"A Retrospective And Prospective Study of Epidemiological Factors, Clinico-Pathological Profile, And Treatment Plans in Patients of Oral Cavity Cancers Admitted In JA Group of Hospitals and GR Medical College Gwalior"

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I.   Introduction

Head and neck cancer is a heterogeneous group of tumors with differing clinical patterns. Worldwide it is considered to be the fifth most common cancer and ranking seventh in term of mortality due to cancers.Incidence of head and neck carcinomas varies greatly in different regions of the worldwhich isattributedto deficiency in documentation of developing countries.However recent data indicate an increasing trend in incidence of these cancers in the developing countries, most likely due to a higher exposure toalcohol and tobacco,health ignorance, poor access to health care facilities. Also in these countries head and neck carcinomas tend to present in advanced stages and have poor prognosis.

The head and neck cancers are mostly grouped according to their anatomical site i.e. oral cavity, nasal cavity and paranasal sinuses, nasopharynx, oropharynx, laryngopharynx and salivary glands. The oral cavity cancer is one of the most common neoplastic lesions of head and neck worldwide, whereas the cancer of gingivobuccal complex is the most common in Indian subcontinent. The widespread use of smokeless tobacco consumption is the main etiological factor which is quite prevalent in the northern states of Uttar Pradesh, Bihar and Gujarat. Various legislations have been initiated to curb this social menace and an attempt is being made to bring about a change in recent days.The etiology of oral cancer involves multiple factors and the most important are life stylefactors, such as cigarette smoking, alcohol consumption and betel quid chewing.

Treatment of oral cavity cancers depends on the specific sub-site of the tumor and primary tumor staging. It is also necessary to take into consideration the performance status of each patient, as treatment is very intense with multiple side effects. Patient with co-morbidities have poor survival, irrespective of the choice of treatment. Until advent of 20th century, surgery was the only treatment available for these patients.Then radiotherapy was introduced and it was initially intended to replace surgery as treatment. This has not been the case however instead the two modalities were used together over the last century, but at the end of the last century chemotherapy in combination with radiotherapy became more common. Still surgery has an important role to play in management of these patients and over time surgeons have strived to produce less morbidity and disfigurement, by evolution of new techniques. Lower stage tumors of oral cavity are often treated with surgery alone while those of higher stages are treated with combined modalities.

In past none of the studies in our setup have tried to document the epidemiological and clinic-pathological profile of oral cavity carcinoma patients in Indian setting especially the kind of population we are serving to in Central India. Performing this study is to document and analyse above mentioned aspects if these patients and to evaluate the treatments plans used in these patients in term of clinical outcome.

II.   Aims And Objectives

1. To study the association of epidemiological factors in oral cavity cancers in our hospital.
2. To study the clinic pathological profile of patients with oral cavity cancers admitted in our hospital.
3. To study varioustreatment modalities for oral cavity cancer in our hospital.

III.   Material And Methods

After obtaining approval from ethical committee, the present study entitled**"A Retrospective And Prospective Study Of Epidemiological Factors, Clinico-Pathological Profile, And Treatment Plans In Patents Of Oral Cavity Cancers Admitted In JA Group Of Hospitals And GR Medical College Gwalior"**is to be conducted on total 100 patients of oral cavity cancer admitted in JA group of hospitals and G R Medical College Gwalior(M.P.) during 2011 to 2016. Consent taken will be documented for patients presenting during the course of study.

Sample size: 100 patients
Duration of study: one year

Criteria for selection:
- Patients admitted during the study period in GRMC and JA group of hospitals Gwalior having histopathologically proven malignancies of lip, anterior two third of tongue, buccal mucosa, retromolartrigone, gingiva and hard palate

Exclusion criteria: following subjects would be excluded from study-
- Prospective patients who are not willing to participate in the study .
- Patients having malignancies of head and neck other than oral cavity.
- Patients having recurrence

In all patients undergoing study, through examination of records will be undertaken for retrospective patients and a detailed history taking and examination will be performed in prospective patients. The treatment modality chosen and the final outcome of the patient would be taken into account. Biopsies of each patient wasperformed in outpatientdepartment and result obtained from department of pathology G.R. Medical College Gwalior (M.P.)

Following points will be noted in each of these patients
1. Demographic data- age, sex, socioeconomic class, occupation, education
2. History-presenting symptoms, duration of symptoms, history of alcohol consumption , smoking, gutkha chewing, significant medical history
3. Examination- general condition, orodental hygiene, tumor location, extent of tumor, palpable lymph node and their levels, premalignant lesion such as erythroplakia, leukoplakia.
4. Relevant investigations-basic blood investigations, imaging wherever applicable in form of CT head and neck and x-rays of maxilla and mandible bones
5. Histopathological type of malignancy
6. Treatment protocol plan followed
7. Final outcome of the patient
8. Follow-up as available

These observations will be tabulated and results will be deduced.Relevant statistical tests of significance will be applied wherever required, to analyse the association of particular factors.

