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General Surgery

# CLINICO - PATHOLOGICAL STUDY ON ORAL MALIGNANCY IN RGGGH

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**ABSTRACT** Oral malignancy is one of the commonest cancer in Asian countries and India. Combined abuse of alcohol and tobacco is not additive in terms of the odds ratio but multiplicative and the causative agent smoking, quid of chewing pan are important causes, tobacco, betel nut, alcohol, human papilloma virus. Most common malignancy of the oral cavity is squamous cell carcinoma and second most is minor salivary gland tumours. The histopathologic grade of tumour is related to its biological behaviour. The main purpose of this study is to correlate all clinical parameters like gender, age, site, habit with different grade of squamous cell carcinoma and predict the tumour biology. Its observational study. An analysis of the incidence, predisposing factors, premalignant conditions, clinical features, type of growth, histological types, stage of presentation and treatment modalities carried out for oral cancers in our hospital. With the invent of Radio sensitisers and Radio protectors, the radiotherapy as a modality of treatment has to be considered as side effects are low. Role of adjuvant chemo and concomitant role of chemo & radiotherapy are effective for advanced oral malignancy. Government organizations will create awareness and help in prevention. Younger population is to be educated by mass media with a ban on advertisement of Tobacco, Alcohol and screening camps will also be useful.

**KEYWORDS :**

## INTRODUCTION

Oral malignancy is one of the commonest cancer in Asian countries and India (40%) .Incidence of oral cancer in India 28/1,00,000 population,ommonest oral cancer in India is of buccal mucosa (more than 70%) Incidence of oral cavity in India 1 million new cases/year and 1 lakh 24 thousand deaths/year. Incidence rate in men exceeded 30/1,00,000 world wide and 10/1,00,000 women in India. Combined abuse of alcohol and tobacco is not additive in terms of the odds ratio but multiplicative and the causative agent smoking, quid of chewing pan are important causes, tobacco, betel nut, alcohol, human papilloma virus (present in 80% of oral cancer and present in 40% of normal individuals) EB virus, vitamin A deficiency, plummer-vinson syndrome, bad dental hygiene, denture irritation – are etiologies. Risk of malignancy is 8 times in tobacco chewers and 10 times with quid users and 30 times with night quid users .Oral cavity in India it is common in cheek (50%), tongue (25%), floor (15%), palate and lips (10%), and in western countries most common is tongue. Leukoplakia (commonest), Erythroplakia, chronic hyperplastic candidiasis are pre cancerous conditions, oral lichen planus, discoid lupus, dyskeratosis congenita are doubtfully associated lesion, precancerous condition is one where there is increased risk of cancer. Most common malignancy of the oral cavity is squamous cell carcinoma and second most is minor salivary gland tumours. Surgical wide excision and radiotherapy are main modalities of treatment, chemotherapy is used as an adjuvant curative treatment in early growth with preservation of function like swallowing, speech, cosmetics but with adequate oncological clearance is the principle of surgical approach, radiotherapy is also used as curative therapy.

## AIMS AND OBJECTIVES

1. To study various mode of presentation of oral malignancy
2. To study the causative role of addictive habits and their clinical outcome in patient with oral malignancy.
3. To study the histological grade of malignancy and it's effect on the prognosis of the patient.

### Need for study :

Oral squamous cell carcinoma is the most common oral malignancy representing upto 80% to 90% of malignant of oral cavity. This shows geographical variation with respect to age, sex, site and habits of the population which in turn parallels longevity, multiplicity and intensity of carcinogenic exposure. The histopathologic grade of tumour is related to its biological behaviour. The main purpose of this study is to correlate all clinical parameters like gender, age, site, habit with different grade of squamous cell carcinoma and predict the tumour biology.

## MATERIALS AND METHODS

Place of study :
Madras Medical College & Rajiv Gandhi Government General Hospital Chennai - 600003.

**Design of study** : Observational study (Prospective & Retrospective)
**Period of study** : October 2016 to September 2017
**Sample size** : 30
**Inclusion criteria :**Patient with oral cavity cancer with or without secoudaries whose histopathology showing only squamous cell carcinoma are included.
**Exclusion criteria:**Patient with oral malignancy outside oral cavity (Nasalcavity, Nasopharynx, Oropharynx, Hypopharynx, Larynx,Paranasal sinus) and salivary gland tumour and HPE showing non squamous cell carcinoma are not included. The patients age, sex, Habits, socio economic status, premalignant conditions, clinical features, site of oral cavity, staging, histopathology were recorded.

