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RESEARCH ARTICLE

Prevalence of Head and Neck Squamous Cell Carcinoma (HNSCC) in our population: The clinic-pathological and morphological description of 198 cases.

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Abstract

Introduction: Head and Neck squamous cell carcinoma is the sixth commonest cancer in the world. Among the Head and neck squamous cell carcinoma, carcinoma of oral cavity predominates due to high prevalence of tobacco chewing in India. The objective of the study was aimed at analyzing the site, age, sex distribution of HNSCC in our population. This study also addressed various morphological and pathological features of the tumour which are associated with recurrence and overall prognosis.

Patients and Methods: We studied 198 cases of Head and Neck Squamous cell carcinoma submitted in the department of Pathology, SGRDIMSAR, Amritsar (Punjab) over the period of two years Jan 2013-Dec2014. Age, sex, clinical evaluation, lymph node involvement and histopathological findings were recorded.

Results: Of the 198 patients, 164(83%) were male and 34(17%) were female. The age group varied from 25-85yrs. Oral cavity squamous cell carcinoma outnumbered any other site constituting 135 cases out of total 198 cases(68.2%) followed by larynx 33/198(16.7%). In the oral cavity, tongue was the commonest site involved observed in 70 cases(51.8%) followed by buccal mucosa in 23(17%) cases of total oral cancer cases. 46.2% of the patients belonged to the 31-50yrs of age group. Moderately differentiated squamous cell carcinoma was most prevalent (160/198: 81%) followed by well differentiated(33/198: 16.7%). Only five cases were of poorly differentiated squamous cell carcinoma. In seventy seven cases, lymph nodes were recovered. 41/77 cases showed the presence of secondary carcinomatous deposits.

Conclusion: The present study was aimed at analyzing the site, age, sex distribution of Head and neck squamous cell carcinoma in our population. This study also addressed various morphological and pathological features of the tumour which are associated with recurrence and overall prognosis.

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INTRODUCTION

Head and neck squamous cell carcinoma (HNSCC) is the sixth commonest cancer in the world.¹ It develops from the mucosal linings of the upper aero-digestive tract, comprising 1) the nasal cavity and paranasal sinuses 2) the nasopharynx 3) the hypopharynx, larynx, trachea 4) the oral cavity and oropharynx. 5 lakh new cases per year are diagnosed worldwide.¹ In India alone, 2.5 lakhs new patients are diagnosed of whom about three-fourths are in an advanced stage.² Among the HNSCCs, carcinoma of oral cavity and oropharynx predominates in our population. The prognosis of these patients depends upon various factors like age of patient, size of tumour, site of tumour, thickness of tumour, degree of differentiation and spread into regional lymph nodes.^{3,4} The spectrum of HNSCC varies from place to place within our country. The study of significant variations regarding prevalence and site distribution of this cancer gives clue to etiological factors responsible for these variations. The present study is aimed at identifying the prevalence of HNSCC at Tertiary care Cancer Hospital SGRDIMSAR, Amritsar (Punjab). Two years data from Jan 2013-Dec 2014 was collected in the context of age, sex, site involved, histopathological findings and lymph node involvement in our population.

Patients and Methods:

Out of total biopsies of Head and Neck region submitted in the department of Pathology, SGRDIMSAR, Amritsar (Punjab) over the period of two years Jan 2013-Dec 2014 one hundred and ninety eight cases of Squamous Cell Carcinoma were included in the study. Age, sex, clinical evaluation, lymph node involvement and histopathological findings were recorded.

Results:

Of the 198 patients, 164(83%) were male and 34(17%) were female. The age group varied from 25-85yrs. Oral cavity squamous cell carcinoma outnumbered any other site constituting 135 cases out of total 198 cases(68.2%) followed by larynx 33/198(16.7%). Pharyngeal squamous cell carcinoma amounted for 28 cases(14.1%) and nasopharyngeal and nasal cavity only 2 cases.(Table 1).

In the oral cavity, tongue was the commonest site involved observed in 70 cases(51.8%) followed by buccal mucosa in 23(17%) cases of total oral cancer cases.(Table 2)

46.2% of the patients belonged to the 31-50yrs of age group. Males were affected more than four times as compared to female the ratio being 4.8:1. Males predominated in the carcinoma of all the regions.(Table 3)

Moderately differentiated squamous cell carcinoma was most prevalent (160/198: 81%) followed by well differentiated(33/198: 16.7%). Only five cases were of poorly differentiated squamous cell carcinoma. Total two cases of SCC of nasopharynx were poorly differentiated.(Table 4,5) (Fig 1,2)

In seventy seven cases, lymph nodes were recovered. 41/77 cases showed the presence of secondary carcinomatous deposits. All five poorly differentiated SCC had metastatic deposits. Only three well differentiated cases were associated with lymph node involvement.