IV.   Observations And Results
A total of 100 patients of oral cavity cancers admitted in Department of Surgery, G R Medical College and cancer ward J A Group of Hospitals, Gwalior were included in this study from Feb 2015 to Jan 2016 and following results were obtained:

1. Age
In the present study, the mean age of the study sample was 47.21(±12.27) years ranging from 24 years to 78 years in different patients. The median age of the sample was 46.5 years. Most of the patients belonged to the 41-50 years of age group.

Table-1
Age distribution of patients

Age	No of patients
21-30	5
31-40	11
41-50	36
51-60	29
61-70	11
71-80	8
Total	100

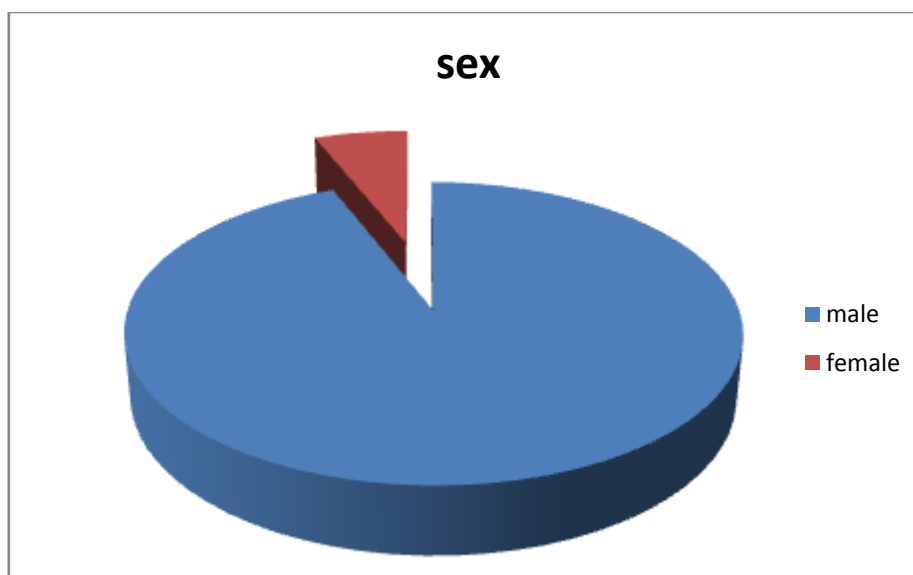## Distribution of patients according to age groups
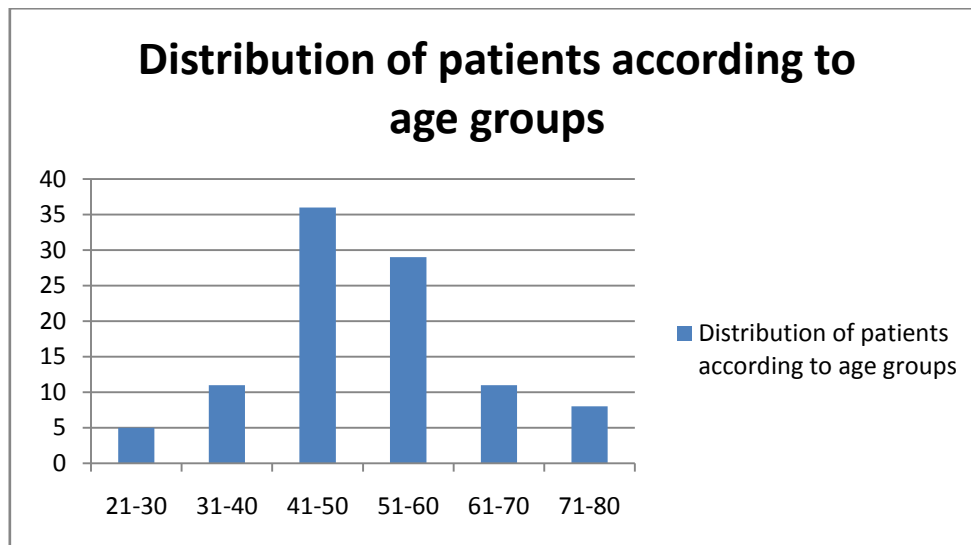
Graph1 Showing age distribution of the sample

2. Gender

The study sample had 94 males and 06 females among the patients showing male preponderance of oral cavity cancers.