Following Investigations were taken up for Diagnostic and staging purpose,
1) HPE report
2)X-ray Mandible AP / Lateral
3) X-rays PNS & Neck
4) X-ray Chest-PA view
5) USG Neck & Abdomen
6) CECT/MRI Head and neck
7) VDL or IDL scopy

For Clinical assessment and for co morbid conditions
i) Urine – Albumin & Sugar
ii) Blood Hemoglobin & hematocrit
iii) Blood sugar, urea and serum creatinine
iv) Serum electrolytes
v) Liver function test
vi) Renal function test
vii) Clotting Time & Bleeding Time
viii) ECG in all chest leads were taken.

Treatment protocol

Planned accordingly
1) Surgery
a. Wide local excision (WLE) alone
b. Wide local excision with neck dissection
c. Wide local excision with Mandibulectomy
d. Composite Resection (WLE with neck dissection and Mandibulectomy)with Primary reconstruction was done.

Immediate post operative complications were identified and treated.

2) Radiotherapy – curative 50-70 Gy in 200 for 30cycle & Palliative 40 Gy
3) Chemotherapy – cisplatin (50- 70 mg/sq m) every 3 wks

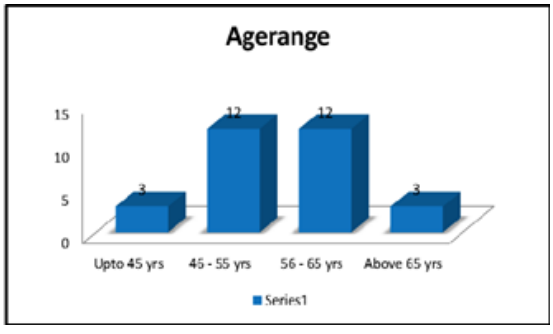
**FOLLOW UP :**

patients were observed regarding the local recurrence nodal disease (or) recurrence in neck treated and evidence of Second primary with (or) without metastasis. The patients were informed regarding the risk factors and advised to give up the offending Habits to have longer disease free survival. The relatives were informed regarding the correlation between risk factors and oral cavity carcinoma plastic and oncologist surgeon's opinion and help were obtained in selected cases.

**DATA ANALYSIS AND RESULTS**

| Age | Frequency | Percent |
|---|---|---|
| upto - 45yrs | 3 | 10 |
| 46-55yrs | 12 | 40 |
| 56-65 yrs | 12 | 40 |
| above 65yrs | 3 | 40 |
| Total | 30 | 100.0 |

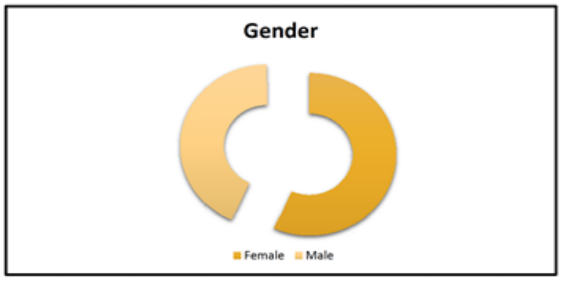
**Most of the pt both male and female belong to age groups 45-55 yrs**




**DISTRIBUTION OF PATIENTS IN VARIOUS SEX GROUPS**

| SEX | FREQUENCY | PERCENT |
|---|---|---|
| FEMALE | 17 | 56.7 |
| MALE | 13 | 43.3 |
| TOTAL | 30 | 100.0 |

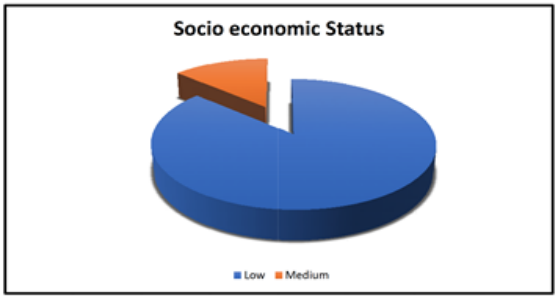
**MOST OF THE PT IN THIS GROUP ARE FEMALE**




**INCIDENCE OF ORAL CANCER IN SOCIOECONOMIC STATUS**

| SOCIO-ECONOMIC STATUS | FREQUENCY | PERCENT |
|---|---|---|
| LOW | 26 | 86.7 |
| MIDDLE | 4 | 13.3 |
| TOTAL | 30 | 100.0 |

