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Original article

Epidemiological and clinico pathological study of oral cancers in a Tertiary care hospital.

Syam sundar.B,[a] Nageswara rao.R,[b] Md K Faheem[c]

[a]*Assistant professor, Department of pathology, santhiram medical college, Nandyal,India.*
[b]*professor, Department of pathology, santhiram medical college, Nandyal,India.*
[c]*Assistant professor, Department of pathology, S.V. medical college, Tirupati,India.*

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ABSTRACT

Aims:- To find out clinical and histological grading of Squamous cell carcinomas, age and sex wise study of oral Squamous cell carcinomas and the etiological factors in relation to carcinomas.Materials and methods:-The Present study for a period of 5 years from Dec 2006 to Dec 2011 was done in the department of pathology, Santhiram Teaching Hospital, Nandyal Kurnool(DT) ,Andhra Pradesh. Clinical data collected including the age, sex of the patient and intra oral site of cancer, defined clinical history of the patients were recorded and histopathology was performed using hematoxylin and eosin stain. All biopsies of biopsies of oral cancers (superficial & resected) of both sexes and all ages were included. Results:- A total of 331 oral mucosal biopsy reports were studied during the period (December 2006 to December 2011) ,among the 331 cases,328 were sqaumous cell carcinomas, reaming cases are salivary gland tumors. sqaumous cell carcinoma was the major histopathological version followed by tumor of salivary gland origin. Peak incidence of oral cancers seen in age groups (51-60yr) and (61-70yrs) and males are commonly affected than females. The most common clinical compliant was ulceration. Majority of cases showing with history of tobacco smoking.Histological grading was applied on each case and based on Broder's clasification to differentiation oral squmous cell carcinoma into well, Moderate, poor squamous cell carcinoma. More than 60% of oral sqaumous cell carcinomas were diagnosed as well differentiated sqaumous cell carcinoma. The buccal mucosa was most commonly affected site followed by the tongue. All the oral sqaumous cell carcinomas were taken for grading at the invasive tumor margin proposed by bryne.etal. Conclusion: - sqaumous cell carcinoma is the predominant type of oral cancer and buccal mucosa is the most commonest site of origin for these cancers. Microscopy is very essential to diagnose oral cancer in an elderly people and given awareness to the patients and to the public society.

1. Introduction

Oral cancer is a major public health issue, which is responsible for 3-10% of cancer mortality world wide. Oral cancer can be defined as a neoplasm involving the oral cavity which begin at the lip and ends at anterior pillar of fauces (1). In general neoplasm's are major causes of fear, morbidity, and mortality all over the world. Cancer is one of the five main causes of death in all societies (2). Oral cancer is one of the most debilitating and disfiguring of all malignancies. Complications often occur in the mouth either as a direct result of the malignancy of an unwanted effect of treatment. Oral cancer is the most common cancer world wide (3).Oral cancer is most common in India; as 4 in 10 of all cancers are oral cancers. Annually 130,000 people succumb to oral cancer in India which translates into approximately 14 deaths per hour. In comparison in US oral cancer represents approximately 13% of all cancers thereby translating into 30,000 new cases every year. It is a primarily a disease of epithelial origin. The most common intra oral malignancy is squamous cell carcinoma (4). Squamous cell carcinoma arising from the surface epithelium of oral cavity

* Corresponding Author : DR. B.syamsundar,
Paturu (po&vi), kovur (md),
Nellore (dt), A.P, India.
Email:-syam.byna@gmail.com
Ph .no:-09493517944