Table-2 Sex Distribution Of Patients

| Sex	Male	Female
No of patients	94	6

Graph 2 Showing gender distribution of the sample

3. Presenting complaints:

In the present study out of the 100 patients, majority of the patients presented with main complaints of ulcer in oral cavity in 63%, followed by foreign body sensation in 12%, swelling in 11%,pain in 8% of patients and difficulty in opening of mouth in 6% of patients of oral cavity cancers respectively.

Table no. 3 ShowingMain presenting complaints

| Main Presenting complaints	No of patients
Ulcer	63
Foreign body sensation	12
Pain	8
Swelling	11
Difficulty in opening mouth	6
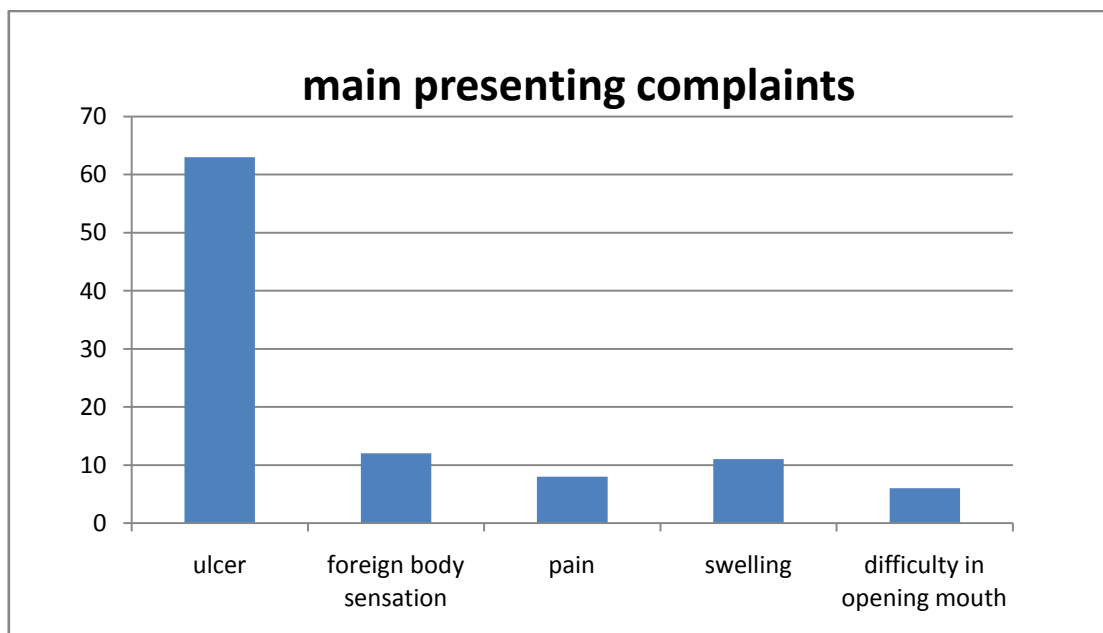
Graph 3 Showing main presenting complaints of the patients in study

4. **Substance abuse:**

In the present study out of the 100 patients, majority of the patients presented with substance abuse of tobacco chewing alone 45%, smoking and tobacco abuse with 19%, alcohol and tobacco 11%, Alcohol, smoking & tobacco 10%, smoking alone 8%, alcohol and smoking 7% respectively while no patient had addiction of alcohol alone.

Table No.4Showing prevalence of substance abuse in study group

| Substance use	No
Alcohol	0
Smoking	8
Tobacco	45
Alcohol+smoking	7
Alcohol+tobacco	11
Smoking+tobacco	19
Alcohol+smoking+tobacco	10
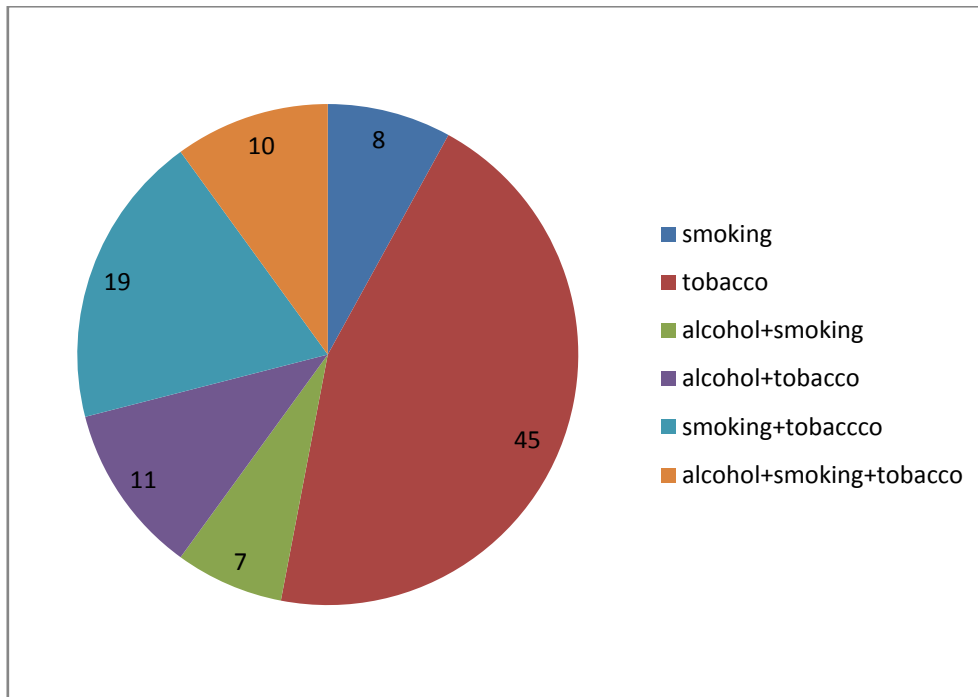
Graph 4 : Showing prevalence of substance abuse in study group