**MAJORITY OF ORAL CA IN THIS STUDY ARE LOW SOCIO-ECONOMIC STATUS.**




**PREDISPOSING FACTOR - ALCOHOLISM**

| ALCOHOL | FREQUENCY | PERCENT |
|---|---|---|
| NO | 15 | 50 |
| YES | 15 | 50 |
| TOTAL | 30 | 100 |

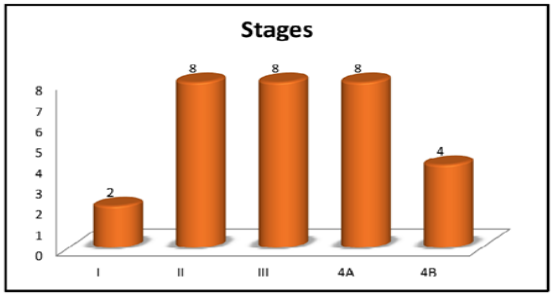
| PAN | FREQUENCY | PERCENT |
|---|---|---|
| NO | 23 | 76.7 |
| YES | 7 | 23.3 |
| TOTAL | 30 | 100 |

| TOBACCO CHEWER | FREQUENCY | PERCENT |
|---|---|---|
| NO | 22 | 73.3 |
| YES | 8 | 26.7 |
| TOTAL | 30 | 100 |

| SMOKER | FREQUENCY | PERCENT |
|---|---|---|
| NO | 16 | 53.3 |
| YES | 14 | 46.7 |
| TOTAL | 30 | 100 |

**DISTRIBUTION OF PT ACCORDING TO TNM STAGING**

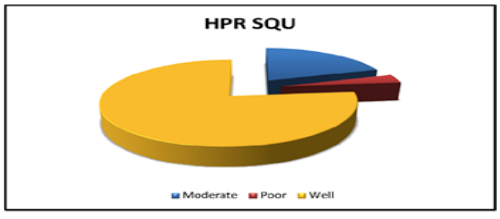
| STAGE | FREQUENCY | PERCENT |
|---|---|---|
| I | 2 | 6.7 |
| II | 8 | 26.7 |
| III | 8 | 26.7 |
| IV-A | 8 | 26.7 |
| IV-B | 4 | 13.3 |
| TOTAL | 30 | 100.0 |




Majority of the patient reported to us were in stage III and IV

**DISTRIBUTION ACCORDING TO HPE TYPE**

| HPE- SQU | FREQUENCY | PERCENT |
|---|---|---|
| MODERATE | 6 | 20 |
| POOR | 1 | 3.3 |
| WELL | 23 | 76.7 |
| TOTAL | 30 | 100.0 |




Well differentiated squamous cell carcinoma was the major histopathological type

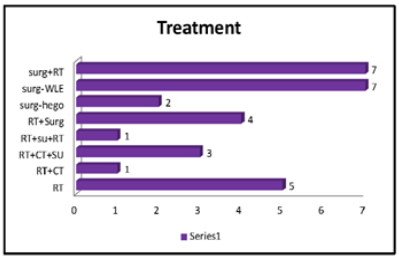
**INCIDENCE OF ORAL CAVITY CA ACCORDING TO NATOMICAL AREA**


Out of 30 patient 5 died which is 16% of the patients within 6 month follow up all came in stage IV advanced oral malignancy

| SITE | FREQUENCY | PERCENT |
|---|---|---|
| CA BUCCAL | 19 | 63.3 |
| CA FLOOR | 1 | 3.3 |
| CA HARD PALAT | 1 | 3.3 |
| CA LIP | 1 | 3.3 |
| CA TONGUE | 8 | 26.7 |
| TOTAL | 30 | 100 |

**TREATMENT OUTCOME**

| TREATMENT MOTALITY | FREQUENCY | PERCENT |
|---|---|---|
| RT | 5 | 16.7 |
| RT+CT | 1 | 3.3 |
| RT+CT+SU | 3 | 10 |
| RT+SU+RT | 1 | 3.3 |
| RT + SU | 4 | 13.3 |
| SU- HEGO | 2 | 6.7 |
| SU- WLE | 7 | 23.3 |
| SU+ RT | 7 | 23.3 |
| TOTAL | 30 | 100 |




Primary Radiotherapy was given to 5 patient most of them in stage lll and IV Primary surgery was done for majority of patients in stage 1 & ll

| MORTALITY | FREQUENCY | PERCENT |
|---|---|---|
| ALIVE | 25 | 83.3 |
| DIED | 5 | 16.7 |
| TOTAL | 30 | 100 |

**MORTALITY OF ORAL CA**

## DISCUSSION

An analysis of the incidence, predisposing factors, premalignant conditions, clinical features, type of growth, histological types, stage of presentation and treatment modalities carried out for oral cancers in our hospital for the period from October 2016 to September 2017 are discussed.