comprises over 90% of all malignant lesions. In the developing world the oral cavity is the fourth commonest site of carcinoma after lung stomach and liver in male while in females it is the fifth commonest cancer after cervix, breast, stomach and lung.(5) In the developed world it is regarded as one of the ten most common cancers. (6). Oral cancer makes the whole dental team with important obligations, challenges and a real opportunity to save lives. An estimated 378,500 new cases of intra oral cancers are diagnosed annually world wide (7). The high incidence reflects the prevalence of specific risk factors such as tobacco and alcohol use (8,9). The high incidence of Oral cancer is attributable largely to the habit of chewing betel nuts, tobacco, and pan a very common practice in South East Asia.. There is good evidence that tobaccos in all forms and alcohol use, aging are the major risk factors in the development of oral cancer (8,9). Although smoking tobacco offers a more pronounced risk of oral cancer combining tobacco and alcohol results in an increased cancer incidence many times, greater than the additive effect because of their synergistic action (10) The evidence that smokeless tobacco also causes oral cancer was confirmed recently the International Agencies for Research on cancer.(11). Epidemiological studies showed that the incidence of oral cancer varies considerably between different parts of the world with the highest levels in Indian sub continent and the lower ones in Western Europe and North America (12,13). In India where such practices are common, oral cancer represents up to 40% of all cancers, compared to just 4% in UK. Oral Cancers include cancers of lips, tongue, gums, floor of mouth, check mucosa, palate and other parts of mouth as per international classifications of disease (14). In the south eastern part of the Asian continent particularly in Indian (Nandyal, Kurnool District, Andhra Pradesh), Oral cancer is Significantly high mostly on the buccal and commissural mucosa and is considered as one of the most common cancers of the body; this is attributed directly to the use of especially unrefined topical tobacco and other carcinogenic stuff which are kept in the mouth for longer periods (15,16). According to the reports of WHO (17), Oral cancer is sixth most common cancer in world wide. The Most frequently affected sites of oral cancer in western countries are the ventrolateral aspects of the tongue and the floor of the mouth , which account for more than 50% of the cases (13,19). The lip is the most commonly affected site in some communities (13,19,20).43%of cancer deaths world wide are due to tobacco, unhealthy diet, physical inactivity and infections. (18).

Aims and objectives of the current study are to see the age, sex wise prevalence and to assess the clinical, histological patterns of oral cancers and to achieve and given awareness to the patients and to the society.

2. Materials and Methods

The present study for a period of 5 years from Dec 2006 to Dec2011 was done in the department of pathology, Santhiram Teaching Hospital, Nandyal, Kurnool (DT), Andhra Pradesh. A Clinical data collected including the age sex of patient, habits, intra oral sites of cancer, clinical presentation of the patients were recorded. All biopsies of oral cancers (superficial & resected) of both sexes and all ages were included. The Biopsy specimens were received in 10% formalin. After gross examination the tissues were processed for paraffin embedding under standardized conditions.The sections stained with Haemtoxylin and Eosin. Histological grading was applied on each case and based on Broder's classification to differentiate oral squmous cell carcinoma into well, Moderate, poor differentiated squamous cell carcinoma and oral squamous cell carcinomas were taken for grading at invasive tumor margin proposed by Byrne etal.

3.Results

The total number of 331 oral mucosal Biopsy reports were studied during the period (December 2006 to December 2011) . Among 331 cases, 328 cases were squamous cell carcinomas, remaining cases are salivary gland tumors.Squamous cell carcinoma was major histopathological version followed by tumor of salivary gland origin. Age & sex wise distribution of oral squamous carcinomas shown in Table1.The highest affected age group were those between 41 and 70 years patients ,at their fifth decade of life were most commonly affected 120cases (36.58%)and male to female Ratio 1.52: 1.That is 60.36% vs. 39.6%.Males are commonly affected then females. In regard to site and sex distribution of oral squamous cell carcinomas (Table 2) , the buccal mucosa was the most commonly affected site (52.7%) followed by the tongue and floor of mouth, hard palate , lip ,retro molar area respectively .Two Hundred and thirty two patients were above 50 years of age and 96 patients were less than 50 years of age . In regard to clinical presentation (Table3) chronic ulceration was most common clinical feature of patient at the time of presentation. In regard to habits (Table 4), majority of cases showing with history of Tobacco smoking .The Histological grading of squamous cell carcinomas (Table 5) revealed that the majority of the cases were well differentiated squamous cell carcinomas(62.19.%)Followed by moderately, porrly differentiated squamous cell carcinomas.

Table -1. Distribution of 328 oral squamous cell carcinomas according to age and sex

AGE	21-30	31-40	41-50	51-60	61-70	71-80	TOTAL
TOTAL	10	24	62	120	95	17	328
%	3.04	7.31	18.9	36.58	28.96	5.18	100
M	6	14	36	70	63	9	198
F	4	10	26	50	32	8	130
M:F	1.5:1	1.4:1	1.3:1	1.4:1	1.9:1	1.1:1	1.5:1

Table - 2. Site & Sex Distribution Of 328 Oral Squamous Cell Carcinomas

SIT	MALE	%from TOTAL	female	%from total	total	% from total
LIP	13	3.96	5	1.52	18	5.48
TONGUE	46	14.02	30	9.14	76	23.17
GINGIVA	1	0.3	0	0	1	0.3
BUCCAL MUCOSA	102	31.09	71	21.64	173	52.74
FLOOR OF MOUTH	12	3.65	8	2.43	20	6.09
RETROMOLAR	5	1.52	3	0.91	8	2.43
HARD PALATE	11	3.35	8	2.43	19	5.79
MAXILLARY ANTRUM	4	1.21	3	0.91	7	2.13
TONSIL	4	1.21	2	0.6	6	1.82