5. General condition :

In the present study out of the 100 patients, majority of the patients had average general condition(68%), good GC (26%) and poor GC (6%).

Table No 5 ShowingGeneral condition of the patient in the study group

| General Condition	No of patients
Poor	06
Avg	68
Good	26
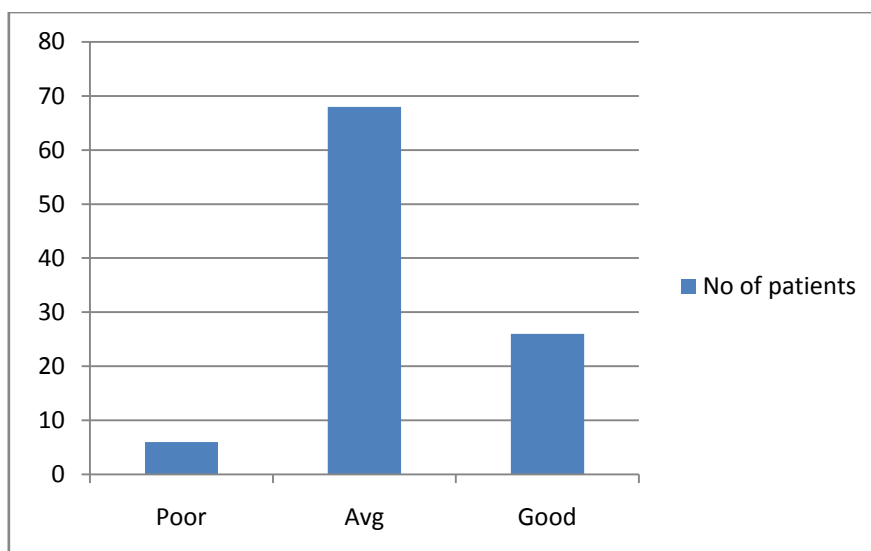
Graph no 5 showing general condition of the patients

6. Orodental Hygiene

In the present study out of the 100 patients, majority of the patients had poor orodental hygiene (61%), average orodental hygiene (39%) respectively while no patient having good orodental hygiene.