## EPIDEMIOLOGICALANALYSIS

According to the National Cancer Registry Programme (NCRP) - ICMR Survey shows that Oral Cavity cancer occupies the most common carcinoma in male (19.4%), is followed by hypopharynx and esophagus. In females Cervix Uterus is followed by Breast and oral cancer (38.7%). The reference in Indian Medical Literature regarding the preponderance of oral cancer in India suggests its strong association with habit of chewing betel nut, tobacco, slacked lime and smoking habit.

Chennai-statistics shows that the leading cancer site in male is oral cavity (9.9%) and in female Cervix Uterus (32.2%) among the top ten cancers.

In JIPMER-oral cavity forms the most common cancer in male (16.6%) and Cervix Uterus (55.1%) forms the most common cancer in female among the top ten cancers .

In my study the peak incidence of oral cavity cancer is between45 and 65 Years. According to the National Cancer Institute Programme – USA, the mean age of diagnosis is 65 years and more than 50% occurs above the age of 60 Years.

The disparity in age incidence is mainly due to the early tobacco and betel leaf chewing habit in Indian patients. My study reveals that chewing tobacco and betel nut present in 84.2%, and of them 80% have started it before the age of 25 Years.Young age chewing habit and the number of years of usage are the reasons for oral cancer at earlier ages. Recently, it has been found out that increased incidence of oral cavity cancers detected at earlier ages probably due to the habit of chewing and smoking among the students evidenced by oral Cavity Cancer under the age of 35 Years.

According to the centers for disease control and prevention 2015, U.S.A. - Tobacco usage was increased among middle and high school students.

## MALE - FEMALE RATIO

Male - female ratio in my study is 1 : 1.5
It is believed that female sex incidence increase is due to the greater use of Tobacco chewing, betel nut in rural and increase alcohol intake in rural and urban by female in India. Female cases were reported higher in Greece. Snuff dripping and increased incidence of oral cancer among women in Southern United States.

## SOCIO-ECONOMIC STATUS

In my study majority of patients with oral cancers (86.7%) are from low socio-economic status. The reasons may be due to multiple factors like
a) Poor Nutritional Status.
b) Bad oral hygiene.
c) Social customs.
d) Addiction to tobacco, Betel leaf and alcohol.
e) Lack of health awareness.

## ETIOLOGICAL FACTORS

Major etiological factor is chewing betel nut and tobacco in more than a decade either continuously (or) intermittently.Information from the patients regarding the duration of addiction for chewing shows that about 73.3% of patients have been chewing tobacco for more than a decade either continuously (or) Intermittently. Tobaccos which is smoked as beedi, cigarette (or) pipe has been found in 73% of patients.

In our study alcohol usage is found in 50% Alcohol has been incriminated as one of the causes for oral cancer.

Alcohol has indirect role. Almost all heavy drinkers are also heavy smokers.Alcohol in turn increases the absorption of tobacco and increases nutritional deficiency. These factors make squamous cells more susceptible for conversion into cancer cells. Dental lesions such as sharp tooth and artificial denture produce
constant trauma has been associated with Carcinoma of Buccal mucosa.

Role of poor Nutrition in oral cancer has been thought as a significant factor. B-Complex deficiency and sideropenia have been observed in Oral Cancer patients.
In my study signs of Chronic Nutritional deficiency like angular chelitis, atrophic tongue and glossitis are observed in 1.7%.

## ANATOMICAL LOCATION

In my study Buccal mucosa – constitutes 63.3% of oral cavity cancer. Increased incidence of buccal mucosa carcinoma is also found in Aringar Anna Cancer Institute, Kancheepuram. Tongue is the 2nd most common site (26.7%), next to buccal mucosa, Disparity in this involvement is mainly due to the habitual tobacco and betal chewers to keep the Quid in bucco gingival sulcus. Reverse smoking (Chutta inside the mouth) is associated with cancer of the palate found in Andhra Pradesh. Next to tongue, palate, floor Lip, occupies about 3.3% in my study. Lower Lip exposure to radiation is more when compared to upper lip is the reason for higher incidence of Lower lip cancer than upper lip.

