Oral carcinoma -an aetiological study

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Abstract

Background*:** Oral carcinomas are malignant neoplasms that affect the structures or tissues of the mouth. Oral carcinoma comprises 2-3% of all new malignancies diagnosed in the united states, making it the 6th most common malignancy worldwide. The average 5 year survival rate of 50% has not changed significantly for the last five years despite recent advances in cancer diagnosis and therapy. Over 90% of all primary malignant tumors of the oral cavity is squmous cell carcinoma. This paper is an overview of the various etiological agents and risk factors of oral Cancer. ***Methods: This cross sectional study was conducted in the Department of Otolaryngology and Head Neck Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka Medical College Hospital (DMCH) and National Institute of Cancer Research and Hospital, Mohakhali, Dhaka and Sadar Hospital, Cox's Bazar with 65 patients from march, 2009 to September, 2009 and July 2013 to Dec, 2017. The patients were examined after admission both pre- and postoperatively. ***Results*:** Majority of the patients were at 6th decade and male female ratio is 5:4. Out of 65 patients 42 patients (65.61%) had smoking habit, 18 of which took more than 10 sticks/day. 48 patients (73.84%) took betel leaf with areca nut and slaked lime. 3 Patients gave the history of taking alcohol. 60% of the patients (18) were of middle class family. 11 patients had caries tooth with sharp teeth margin. ***Conclusion*:** Oral carcinoma is a common carcinoma. It is a disease of middle age and elderly people. Tobacco, betel quid, alcohol and sharp dental margins are the main aetiological factors.

Key words: Oral carcinoma, aetiology, risk factors, histopathology. ***J Cox Med coll 2018;4(1): 12-15***

Introduction

Oral carcinoma is the most common carcinoma in Asia, specially South Asian Countries like India, Bangladesh, Srilanka, Pakistan, Afghanistan and 6th most common carcinoma worldwide. In these high risk countries oral cancer accounts for about 30% of all new cases of cancer compared to 2% in UK and 8% in France[1]. Oral cancer is associated with mutation in genes that regulate cell growth and apoptosis leading to uncontrolled proliferation of cells, which occur due to the exposure of different aetiological factors.

Smoking- Chief risk factor for squamous cell carcinoma is smoking. The relationship between smoking and oral cancer has been established firmly by epidemiological studies[2,4]. The use of smokeless tobacco (tobacco consumed without combustion) has become prevalent all over the world. Smokeless tobacco is placed inside the oral cavity in contact with the mucous membrane where nicotine is absorbed to provide the desired effect.

Betel quid- Betel quid chewing with different ingredients is the most common habit in South East Asia especially in the Indian subcontinent. Betel quid (also referred to as Pan or Paan) usually contains betel leaf, areca nut, slaked lime with or without tobacco.

Considerable research has been focused in the recent past on carcinogenic, mutagenic and genotoxic potential of betel quid ingredients specially tobacco and areca nut[4].

Alcohol- It has been implicated in the development of oral cancer. Alcoholic beverage has been considered carcinogenic in tumors particularly of oral cavity, pharynx, larynx, oesophagus and liver[6]. Alcohol increases the permeability of oral mucusa producing an alteration in morphologies characterized by epithelial atrophy which in turn leads to easier penetration of carcinogen in to the oral mucosa. Chronic alcohol intake also leads to suppression of immune system by affecting liver and nutritional status[7].

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Diet and nutrition

The relationship between diet and nutrition to the risk of cancer development has been established by several epidemiological and laboratory studies.

More frequent consumption of fruits and vegetables particularly of carrots, fresh tomatoes and green peppers are associated with reduced risk of oral and pharyngeal cancer. Other foods that have a protective effect are fish, vegetable oil, olive oil, cereals, legumes, proteins and fibres[16]. Dietary deficiency of vitamine A, vitamine C, vitamine E, Iron, Selenium, folate and other trace elements have been linked to increased risk of oral cancer[8].

Oral cancer is more prevalent in most disadvantaged sections of the population.

Viral infection

Viruses have been strongly implicated in the development of malignant tumour in oral squamous epithelium. Epstein-Bar Virus (EBV) causes oral hairy leukoplakia and lympho proliferative diseases in immune suppressed patients. Human-Papilloma Virus (HPV) is the most common virus implicated in oral carcinogenesis. Finding of HPV in normal oral mucosa in some histopathological studies make the role of HPV in oral carcinogenesis speculative.[9]

Poor oral hygiene, ill fitting dentures, sharp/ fractured teeth due to caries/trauma may also play a role in localizing a site where tumors may develop.[10]

Premalignant Conditions

There are several premalignant conditions that precede oral carcinoma, and commonest of these are leuklopakia and erythroplakia.[11]

Syphilis

Tertiary Syphilis had been known to predispose to the development of oral cancer along with other risk factors such as tobacco and alcohol.

Genetic predisposition

has been shown to be an important risk factor in the development of OSCC[12].

As for most oral cancer, survival is lesser for affluent groups and for younger group compared to older patients[13].

For early diagnosis thorough clinical examination and imaging techniques like USG, CT scan, MRI is helpful. FNAC is almost diagnostic. Histopathological examination confirms the diagnosis.

Treatment modalities of oral cancer are surgery and radiotherapy. chemotherapy and photodynamic therapy have occasional applications. Surgery includes removal of primary tumor with or without neck dissection and reconstructive surgery.