Table no. 6 Showing Orodental hygiene of the patient

Orodental hygiene	No of patients
Poor	61
Average	39
Good	00

No of patients
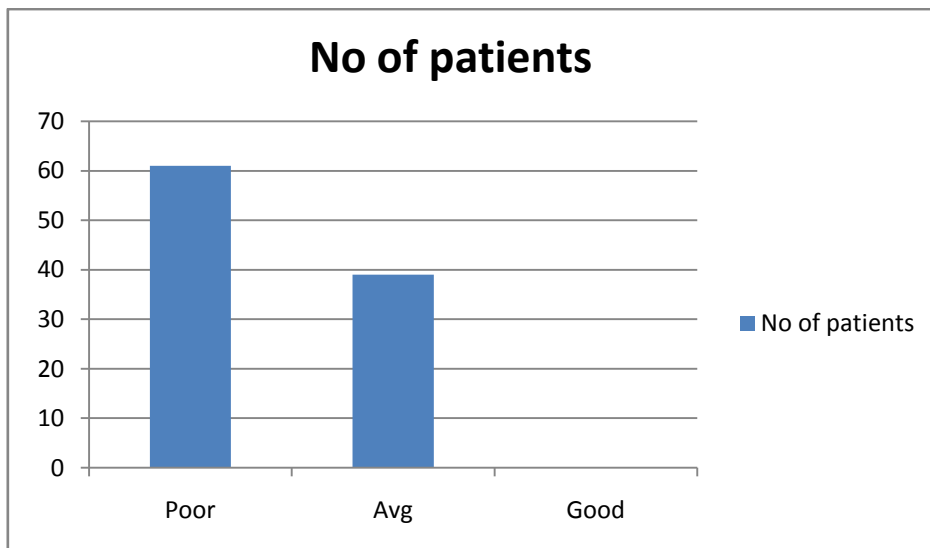


Graph6 : ShowingOrodental hygiene of the patients

7. Location Of Tumor

In the present study out of the 100 patients, most common site for ca oral cavity was found to be buccal mucosa (39%) followed by tongue(33%), gingiva buccal sulcus (22%), lip (5%) , floor of mouth (1%) respectively while no patient found with tumor location on hard palate and retromolartrigone.

Table no 7 ShowingLocation of tumor in oral cavity

| Location of tumor	Number
Lip	5
Tongue	33
Buccal mucosa	39
Gingivobaccal sulcus	22
Hard palate	0
Retromolartrigone	0
Floor of mouth	1

Number
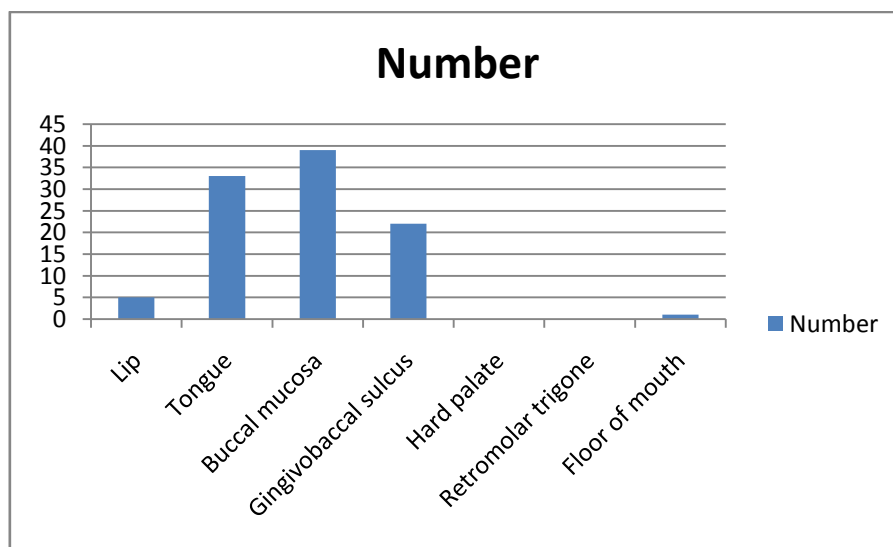
Graph 7: ShowingLocation of tumor in oral cavity

8. Palpable lymph node

In the present study out of the 100 patients, 41% patients having clinically palpable regional lymph node. 59% patients do not have any clinically palpable regional lymph node.

Table no. 8Showing Lymph node status in patient

| Palpable lymphnode	Present	Absent
No of patients	41	59
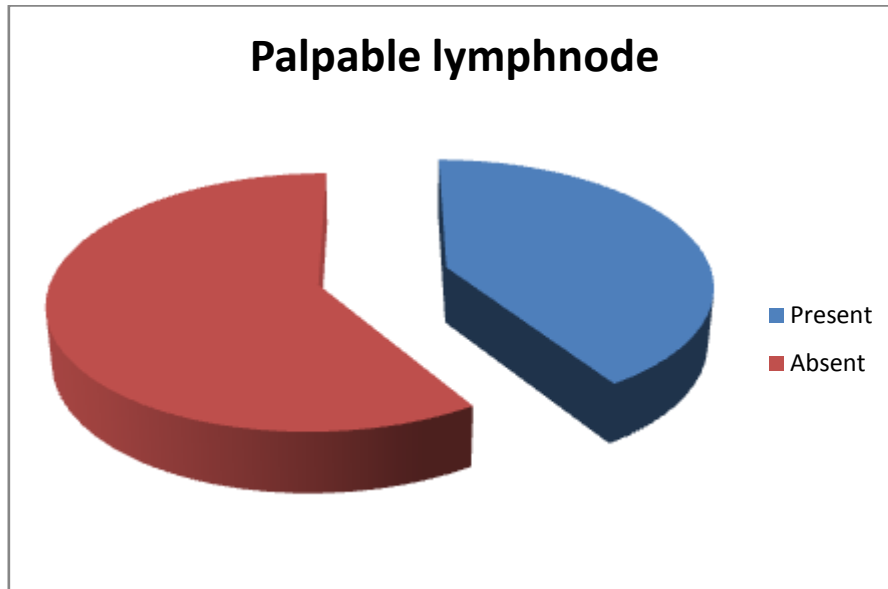
Graph8 : Showing Lymph node status in patient

9. Plane X Ray Mandible and Maxilla

Bone involvement; In the present study out of the 100 patients, 36% patients having involvement of bone either mandible or maxilla depending on tumor location on plane x-ray or CT scan .64% patients do not have involvement of bone either mandible or maxilla depending on tumor location on plane x-ray or CT scan .