## CLINICAL FEATURES

Out of 30 patients majority of them reported with ulcer or ulcero proliferative growth in the mouth. Tumors of the oral cavity often ulcerate; this is probably due to friction of the mucous membrane during eating and partly due to Infection.

Initially the lesions are painless, but once disease advances patients reported with pain. Other symptoms such as excessive salivation, difficulty in chewing, dysphonia, dysphagia and ankyloglossia are present. Trismus is a bad sign as it signifies extensive infiltration by an endophytic lesion.

Patients with advanced lesions reported with fungating growth, orocutaneous fistula and with extensive Jaw destruction.

**PREMALIGNANT LESIONS**

Premalignant lesions account for 95% of oral cancers. In my study majority of the patients had Leukoplakia followed by Submucosal fibrosis , Erythroplakia, Combined Erythro Leukoplakia and Candidiasis. Oral submucosal fibrosis is due to a component of areca-catcha in Betelnut which affects the collagen synthesis. It has been predominantly found in East India, Srilanka and South East Asia.

**HISTOPATHOLOGICAL VARIETY**

In my study case taken up for study cases are Squamous cell carcinoma of oral malignancy and which is the most common variety National Cancer Data Base USA reveals
Squamous - 86.3%
Adeno - 5.9%
Verrucous - 2.0%
Kaposis - 1.5%

Out of the squamous cell carcinoma HP GRADING reported in my study 80% are G1 well differentiated, 16.7% are G2 moderately differentiated, and 3.3% are G3 poorly differentiated.

**STAGING**

In My study about 40% presented with N0 neck (Stage I & II) 60% presented to us with N1, N2, N3 Neck (Stage III & IV),Compared to the study of M.D. Anderson Cancer Centre
72% Patients presented with No neck
28% Patients presented with N1, N2, N3 Neck,National Cancer Data Base USA
55% Patients presented with No neck
35% Patients presented with N1, N2, N3 Neck
Even though oral cancers are easily accessible for physical examination and biopsy, majority presented to us in later stages. The reasons derived from this study are,

1) Majority of them are initially reviewed by general practioners and dentists and diagnosed as apthous ulcer and fungal infections, treated with antibiotics, antifungal agents and mouth washes and referred to higher centers at later stages.
2) Oral Cancer ulcers are painless to start with, by the time patient presented with pain the stage of the disease advances.
3) Some people are elderly and frail so there is delay in effort to visit the dentist (or) doctor.

I did not encounter a single case with distant Metastasis (IV C), probably, secondaries will start manifesting after adequate local treatment and long term follow up.
The mean follow up period in my study is short.

Majority presented with submental, sub mandibular and upper deep cervical nodes (Ib, II). Majority of patients with Nodal metastasis are between 45 and 55
Yrs of age.

**MANAGEMENT OF ORAL CAVITY CANCER**

Out of 30 patients
7 patients under went Wide Local Excision(WLE)only
2 patient underwent Hemiglossectomy,
7 patient underwent surgery followed by Radiotherapy,
4 patient underwent Radiotherapy followed by surgery,
3 patient underwent Radiotherapy and Chemotherapy followed by surgery,
1 patient underwent neoadjuvant Radiotherapy and surgery,
1 patient underwent only Radiotherapy and Chemotherapy,
5 patient underwent only Radiotherapy.
The main reasons for this low percentage of patients who underwent surgeryare.

1) Majority of our patients at the time of presentation were clinicall inoperable (Late presentation).
2) Some patients were not willing to accept the option of major surgical procedure.
3) Poor Nutritional status / Advanced disease of the patients preclude surgical option.
4) Some patients had co-morbid conditions and anaesthetically not fit for major surgical procedure and reconstruction
5) In advanced lesions treated with surgery alone has got higher recurrence rate, poor outcome, hence surgery not advised.

**SURGICAL PROCEDURES CLASSIFIED INTO 4 GROUPS**

1. Surgery of the primary tumor Wide Local Excision(WLE)
2. Surgery of the primary tumor with Mandibulectomy
3. Surgery of the primary tumor with Elective Neck dissection.
4. Surgery of the primary tumor with neck dissection with Mandibulectomy (Composite resection).

