A STUDY OF MANAGEMENT OF ORAL CANCER

Dissertation submitted in partial fulfillment of the regulation for the award of M.S. Degree in General Surgery

(Branch I)

THE TAMILNADU

Dr. M. G. R. MEDICAL UNIVERSITY

CHENNAI – 600 032.

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CERTIFICATE

Certified that this is the bonafide dissertation done by **Dr. S. MUTHULAKSHMI** and submitted in partial fulfillment of the requirements for the Degree of M.S., General Surgery, Branch I of The TamilNadu Dr. M.G.R. Medical University, Chennai

Date : Unit Chief

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DECLARATION

I solemnly declare that the dissertation titled "**A STUDY OF MANAGEMENT OF ORAL CANCER**" was done by me from 2006 onwards under the guidance and supervision of **Prof. Dr. G. MOHAN, M.S**.

This dissertation is submitted to the TamilNadu Dr. MGR Medical University towards the partial fulfillment of the requirement for the award of M.S Degree in General Surgery (Branch I).

Place : **Dr. S. MUTHULAKSHMI**

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ETHICS COMMITTEE

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Course	:	M.S. (GENERAL SURGERY)
Period of Study	:	2006 - 2009
College	:	COIMBATORE MEDICAL COLLEGE
Dissertation Topic	:	A STUDY OF MANAGEMENT OF ORAL CANCER

The Ethics Committee, Coimbatore Medical College has decided to inform that your Dissertation is accepted / ~~Not accepted~~ and you are permitted / ~~Not Permitted~~ to proceed with the above Study.

Coimbatore - 14.

Date : 8.10.2007

Secretary
Ethics Committee

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CONTENTS

INTRODUCTION

Oral malignancy is the sixth most common form of malignancy in India and it constitutes a significant part of our regular surgical work.

There has been an increase in incidence in oral cancer and this is attributed to the increased consumption of tobacco, alcohol and other carcinogenic products.

Although there is significant improvement in chemotherapy, radiotherapy and surgical technique, the disease is challenging as most patients present with advanced stage.

Hence an attempt to study the etiopathogenesis and outcome of treatment modalities of oral malignancies by a prospective and retrospective study in the Department of Surgery, Coimbatore Medical College Hospital is done.

AIMS OF THE STUDY

- To study the protocol and efficiency of multimodality management of oral cancers in our hospital.
- Comparison of various modalities of treatment and their efficiency.
- To study the stage of presentation and study of factors modifying the outcome.

REVIEW OF LITERATURE

SURGICAL ANATOMY OF THE ORAL CAVITY AND PHYSIOLOGY

The oral cavity extends from the vermillion border of the lip to the hard palate/soft palate junction superiorly, to circumvallate papillae inferiorly and to the anterior tonsillar pillars laterally. The slit like space between the lips and cheeks and teeth/gingivae is the vestibule of the mouth. The space inside the teeth and gums is the oral cavity proper. The floor is the mylohyoid muscle and the roof is the hard palate. (Fig 1 & 2)

It is divided into seven subsites

- Lips
- Alveolar ridges – upper and lower alveolus
- Oral tongue – anterior two thirds limited by circumvallate papillae
- Retromolar trigone – which overlies the ascending ramus of the mandible behind the last molar tooth
- Floor of mouth

- Buccal mucosa – lines the cheek, inner aspect of lip which includes upper and lower buccoalveolar gutters
- Hard palate

Cheek and Lips

The substance of lips and cheek consists of facial muscle and fat. The parotid duct opens on the inner surface of the cheek opposite to the crown of the upper second molar tooth. Except the teeth, the entire vestibule is lined by mucous membrane.

The lips are fleshy folds, lined externally by skin and internally by mucous membrane. Each lip is composed of (a) skin (b) the orbicularis oris muscle (c) the submucosa containing mucous labial glands and blood vessels and (d) mucous membrane.

The cheeks are fleshy flaps, forming a large part of each side of the face. Each cheek is composed of (a) skin (b) superficial fascia containing some facial muscles, the parotid duct, mucous glands, vessels and nerves (c) the buccinator covered by bucopharyngeal fascia pierced by the parotid duct (d) submucosa with mucous buccal glands and (e) mucous membrane.

Gums

Gums (Gingivae) are the soft tissues which envelop the alveolar processes of the upper and lower jaws and surrounding the necks of the teeth. They are composed of dense fibrous tissue covered by stratified squamous epithelium.

Hard Palate

The anterior two third is formed by the palatine processes of the maxillae, and its posterior one third by the horizontal plates of the palatine bones.

Tongue

The tongue is essentially a mass of muscle covered by mucous membrane with midline, sulcus separating the two muscular halves. The main bulk is made up of Genioglossus muscle with some longitudinal and transverse intrinsic muscle fibres. Two sets of muscles extrinsic, intrinsic are present. The tongue practically fills the oral cavity proper except in its posterior portion. The posterior part of the tongue is connected with hyoid bone by Hyoglossi, Genioglossi muscles and the Hyoglossal membrane. The inferior surface is connected with the mandible by the mucous membrane, which is reflected over the floor of mouth to the lingual surface of the gum.

There are projections of the corium over the anterior two third of the dorsum of the tongue called papillae. The various types of papillae are circumvallate, fungiform and filiform papillae.

Lymphatic Drainage

Lymphatic drainage is mainly to the submental, submandibular lymphnodes in the suprahyoid region. It also drains into upper deep cervical lymphnodes especially the jugulo omohyoid.

The lymph from the lower lip, the anterior part of the alveolus, anterior part of the floor of the mouth and anterior third of tongue drain into the submental lymphnodes.

The remaining part of the oral cavity and middle third of the tongue drains into submandibular group and the upper deep cervical and to some extent into the submental lymphnodes.

The tip of the tongue drains bilaterally to the submental lymphnodes. The rest of the anterior two thirds drain unilaterally through the floor of the mouth into the submandibular nodes. There is some overlap across the midline. The posterior one third drains bilaterally into the jugulo omohyoid nodes. It is noted that the lymph from the tongue ultimately reaches the jugulo omohyoid nodes.

The cervical nodes are described under various levels. (Fig. 3)

Level I : Includes nodes within the submental and submandibular triangle.

Ia : Nodes in the submental triangle bounded by the anterior bellies of digastric and deep by the mylohyoid.

Ib : Nodes in the submandibular triangle bounded by the anterior and posterior bellies of digastric and the body of the mandible.

Level II : Includes nodes extending from the subdigastric area to the carotid bifurcation and nodes surrounding the spinal accessory nerve from jugular foramen to posterior border of sternocleidomastoid muscle.

IIa : Nodes in the region anterior to the spinal accessory nerve.

IIb : Nodes in the region posterior to the spinal accessory nerve.

Level III : Includes nodes principally along the jugular veins between the carotid and its bifurcation, posterior border of sternocleidomastoid muscle and omohyoid muscle.

Level IV : Includes nodes below omohyoid muscle above the level of clavicle between carotid vessels anteriorly and mylohyoid muscle posteriorly.

Level V : Includes nodes in the posterior cervical triangle bounded by the posterior border of the sternocleidomastoid, the clavicle and the anterior border of the trapezius.

Level VI : Includes nodes in the anterior triangle of necks bounded by the anterior borders of the sternocleidomastoid extending from the hyoid to the suprasternal notch.

Blood supply of the oral cavity

All the parts of the oral cavity are supplied by the three branches of the external carotid artery.

The facial artery, a branch of external carotid artery supplies the cheek. The lingual artery, a branch of external carotid artery supplies the tongue.

Blood supply of the palate is from the greater palatine artery, a branch of maxillary artery which emerges from the greater palatine foramen and passes around the palate.

Nerve supply of the oral cavity

Sensory supply to the mucous membrane of the cheek comes from the trigeminal nerve above by maxillary division and below by the mandibular division. The mucous membrane and the muscles of the tongue have entirely separate nerve supply.

The anterior two thirds of the tongue is supplied by the lingual nerve whose trigeminal component mediates the common sensibility and whose chordatympani component mediates taste.

All the muscles of tongue, intrinsic and extrinsic are supplied by the hypoglossal nerve (except the palatoglossus which is supplied by pharyngeal plexus).

PHYSIOLOGY

1. Mastication

As the seat of the dental apparatus it serves to masticate the food and prepare it for digestion. Mastication is performed not by the isolated action of particular teeth or a particular jaw but by the combined activity and integration of the component parts as one unit.

2. Speech

With the pharynx it forms the resonator for speech.

3. Respiration

It also assists in respiration. However this is abnormally accentuated in mouth breathing.

4. Taste

This harbours the organs of taste.

5. Absorption

Absorption through the mucous membrane is very rapid, its non corneated epithelium being much more permeable than the epithelium of the skin. This fact is utilized in the topical administration for systemic action of drugs in the oral cavity, particularly in the region of the floor of the mouth and under the tongue.

ETIOLOGY

Oral cancer represents a multiplicity of diseases.

Tobacco

The relation between tobacco exposure and disease development has been clearly demonstrated. A clear dose response relationship has been identified with greater risk being directly proportional to intensity and duration of exposure. Users of smokeless tobacco have a four times increased risk of oral cavity carcinoma.[4,5]

Smoking

The risk of malignancy is 6 times than that of nonsmokers. The risk increases with the number of years of smoking and number of cigarettes smoked per day[5].

Betel nut and Tobacco chewing

Chewing dried and cured tobacco with betel nuts and lime is highly irritant to oral mucosa.

Alcohol

Alcohol is another strong independent risk factor for oral cancer with multiplicative effect from combined exposure with tobacco. Indirectly vitamin deficiency and poor detoxifying capability due to alcohol induced liver dysfunction may promote carcinogenesis.

Diet and Nutrition

The PlummerVinson syndrome has been associated with increased risk of oral malignancy. Recent studies suggest Vitamin A, C and carotenoids may be protective against epithelial cancers. High dietary consumption of fruits and vegetables has been found to provide protective effect[4].

Genetic

The over expression of p53 gene in the cancer of oral cavity has been correlated with smoking and drinking. The p53 gene may be used in future as a potential tumour marker and may help in identifying patients who are at risk for cancer development[20].

Viral

Another possible etiologic agent for carcinogenesis is Human Papilloma Virus (HPV) an epitheliotropic DNA virus. HPV 16 and 18 are implicated in 15% to 20% of oral cancers[3].

AIDS

Squamous cell carcinoma of upper aerodigestive tract appears to be common and aggressive in patients with AIDS as in other immunodeficiency states. Oral and pharyngeal manifestations of Kaposi sarcoma are common in HIV positive patients.

Solar exposure

Exposure to sunlight has been implicated in the carcinoma of lip in susceptible population.

Dentition

Poor dentition may be associated with cancer of oral cavity.

PREMALIGNANT LESIONS

Lesions considered to carry a definite risk of malignant change[4]

Leucoplakia

Erythroplakia

Chronic hyperplastic candidiasis

Conditions that are not themselves premalignant but which are associated with a higher than normal incidence of oral cancer[4]

Oral submucous fibrosis

Syphilitic glossitis

Sideropenic dysphagia

Oral conditions about which there is still some doubt as to whether their association with oral cancer is causal or casual[4]

Oral lichen planus

Discoid lupus erythematosus

Dyskeratosis congenita

Leukoplakia

WHO has defined leukoplakia as ‘any white patch or plaque that cannot be characterized clinically or pathologically as any other disease’. Oral leukoplakia is the most precancerous lesion of the oral cavity.

Erythroplakia

Erythroplakia is defined as ‘any lesion of the oral mucosa that presents as bright red velvety plaques that cannot be characterized clinically or pathologically as any other recognisable condition’. The incidence of malignant change in erythroplakias is 17 – fold higher than in leucoplakia.

Chronic hyperplastic candidiasis

In this, dense chalky plaques of keratin are formed. There may be an immunological defect that allows the *Candida albicans* to invade the epithelium and may render the patient susceptible to malignant change.

Oral submucous fibrosis

Oral submucous fibrosis is a progressive disease in which fibrous bands form beneath the oral mucosa.

Syphilitic glossitis

The syphilitic infection produces an interstitial glossitis with an endarteritis which results in atrophy of the overlying epithelium.

Sideropenic dysphagia

The sideropenic dysphagia leads to epithelial atrophy, which in itself is excessively vulnerable to carcinogenic irritants.

Oral lichenplanus

In erosive or atrophic lichen planus, there is a risk of malignant transformation.

Discoid lupus erythematosus

This consists of circumscribed, elevated, white patches surrounded by a telangiectatic halo.

Dyskeratosis congenita

This syndrome is characterized by reticular atrophy of the skin with pigmentation, nail dystrophy and oral leukoplakia.

PATHOLOGY

MACROSCOPIC APPEARANCE

Oral cancers generally refer to squamous cell carcinoma of oral mucosal origin. More than 90% of cancers of oral cavity are squamous cell carcinomas. Squamous cell carcinomas are described as either exophytic or ulcerative or a mixture of both ie, ulceroproliferative.

1. Proliferative type

The exophytic type is less common and carries a better prognosis. This is a soft fleshy mass has more superficial involvement and deep infiltration of mucosal tissues occurs in advanced stages.

2. Superficial plaque type

Finely granular shallow ulceration that creeps slowly over large areas of mucosa with no invasive tendency. This occurs in patients with wide intraoral pigmentation or melanoplakia.

3. Ulcerative Type

This is seen as an ulcer with heaped up edges and bleeds easily. This excavation is hard and infiltrates the surrounding structures and usually has a high histological grade.