Table no. 9 Showing Involvement of bone in study sample

| Plane x ray mandible and maxilla	Bone involve present	Bone involve absent
No of patients	36	64
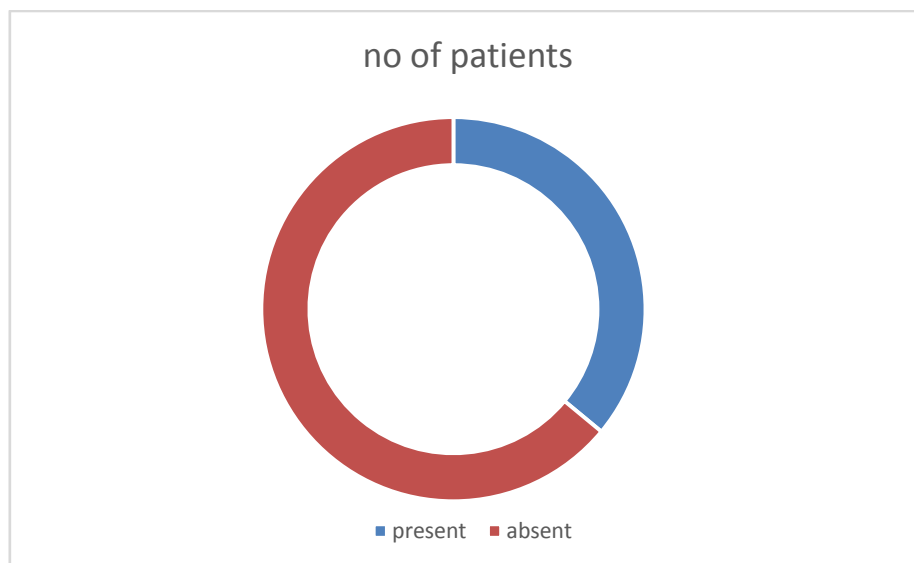
Graph9 : Showing Involvement of bone in study sample

10. Histopathology report;

In the present study out of the 100 patients, on their histopathology report 98% patients found to have squamous cell carcinoma while minority of patients (2%) had basal cell carcinoma.

Table no. 10
Showing Histopathology report of tumor in study sample

Histopathology report	Squamous cell carcinoma	Basal cell carcinoma
No of patients	98	2
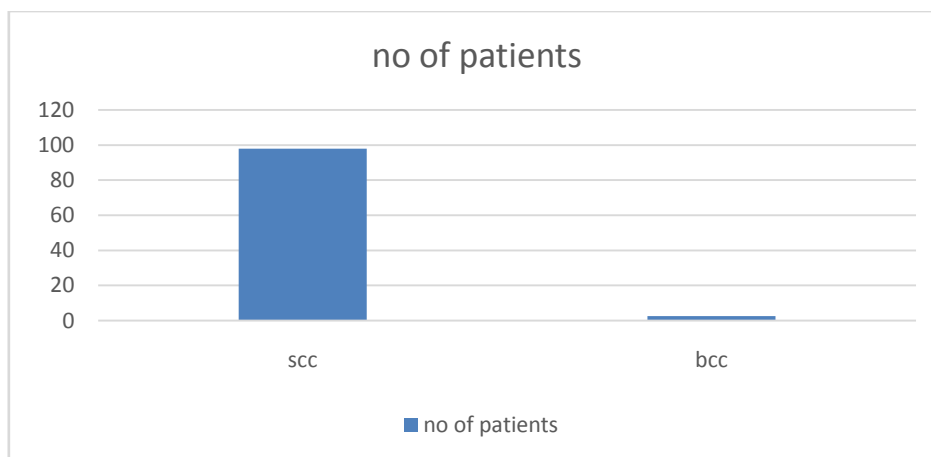
**Graph 10 :**Showing Histopathology report of tumor in study sample

11. Treatment plans :

In the present study out of the 100 patients, majority of the patients was treated with surgery and radiotherapy (42%), followed by radiotherapy and chemotherapy (18%), surgery alone (14%), radiotherapy alone (12%), surgery, radiotherapy and chemotherapy (12%), surgery and chemotherapy (2%) respectively while none of the patient was treated with chemotherapy alone.