**GROUP I**

8patients reported in stage I &Stage II, disease without Nodal Involvement / Mandibular Involvement are subjected to wide excision with tumor free Margin of 1 cm all around and depth of 0.5 cm &3 dimensional soft tissue clearance accompanied by primary closure partial / full thickness skin graft / Locally advanced flap done.

**GROUP II**

4 patients in stage III & IV reported with mandibular involvement & neck nodes are treated with tumor clearance and Hemi Mandibulectomy.

**Reconstruction with**

1.Pectoralis major osteomyocutaneous flap with 5th rib.For lining&cover with either delto pectoral flap or forehead flap
2.Free 5th rib for mandible, pectoralis major myocutaneous flap for lining and cover with either delto pectoral flap or forehead flap
3.Forehead flap for both lining and cover for smaller lesions.
4.Bipaddle pectoralis major myocutaneous flap for both lining and cover.

In the above situations mandibular defect closed with wiring. For Nodal disease primary RT are given, because of co-morbid Illness neck dissection cannot be done.

**GROUP III**

1 patients in stage II had Wide Local Excision along with elective neck dissection.

**GROUP IV**

10 patients in stage III & IV (N1, N2) disease either before or after Radiotherapy had either supraomohyoid Neck dissection (or) composite resection and reconstruction with pectoralis major myocutaneous flap (PMMC) for lining and cover with either delto pectoral or forehead flap.

**RADIOTHERAPY**

Radiotherapy is given in 2 forms either primary radiotherapy (or) Adjuvant radiotherapy. In my study primary radiotherapy is given to majority of the patients in stage III & Stage IV. In our institution external beam radiotherapy is given to the primary tumor area and to the neck in 6000 cGy for 6 weeks with 200 cGy per day for5 days in a week. Advancement in the radiotherapy in the form hyper fraction RT / IMRT(Intensity modulated radiotherapy) are available in Regional cancer centers. Adjuvant RT to the primary and Neck were given to 7 patients, those who had positive margins and doubtful clearance during surgery.

**COMPLICATIONS**

Out of 30 patients,
4 patients had wound infection,
1 developed orocutaneous fistula and 1patients had flap necrosis.
Other patients had no specific complaints. Wound infection treated with higher antibiotics. Necrosed area excised and skin graft applied.

**FOLLOW UP**

Follow up was advised at Monthly intervals for 1st year and Once in 3months for the 2nd year. But my study follow up is only for a short interval follow up of only 6 month. During the follow up period local recurrence, Nodal recurrence were looked for but in my short interval follow up no such complains was recorded.

**MORTALITY**

Out 30 patient in my study 5 patient (16.7%) died.All 5 patient came to our institute in advance oral cancer 1patient carcinoma palate stage

IVb on Radiotherapy died within 4 month of study period, 3patient carcinoma tongue first and second one at stage IVa on Radiotherapy died within 3 month and third one at stage IVa on post surgery radiotherapy died within 2month of study period , 1 patient carcinoma buccal at stage IVb completed radiotherapy and chemotherapy and surgery died within 2 month of my study period.

And in all 5 cases case of death record as oral malignancy and it's complication lead to cardiovascular respiratory arrest.

## CONCLUSION

Oral Cancer is a national problem. Oral Cancer remains a challenge as majority of the patients reported in advanced stage. Micrographic excision and alternative forms of therapy such as Cryo, Electro, Chemo & Photo dynamic therapy for smaller lesions and wide excision along with advanced reconstructive procedure such as Free Flap –Microvascular surgery has made surgery as the anchor role in management.With the invent of Radio sensitisers and Radio protectors, the radiotherapy as a modality of treatment has to be considered as side effects are low. Role of adjuvant chemo and concomitant role of chemo & radiotherapy are effective for advanced oral malignancy.

The best way to cure is by prevention. Screening of high risk group that is those who are in the Habit of pan, betel nut & tobacco chewing in general population, should be done.

Dental surgeons and general practioners have a vital role with early detection of oral lesions and referral to higher centers for proper management. Health education through mass media and posters in Health centers and dispensaries on the ill effects of Tobacco / Alcohol / Betel nut in a large scale by Government and Non-Government organizations will create awareness and help in prevention. Younger population is to be educated by mass media with a ban on advertisement of Tobacco, Alcohol and screening camps will also be useful.

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