Table – 3. Clinical Presentation

Clinical Presentation	Number os Cases
ULCERATION	200
SWELLING	72
PAIN BURNING SENSATION IN ORAL CAVITY	42
BLEEDINIG	5
DYSPHASGIA	2
UNDEFINED IN PATIENT RECORDS	7
	328

TABLE - 4. Habbites

Habbites	NAMBER	PERCENT
TOBACCO SMOKING	203	61.89
ALCOHOL	58	6.7
ALCOHOL&TOBACCO SMOKING	22	17.68
PAN	23	7.01
TOBACCO & PAN	17	5.18
NO HABBITE	5	1.52
TOTAL	328	100

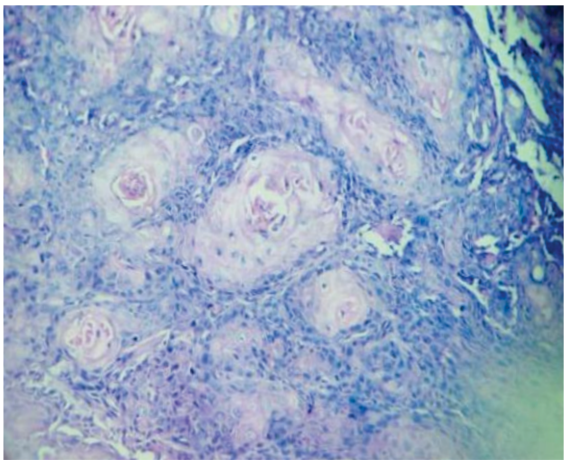
Table -5. Histological Grading Of Cases According To Broder's Classification

STATE OF DIFFERENTIATION	NAMBER	PERCENT
WELL DIFFERENTIATED	204	62.19
MODERATELY WELL DIFFERENTIATED	100	30.48
POORLY DIFFERENTIATED	24	7.31
TOTAL	328	

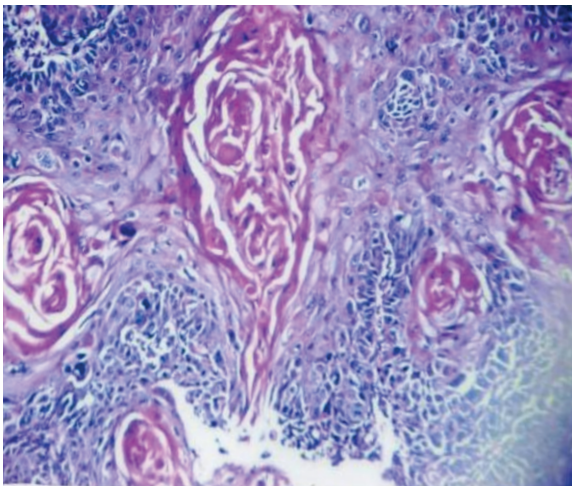
Carcinoma of Tongue - Lateral aspect of left side of tongue, presenting as an defined ulcerated, indurated lesion.

Carcinoma buccal mucosa - Ulceratve - Proliferative lesion with induration and infiltration of deeper tissue with extra oral abscess.

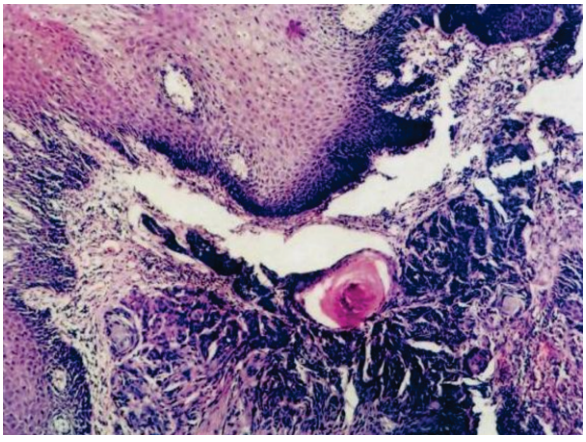
Well Differentiated squamous cell carcinoma - Low power (10x)



Well Differentiated squamous cell carcinoma - Tumor Cells and Keratan pearts HP (40x)



Moderately differentialted squamous cell carcinoma - Nest of squamous Neoplastic cells with keratin pearl with central keratinazation. LP (10x)