HISTOPATHOLOGY

Squamous cell carcinoma (Fig. 4)

Columns of epithelial cells infiltrate the dermis and in sections, it appears as though it got separated from the rest of the growth. In the centre of these masses, the same process of keratinisation goes on as occurs formally on the surface. The cells become converted into structures, hyaline masses of keratin which stain brightly with eosin and are identical with horny material on the surface of the skin. Hence this is called Epidermoid carcinoma. These hyaline masses are often called as "Cell nests" or "Epithelial pearls"[3].

The outer cells of the pearls are often arranged in a concentric manner. The unchanged cells show the prickle cell appearance, characteristic of epidermoid carcinoma. The presence of epithelial pearls is a sign of differentiation and of good prognostic value. In secondary nodes the appearances may be similar to those in the primary tumour.

Basaloid squamous cell carcinoma

It is an aggressive form of squamous cell carcinoma.

Verrucous carcinoma (Fig. 5)

It is an uncommon variant of squamous cell carcinoma and represents less than 5% of all oral cancers. It is considered as a low grade malignancy and metastasizes rarely. Radiation induced anaplastic transformation has been reported in multiple studies. This is the only malignancy where local excision is sufficient.

METHODS OF SPREAD

LOCAL SPREAD

It extends to the adjacent structures by direct infiltration. It can extend into the retromolar area, alveolus and may infiltrate and ulcerate the skin.

LYMPHATIC SPREAD

The first group of nodes to be affected from the buccal mucosa carcinoma is the submandibular node. From these nodes, when the disease advances, spread occurs to the upper deep cervical nodes. Very rarely spread occurs to the nodes in the posterior triangle. This occurs only in very advanced stage of the disease. The oral cancer as a whole is confined to the organ of origin for a long time, before it disseminates to the lymphnodes which drain the part[1].

HAEMATOGENOUS SPREAD

This may occur from invasion of the blood vessels by the primary tumour or lymphnodal secondaries, to the distant organs.

The most common site of distant metastasis is the lung followed by liver and bone.

CLINICAL FEATURES AND DIAGNOSIS

TONGUE (Fig. 6 & 7)

The majority of tongue cancers occur in the middle third of the lateral margins extending in the course of disease on to the ventral aspect and floor of mouth. Often the growth is exophytic with areas of ulceration. It may occur as an ulcer in the depths of a fissure or as an area of superficial ulceration with infiltration into the underlying muscle. Excessive salivation, Foetor oris, Ankyloglossia are the other symptoms. Pain is a late symptom due to involvement of lingual nerve. Lymph node metastasis is common and present as lump in the neck.[8]

THE FLOOR OF THE MOUTH (Fig. 8)

The lesion usually starts as an indurated mass which soon ulcerates. At an early stage the tongue and lingual aspect of the mandible becomes involved. This leads to slurring of speech. Advanced lesions present with pain, bleeding and foul breath. Spread to submandibular and jugulodigastric nodes occur and may be bilateral.

THE GINGIVA AND ALVEOLAR RIDGE (Fig. 9)

The patient comes with swelling on the gum, bleeding on mastication, ulceration around the teeth, illfitting dentures, history of

tooth extraction and subsequent failure of the socket to heal and trismus in advanced stage.

THE BUCCAL MUCOSA (Fig. 10)

Patient notices an ulcer or swelling at the angle of the mouth or inside the cheek. May or may not have foul smelling discharge. May present with trismus with deep infiltration into the buccinator muscle. The overlying skin of the cheek becomes involved and finally ulcerates forming an orocutaneous fistula (Fig. 11). Few come for secondary lymphnode enlargement.

Squamous cell carcinoma mostly arises at the commisure or along the occlusal plane.

Verrucous carcinoma occurs as a proliferative exophytic lesion with minimal deep invasion and induration. The lesion presents as a soft white velvety area mimicking benign hyperplasia. Lymphnode metastasis is rare.

THE HARD PALATE AND MAXILLARY ALVEOLAR RIDGE

Cancer of palate is common where reverse smoking is practiced. They present as sessile swelling which ulcerate late. Late symptoms are nasal obstruction, discharge or bleeding and dental symptoms such as

painful or loose teeth, ill fitting dentures, oroantral fistula or failure of an extraction socket to heal.

LIP

Lower lip is most commonly affected. The lesion is situated usually to one side of the midline. It can present as nodule or ulcer with bleeding and offensive discharge or neck lump.

RETROMOLAR TRIGONE

It can present as pain referred to external auditory canal or preauricular area or trismus.

INVESTIGATIONS

1. BIOPSY

Biopsy plays a main diagnostic tool in oral malignancies. It is always done on any doubtful or obvious malignant lesions of the oral cavity. Positive biopsy confirms malignancy but a negative malignancy does not exclude malignancy[7].

Procedure

- It is preferable to do biopsy under GA, so that a good bit of normal tissue at the margin of growth can easily be taken without discomfort to the patient. Some authors feel that injection of

local anaesthetic causes dissemination of malignant cells. To obviate risk of dissemination Lignocaine jelly was used topically.

- Biopsy is taken with sharp instrument. An allis forceps is put over margin of the growth and a eleven blade knife is used to cut around it and remove a bit of adjoining normal mucosa along with margin of the lesion.
- Area selected for biopsy must be free from necrotic tissue.
- Specimen must be immediately immersed in 3% formalin solution.

2. FINE NEEDLE ASPIRATION CYTOLOGY

FNAC of the neck nodes after giving antibiotics

Role of FNAC is

- Staging the disease.
- Establishing the diagnosis of any recurrent disease in the lymphnode or as a nodule.

3. RADIOLOGY

X–ray mandible defines mandibular invasion. An orthopantomogram (Fig. 12) gives better delineation of any bone involvement.

4. **CT SCAN**

Value of CT in intraoral tumours is more limited for evaluation of antral tumours and pterygoid regions. CT scan can be used to predict perineural and vascular invasion by oral malignancy. CT brings out some of the lymphnodes not palpable clinically.

5. Routine hemogram, chest radiograph, ultra sound abdomen and liver function test
6. Blood VDRL
7. Dental consultation
8. Laryngoscopy, Bronchoscopy and Esophagoscopy for more accurate assessment in certain cases and for presence of another primary.

CLINICAL STAGING AND HISTOLOGICAL GRADING

TNM Staging for Oral Cavity Carcinoma[5]

Primary tumour

T_X	Unable to assess primary tumour
T_0	No evidence of primary tumour
T_{is}	Carcinoma in situ
T_1	Tumour is < 2 cm in greatest dimension
T_2	Tumour > 2 cm and < 4 cm in greatest dimension
T_3	Tumour > 4 cm in greatest dimension
T_4 (lip)	Primary tumour invading cortical bone, inferior alveolar nerve, floor of mouth, or skin of face (e.g., nose or chin)
T_{4a} (oral)	Tumour invades adjacent structures (e.g., cortical bone, into deep tongue musculature, maxillary sinus) or skin of face
T_{4b} (oral)	Tumour invades masticator space, pterygoid plates, or skull base and/or encases the internal carotid artery

Regional lymphadenopathy

N_X	Unable to assess regional lymph nodes
N_0	No evidence of regional metastasis
N_1	Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension
N_{2a}	Metastasis in a single ipsilateral lymph node, > 3cm and < 6 cm
N_{2b}	Metastasis in multiple ipsilateral lymph nodes, all nodes < 6 cm
N_{2c}	Metastasis in bilateral or contralateral lymph nodes, all nodes < 6 cm
N_3	Metastasis in a lymph node > 6 cm in greatest dimension

Distant metastases

M_X	Unable to assess for distant metastases
M_0	No distant metastases
M_1	Distant metastases

STAGE GROUPING

STAGE I	:	$T_1N_0M_0$
STAGE II	:	$T_2N_0M_0$
STAGE III	:	$T_3N_0M_0$
		$T_1T_2T_3$ with N_1M_0
STAGE IV	:	T_4 any N, M
		N_2 any T, M
		M_1 any T, N

HISTOLOGICAL GRADING

GRADE I - well differentiated

GRADE II – moderately differentiated

GRADE III – poorly differentiated

TREATMENT MODALITIES

Treating the patient with oral malignancy is complex. Each specific site of disease, the extent of disease and the pathologic findings dictate the appropriate surgical procedure, radiation fields, dose and fractionation and indications for chemotherapy.

105 patients with T_{1-2} N_{0-1} carcinoma were studied after treating adequately by radical surgical resection and concluded that early cancer is adequately treated by surgery alone, provided the resection margins are tumour free. (Markus *et al.,* 2000).[38]

Early stage (I and II) oral carcinoma can be treated with surgery or radiation. Five year survival rates are similar for both modalities[6].

In advanced stage (III and IV), a combination of surgery and radiation therapy provides the best survival rate although this increases complication and morbidity[9].

Induction chemotherapy followed by surgery with or without postoperative radiotherapy is optimum multidisciplinary therapy. (Watne, A.L., 2000)[39]

Ca oral cavity : Acc to NCCN – National Comprehensive Cancer Network guidelines[34].

T_{1-2}, N_0	Excision of primary tumour ± unilateral or bilateral selective neck dissection OR Ext. beam RT ± Brachytherapy
T_3, N_0	Excision of primary and reconstruction and unilateral or bilateral selective neck dissection followed by RT or CT / RT
T_{1-3}, N_{1-3} T_4, Any N	Surgery – Excision of primary, Ipsilateral or bilateral neck dissection Reconstruction as indicated followed by RT or CT / RT
Unresectable	CT + RT

PRINCIPLES OF SURGERY

Available surgical procedures for primary include wide excision, complete oral resection, complete oral resection with Hemimandibulectomy, Maxillectomy and Hemiglossectomy[12,18].

Margins of surgical resection vary from site to site. Positive surgical margin carry poor prognosis and should be avoided by frozen section / histopathology of close or doubtful margin[17,19].

Primary reconstruction of surgical defects with well vascularized flaps should be done in most cases. This allows prompt healing, early resumption of function, effective rehabilitation and shorter hospital stay.

Advantages

- Many cancers of oral cavity are amenable to surgical excision per orally.
- Surgical treatment is preferred in patients with advanced tumour and those with mandible invasion.[16]

  In a retrospective study of 105 patients who had resections of previously untreated squamous carcinomas that were localized to the oral tongue or the floor of the mouth, 80% had simple per oral excision. 93% of T_1 and 78% of T_2 remained well after conservative operations (Ronald *et al.*, 2003).[36]
- Requires less time and provides fewer long term sequelae.

Disadvantages

- Potential risk of anesthesia.
- Functional disabilities.

Mandible involvement

Invasion of mandible is not radiocurable and can spread perineurally via inferior alveolar nerve. Direct invasion required hemimandibulectomy. Tumours approaching but not invading need marginal mandibulectomy.[15]

Cervical Node Metastasis

When palpable nodes are present in the neck the decision to proceed with therapy may be made on purely clinical grounds. Palpable nodes require surgical therapy in some form of neck dissection, usually performed in continuity with the tumour.

High incidence of occult cervical metastases, even with small primary tumour and increased incidence of extracapsular spread in cases with palpable adenopathy provides a logical basis for treatment of the neck in a preclinical stage (Carl, E.S. 2002)[37].

Neck Dissection can be

- Radical Neck Dissection – Crile (Fig. 14)
- Modified Radical Neck dissection
- Functional Neck dissection
- Selective Neck dissection

Surgery in advanced Disease

Most efficient method is single stage reconstruction at the time of ablative surgery. Enormous advance in reconstructive techniques have affected mainly the efficiency of therapy in restoring the patient to reasonable function and appearance rapidly. The various flaps used in reconstructive method are

- Tongue flap
- Nasolabial flap
- Forehead flap – McGregor
- Bilobed forehead and scalp – Narayanan's flap (Fig. 15)
- Delto pectoral flap – Bakamjian
- Pectoralis major myocutaneous flap
- Trapezius myocutaneous flap
- Sternomastoid flap
- Lattismus dorsi flap
- Free flaps

Flaps are tissue consisting of entire thickness of skin, plus variable amount of underlying tissue. With a network of blood vessels, arterial, capillary and venous and it is the effectiveness of the circulation through this network in perfusing the tissues of the flap

determines its survival. The defect in the donor area can be closed by direct suturing or with split skin graft.

Fore head flap

The hairless skin of fore head is used mainly for covering intra oral defects. In females, it is also used for outer skin cover. It is laterally based from lateral border of eyebrow to the anterior margin of pinna, curving across the forehead. It is based on superficial temporal artery anterior branch. Flap is raised in the plane between pericranium and the aponeurosis, dissecting in the loose areolar tissue.

Return of the bridge segment and insetting is done after about 10 days when the flap gained vascularity from the local tissue.[1]

Deltopectoral flap (Fig. 16)

This is an axial pattern flap based on first three or four perforating branches of Internalmammary artery. These arteries emerge from corresponding intercostal space close to the lateral border of sternum. They extend as far as the deltopectoral groove. It is usually used to cover extra oral defect, when the exposed bridge segment is tubed in order to eliminate raw surface. It is sometimes used for covering intra oral defect.

Pectoralismajor flap

Based on pectoral branch of acromio thoracic artery and its associated veins. Pectoral myocutaneous flap is tailored from below and medial to nipple. Adequate size of skin, subcutaneous tissue and pectoralis muscle is raised with muscle pedicle measuring almost similar to the breadth of the island skin. This is tunneled through the lower neck incision, beneath the neck skin and brought into the mouth to cover the intra oral mucous membrane defect.

Bilobar Narayanan's flap – forehead and scalp – is used for lining and cover in males.

The pectoralismajor myocutaneous flap for lining and deltopectoral flap for cover in females is used frequently.

PRINCIPLES OF RADIOTHERAPY

Cancers of oral cavity are of particular importance to radiation oncologist. They have an active role in early and advanced disease. The intent of irradiation of head and neck is to ensure a long term and permanent locoregional tumour control.

