest frequency in group 1 with age ranges from 1-18years (3.4%). SCC of ear were found in all age groups with highest frequency in group 3 with age ranges from 36-50 years (0.7%). SCC of lip cases were found in single age group i.e., group 2 with age ranges from 19-35years (1.6%). Nasopharyngeal carcinoma cases were found in single age group i.e., group 3 with age ranges from 36-50 years (0.7%). Melanoma cases were found in single age group i.e., group 2 with age ranges from 19-35years (0.5%). Basal cell carcinoma cases were found in four age groups with highest frequency in group 5 with age ranges from 70+years (12.0%). (Table 4)

Table 4| Age-wise Prevalence of Different Malignant Cancer Types of Head Region

Type of Malignant Cancer	Age (%)				
	1-18	19-35	36-50	51-70	70+
Glioblastoma Multiform	1.7	0.5	0.7	-	4.0
Adenocarcinoma	1.7	1.6	-	-	-
SCC Tongue	3.4	4.3	2.7	5.6	4.0
SCC Nose	1.7	0.5	-	-	4.0
SCC Soft Plate	3.4	3.2	1.4	0.9	-
SCC Ear	-	0.5	0.7	-	-
SCC Lip	-	1.6	-	-	-
Nasopharyngeal Carcinoma	-	-	0.7	-	-
Melanoma	-	0.5	-	-	-
Basal Cell Carcinoma	-	1.6	4.8	2.8	12.0
Total	11.9	14.4	11.0	9.3	24.0
$X^2 = 44.702, P = 0.281$					

DISCUSSION

Head region involves a wide anatomic area. Our study included a variety of lesions that are present in this area. Knowledge about the type of lesion and their frequency aids in the management of the patients. The nature of lesion determines whether a patient can be managed conservatively or has to be subjected to a major surgical procedure and in case of a malignant lesion, whether chemotherapy or radiotherapy is required. Since FNAC has certain limitations and pitfalls, it decreases in diagnostic accuracy, making histopathological examination as the gold standard. (12) This variation in the distribution of cancers by head and neck sub-site can be seen according to the relative distribution of major risk factors. (13)

In the benign lesions of the head, nasal polyp were found to be the most common entity (26.3%), an Indian study of 2017 gave the most common non-neoplastic lesion of sino-nasal tract and nasopharynx as inflammatory polyp (76.15%). (14)

Squamous cell carcinoma (SCC) was the most frequent histological entity in our series comparable with the report of a staggering 60.6% out of the malignant lesions of the head region and 7.6% out of the total benign and malignant lesions of the head region. It is the 6th most common cancer worldwide. (15) SCC on intra oral sites such as tongue and soft palate were recorded in our study as well, for oral cancers annual estimated incidence is around 275,000, two-thirds of these cases occurring in developing countries. (16) High incidence rates for oral cancer (excluding lip) are found in the South and Southeast Asia (e.g. Sri Lanka, India,

Pakistan and Taiwan), parts of Western (e.g. France) and Eastern Europe (e.g. Hungary, Slovakia and Slovenia), parts of Latin America and the Caribbean (e.g. Brazil, Uruguay and Puerto Rico) and in Pacific region. Highest incidence rates for lip cancers are reported in white populations in Canada and Australia. (17) Compared with other cancer types, nasopharyngeal carcinoma is relatively uncommon worldwide, (18) also reflected in our data (0.2%) out of the head lesions was recorded.

Another malignancy, basal cell carcinoma (BCC) is one of the most common human cancer worldwide and continuing to increase in incidence, (19) occurs in an estimated 2 million Americans annually (20) Age is an independent risk factor for BCC, the incidence rate doubles from 40 to 70 years of age (21). In our sample, however, the incidence increased from 4.8% (35-50 years) to 12.0% (70+ years).

An Indian study of 2017 gives the incidence of benign salivary gland tumors as 54% with the most commonly involved benign lesion being pleomorphic adenoma (44%). They also noticed a predilection for males being affected by pleomorphic adenoma in 76.7% such cases in similarity with our 45.8% incidence recorded in our data, and a lower percentage in females (32.5%) (22) with, 29.4% in our data. In a German study, Warthin's tumors were the most common benign lesions, found in (42.4%) parotid glands followed by pleomorphic adenomas found in (29.1%) of these surgical cases. (23)

There are certain limitations if we interpret data from two institutions. This data may reflect the specific patient population reporting to the hospital and not the community as a whole, for which a wider survey is required.

There is a lack of a centralized tumor registry in our country is a major reason for lack of precise statistical data about prevalence and incidence of cancers. However, regional and institution-based registry system from different centers are providing scattered but useful information regarding the prevalence of various cancers.

CONCLUSION

A reappraisal of neoplastic lesions of this important anatomical region in this study highlight the wide spectrum of tumors encountered along with its relative frequency. Squamous cell carcinoma constitutes the highest percentage of all the malignancies in the head region. Though head malignancies are a serious concern, good awareness, education, and early diagnosis can reduce their incidence.

There is a variation in the prevalence of such lesions in the north, south and central parts of the country and need to be studied to further elaborate the role of different etiological factors operating in these regions, reflecting the possibility of prevention by avoiding the putative causative factors. A close collaboration between different centers in province and at inter-provincial level are highly desirable for an authentic and meaningful data collection and analysis.

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