Aims and objectives

To find out different aetiological factors of oral cancer. The overall aim of the study was to evaluate the importance of different risk factors for oral carcinoma and hence making increased awareness of the disease.

Methods

65 cases of oral carcinoma from the department of otolaryngology and Head Neck Surgery ,BSMMU, DMCH, National Institute of Cancer Research and Hospital, Mohakhali, Dhaka and from Sadar Hospital, Coxs Bazar were studied with in the period of march 2009 to September 2009 and july 2013 to Dec 2017. Histopathologically confirmed cases of oral cancer were included in this study.

Results

Out of 65 patients, 36 (56.66%) were male and 29(43.34%) were female. Lowest age of the patients was 35 and highest age was 75 years.

Table – I : Age distribution of patients (n=65)

Age in years	No. of patients	Percentage
40 years & below	02	3.07%
41-50	09	13.84%
51-60	28	43.07%
61-70	25	38.46%
>70	01	1.53%

The highest incidence of patients were in the 6th decade and lowest incidence in the 4th decade (Table-I).

Table –II : Monthly family income of patients (n=65)

Monthly family income	Frequency	Percentage (%)
Upto 5000 Tk	08	12.30
5000 – 10,000 Tk	22	33.84
10,000 --20000Tk	24	36.92
>20000 Tk	11	16.92

Regarding economic status of the patients, only 11 (16.92%) had monthly earning of >20,000 Tk (Table-II) and 24 had 10,000 to 20,000 Tk. Majority of patients (30 or 36.92%) had monthly earning of <10,000 Tk.

Table- III : Smoking habit of patients (n=65)

Smoking habit	No. of patient	Percentage (%)
Yes	52	80
No	13	20
Duration of smoking (Years)		
Upto 5	13	27.65
6-10	24	46.15
11-15	15	28.84
>16		
Total	52	100.00
No. of stick / day		
Upto 5	08	15.38
6-10	27	51.92
≥11	17	32.69
Total	52	100.00

The majority of 52 (80%) patients of the study subjects had smoking habit. Out of them, 27 patients took 6-10 sticks per day. 24 patients hab habit for 6-10 years and 15 patients had habit for <10 years.

Table-IV : Chewing of betel leaf of patients(n=65)

Chewing habit	No. of patients	Percentage (%)
Yes	54	83.07
No	11	16.92
Ingredient		
Betel leaf, Areca nut, Slaked lime	49	90.74
Above + Jarda	5	9.25
Total	54	100.00

Above table shows that 54 patients out of 65 would take betel leaf, areca nut, & slaked line and 5 patients took also jarda along with the above ingredients.

Discussion

Of the study population, highest percentage of oral cancer (43.07%) were found in the 6th decade, followed by 7th decade (38.46%), and only 02 patients were below 40 years of age. This corresponds to the age incidence found in the zimbabwean population[14]. Another study at Netherland reveals less than 4% incidence in the age group below 40 years[15].

The study shows inceased incidence in male patients (55.38%) than female patients (44.61%). This might be due to the increased habit of smoking in male which is in similarity with studies done by Jeng JH et al[16].

52 patients (80%) had smoking habit, out of which majority would take 6-10 sticks/day for >5 years. Gupta pc et al found strong relationship of oral carcinoma with smoking, though they found more prevalent in patients taking more than 2 packs/day[2].

In my study 54 patients (83.07%) out of 65 would take betel leaf with areca nut and slaked lime and 05 patients would take also jarda (boiled tobacco) alongwith. Study conducted by S. Warnakula surya[3] and Seven Thomas et al[4] strongly supports this finding. Out of 65, only 04 (6.15%) patients had habit of taking alcohol. Hashibe M, Mathew B et al. found strong association of oral carcinogenesis with alcohol[7].This might be due to social, cultural and religious grounds in our country.

13 patients (20%) had caries with sharp dental margin. Several premalignant conditions precede oral carcinoma and commonest of these are leukoplakia and erythroplakia[11]. In my study 03 patients(4.6%) had leukoplakia out of 65 patients.

In this study it was found that 60% of the lesions were ulcerative, 36.66% were exophytic and 33% infiltrative in nature. The findings are in similarity with that found by Martinez-Conde-R et al[17]. Most of the lesions were found at buccal mucosa (30%) followed by ant. 2/3rd of tongue (23.33%), retromolar area(20%).

In my study,90% of the lesions were squamous cell carcinoma, 6.66% were varrucous carcinoma and 3.33% were adenoid cystic carcinoma. It corresponds to that found by jemalA, Bray F et al[21] .In this series, analysis of the histopatho-logica[report of the patients reveals that 80% of the lesions were grade 1, 10% were grade II and 6.66% were grade III. None of the lesions was grade IV. Chidzongamm, Mohamva L found 64.8% grade 1,24.8% grade 2 and 10.4% grade 3 in a study at Zimbabwea[14].

Conclusion

It is clear from the above study that several risk factors are implicated in the development of oral cancer of which most common and established are tobacco smoking and betel quid chewing. Alcohol plays an important role. Oral carcinoma usually presents at 6th and 7th decade and commoner in male. Commonest site of lesion is buccal mucosa. Squamous cell carcinoma accounts for about 90% of all oral malignant neoplasm.

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