Radiotherapy offers many head and neck cancer patients a valid alternative to mutilating surgical procedure and very often a better

quality of life than after functional conservation surgery. Radiotherapy causes destruction of neoplastic disease at both primary site and nearby microscopic extensions. RT includes multifield techniques, rotational therapy, shrinking field techniques and electron and brachy boost techniques. In addition radiation sensitizers and protectors, hyperthermia, newer fractionation schedules are increasingly being used.

Fractionation is the division of a dose of radiation into relatively small doses given over certain number of days. Fractionation allows time for the repair of sublethal damage of normal tissues between fractions, but it can also lead to repopulation of the tumour cells to progress from one stage of the cell cycle to another between fractions. Because tumour cells are more susceptible to the killing effects of ionizing radiation tumour cells spared during one fraction may in time be more susceptible during the next or subsequent fractions. In addition number of hypoxic tumour cells may decrease between successive fractions owing to reoxygenation.

Advantages

- Major surgery is avoidable.
- No tissues are removed and hence no functional or cosmetic effect.[29]
- Elective irradiation of lymphnodes can be included with little added morbidity whereas a surgeon should adopt a ‘wait and see’ policy or proceed with elective neck dissection.
- The surgical salvage of an irradiation failure is more likely to succeed than the salvage of a surgical failure. When irradiation is unsuccessful in creating a primary lesion, the cancer always recurs in the centre of the original lesion. But surgical recurrences are more likely to occur at the margins of the resection in or near the suture line. It is difficult to distinguish the normal surgical scar from recurrent disease and diagnosis of recurrence is often delayed.[26]
- The total cost of radiation therapy is usually less than surgery.
- Multiple primary lesions can be simultaneously encompassed.

Principles

- The volume of primary tumour site which requires high dose of radiation must include a margin outside all cancer cells and is comparable to that which must be removed surgically.
- Anatomic sites of actual or likely spread of cancer such as regional lymphnodes are frequently included in continuity with the primary tumour.
- Post operative radiation after removal of all grossly detectable disease in a dose of 4500 – 6000 cGy result in very high frequency of tumour control with few detectable sequelae.

The standard radiation treatment regimen for head and neck cancer consists of 5 daily treatment fractions per week given for 5 to 7 continuous weeks. The daily dose per fraction is 180 cGY to 225 cGY.

Technique

1. External Beam Radiotherapy (XRT)

(i) XRT as sole treatment with curative intent and in clinically positive nodes. 70 – 75 Gy to the tumour, 65 – 70 Gy to the clinically positive nodes, Elective neck node irradiation 40 – 50 Gy

(ii) XRT with brachy therapy

XRT to tumour and primary nodes is started with a dose of 45 – 50 Gy followed by an interstitial implant (1 – 2 weeks later) with iridium wires with a delivery dose of 25 – 30 Gy.

(iii) XRT followed by surgery

50 Gy are given to the tumour site and neck nodes

(iv) XRT preceded by surgery

When local resection is sufficient, no postoperative irradiation is given except in T_4 where a dose of 60 Gy reduces risk of local recurrence. When there are positive nodes, 50 Gy is sufficient to control the neck nodes but may be increased to 60 Gy when there is capsular rupture or perineural spread or tumour spillage is suspected.[25]

Advantages

- Centripetal shrinkage of tumour.
- Sterilizes lymphatics.
- Allows adequate clearance.
- Advantage in the posteriorly placed or ill defined primary that would make surgical exposure difficult. Functional disability (speech/ deglutition) is also less.

Disadvantages

- Tumours that have deep invasion or are large (T_3, T_4) are less responsive to XRT.
- Second course of XRT cannot be considered.
- Salvage surgery for radiation failure is associated with lower survival and high morbidity.[32]
- Side effects of irradiation like xerostomia, mucositis and osteoradionecrosis.
- Long treatment time of 5 – 7 weeks can be a burden.

2. Brachy Therapy

Indicated in well defined and accessible T_1 and T_2 tumour

Advantage

- Conservative treatment
- Well defined volume of radiation

Indications

1. Tumour control

Small tumours T_1 – T_2 are equally well controlled by radio therapy or surgery.

2. Pre surgical

114 patients with squamous cells cancer of the oral cavity were evaluated in the Department of Radiation oncology at the university of Virginia, Majority were treated with radiation therapy alone, whereas the remainder were treated with radiation therapy preoperatively or postoperatively. 75 patients received external beam therapy and 32 patients received an implant and results studied (Leroy *et al.,* 2001).[40]

A dose of 50 Gy is delivered to the primary tumour and regional nodes with double aim to reduce the tumour size and effect cell kill to facilitate ease of surgery.[21]

3. Post surgical

51 patients with squamous cell Ca of oral tongue and floor of mouth were treated with combined surgery plus RT. This study highlights significant differences between floor of mouth and oral tongue cancers in response to combined surgery and RT (Zelefsky, M.J. 2001).[41]

In complete resection (upto 60 – 70 Gy dose) is given, depending on the stage and grade of tumour. When elective neck dissection is first done, radio therapy is given depending upon the histological grade.

4. Elective treatment of clinically negative nodes

If a high rate of relapse is expected in neck nodes more than 90% of the cases can be prevented by delivery of 40 - 50 Gy to the neck.

5. Relapsing tumour after surgery

When salvage surgery is not feasible salvage radiation therapy can be tried, although often with poor outcome due to tumour load, poor vascularization and patients general condition.[33]

6. Palliation

When tumour is considered surgically or radiotherapeutically incurable, a few high dose fractions are given in order to reduce symptoms such as pain and bleeding.

Side effects of Radio therapy

Early

a) Mucositis

b) Dry mouth

c) Loss of taste

d) Dysphagia, Dyspnoea

e) Erythema and Epidermolysis

Late

a) Soft tissue necrosis, Flap dehiscence

b) Osteoradionecrosis of mandible. This is predisposed by increased dose delivery to the mandible, mandibular parts not covered by healing mucosa and dental extraction within 10 days of brachytherapy.

c) Hypothyroidism

PRINCIPLES OF CHEMOTHERAPY

Patient with disseminated head and neck cancers usually die within 6 months. Several agents measurably shrink recurrent or disseminated head and neck cancers. Responses to CT are influenced by tumour grade and extent.

26 patients with advanced squamous cell cancer of head and neck were treated with bleomycin, oncovin, mitomycinC and methotrexate (BOMM) for 10 weeks. Partial and non responders received Adriamycin, cisplatin and cyclophosphamide (APC). The response rate to BOMM was 65% and to APC was 20% (Weeker *et al.*, 2002).[42]

Chemotherapy may be administered as

1) Single agent

Cisplatin / 5 – FU / Methotrexate / Bleomycin are the single most effective agents

2) Combination CT

The most effective combination regimen to date is cisplatin and 5 – fluorouracil

Other combinations are

- 5FU / Hydroxyurea
- Cisplatin / Paclitaxel
- Carboplatin / Infusional 5FU
- Cefuximab

3) Post operative adjuvant CT

No proven effect on disease free survival[28]

In Adjuvant chemotherapy for advanced head and neck squamous carcinoma, Head and neck contracts program, Potomac, administering chemotherapy post operatively in patients with head and neck cancer fail to demonstrate significant clinical outcome, but distant metastasis rates may be reduced.

4) Preoperative Neoadjuvant CT

Can result in tumour regression in 60 – 90 percent and incomplete responses in 20 – 25 percent.[22]

Chemotherapy combined with irradiation produced improvement in median or overall survival in comparison to irradiation alone. Recent trials of chemotherapy used preoperatively in the treatment of head and neck cancer have not yielded decreased recurrence rates or increased overall survival rates in comparison to surgery alone, but they do appear to have prolonged the disease free interval following definitive surgery. (Green, M.R., 1998).[43]

Various drugs used for chemotherapy

Cisplatin

Dose : 50 – 100 mg / m^2 BSA IV every 3 weeks

5 – FU

Dose : 800 – 1000 mg / m^2 BSA, IV, 3 – 5 days cycle every 28 days

Methotrexate

Dose : 2.5 - 5 mg daily, po; or 40 mg / m^2 IV weekly with Leucoverin

Vincristine

Dose : 2 – 10 mg / m^2 BSA, every 3 weeks

Cyclophoshamide

Dose : 10 – 15 mg / kg IV every 2 – 3 weeks

Mitomycin

Dose : 1.5 mg / m^2 IV weekly

Bleomycin

Dose : 10 – 20 mg / m^2 IV once or twice weekly

MATERIALS AND METHODS

This study was conducted at Coimbatore Medical College Hospital from July 2006 to August 2008.

All the cases admitted in the surgical units were evaluated and studied. No specific criteria were used among the oral cancers. Under this study, all malignant neoplasm of lip, cheek, alveolus, tongue, floor of mouth and hard palate were included.

A careful recording of history symptoms, etiological factors and complications of oral cancers was elicited. A through clinical examination of the primary metastasis was also done and staged in TNM staging.

All patients underwent routine baseline investigations like urine for albumin and sugar, complete hemogram, blood for urea and sugar, serum for creatinine and bilirubin, chest x ray and ECG. All the patients were subjected to wedge biopsy of the lesion and histopathology examination of the specimen was carried out to assess the native and histological grading of the tumour.

Criteria for Response

Complete regression of tumour and nodes was taken as excellent response while presence of residual lesion was considered as partial response.

Follow up

Complete regression of lesion was followed up with observation. Residual lesions were subjected to CT / RT.

Limitations of study

1. There was a very high drop out rate even at the initial stage of study. Some patients were not willing to salvage procedures.
2. Because of short period available, patients could be followed up for a minimum period only. Hence adequate data regarding tumour free initial survival period and exact recurrence rates were not available.
3. Since most of the patients present in late stage of disease, proper evaluation of treatment modalities in early stages could not be studied.

OBSERVATION AND ANALYSIS

A total of 325 patients were admitted in the surgical units and registered and treated by the Department of Oncology, Coimbatore Medical College and Hospital from July 2006 to August 2008.

The age wise distribution of oral cancer was studied.

Table : 1

Age group in years	Number	%
31 – 40	32	9.85
41 – 50	75	23.00
51 – 60	103	31.70
61 – 70	83	25.50
71 – 80	32	9.85
TOTAL	325	100.00

As shown, the highest presentation was in the sixth decade of life, which amounted to 31.7 % of the cases.

Table : 2

Age group	31 – 40	41 – 50	51 – 60	61 – 70	71 – 80	TOTAL
Male	14	34	53	44	16	161
Female	18	41	50	39	16	164
TOTAL	32	75	103	83	32	325

There is no male or female predominance. Males had a predominance in the sixth and seventh decade of life while the female predominance was in the fifth and sixth decades.

Table : 3

Age group	**31 – 40**	**41 – 50**	**51 – 60**	**61 – 70**	**71 – 80**	**TOTAL**
Male	14	34	53	44	16	161
Female	18	41	50	39	16	164
Male : Female	**0.77 : 1**	**0.82 : 1**	**1.06 : 1**	**1.12 : 1**	**1 : 1**	0.98 : 1

The Male : Female ratio in this study was 0.98 : 1 ranging from 0.77 to 1.12 :1.

On analysing the risk factors, the habit of betel leaf chewing and tobacco in its different forms amounted for majority of the cases.

Table : 4 - ANALYSIS OF RISK FACTORS

B	T	S	A	B,T	S,A	B,S	B,A	S,T	A,T	B,S,T	B,A,T	S,A,T	B,S,A,T	No Risk	Tot
58	10	18	2	92	42	8	13	16	1	8	6	37	3	11	325

B - Beta leaf and nut chewing

T - Tobacco chewing

S - Smoking

A - Alcohol

Table : 5

SITE of lesion	No. of patients	%
1. Buccal mucosa – Left	79	24.3
2. Buccal mucosa – Right	69	21.2
3. Tongue	97	29.85
4. Alveolus	34	10.5
5. Floor of mouth	15	4.6
6. Hard palate	16	4.9
7. Lip	15	4.6
TOTAL	325	100

The commonest site is the buccal mucosa, followed by the tongue, Alveolus, Hard palate, Floor of mouth and lips. The left side buccal mucosa showed a higher incidence, probably related to the habit of keeping the betel and tobacco quid in the mouth on the left side.

The commonest histologic type was squamous cell carcinoma, well differentiated type.

Table : 6

Type	Number	%
Squamous cell carcinoma - Grade I	207	63.7
Squamous cell carcinoma - Grade II	101	30.75
Squamous cell carcinoma - Grade III	1	-
Verrucous carcinoma	15	4.6
Melanoma	1	-

Majority of patients presented with advanced stage of disease.

Table : 7

Stage	Number	%
Stage I	3	1
Stage II	25	7.7
Stage III	102	31.4
Stage IV	195	60

91.4% of the patients present with stage III and stage IV lesions, thus reflecting on the poor outcome.

Table : 8

Site	T1	T2	T3	T4	TOTAL
Buccal mucosa	4	28	42	74	148
Tongue	-	36	48	13	97
Alveolus	-	6	18	10	34
Floor of mouth	1	4	4	6	15
Hard palate	-	2	4	10	16
Lip	-	6	6	3	15
TOTAL	5	82	122	116	325

Analysing the primary tumour at presentation, it was observed that majority of the patients present with advanced disease. Majority of the patients presented with T_3 and T_4 lesions.

Surgery was offered as primary treatment in 30 patients. Of these five patients had verrucous carcinoma and the rest had squamous cell carcinoma.

Table : 9

Type	Number	%	Surgery	%
Squamous cell carcinoma	309	95	25	8
Verrucous carcinoma	15	4.6	5	33.3
Melanoma	1	-	-	-
Total	325	-	30	-

Surgery is the most effective modality of treatment for verrucous carcinoma. However as most of the squamous cell carcinoma patients report with advanced disease or opted for nonoperative management, only 8% of patients with squamous cell carcinoma underwent surgery.