Table no. 11ShowingVarious treatment plans in patients with oral cavity cancers

Treatment plans	No of patients
Surgery alone	14
Radiotherapy alone	12
Chemotherapy alone	0
Surgery + radiotherapy	42
Surgery+ chemotherapy	2
Radiotherapy + chemotherapy	18
Surgery+ radiotherapy+ chemotherapy	12
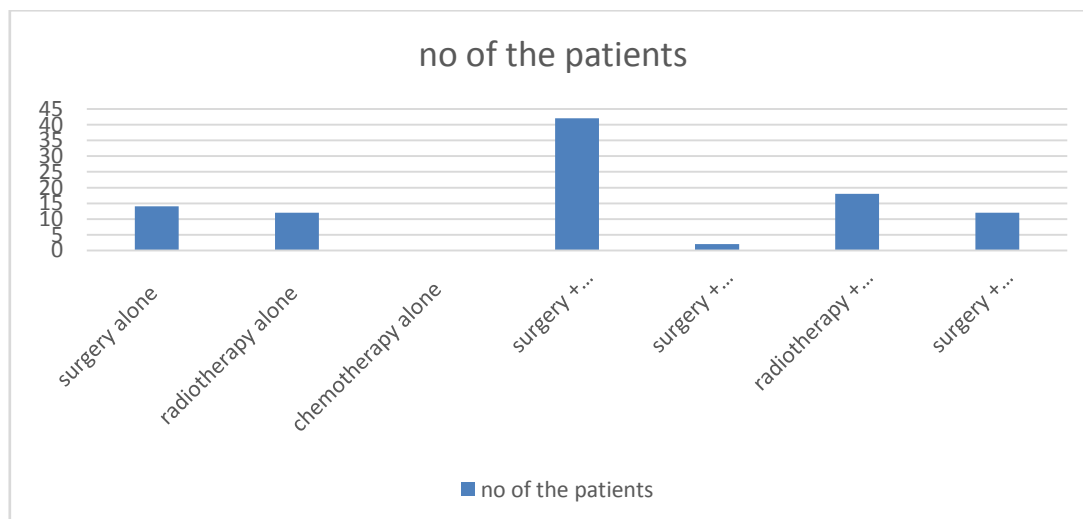
Graph 11: ShowingVarious treatment plans in patients with oral cavity cancers

V.   Discussion

Overall, head and neck cancer accounts for more than 500,000 cases annually worldwide. The cradle of head and neck oncology was located in ancient Egypt and Greece. The first tumors treated in the head and neck were either cutaneous malignancies or cancers were on the mucosal surfaces of the oral cavity. The origin, diagnosis and treatment of more deeply situated tumors of the larynx and hypopharynx remained obscure for many centuries. The medieval age brought little progress to medicine in general, and in head and neck oncology in particular, due to religious concerns. Renaissance medicine was characterized by advances in medicine and oncology made by systematic dissection studies of normal and pathologic anatomy. The 19th and 20th century reflect the development of head and neck oncology in the era of science based medicine. Almost all of our current understanding of head and neck oncology, our diagnostic methods and treatment strategies have been developed in these two centuries. Many oncologic problems, which occupy our minds today, were also concerns of our medical ancestors.

In this study, the recorded data of 100 consecutive patients of admitted to our hospital for oral cavity cancers was analysed in terms of epidemiological factors, clinico-pathological profile, and treatment plans The discussion of our observations is as following:

1. Age Distribution:

In the present study, the mean age of the study sample was 47.21(±12.27) years ranging from 24 years to 78 years in different patients. The median age of the sample was 46.5 years. Most of the patients belonged to the 45-50 years of age group.

2.Gender

The study sample had 94 males and 06 females among the patients showing male preponderance of oral cavity cancers.

3. Presenting Complaints:

In the present study out of the 100 patients, majority of the patients presented with main complaints of ulcer in oral cavity in 63%, foreign body sensation in 12%, pain in 8% most common symptom, swelling in 11% of patients and difficulty in opening of mouth in 6% of patients of oral cavity cancers.

4.Substance Abuse:

In the present study out of the 100 patients, majority of the patients presented with substance abuse of tobacco chewing alone 45%, smoking and tobacco abuse with 19%, alcohol and tobacco 11%, Alcohol, smoking & tobacco 10%, smoking alone 8%, alcohol and smoking 7% respectively while no patient had addiction of alcohol alone.

5.General Condition:

In the present study out of the 100 patients, majority of the patients had average general condition(68%), good GC (26%) and poor GC (6%).