DISCUSSION:

Head and neck is one of the commonest sites for squamous cell carcinoma in our country accounting for 23% of all cancers in males and 6% in females.⁵ Oral cavity is the most commonly involved site among Head and Neck squamous cell carcinoma worldwide and in India as well.^{3,4}

High prevalence of oral and oropharyngeal cancer in india is due to tobacco chewing, bidi smoking and drinking.⁶ In addition other factors responsible for the increased risk of oral and oropharyngeal cancer are low level of education, gender, dietary habits and poor oro-dental hygiene.⁷

Head and Neck squamous cell carcinoma is a significant cause of morbidity and mortality accounting for 2,71,000 deaths annually with mortality of 50%. Despite improvements in diagnosis and treatment the five year survival rate in such patient is 40-50%.¹ Such low survival rates have been accredited to advanced age and advanced clinical stage at presentation.²

Our study comprised of 198 patients out of which 83% were male and 17% were female. These findings are in concordance with the results of various previous studies conducted in India.^{8,9}

68.2% patients had cancer of oral cavity making it the commonest site among HNSCC correlating well with other studies.^{9,10} In the oral cavity the dominant site involved was tongue comprising 51.8% followed by buccal mucosa (17%) of total oral cancers cases. Similar results have been observed in studies conducted by Walkinson et al and Manjari et al where this percentage varied from 38-50%.^{10,11} While other studies revealed buccal mucosa as the commonest site in our country due to the use of chewable tobacco.^{8,9} Laryngeal SCC followed oral cancer in prevalence constituting 16.7% of total HNSCC which is consistent with other studies where it varied from 15-

27%.^{8,10} Pharyngeal SCC was 14.2% and least common was cancer of nasal cavity and nasopharynx as seen in other studies conducted in various parts of India.^{12,13}

Majority of cases belonged to age group 31-50yrs (46.2%) which is a decade earlier than the findings observed in other studies where the commonest age group was 41-60yrs.^{8,10}

One hundred and sixty patients out of 198 patients (81%) had moderately differentiated squamous cell carcinoma, whereas 33 patients (16.5%) had well differentiated and 5 patients (2.5%) had poorly differentiated squamous cell carcinoma. These results were similar to a few of the studies in the past.^{14,15} The degree of differentiation is considered as one of the important prognostic factor in Head and Neck cancers as poorly differentiated cancers have a greater propensity for metastasis to regional lymph nodes.^{14,16}

Forty one out of seventy seven cases where lymph nodes were recovered (53%) showed metastasis in lymph nodes. Out of these total forty one cases, 33 cases were moderately differentiated and only 3 cases were well differentiated. All the five poorly differentiated SCC cases had metastatic deposits in lymph nodes. In different studies on Indian population regional metastasis lymph nodes varied from 50-68%.^{6,17} The clinical stage at the time of presentation has been shown to be significantly related to overall prognosis, with the advanced stage of the disease carrying poor prognosis.¹¹

Interpretation of data from a single institution has its limitations as data reflects specific patient population reporting to the hospital and not the community as a whole. In our study increased incidence of HNSCC was seen in younger age group (31-50yrs), a decade earlier than previous studies. There is an urgent need for an appropriate education program regarding preventable causes like tobacco chewing, smoking and early diagnosis of precancerous and cancerous lesions.

Thus, the present study was aimed at analyzing the site, age, sex distribution of HNSCC in our population. This study also addressed various morphological and pathological features of the tumour which are associated with recurrence and overall prognosis. While primary prevention is the strategy for long term disease control, early detection and treatment have limited potential to improve mortality in the short term.

TABLES:

TABLE 1		
INCIDENCE OF MALIGNANCIES OF VARIOUS SITES		
SITE	No. Of Cases	Percentage of malignancies
Oral Cavity	135	68.2
Pharynx	28	14.2
Larynx	33	16.7
Nasal Cavity	02	1.0
Total	198	100

TABLE 2
INCIDENCE OF INVOLVEMENT OF VARIOUS SITES IN ORAL CAVITY

Site	No. Of Cases	Percentage of oral cavity malignancies
Upper Lip	02	1.5
Lower Lip	04	3.0
Buccal Mucosa	23	17.0
Tongue	70	51.8
Floor Of Mouth	05	3.4
Lower Alveolus	21	15.5
Upper Alveolus/Hard Palate	10	7.8
Total	135	100

TABLE 3
AGE AND SEX DISTRIBUTION OF VARIOUS MALIGNANCIES

Age Group	Oral Cavity		Pharynx		Larynx		Nasal Cavity		Total	Percentage
	M	F	M	F	M	F	M	F		
11-20	--	--	--	--	--	--	--	--	--	--
21-30	06	03	01	01	--	--	--	--	11	5.5
31-40	35	03	03	01	02	02	01	--	47	23.7
41-50	26	06	08	03	02	--	--	--	45	22.5
51-60	20	06	04	--	10	02	--	--	42	21.3
61-70	24	01	03	01	04	04	01	--	38	19.2
71-80	04	--	01	01	04	--	--	--	10	5.0
>80	--	01	01	--	03	--	--	--	05	2.8
Total	115	20	21	07	25	08	02	00	198	100