Five patients underwent surgery for verrucous carcinoma. Four were not subjected to any adjuvant modalities. One patient who had recurrence was subjected to chemotherapy.

Table :10

Surgery	Site	Number	Recurrences
Excision with primary closure	R – Buccal	1	-
Wide excision, segmental mandibulectomy, Deltopectoralflap	L – Buccal	1	-
Wide excision, Tongue flap cover (Fig. 17)	L – Buccal	1	1
Wide excision, Abbe's flap	Lip	1	-
Wide excision, segmental mandibulectomy supra omohyoid dissection, Deltopectoralflap	L – Buccal	1	-

25 patients with squamous cell carcinoma were operated and the results discussed below. Only a few patients were operated upon because many patients opted for noninvasive therapies for fear of disfigurement and prolonged hospitalization or reported late making surgery difficult.

Table :11 Surgery – Squamous cell carcinoma

Buccal Mucosa	**Number**	**Recurrences**
Excision with primary closure	3	-
Wide excision with SSG	3	1
Wide excision, Hemimandibulectomy, Deltopectoralflap (Fig. 18)	2	-
Wide excision, Hemimandibulectomy, forehead flap	1	-
Tongue	**Number**	**Recurrences**
Excision with primary closure	4	1
Hemiglossectomy, Tongue Flap	4	-
Hemiglossectomy, RND (Fig. 19)	2	-
Hemiglossectomy, MRND	1	-
Alveolus	**Number**	**Recurrences**
Wide excision, Subtotal Maxillectomy (Fig. 21)	1	-
Hemimandibulectomy, Deltopectoral flap	1	-
Hard palate	**Number**	**Recurrences**
Excision	1	-
Lip	**Number**	**Recurrences**
Wide excision, Modified Flap	1	-
Floor of Mouth	**Number**	**Recurrences**
Wide excision, Segmental Mandibulectomy, Nasolabial flap (Fig. 20)	1	-

The recurrences were subjected to chemotherapy and radiotherapy. The patient with ca tongue had progression of the disease and did not respond to any of the modalities. One case of ca buccal mucosa had neo adjuvant chemotherapy with 2 cycles of cisplatin and 5 fluorouracil. 14 patients received, chemotherapy and radiotherapy after surgery and 9 patients received chemotherapy alone. The number of patients operated were less and so the outcome of the surgery could not be assessed.

Table : 12

Surgery	**Post surgery CT**		**Post surgery RT**		**Post surgery CT + RT**	
	No	**%**	**No**	**%**	**No**	**%**
30	9	30	1	3	14	47

Majority of the patients were subjected to chemotherapy and loco regional radiotherapy for efficient control. Out of 5 patients operated for verrucous carcinoma, 4 didnot undergo any adjuvant modalities. One had recurrence and was given chemotherapy.

Chemotherapy was administered as either primary CT, adjuvant CT or salvage CT. The response to these modalities is as noted.

Table : 13

Regimen	Primary CT		Failure	
	No	%	No	%
Inj. Cisplatin D1, D2 Inj. 5FU D1 – D3	55	45	10	18
Inj.cisplatin D1, D2	19	15.5	10	53
Inj. MitomycinC D1 Inj. 5FU D1 – D3	10	8		
Inj. Vincristin D1 Inj. Cyclophosphamide D1	29	24	2	7
Inj. Mitomycin C D1 Inj. Cyclophosphamide D1	3	2.5	-	-
Inj. Methotrexate D1 Inj. Cyclophosphaomide D1	6	5	-	-

Table : 14

Regimen	Adjuvant CT		Failure	
	No	%	No	%
Inj. Cisplatin D1, D2 Inj. 5FU D1 – D3	54	54	6	11
Inj.cisplatin D1, D2	20	20	4	20
Inj. MitomycinC D1 Inj. 5FU D1 – D3	-	-	-	-
Inj. Vincristin D1 Inj. Cyclophosphamide D1	20	20	2	20
Inj. Mitomycin C D1 Inj. Cyclophosphamide D1	-	-	-	-
Inj. Methotrexate D1 Inj. Cyclophosphamide D1	6	6	1	-

Various regimens were used, subject to the availability of the drugs in the hospital. The highest failure rates were seen in the single drug regimen. Multiple drug regimen had lower failure rates (7 – 20%). The failures were subjected to radiotherapy and T. Methotrexate 100 mg/day for 2 weeks, every 3 weeks. There was also a high rate of defaulters among the patients. This was due to prolonged treatment strategies, ignorance and illiteracy, patients not understanding the importance of chemotherapy.

Radiotherapy was also administered either as primary or palliative treatment. The patients were subjected to Telecobalt external beam radio therapy, at 200 – 220 cGy, 5 daily fractions per week, 28 to 35 sittings.

Table :15

Site	Primary RT	Complete Response	% of failure
Buccal Mucosa	38	20	47
Tongue	12	5	58
Alveolus	8	5	37
Floor of mouth	8	6	25
Hard palate	-	-	-
Lips	-	-	-

Table :16

Site	Palliative RT	Complete Response	% of failure
Buccal Mucosa	20	14	30
Tongue	12	4	67
Alveolus	-	-	-
Floor of mouth	-	-	-
Hard palate	-	-	-
Lips	-	-	-

Good response to treatment was achieved in T_1 and T_2 diseases while the response was poor in late lesions.

Multimodal treatment strategy was more beneficial than single modality and a majority of patients received multimodal treatment strategies.

Table : 17

Regimen	No	Positive response		Failure		Default	
		No	%	No	%	No	%
Surgery + CT + RT	16	14	81.5	1	6.25	1	6.25
CT + Surgery	8	6	75	1	12.5	1	12.5
CT + RT	152	98	65	49	32	5	3
Surgery	6	4	66.5	1	16.5	1	16.5

The response was better with multimodality treatment. This is because the three modalities act synergistically in controlling both the local and regional metastasis.

Table :18

Cases	Defaulters	%
325	122	37

There was also a high rate of defaulters among these patients. This was due to long treatment periods, very slow response to therapy and numerous side effects of treatment regimens and the morbidity associated with operative management making the male patient, who many times is the sole bread winner of the family avoid treatment.

Results of the study

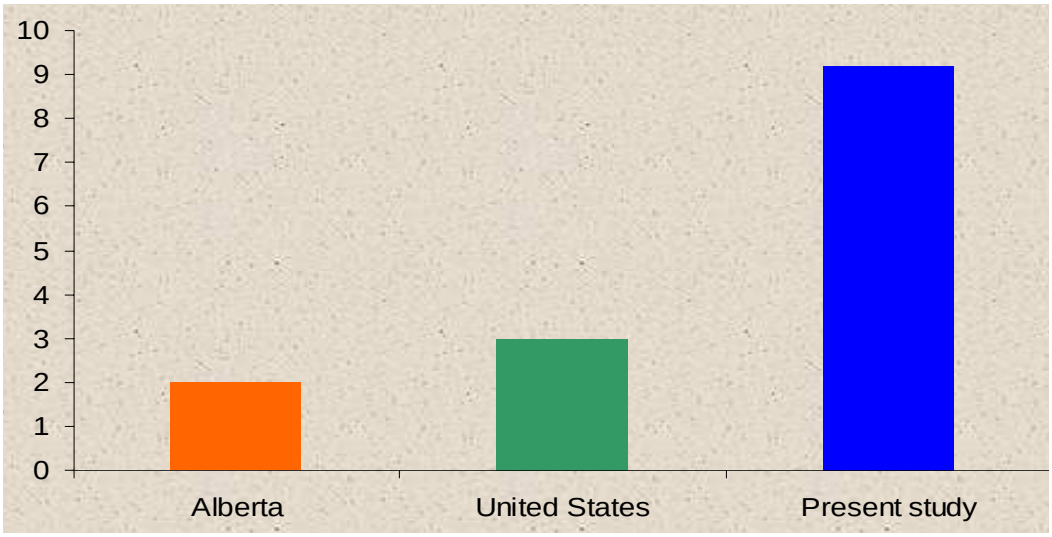
1. Number of patients with oral malignancy studied : 325
2. Number of patients taken up for surgery : 30
3. Number of patients who had primary Radiotherapy : 66
4. Number of patients who had palliative radiotherapy : 32
5. Number of patients who had primary chemotherapy : 122
6. Number of patients who had multimodal treatment : 176
7. Number of patients who had recurrence : 6
8. Number of patients who had defaulted treatment : 122

DISCUSSION

In the study conducted, oral malignancies accounted to 9.2% of all malignancies. The Alberta cancer registry figures show the incidence around 2%. The incidence of oral cancers in United States is 3% of all cancer cases.

Table : 1

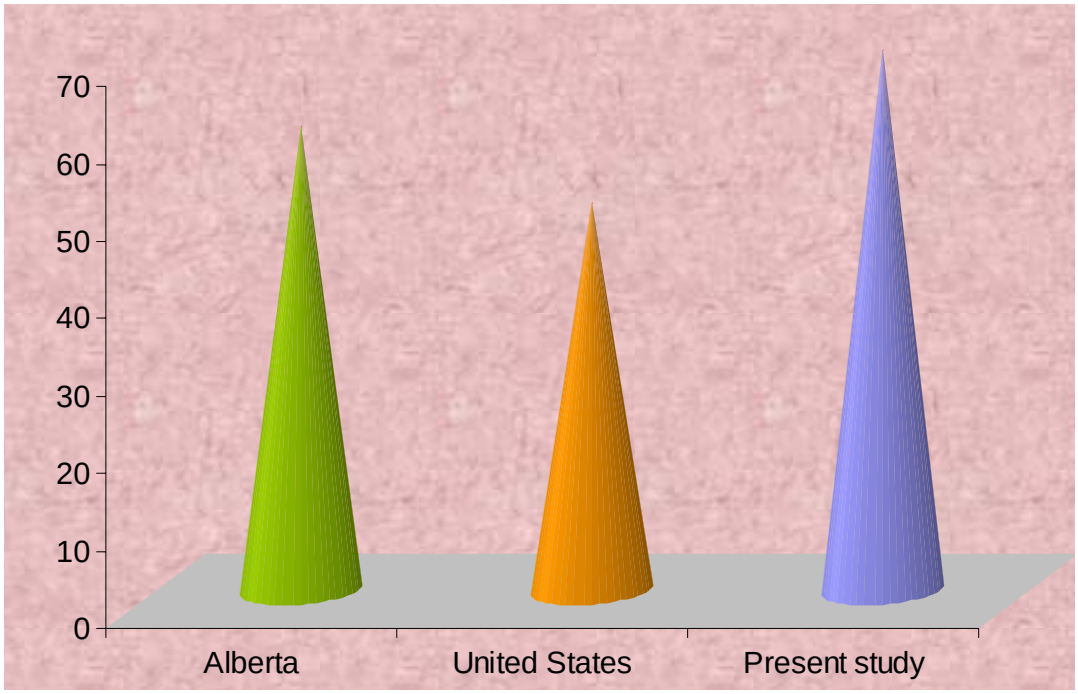
Study	%
Alberta	2
United States	3
Present study	9.2



In the present study, majority of the patients present in their sixth and seventh decades. In the Alberta cancer registry, the maximum incidence was in the fifth and sixth decade. In United States, the average age of onset was fifth decade.

Table : 2

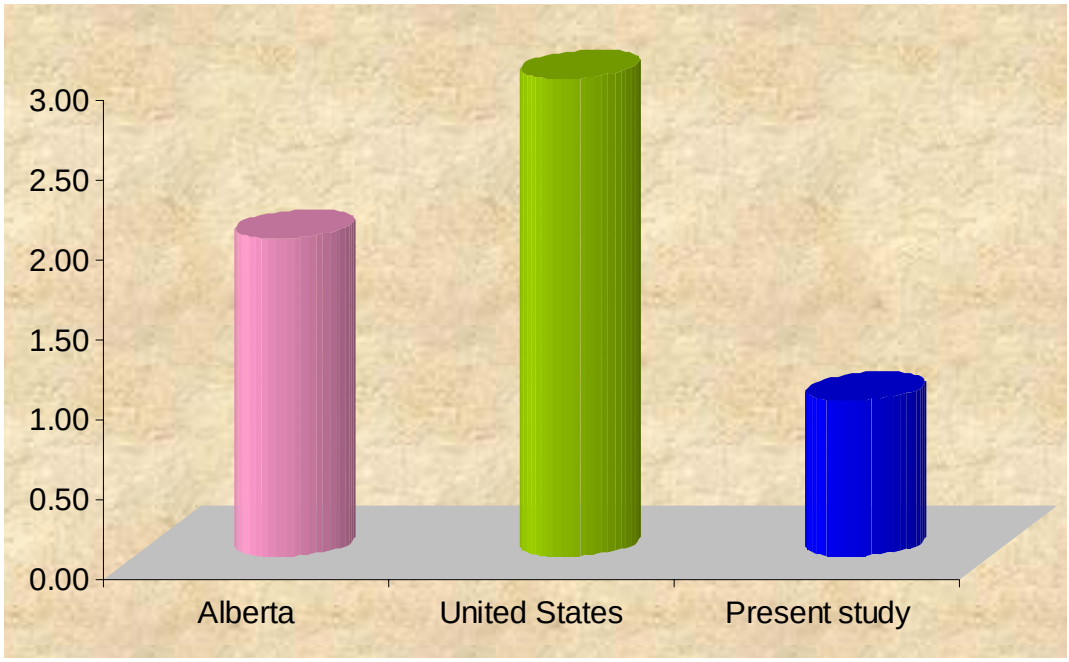
Study	Age (Decade)
Alberta	5^{th}, 6^{th}
United States	5^{th}
Present study	6^{th}, 7^{th}



The Male : Female ratio in this study was 0.98 : 1. The ratio in Alberta study was 2:1 and in United States the ratio was 3:1.