6. Orodental Hygiene

In the present study out of the 100 patients, majority of the patients had poor orodental hygiene (61%), average orodental hygiene (39%) respectively while no patient having good orodental hygiene.

7.Location of Tumor

In the present study out of the 100 patients, most common site for CA oral cavity was found to be buccal mucosa (39%) followed by tongue(33%), gingiva buccal sulcus (22%), lip (5%) , floor of mouth (1%) respectively while no patient found with tumor location on hard palate and retromolartrigone.

8. Palpable Lymph Node:

In the present study out of the 100 patients, 41% patients having clinically palpable regional lymph node. 59% patients do not have any clinically palpable regional lymph node.

9. Plane X-Ray Mandible And Maxilla (Bone Involvement)

In the present study out of the 100 patients, 36% patients having involvement of bone either mandible or maxilla depending on tumor location on plane x-ray or CT scan.64% patients do not have involvement of bone either mandible or maxilla depending on tumor location on plane x-ray or CT scans.

10. Histopathology Report;

In the present study out of the 100 patients, on their histopathology report 98% patients found to have squamous cell carcinoma while minority of patients (2%) had basal cell carcinoma.

11. Treatment Plans:

In the present study out of the 100 patients, majority of the patients was treated with surgery and radiotherapy (42%), followed by radiotherapy and chemotherapy (18%), surgery alone (14%), radiotherapy alone (12%), surgery, radiotherapy and chemotherapy (12%), surgery and chemotherapy (2%) respectively while none of the patient was treated with chemotherapy alone. Combined clinics that include surgeons, oncologists, and support staff usually have an agreed treatment policy and offer the best outcomes. Oral squamous cell carcinoma (OSCC) currently is treated largely by surgery and/or irradiation, although few unequivocal controlled trials of treatment modalities have been conducted. Photodynamic and chemotherapy have occasional applications, and there is an increased use of chemotherapy,including targeted therapy.

VI. Conclusion

- Patients with oral cavity cancers should be advocated to lead a healthy lifestyle and society should develop awareness against the use of tobacco, smoking and betel quid chewing due to their strong association with oral cavity cancers.
- Patients with oral cavity cancers should be told about the importance of maintaining a good orodental hygiene and maintenance of a healthy life style as it curbs the risk of oral cavity cancer in the majority of the patients.
- Patients should be counselled about various treatment modalities that can be offered to the patients and their associated side effects and importance of long term follow up keeping in mind the gravity of the disease and its curability.

Limitations of Our Study

The present study was done on 100 patients with taking into consideration certain pre-defined clinico-pathological and epidemiological variables. However, we do recommend for replication of this study in larger samples and a greater number of factors affecting outcome should be taken into account. This can help to ensure better treatment profiles for patients with oral cavity cancers.

VII.Summary

Head and neck cancers constitute a major proportion of surgical oncology clinics. The incidence of head and neck cancers are increasing due to increasing exposure to the risk factors, we are better able to investigate these conditions with the help of contrast enhanced CT and MRI . The therapeutic options available

are not limited to surgery and new protocols for radiotherapy and chemotherapy are being used.In this study, various epidemiological factors, clinico-pathological profile, and treatment plans in patients of oral cavity cancers was studied and the results of the study can be summarized as following:

1. Most of the patients belonged to the 41-50 years of age group. (mean age 47.21 years) and males outnumbered females in the study sample (M:F=15.67:1).
2. Most common complaint by the patients in the study group was of ulcer in oral cavity in 63% followed by foreign body sensation in 12%, pain in 8%, swelling in 11% of patients and difficulty in opening of mouth in 6% of patients.
3. Majority of the patients presented with substance abuse of tobacco chewing alone 45%, smoking and tobacco abuse with 19%, alcohol and tobacco 11%, Alcohol, smoking & tobacco 10%, smoking alone 8%, alcohol and smoking 7% respectively while no patient had addiction of alcohol alone.
4. Majority of the patients had average general condition(68%), good GC (26%) and poor GC (6%) while orodental hygiene (61%) was poor in majority of the patients.
5. Most common site for CA oral cavity was found to be buccal mucosa (39%) followed by tongue(33%), gingiva buccal sulcus (22%), lip (5%) , floor of mouth (1%) respectively while no patient found with tumor location on hard palate and retromolartrigone.
6. In the present study out of the 100 patients, 41% patients having clinically palpable regional lymph nodeWhile 36% patients having involvement of bone either mandible or maxilla depending on tumor location on plane x-ray or CT scan.
7. 98% patients were found to have squamous cell carcinoma while minority of patients (2%) were found to have basal cell carcinoma on their histopathological reports.
8. Majority of the patients in our study were treated by surgery and radiotherapy.

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