TABLE 4
HISTOLOGICAL DIFFERENTIATION OF TUMORS AT VARIOUS SUBSITES IN THE ORAL CAVITY

Subsite	Histological grade of differentiation (no of patients)		
	Well Differentiated	Moderately Differentiated	Poorly differentiated
Upper lip	--	02	--
Lower lip	--	04	--
Buccal Mucosa	03	20	--
Oral Tongue	14	55	01
Floor Of mouth	04	01	--
Lower alveolus	03	18	--
Hard Palate	02	08	--
Total	26	108	01

TABLE 5
HISTOLOGICAL DIFFERENTIATION OF TUMORS AT VARIOUS SUBSITES IN THE NASOPHARYNX, OROPHARYNX, LARYNX

Subsite	Histological grade of differentiation (n of patients)		
	Well Differentiated	Moderately Differentiated	Poorly Differentiated
Nasopharynx	--	--	02
Tonsil	01	--	--
Base of Tongue	--	04	--
Soft Palate	01	--	--
Posterior Pharyngeal Wall	--	21	01
Larynx	05	27	01
Total	07	52	04

Fig 1A: Section showing well differentiated neoplastic squamous cells along with presence of intracellular keratinization and many keratin pearls (H&E,100x)

Fig 1B: Section showing moderately differentiated neoplastic squamous cells and few keratin pearls (H&E,100x)

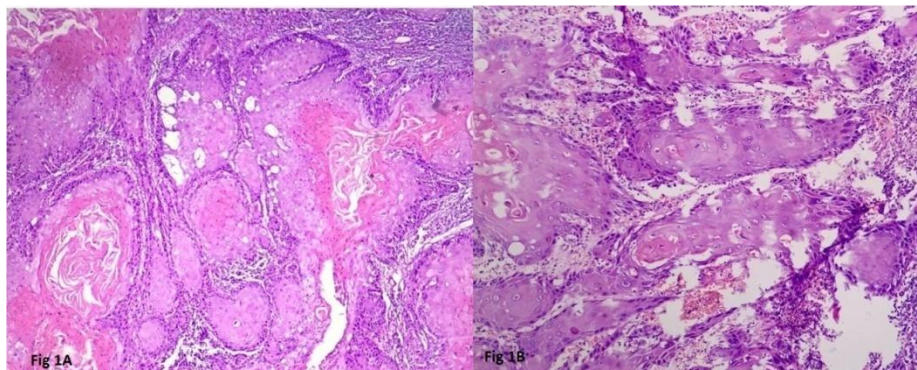
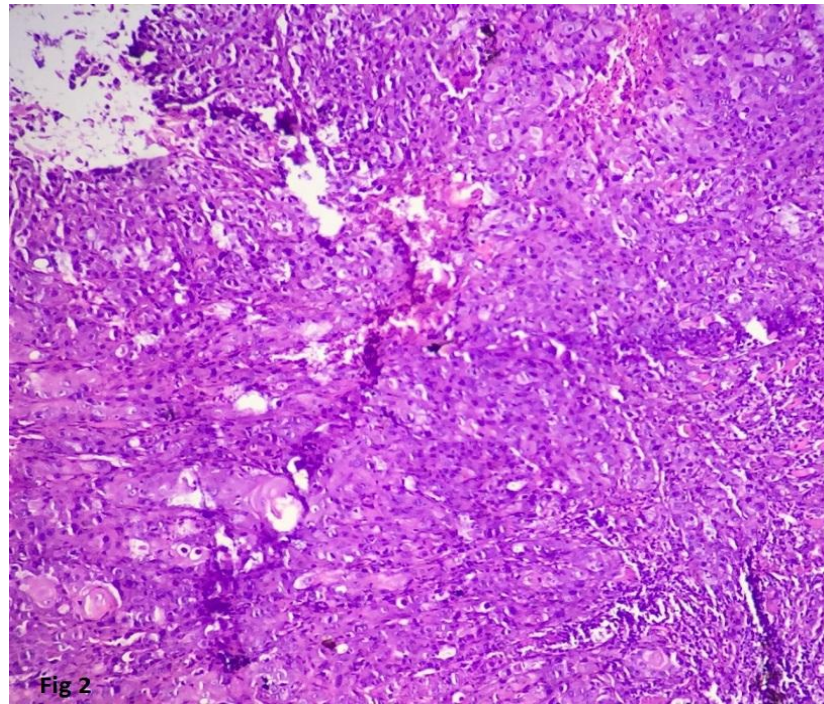


Fig 2: Section showing poorly differentiated neoplastic squamous cells with absence of keratinization. (H&E,100x)



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