Table : 3

Study	M : F
Alberta	2:1
United States	3:1
Present study	0.98:1

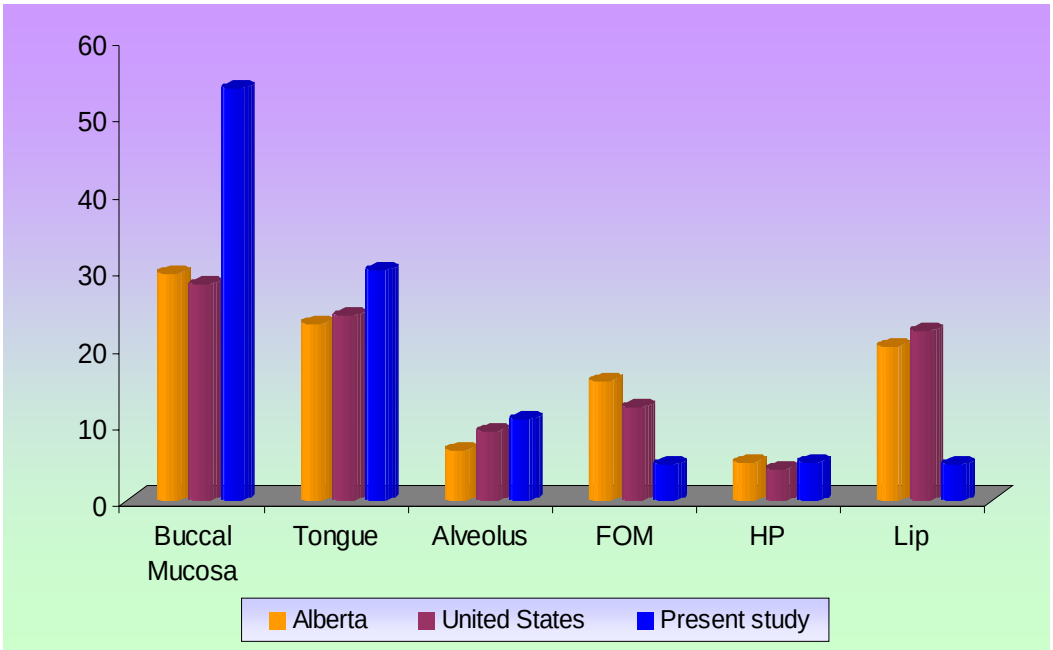


This may be attributed to increased exposure to betelnut and tobacco in females. Fewer males chewed betelnut and tobacco.

The commonest site was buccal mucosa followed by tongue, Alveolus, Hard palate, floor of mouth and lip. In both the Alberta and United States study, the commonest site is buccal mucosa followed by tongue, lip, floor of mouth, Alveolus and Hard palate.

Table : 4

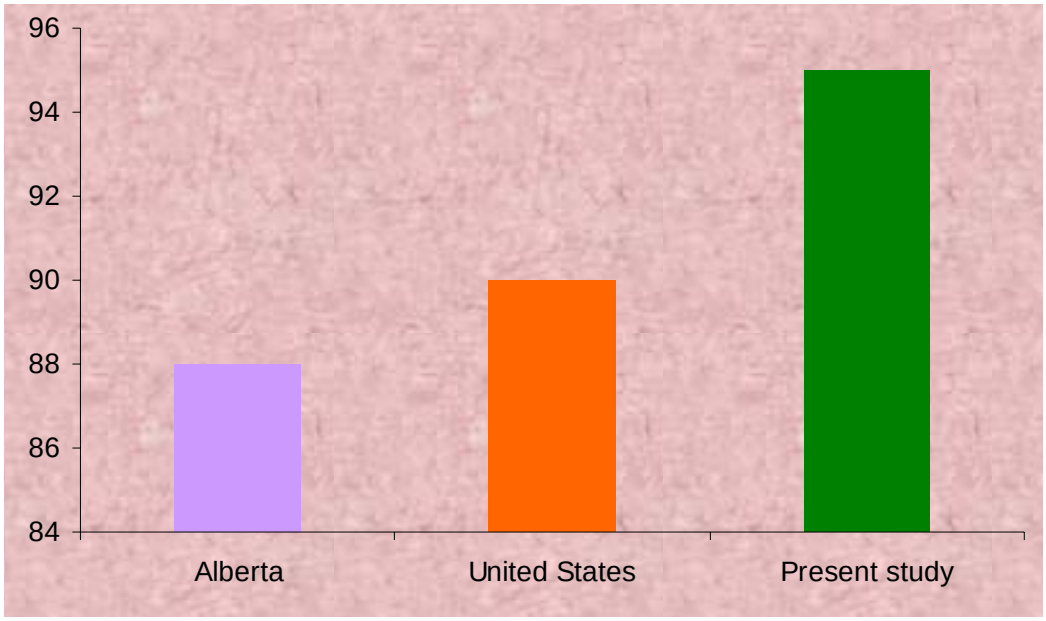
Study	Buccal Mucosa	Tongue	Alveolus	FOM	HP	Lip
Alberta	29.5%	23%	6.5%	15.5%	5%	20%
United States	28%	24%	9%	12%	4%	22%
Present study	53.5%	29.8%	10.5%	4.6%	4.9%	4.6%



Squamous cell carcinoma was the commonest type 95% followed by verrucous carcinoma 4.6%. There was one case of Melanoma of hard palate. This was comparable to the results of the other studies where the incidence was 88% and 90% respectively.

Table : 5

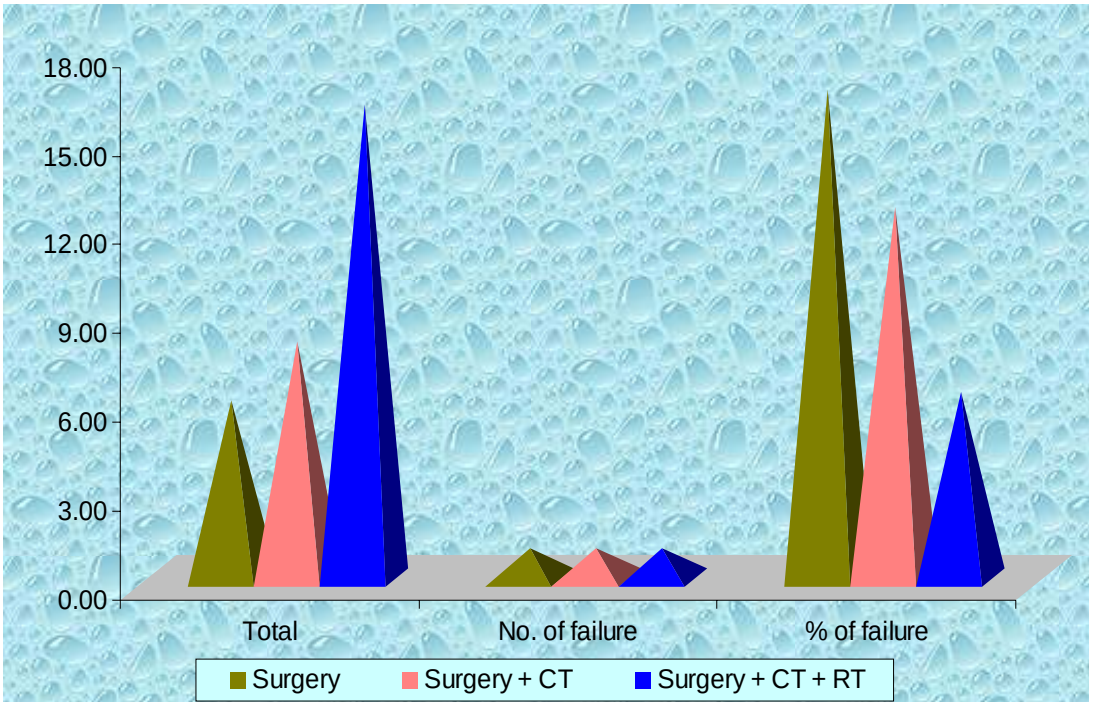
Study	%
Alberta	88
United States	90
Present study	95



Most of the patients presented late and hence the results of surgery could not be compared effectively.

Table : 6

Treatment	No	% failure
Surgery	6	1 (16.5%)
Surgery + CT	8	1 (12.5%)
Surgery + CT + RT	16	1 (6.25%)



Radiotherapy was used as the first line of management of carcinoma of buccal mucosa in a series by M. Krishnan Nair and R. Sankaranarayanan which showed 85% with Stage I, 63% with Stage II, 41% with Stage III and 15% with Stage IV disease survived disease

free at 3 years.[35] In our study, Radiotherapy was used in 38 cases of buccal mucosa Ca, 12 cases of tongue Ca, 8 cases of Alveolus Ca, 8 cases of floor of mouth Ca followed by chemotherapy with 47% failure for buccal mucosa Ca, 58% failure for tongue Ca, 37% failure for Alveolus and 25% failure for floor of mouth Ca.

Surgical treatment for T_1 – T_2 patients with the addition of postoperative twice a day radiotherapy is recommended in selected cases. For T_3 – T_4 patients twice a day preoperative radiotherapy is recommended as it reduces the extent of the surgical procedure (Fein *et al.*, 2002)[44].

Single modality treatment with surgery or radiotherapy is generally recommended for the patients who present with early stage disease Stage I and II. The 2 modalities result in similar survival in these individuals. In contrast, in patients with locally advanced disease at diagnosis, combined modality therapy is recommended. Unfortunately the majority of oral cancers present at an advanced Stage III and IV, when therapy is more complex and the prognosis is worse.[30] A combination of surgery and radiation therapy provides the best survival rate although this increases the complication and morbidity. Role of chemotherapy has not been clearly defined in oral squamous cell carcinoma.

SUMMARY AND CONCLUSIONS

- Three hundred and twenty five patients were treated at the Government Coimbatore Medical College Hospital during the period from July 2006 to August 2008.
- Highest incidence of oral cancer was seen in the sixth decade of life and male female ratio being 0.98 : 1.
- The buccal mucosa is the most common site. 148 out of 325 patients had buccal carcinoma.
- Multimodal treatment had a better cure rate compared to single modality treatment. 16 patients were treated with surgery, CT and RT and there was only one recurrence within one year.
- Combination chemotherapy was more effective than single agents and cisplatin and 5–Fluorouracil was the most effective combination. In the combination chemotherapy, the failure rate was 11 – 18 percent compared to the single agent chemotherapy where the failure rate was 20 – 53 percent.
- Radiotherapy is more effective in the early stages and in combination with other modalities in late stages.

BIBLIOGRAPHY

1) McGregor, I.A. and McGregor, R.M. (1986), Cancer of the face and mouth, Churchill Livingstone, Edinburgh.

2) Langdon, J.D., and Henk, J.M. (eds). (1995), Malignant tumours of the mouth, Jaws and Salivary Glands, Arnold, London.

3) Cawson, R.A., Langdon, J.D. and Eveson, J.W. (1996), Surgical pathology of the mouth and Jaws. Wright, Oxford.

4) Bailey and Love's Short practice of surgery 24th Edition, Hodder Arnold.

5) Principles of surgery, Schwartz; 8th Edition, McGraw Hill.

6) Lydiatt, D.D., Robbins, K.T., Byers, R.M. *et al.,* (1993), Treatment of Stage I and II oral cancer. Head Neck, 15:308.

7) The American Society for Head and Neck Surgery and the Society of Head and Neck Surgeons. Clinical practice Guidelines for the Diagnosis and Management of cancer of the Head and Neck, 1996.

8) Vincent T. Devita, Jr., Samuel Hellman, Stevan A. Rosenberg, Cancer Principles and Practices of Oncology, 7th Edition.

9) Stanely Thawley, E. and William R. Panje, Comprehensive Management of Head and Neck Tumours, 2nd Edition, Saunders, Philadelphia, p.555.

10) American Joint Committee on Cancer : Manual for staging of cancer, 4th Ed., Philadelphia : JB Lippin Cott. 1992.

11) McCarty, P.J., Million, R.R. : In Million RR : In Million RR, Cassisi; NJ (eds) : Management of Head and Neck cancer : A multi disciplinary Approach, 2nd Ed. Philadelphia : JB Lippin Cott. 1994.

12) Ord, R.A. (1998), Local Resection and Reconstruction of Oral Carcinoma.

13) Dimery, I.W. and Hong, W.K. (1993), Overview of combined modality therapies for head and neck cancers.

14) The Surgical Management of oral cancer otolaryngol. Clin. North. Am. 2006.

15) The evolving role of surgery in the management of head and neck tumour. Curr. Opin Oncol. 2005, May 17(3):241 – 248.

16) Current surgical treatment of squamous cell carcinoma of the head and neck oral oncol. 2007, March 43(3).

17) Combined modality treatment of oral and oropharyngeal carcinoma, J. Cranio maxillo fac. Surg. 2002.

18) Survival evaluation of treatment modality in squamous cell carcinoma of oral cavity. J. Cranio Maxillo fac. Surg. 2000.

19) Current treatment options in squamous cell carcinoma of the oral cavity. Surg. Oncol. Clin. N. Am. 2004.

20) Oral cancer, The importance of early diagnosis and treatment. American Journal of Clinical Dermatology, 2001.

21) Blake Cady, Carcinoma of the oral cavity, evaluation and management. The surgical clinics of North America, 1989, 537 – 551.

22) Clark, J. *et al.*, (1997), Induction chemotherapy with cisplatin, fluorouracil and high dose leucovorin for squamous cell cancer of head and neck – Journal of Clinical Oncology, 15:3100 – 3110.