4. Discussion

Tumors arising from the surface epithelium of the Oral Cavity comprised an Interesting and important area of oral pathology. Most of the oral cavity tumors arise from the surface of squamous epithelium. Most of the epidemiological studies (21, 22,23,24) have implicated chewing and smoking tobacco as etiological factors. Squamous cell carcinoma formed the largest group. In the present study the peak incidence was observed in the 6th decade of life (50-59) years and was in correlation with the study of krolls and Hoffmann (1976) (25) odukoya etal (1986) (26).Squamous cell carcinoma is seen commonly in males (198) than in females were (130). The findings were consistent with the study of Miglani and Sidiq (1964) (27). In high risk countries such as Srilanka, India, Bangladesh, Pakistan, oral cancer is the most common cancer in men and may account for up to 30% of all new cases of cancer compared to 3% in the U.K and 6% in France (28). The risk of developing oral cancer increase with age (29). In this study ,70.7 % cases were above 50 years of age where as in U.K the majority of cases 86% occur in people aged 50 or above (30).Ulceration and swelling were most common complaints of the patients at the time of first presentation in the Hospital. The health education of the patients and elevation of the diagnostic standards of the general practitioners play an important role in the early detection of oral cancers particularly in the developing countries. In the present study 176 (40%) cases of the tumors were located on the buccal mucosa. It was frequently affected site followed by tongue 76% cases. The less frequent site was gingival 1% cases. This was consistent with Migalani and Sidiq (1964) (27) Jaiswal et.al (1981) (31) studies. The risk factor for oral cancers was found in majority of patients the with tobacco smoking. The finding was in correlation with observation Malawalla etal (1976) (32). According to broders grading of 206 cases were well differentiated squamous cell carcinoma, 101 cases were moderately differentiated squamous cell carcinoma and 24 cases were pcorely differentiated squamous cell carcinoma. These findings were consistent with study by krutchkoff et.al (1990) (33), Odukoya etal (1986) (26). The incidence of carcinoma of the buccal mucosa shown considerable variation in different parts of the world waldran charles (34) . The variation appearing to be related local habits and customs such as dipping snuff and chewing betal nut . In the present study (176) cases of squamous cell carinoma were arising from buccal mucosa, with high incidence compared to western studies.The therapeutic decision making i.e. TNM staging by histopathological grading of tumors has proven imperfect prognostic. Recently the invasive tumour grading by brynee etal, consists of five parameters like degree of keratinization nuclear pleomorphism, number of mitosis, pattern of invasion, lymph plasma cytic infiltration. Each of the entity has score of 1-.4 and the total score of all five parameters predicts the biological aggressiveness of the tumour.

Histological grading system (Bryne, etal)

Morphological features	1	2	3	4
1. Degree of keratinisation	highly,>50% of cells	moderate, 20-50% of cells	minimum 5-20%of cells	No 0-5%of
2. Nuclear pleomorphism	little,>75% Of mature cells	moderate, 50-75% mature cells	abundant 25-50% mature cells	extreme 0-25% mature cells
3. No of mitosis	0-1	2-3	4-5	>5
4. pattern of Invasion delimitated infiltrating border]	[Pushing well solid cords or infiltrating	[infiltrating groups spread or	small and wide cells(n>15)	marked single cells(n<15)
5. lymph plasma cytic Infiltration	marked	mod	mild	No.

In the present study out of 328squamous cell carcinoma 308 were either superficial Biopsies, of remaining 20 oral squamous cell carcinoma were selected for invasive tumour front grading thickening , comparison with good correlation with Bryne etal (1989)(35).

A total score greater than 10 points indicates poor prognosis. In the present study greater than 10 points were scored by 14 of tumors and 5-10 points by 6 tumors.

Histological diagnosis and assessment of the degree of the differentiation or grading of the lesion is the duty of the pathologist. The early diagnosis of Asymptomatic oral squamous cell carcinoma requires a high index of clinical suspicion. Early oral malignant lesions may not be identifical because of the clinician's failure to pay attention on possible intra anatomical changes.

6. Conslusion

Oral cancer deaths are due to tobacco use , unhealthy diets alcohol consumption and inactive life styles. The Incidence and mortality rates of oral cancer can be reduced by means of health promotion policies early detection and Health life styles. Counseling for simple life style changes and regular screening, bring down mortality of individual. Sqaumous cell carcinomas is the predominant type of oral cancer. Microscopy is very essential to diagnose oral cancer in an elderly people and given awareness to the patients and to the society.

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