23) Ashley, F.L., McConnell and Machida, R. *et al.*, Carcinoma of the oral cavity : A comparison of five year results after radiation and surgical therapy.

24) Roland T. Shell, Hand Book of Cancer Chemotherapy.

25) Anderson, M.D. Surgical oncology hand book; 2nd Edition, Lippincott Williams and Wilkins.

26) Oxford Handbook of Oncology; Second Edition, Oxford University Press.

27) American Joint Committee on cancer, American Joint Committee on cancer (AJCC) manual for staging of cancer, 4th Ed. Philadelphia : Lippincott – Raven, 1997.

28) National Cancer Institute Head and Neck Contracts writing Committee. Adjuvant chemotherapy for advanced head and neck carcinoma. 1988. 60:301 – 311.

29) Adelstein, D.J *et al* (2003), An intergroup phase III comparison of standard radiation therapy and two schedules of concurrent chemoradiotherapy in patients with unresectable squamous cell head and ncek cancer. J. Clin. Oncol. 21:92.

30) Bernier, J. *et al* (2004), Post operative irradiation with or without concomitant chemotherapy for locally advanced head and neck cancer. N. Engl. J. Med. 350:1945.

31) Brockstein, B., Vokes, E.E. (2004), Concurrent chemoradiotherapy for head and neck cancer. Semin. Oncol. 31:786.

32) Cohen, E.E. *et al*. (2004), The expanding role of systemic therapy in head and neck cancer. J. Clin. Oncol. 22:1743.

33) Seiwert, T.Y. *et al*. (2007), The chemoradiation paradigm in head and neck cancer. Nat. Clin. Pract. Oncol. 4:145.

34) NCCN Clinical Practice Guidelines in Oncology. Head and Neck Cancers. 2008.

35) Krishnan Nair, M. MD. FRCS, R. Sankaranarayan, MD. *et al.,.*, Evaluation of the role of radiotherapy in the management of carcinoma of oral cavity.

36) Spiro, R.H., Spiro, J.D., Strong, E.W. 2003. Surgical approach to squamous carcinoma confined to the tongue and the floor of the mouth.

37) Silver. C.E. 2002. Elective treatment of the neck in cancer of the oral cavity.

38) Markus wolfensberger, MD, Ph.D, Peter Zoaeren, MD, Ph.D., Pavel Pulguerov, MD. 2000. Surgical treatment of early oral carcinoma. Results of a prospective controlled multicenter study.

39) Watne, A.L. 2000. Treatment alternatives; Head and neck cancers.

40) Korb, L.J., Spaulding, C.A. and Constable, W.C. 2001. Role of definitive radiation therapy in squamous cell carcinoma of oral cavity.

41) Zelefsky, M.J., Harrison, L.B. and Fass, D.E. 2001. Post operative radiotherapy for oral cavity cancers : Impact of anatomic subsite on treatment outcome.

42) Weeker, R.H., Baker, S.R., Liepman, M.K. and Ensmengh, W.D. 2002. Intensive sequential chemotherapy in squamous cell cancer of the head and neck.

43) Green, M.R. 1998. Scientific Review of chemotherapy of head and neck cancer.

44) Fein, D.A., Mendenhall, W.M. and Parsons, J.T. 2002. Carcinoma of the oral cavity : A comparison of results and complication of treatment with radiotherapy and or surgery.

PROFORMA

NAME AGE SEX OCCUPATION

INCOME

ADDRESS OP / IP UNIT

DOA DOS DOD

DIAGNOSIS

STAGE TNM

EARLY 1 & II

LATE

ANY PREVIOUS TREATMENT : YES / NO

DETAILS :

SYMPTOMS :

1. ULCER / SWELLING / GROWTH
2. PAIN
3. BLEEDING
4. EXCESSIVE SALIVATION
5. DYSPHONIA
6. ALTERATION IN TASTE
7. LOSS OF WT / APPETITE
8. TRISMUS
9. RECENT DENTAL EXTRACTION
10. ANY OTHER SYMPTOM

PAST H/O

- H / O PREVIOUS SURGERY
- H / O ORAL CANDIDIASIS
- H / O ANY SYSTEMIC DISEASE DM / HT / TB
- H / O IRRADIATION

PERSONAL H/O

- SMOKING
- ALCOHOL
- BETEL NUT / TOBACCO CHEWING
- SHARP TEETH / DENTURES
- CHRONIC ORAL SEPSIS
- SPICY FOOD INTAKE
- RADIATION EXPOSURE

FAMILY H/O

OCCUPATIONAL H/O

TREATMENT H/O

GENERAL EXAMINATION

- BUILD / NOURISHMENT
- PALLOR
- GEN. LYMPHADENOPATHY
- PULSE
- B.P
- ICTERUS

EXAMINATION OF ORAL CAVITY

INSPECTION

SITE – LIPS, CHEEK, ALVEOLUS, TONGUE, FLOOR OF MOUTH, PALATE

PREMALIG LESIONS – LEUKOPLAKIA, ERYTHROPLAKIA, SUBMUCOUS FIBROSIS

SIZE, EXTENT

MOUTH OPENING

ORAL HYGIENE

DENTAL FORMULA

PALPATION

TYPE

SITE & SIZE

EXTENT

TENDERNESS

FLOOR & BASE

BLEEDS ON TOUCH

OROCUTANEOUS FISTULA

NODAL STATUS

OTHER SYSTEMS

STAGE :

INVESTIGATION :

1. URINE - ALB

- SUGAR

- DEPOSITS

2. CHG

3. BLOOD - UREA

- SUGAR

4. S.CREATININE

5. S.VDRL

6. X-RAY MANDIBLE

7. X-RAY CHEST

8. ORTHOPANTOMOGRAM

9. CT – SCAN

10. BIOPSY

11. FNAC OF NODE

TREATMENT :

CURATIVE / PALLIATIVE

NEOADJUVANT THERAPY

SURGERY DONE :

RT – CURATIVE / PALLIATIVE

CT – DRUGS, CYCLES, RESPONSE

OUTCOME

FOLLOW UP

MASTER CHART

S. NO	NAME	AGE	SEX	REG. NO	RISK FA	SITE	TYPE	GRADE	TNM	PRIM TT	SURG	FOLL UP
1	RANGAMMAL	60	F	954/06	B, T	L-BUCCAL	SCC	I	$T_3 N_0 M_0$	CT		Asymp
2	SARASWATHY	60	F	999/06	B, T	R-BUCCAL	SCC	I	$T_4 N_1 M_0$	CT+RT		Progr
3	SWAMIATHAL	65	F	1019/06	B, T	TONGUE	SCC	II	$T_2 N_1 M_0$	CT+RT		Defau
4	KANNAN	55	M	1055/06	S, A	FOM	SCC	I	$T_4 N_1 M_0$	CT		Progr
5	GNANAMMAL	55	F	1066/06	B,T	R-BUCCAL	SCC	II	$T_3 N_1 M_0$	CT+RT		Defau
6	MARUTHACHALAM	55	M	1083/06	B,A,T	R-BUCCAL	SCC	I	$T_4 N_1 M_0$	CT		Defau
7	DURAIRAJ	39	M	1094/06	S, A	L-BUCCAL	SCC	I	$T_2 N_0 M_0$	SY+ CT+RT	WE, SSG	Asymp
8	MUTHAN	55	M	1099/06	S, A	HARD PAL	SCC	I	$T_3 N_2 M_0$	CT+RT		Progr
9	ARUMUGAM	64	M	1106/06	A	HARD PAL	MM		$T_4 N_0 M_0$	RT		Defau
10	KRISHNASWAMY	72	M	1109/06	S, A	FOM	SCC	I	$T_3 N_0 M_0$	CT		Asymp
11	NATARAJ	75	M	1114/06	S, A	TONGUE	SCC	II	$T_4N_1M_0$	CT + RT		Asymp
12	THULASIAMMAL	60	F	1120/06	B	L-BUCCAL	SCC	I	$T_3N_1M_0$	CT		Defau
13	ARUMUGAM	75	M	1121/06	A	TONGUE	SCC	I	$T_2N_2M_0$	CT + RT		Progr
14	RENGAMMAL	70	F	1149/06	B	TONGUE	SCC	II	$T_4N_1M_0$	CT + RT		Defau
15	LAKSHMI	55	F	1160/06	T	TONGUE	SCC	I	$T_3N_2M_0$	CT + RT		Recur,CT
16	NAGAVANI	54	F	1164/06	T	TONGUE	SCC	I	$T_3N_1M_0$	CT + RT		Defau
17	VALPURAMMAL	60	F	1175/06	B, T	L-BUCCAL	VC		$T_4N_1M_0$	CT + RT		Asymp
18	KUMARASWAMY	55	M	1182/06	B, A	R-BUCCAL	SCC	I	$T_2N_0M_0$	CT		Asymp
19	MAHALI	40	F	1186/06	B	R-BUCCAL	SCC	I	$T_4N_0M_0$	CT + RT		Defau
20	THIRUMOORTHY	50	M	1187/06	B, S	L-BUCCAL	SCC	II	$T_3N_0M_0$	CT		Asymp
21	THANNASI	44	M	1190/06	B, S	R-BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Defau
22	HUSSAIN	46	M	1196/06	B, S	R-BUCCAL	SCC	II	$T_3N_1M_0$	CT		Defau
23	CHELLAMMAL	55	F	1282/06	B, S	L-BUCCAL	SCC	I	$T_2N_1M_0$	CT + RT		Asymp
24	RAPPAL	80	F	1291/06	T	HARD PAL	SCC	I	$T_3N_0M_0$	CT		Deafu
25	PERIYAMMAL	47	F	1295/06	B, T	L-BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Progr
26	VAIYAPURI	45	M	1309/06	S, A	TONGUE	SCC	II	$T_2N_0M_0$	SY + CT + RT	WE, PC	Asymp
27	RAMASWAMY	70	M	1314/06	S, A	LIP	SCC	I	$T_4N_1M_0$	CT + RT		Asymp
28	SUBRAMANI	60	M	1315/06	S, A	TONGUE	SCC	II	$T_2N_0M_0$	SY + CT	WE, PC	Asymp

29	MUNIAMMAL	65	F	1324/06	B, T	R. BUCCAL	SCC	I	$T_4N_0M_0$	CT		Defau
30	DURAISAMY	62	M	1335/06	B,A,T	L. BUCCAL	SCC	II	$T_3N_0M_0$	CT		Defau
31	MANIMARAI	80	M	1356/06	S, A	TONGUE	SCC	I	$T_4N_1M_0$	CT + RT		Asymp
32	PITCHAI	55	M	1362/06	S, A	LIP	SCC	II	$T_2N_1M_0$	CT + RT		Asymp
33	RAMASWAMY	60	M	1383/06	S, A	FOM	SCC	I	$T_4N_1M_0$	CT		Progr
34	PERUMAL	45	M	1388/06	S, A	FOM	SCC	I	$T_3N_1M_0$	CT		Defau
35	SUBRAMANI	47	M	1390/06	S, A	TONGUE	SCC	I	$T_3N_2M_0$	CT + RT		Asymp
36	DEVARASI	33	F	1471/06	B, T	L. BUCCAL	SCC	II	$T_3N_2M_0$	CT + RT		Defau
37	RUKUMANI	65	F	1472/06	B, T	ALVEOLUS	SCC	I	$T_3N_0M_0$	CT + RT		Asymp
38	KALIAMMAL	48	F	1480/06	B, T	L. BUCCAL	SCC	II	$T_4N_1M_0$	CT + RT		Progr
39	BASHA	70	M	1497/06	S, A	ALVEOLUS	SCC	I	$T_4N_0M_0$	CT		Asymp
40	ANGATHAL	60	F	1511/06	B, T	R. BUCCAL	SCC	II	$T_3N_2M_0$	CT + RT		Asymp
41	KAMACHI	75	F	1539/06	B, T	TONGUE	SCC	I	$T_2N_0M_0$	SY + CT	WE, PC	Recur
42	RAMASWAMY	50	M	1545/06	S, A	TONGUE	SCC	I	$T_3N_1M_0$	CT		Defau
43	MANOOP	55	M	1566/06	S, A,T	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Progr
44	LAKSHMI	40	F	1568/06	B	L. BUCCAL	SCC	II	$T_2N_1M_0$	CT + RT		Asymp
45	RAJAMMAL	80	F	1582/06	B	ALVEOLUS	SCC	I	$T_4N_1M_0$	CT		Defau
46	ANGATHAL	50	F	1586/06	B, T	R. BUCCAL	SCC	I	$T_3N_2M_0$	CT + RT		Asymp
47	JAITHOONBEE	75	F	1616/06	T	LIP	VC		$T_4N_1M_0$	CT		Asymp
48	ASIYA	52	F	1623/06	B, T	L. BUCCAL	SCC	I	$T_3N_2M_0$	CT + RT		Progr
49	ARAL	50	F	1629/06	B, T	L. BUCCAL	SCC	II	$T_3N_0M_0$	CT		Asymp
50	PATTU	64	M	1646/06	B, A	L. BUCCAL	SCC	I	$T_3N_2M_0$	CT + RT		Defau
51	RAMASWAMY	75	M	1654/06	S, A	L. BUCCAL	SCC	II	$T_3N_2M_0$	SY + CT + RT	WE,HM,DPF	Defau
52	JAITHOOMBEE	75	M	1656/06	B, A	R. BUCCAL	SCC	I	$T_3N_1M_0$	CT		Defau
53	MUTHUSWAMY	70	M	1734/06	S, A,T	R. BUCCAL	SCC	II	$T_4N_1M_0$	CT + RT		Defau
54	NATARAJAN	59	M	1739/06	S, A	LIP	SCC	I	$T_4N_0M_0$	CT		Asymp
55	LAKSHMI	43	F	1753/06	B, T	TONGUE	SCC	I	$T_4N_2M_0$	CT + RT		Progr
56	KARUPATHAL	45	F	1762/06	B, T	R. BUCCAL	VC		$T_2N_0M_0$	SY	WE, PC	asymp
57	POOVATHAL	48	F	1773/06	B	R. BUCCAL	SCC	I	$T_3N_2M_0$	CT + RT		Defau
58	KALYANASUNDARAM	48	M	1776/06	S, A	TONGUE	SCC	I	$T_2N_1M_0$	CT		Asymp
59	KANAGARAJ	40	M	1/07	S	TONGUE	SCC	I	$T_4N_1M_0$	CT + RT		Defau
60	PITCHAIAH	58	M	9/07	S, T	TONGUE	SCC	I	$T_3N_0M_0$	SY + CT + RT	HG, TF	Asymp
61	SANKARAL	55	F	18/07	B, T	R. BUCCAL	SCC	I	$T_4N_1M_0$	CT		Asymp
62	ARULMATHY	60	F	38/07	B, T	ALVEOLUS	SCC	II	$T_3N_0M_0$	CT		Asymp
63	SIVAKAMI	40	F	45/07	B, T	L. BUCCAL	SCC	I	$T_3N_2M_0$	CT + RT		Progr

64	SARASWATHY	33	F	57/07	B, T	TONGUE	SCC	II	$T_2N_1M_0$	CT		Defau
65	PERIYASWAMY	65	M	82/07	S, A, T	FOM	SCC	I	$T_4N_1M_0$	CT + RT		Defau
66	IYYASWAMY	69	M	86/07	S, A, T	ALVEOLUS	SCC	I	$T_2N_0M_0$	CT		Asymp
67	SUBBIAH	76	M	88/07	B, A	R. BUCCAL	SCC	II	$T_4N_2M_0$	CT + RT		Recur
68	DAVID	60	M	92/07	S, A	R. BUCCAL	SCC	I	$T_3N_1M_0$	CT + RT		Asymp
69	CHANDARAN	48	M	102/07	S, A	TONGUE	SCC	II	$T_4N_1M_0$	CT + RT		progr
70	ALAUDDIN	45	M	141/07	S	R. BUCCAL	SCC	I	$T_4N_0M_0$	CT		Asymp
71	DEIVAMANI	40	F	152/07	B, T	TONGUE	SCC	II	$T_2N_2M_0$	SY+ CT + RT	HG, RND	Defau
72	CHANDRAN	45	F	159/07	B, T	TONGUE	SCC	I	$T_3N_2M_0$	CT + RT		Defau
73	VIJAYA	70	M	166/07	B, A	R. BUCCAL	SCC	II	$T_2N_2M_0$	SY+ CT + RT	WE, PC	Asymp
74	JEGANATHAN	32	M	168/07	S, T	TONGUE	SCC	I	$T_4N_1M_0$	CT + RT		Defau
75	RENGAMMAL	80	F	194/07	B, T	R. BUCCAL	SCC	I	$T_2N_2M_0$	CT + RT		Progr
76	GOUNDAN	65	M	202/07	B, A	R. BUCCAL	SCC	I	$T_3N_1M_0$	CT		Asymp
77	KAVITHAL	50	F	204/07	B, T	L. BUCCAL	SCC	I	$T_3N_2M_0$	CT + RT		Defau
78	KARUPPASWAMY	48	M	235/07	S	ALVEOLUS	SCC	II	$T_4N_1M_0$	CT		Defau
79	SAMPATH	57	M	240/07	S	FOM	SCC	I	$T_4N_0M_0$	CT + RT		Asymp
80	VENKITAMMAL	70	F	248/07	T	ALVEOLUS	SCC	I	$T_2N_2M_0$	CT + RT		Defau
81	POOVATHAL	60	F	254/07	B, T	L. BUCCAL	SCC	I	$T_2N_1M_0$	CT		Asymp
82	KRISHNASWAMY	52	M	261/07	S,A	ALVEOLUS	SCC	I	$T_3N_0M_0$	CT + RT		Defau
83	VISWANATHAN	70	M	274/07	S, T	HARD PAL	SCC	II	$T_4N_1M_0$	CT		Asymp
84	SUNDARI	65	F	285/07	B, T	L. BUCCAL	SCC	I	$T_3N_1M_0$	CT		Asymp
85	SUBRAMANI	55	M	306/07	S, A	TONGUE	SCC	II	$T_3N_2M_0$	CT + RT		Progr
86	GOVINDASWAMY	80	M	325/07	S, A	TONGUE	SCC	I	$T_4N_1M_0$	CT		Defau
87	UTHANTHIGOUNDER	80	M	350/07	B, T	R. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Asymp
88	NAGAPPAN	55	M	325/07	B, A	L.BUCCAL	SCC	II	$T_2N_1M_0$	CT + RT		Progr
89	KANNYAMMAL	41	F	358/07	T	LIP	VC		$T_2N_2M_0$	CT		Defau
90	SELVI	34	F	375/07	B, T	L. BUCCAL	SCC	I	$T_2N_2M_0$	CT + RT		Asymp
91	SAKTHIVEL	43	M	406/07	S, A	TONGUE	SCC	II	$T_3N_2M_0$	CT		Defau
92	RAMASWAMY	64	M	407/07	S, T	TONGUE	SCC	I	$T_4N_1M_0$	CT		Defau
93	GOVINDARAJ	60	M	411/07	S, A	LIP	SCC	II	$T_4N_0M_0$	CT + RT		Asymp
94	SELVARAJ	38	M	412/07	B, A	TONGUE	SCC	I	$T_3N_0M_0$	CT		Defau
95	KALYANASUNDARAM	48	M	417/07	B, T	L. BUCCAL	VC		$T_3N_0M_0$	SY	WE,SM,DPF	Asymp
96	PASUPATHY	49	F	425/07	B, T	R. BUCCAL	SCC	I	$T_2N_0M_0$	SY + CT	WE, PC	Asymp
97	MARDUCHALAM	55	M	428/07	S, A, T	TONGUE	SCC	I	$T_4N_1M_0$	SY + CT + RT	HG, TF	Defau
98	KALIDAS	46	M	436/07	B, T	R. BUCCAL	SCC	II	$T_2N_1M_0$	CT		Asymp

99	KALLAN	60	M	454/07	S, A	HARD PAL	SCC	I	$T_3N_0M_0$	CT		Asymp
100	PITCHAIAMMAL	45	F	464/07	B, T	L. BUCCAL	SCC	II	$T_2N_2M_0$	CT + RT		Defau
101	SUBRAMANI	45	M	509/07	S, A, T	TONGUE	SCC	I	$T_2N_2M_0$	SY + CT + RT	HG, RND	Defau
102	KAMACHI	47	F	518/07	B, T	L. BUCCAL	SCC	II	$T_3N_1M_0$	CT		Asymp
103	MANIYAMMAL	40	F	532/07	T	TONGUE	SCC	I	$T_2N_2M_0$	CT + RT		Progr
104	BHAVANI	43	F	555/07	B	L. BUCCAL	SCC	II	$T_2N_0M_0$	SY +CT + RT	WE, PC	Defau
105	VELLINGIRI	31	M	561/07	B, A,T	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Asymp
106	VARDTHAPPAN	62	M	563/07	B	R. BUCCAL	SCC	II	$T_2N_2M_0$	CT		Recur
107	RAJESWARI	36	F	579/07	B	ALVEOLUS	SCC	I	$T_4N_0M_0$	CT + RT		Asymp
108	PONNAYEE	65	F	580/07	B	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Defau
109	VAIAPURI	41	M	624/07	S, A, T	LIP	SCC	II	$T_3N_0M_0$	CT + RT		Defau
110	MANOHARAN	55	M	627/07	S, A, T	TONGUE	SCC	I	$T_4N_4M_0$	CT		Progr
111	PAPATHY	45	F	632/07	T	L. BUCCAL	SCC	I	$T_2N_1M_0$	CT + RT		Asymp
112	RUKUMANI	65	F	659/07	B, T	ALVEOLUS	SCC	I	$T_2N_2M_0$	CT		Defau
113	PALANISAMY	46	M	660/07	A, T	TONGUE	SCC	II	$T_3N_1M_0$	CT + RT		Asymp
114	MUTHUSAMY	74	M	666/07	S	ALVEOLUS	SCC	I	$T_2N_2M_0$	CT + RT		Progr
115	JOTHIMANI	35	F	680/07	T	TONGUE	SCC	I	$T_4N_0M_0$	CT		Asymp
116	PALANIAMMAL	55	F	683/07	B, T	L. BUCCAL	SCC	II	$T_4N_1M_0$	CT		Asymp
117	CHINNASWAMY	48	M	685/07	S	ALVEOLUS	SCC	I	$T_2N_0M_0$	CT		Asymp
118	PONNUSWAMY	65	M	696/07	S, A	TONGUE	SCC	I	$T_2N_2M_0$	CT + RT		Defau
119	DHARMALINGAM	65	M	701/07	S, A	HARD PAL	SCC	I	$T_3N_0M_0$	CT		Asymp
120	SHANTHAMANI	59	F	704/07	B	ALVEOLUS	SCC	I	$T_2N_2M_0$	CT + RT		Progr
121	PERUMAL	70	M	707/07	S	TONGUE	SCC	II	$T_3N_1M_0$	CT		Defau
122	SARATHA	55	F	716/07	B, T	R. BUCCAL	SCC	I	$T_2N_2M_0$	CT + RT		Defau
123	RUKUMANI	50	F	717/07	B	ALVEOLUS	SCC	II	$T_4N_1M_0$	CT + RT		Asymp
124	THULSIAMMAL	50	F	718/07	T	ALVEOLUS	SCC	I	$T_2N_1M_0$	CT		Defau
125	VASANTHAMANI	50	F	720/07	B, T	L LIP	VC		$T_2N_2M_0$	CT		Progr
126	PAPATHY	59	F	727/07	B, T	L. BUCCAL	SCC	I	$T_2N_0M_0$	SY + CT	WE, SSG	Asymp
127	NAGAMMAL	80	F	729/07	B	R. BUCCAL	SCC	II	$T_4N_1M_0$	CT + RT		Defau
128	RAJAMMAL	65	F	743/07	B, T	L. BUCCAL	VC		$T_4N_1M_0$	CT		Defau
129	RAMATHAL	70	F	746/07	B	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Asymp
130	VELUSAMY	49	M	750/07	B, A	TONGUE	SCC	I	$T_3N_0M_0$	CT		Asymp
131	AMARAVATHY	55	F	753/07	B, T	R. BUCCAL	SCC	I	$T_4N_1M_0$	CT		Asymp
132	NANJAMMAL	62	F	754/07	B, T	FOM	SCC	II	$T_2N_0M_0$	CT + RT		Asymp
133	PALANIAMMAL	65	F	755/07	B	L. BUCCAL	VC		$T_3N_2M_0$	CT		Defau

134	MANI	60	M	767/07	B,A, T	R. BUCCAL	SCC	I	$T_4N_0M_0$	CT		Defau
135	MATHU	45	M	771/07	B, T	R. BUCCAL	SCC	II	$T_3N_0M_0$	SY+ CT + RT	WE, SSG	Recur
136	MUTHULAKSHMI	47	F	787/07	B, T	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Asymp
137	MANIYAMMAL	55	F	788/07	B	ALVEOLUS	SCC	II	$T_2N_1M_0$	CT		Asymp
138	KUPPUSAMY	80	M	792/07	S, A, T	R. BUCCAL	SCC	I	$T_2N_2M_0$	CT		Progr
139	JOHNBEFI	55	F	798/07	B, T	L. BUCCAL	SCC	II	$T_4N_1M_0$	CT + RT		Asymp
140	VENKATACHALAM	70	M	827/07	S, A	TONGUE	SCC	I	$T_3N_1M_0$	CT + RT		Defau
141	CHELLAPPAN	65	M	832/07	S, T	TONGUE	SCC	I	$T_2N_2M_0$	CT		Progr
142	SUBBAMMAL	48	F	850/07	B, T	R. BUCCAL	SCC	II	$T_4N_0M_0$	CT + RT		Asymp
143	KALIAMMAL	70	F	855/07	B, T	ALVEOLUS	SCC	I	$T_4N_1M_0$	CT		Defau
144	KRISHNASWAMY	65	M	861/07	S, A	TONGUE	SCC	II	$T_3N_0M_0$	CT + RT		Asymp
145	KRISHNAN	54	M	879/07	S, T	TONGUE	SCC	I	$T_3N_2M_0$	CT		Progr
146	MOHAMDJEBARULLA	40	M	880/07	S, A	R. BUCCAL	SCC	I	$T_3N_1M_0$	CT + RT		Asymp
147	SUBBAYYAN	60	M	885/07	S, T	TONGUE	SCC	II	$T_2N_1M_0$	CT		Defau
148	RAMATHAL	52	F	894/07	B, T	L. BUCCAL	SCC	I	$T_3N_2M_0$	CT + RT		Progr
149	VALLIAMMAL	60	F	903/07	B	R. BUCCAL	SCC	I	$T_4N_1M_0$	CT		Asymp
150	AMMASIKUTTY	45	M	904/07	S, A, T	L. BUCCAL	SCC	I	$T_3N_0M_0$	CT		Asymp
151	APPATHAL	60	F	920/07	B	L. BUCCAL	VC		$T_2N_2M_0$	CT + RT		Defau
152	LAKSHMI	40	F	951/07	B	FOM	SCC	I	$T_1N_0M_0$	SY+ CT	WE,SM,NLFC	Asymp
153	UMA	35	F	956/07	B	R. BUCCAL	SCC	I	$T_3N_2M_0$	CT + RT		Progr
154	APPU	65	M	960/07	S, T	TONGUE	SCC	II	$T_4N_1M_0$	CT		Defau
155	JANAKI	70	F	962/07	B	R. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Asymp
156	SELVARAJ	32	M	970/07	S, A, T	TONGUE	SCC	II	$T_2N_2M_0$	CT		Defau
157	VALLI GOUNDER	80	M	980/07	B, T	HARD PAL	SCC	I	$T_4N_2M_0$	CT + RT		Defau
158	GOVINDARAJ	57	M	1004/07	S	TONGUE	SCC	I	$T_3N_2M_0$	CT		Defau
159	CHINNASWAMY	35	M	1035/07	S, T	HARD PAL	SCC	II	$T_1N_0M_0$	SY	EXCI	Asymp
160	VADIVEL	45	F	1046/07	B	TONGUE	SCC	I	$T_3N_1M_0$	CT + RT		Defau
161	GOUNDAN	55	M	1052/07	S	FOM	SCC	II	$T_4N_1M_0$	CT		Defau
162	ESWARAN	36	M	1054/07	S, A, T	L. BUCCAL	VC		$T_2N_1M_0$	SY	WE,SM,SOD,DPF	Asymp
163	AMIRTHAVENI	58	F	1063/07	B	HARD PAL	SCC	I	$T_4N_0M_0$	CT + RT		Asymp
164	RENGANAYAKI	44	F	1096/07	B	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Defau
165	NACHIMUTHU	73	M	1100/07	B,A, T	TONGUE	SCC	I	$T_3N_0M_0$	CT		Asymp
166	LAKSHMI	55	F	1107/07	B	ALVEOLUS	SCC	I	$T_2N_0M_0$	CT		Asymp
167	GOPAL	61	M	1112/07	S, A, T	ALVEOLUS	SCC	II	$T_4N_1M_0$	CT		Asymp
168	CHELLAM	60	F	1115/07	B, T	TONGUE	SCC	I	$T_2N_1M_0$	CT		Defau

169	DEVAIMMAL	41	F	1116/07	B, T	ALVEOLUS	SCC	II	$T_3N_2M_0$	CT + RT		Progr
170	NAGAVAI	62	M	1118/07	S, A, T	TONGUE	SCC	I	$T_3N_0M_0$	SY + CT + RT	HG, TF	Asymp
171	MOHAMED	56	M	1140/07	S, A, T	TONGUE	SCC	I	$T_4N_1M_0$	CT + RT		Defau
172	PALANISWAMY	61	M	1164/07	S, A	L. BUCCAL	SCC	I	$T_4N_0M_0$	CT		Asymp
173	DEVARAJ	65	M	1188/07	B, S	R. BUCCAL	SCC	II	$T_3N_2M_0$	CT + RT		Defau
174	PATHYAPPAN	60	M	1193/07	S, A	TONGUE	SCC	I	$T_4N_1M_0$	CT		Asymp
175	ANANTHA	53	M	1209/07	S	TONGUE	SCC	I	$T_2N_2M_0$	CT + RT		Progr
176	SUBRAMANYAN	63	M	1211/07	S, A, T	TONGUE	SCC	II	$T_3N_1M_0$	CT		Defau
177	RAMATHAL	40	F	1219/07	B, T	R. BUCCAL	VC		$T_4N_1M_0$	CT + RT		Defau
178	VELLAISWAMY	30	F	1221/07	B	L. BUCCAL	SCC	I	$T_3N_2M_0$	CT		Progr
179	INDIRANI	41	F	1232/07	B, T	L. BUCCAL	SCC	II	$T_3N_0M_0$	CT + RT		Asymp
180	NANJA GOUNDER	71	M	1253/07	B, S, T	L. BUCCAL	SCC	I	$T_2N_2M_0$	CT		Defau
181	PARAMASIVAM	60	M	1274/07	S, A	TONGUE	SCC	I	$T_2N_1M_0$	CT + RT		Asymp
182	BABY	31	F	1276/07	B, T	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT		Defau
183	DHANALAKSHMI	48	F	1300/07	B, T	R. BUCCAL	SCC	II	$T_4N_0M_0$	CT + RT		Asymp
184	VEERAN	70	M	1325/07	S, A, T	R. BUCCAL	SCC	I	$T_3N_2M_0$	CT		Progr
185	TIRUSELVAM	41	M	1353/07	S, A	FOM	SCC	II	$T_2N_0M_0$	CT + RT		Asymp
186	NALLAMMAL	70	F	1373/07	B, T	R. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Defau
187	RAMASWAMY	44	M	1378/07	B, S, T	R. BUCCAL	SCC	II	$T_3N_1M_0$	2 CT+SY+ RT	WE, HM, FF	Asymp
188	RAJAMMAL	40	F	1388/07		TONGUE	SCC	I	$T_2N_2M_0$	CT		Progr
189	KANNAMMAL	55	F	1406/07	B, T	R. BUCCAL	SCC	II	$T_4N_1M_0$	CT + RT		Asymp
190	CHENNIYAMMAL	60	F	1407/07	B	L. BUCCAL	SCC	I	$T_3N_0M_0$	CT		Asymp
191	SADASIVAM	56	M	1415/07	S, A	L.BUCCAL	SCC	II	$T_2N_2M_0$	CT		Defau
192	PALANISWAMY	65	M	1430/07	S, T	FOM	SCC	I	$T_4N_0M_0$	CT + RT		Asymp
193	THANGAVEL	57	M	1437/07	B, S	HARD PAL	SCC	II	$T_4N_1M_0$	CT		Defau
194	KANNAMMAL	58	F	1439/07	B	ALVEOLUS	SCC	I	$T_2N_0M_0$	CT + RT		Asymp
195	KANNAMMAL	45	F	1482/07		HARD PAL	SCC	II	$T_3N_2M_0$	CT		Defau
196	SANKUNTHALA	45	F	1529/07	B, T	R. BUCCAL	SCC	I	$T_2N_1M_0$	CT + RT		Asymp
197	SARESHATTY	48	F	1536/07	B, T	L. BUCCAL	SCC	II	$T_4N_1M_0$	CT		Defau
198	SEKHAR	45	F	1541/07		TONGUE	SCC	I	$T_2N_2M_0$	CT		Defau
199	KUPPUSAMY	70	M	1552/07	B, S, T	HARD PAL	SCC	I	$T_3N_1M_0$	CT		Asymp
200	RUCKMANI	60	F	1584/07	B, T	TONGUE	SCC	I	$T_3N_0M_0$	SY + CT + RT	HG, TF	Asymp
201	KAMALA	65	F	1600/07	B, T	L. BUCCAL	SCC	I	$T_3N_1M_0$	CT		Asymp
202	LOGANATHAN	52	M	1606/07	S, A, T	TONGUE	SCC	I	$T_4N_1M_0$	CT + RT		Defau
203	KAMACHI	53	F	1610/07	B, T	R. BUCCAL	SCC	II	$T_2N_1M_0$	CT		Asymp

204	ARUMUGAM	63	M	1617/07	S, A	TONGUE	SCC	I	$T_3N_2M_0$	CT + RT		Progr
205	ANNAPOORANI	55	F	1619/07	B, T	R. BUCCAL	SCC	I	$T_3N_1M_0$	CT		Asymp
206	KRISHNAMURTHY	62	M	1622/07	S, A	ALVEOLUS	SCC	II	$T_4N_0M_0$	CT + RT		Asymp
207	RENGAMMAL	60	F	1645/07		TONGUE	SCC	I	$T_3N_2M_0$	CT		Defau
208	PONNI	62	F	1653/07	B, T	L. BUCCAL	SCC	II	$T_4N_1M_0$	CT + RT		Defau
209	MEENACHI	74	F	1659/07	B, T	ALVEOLUS	SCC	I	$T_3N_0M_0$	CT		Asymp
210	VASANTHI	54	F	1672/07	B, T	L. BUCCAL	SCC	II	$T_3N_2M_0$	CT + RT		Progr
211	PONNURAJ	65	M	1679/07	S, A, T	TONGUE	SCC	I	$T_4N_1M_0$	CT		Defau
212	JALEEL	54	M	1684/07	S, A, T	TONGUE	SCC	I	$T_2N_1M_0$	SY + CT + RT	HG, MRND	Asymp
213	DEIVANAI	80	F	1/08	B	L. BUCCAL	SCC	II	$T_2N_2M_0$	CT + RT		Progr
214	RAMASWAMY	70	M	19/08	S, A, T	LIP	VC		$T_4N_0M_0$	SY + CT	WE, AF	Asymp
215	PERIYATHAL	65	F	20/08	B, T	L. BUCCAL	SCC	II	$T_3N_1M_0$	CT		Defau
216	RAJAMMAL	55	F	22/08	B, T	R. BUCCAL	SCC	I	$T_2N_2M_0$	CT + RT		Progr
217	CHELLAMMAL	69	F	45/08	B, T	L. BUCCAL	SCC	II	$T_2N_1M_0$	CT		Asymp
218	RENGAMMAL	60	F	54/08	B, T	TONGUE	SCC	I	$T_3N_2M_0$	CT + RT		Progr
219	SARASA	55	F	84/08	B	R. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Defau
220	ANDAL	65	F	94/08	B, T	L. BUCCAL	SCC	I	$T_3N_0M_0$	CT		Asymp
221	MANICKAM	52	M	100/08	S	TONGUE	SCC	II	$T_3N_1M_0$	CT + RT		Defau
222	PERUMAL	69	M	141/08	S, A	FOM	SCC	I	$T_2N_0M_0$	CT		Asymp
223	CHANALAKSHMI	65	F	157/08	B	TONGUE	SCC	II	$T_3N_2M_0$	CT + RT		Progr
224	MARASWAMY	60	M	165/08	S, A, T	HARD PAL	SCC	I	$T_2N_0M_0$	CT		Asymp
225	NACHIMUTHU	65	M	169/08	S, A	TONGUE	SCC	I	$T_4N_1M_0$	CT + RT		Defau
226	PADMAVATHY	57	F	173/08	B, T	R. BUCCAL	SCC	II	$T_4N_0M_0$	CT		Asymp
227	KALIMUTHU	67	M	181/08	S	R. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Defau
228	CHELLAMUTHU	57	M	186/08	B, A	TONGUE	SCC	II	$T_2N_1M_0$	CT + RT		Asymp
229	PAVAMMAL	75	F	200/08	B, T	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Defau
230	ARUNTHATHY	57	F	202/08		HARD PAL	SCC	I	$T_3N_0M_0$	CT		Asymp
231	PONNUTHAI	65	F	217/08		TONGUE	SCC	I	$T_3N_2M_0$	CT + RT		Defau
232	KANNAMMAL	60	F	136/08	B, T	L. BUCCAL	SCC	II	$T_3N_1M_0$	CT + RT		Defau
233	NAGARAJ	40	F	240/08	B	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Defau
234	NAVAKODI	54	M	245/08	B, S, T	TONGUE	SCC	I	$T_3N_0M_0$	CT		Asymp
235	NATARAJ	60	M	259/08	B, S	TONGUE	SCC	I	$T_4N_0M_0$	CT + RT		Asymp
236	PALANIAMMAL	60	F	264/08	B, T	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT		Asymp
237	MARATHAL	75	F	281/08	B, T	ALVEOLUS	SCC	I	$T_2N_0M_0$	CT		Asymp
238	VELAYUTHAM	67	F	287/08	B, T	TONGUE	SCC	I	$T_3N_2M_0$	CT + RT		Progr

239	PALANISWAMY	60	M	313/08	S, A, T	TONGUE	SCC	I	$T_4N_1M_0$	CT + RT		Progr
240	KARUPPAMMAL	50	F	344/08	B	TONGUE	SCC	II	$T_4N_1M_0$	CT + RT		Defau
241	THANAVEL	70	M	345/08	S, A, T	TONGUE	SCC	I	$T_4N_0M_0$	CT + RT		Asymp
242	LAKSHMI	80	F	349/08	B, T	R. BUCCAL	SCC	II	$T_3N_0M_0$	CT		Asymp
243	PETCHIAMMAL	56	F	369/08		HARD PAL	SCC	I	$T_4N_1M_0$	CT + RT		Defau
244	FATHIMA	52	F	371/08	B, T	L. BUCCAL	SCC	I	$T_3N_2M_0$	CT + RT		Progr
245	GANAGARAJ	62	F	374/08	B, T	TONGUE	SCC	I	$T_2N_1M_0$	CT		Defau
246	RANJITHAM	67	F	389/08	B, T	TONGUE	SCC	I	$T_4N_1M_0$	CT + RT		Asymp
247	PALANI	50	M	392/08	S, A, T	TONGUE	SCC	I	$T_3N_1M_0$	CT		Defau
248	MATHAN	55	M	425/08	B, S, T	L. BUCCAL	SCC	I	$T_3N_2M_0$	CT + RT		Progr
249	RAYAN	54	M	430/08	S, A	TONGUE	SCC	I	$T_4N_1M_0$	CT + RT		Defau
250	THANGAVEL	55	M	443/08	S	TONGUE	SCC	II	$T_4N_1M_0$	CT		Defau
251	NACHIAMMAL	50	F	445/08	B, T	LIP	SCC	I	$T_3N_2M_0$	CT + RT		Defau
252	LINGAMMAL	80	F	446/08	B, T	TONGUE	SCC	II	$T_4N_0M_0$	CT		Asymp
253	RAYANAN	35	M	458/08	S	TONGUE	SCC	I	$T_3N_0M_0$	CT + RT		Asymp
254	RENGASWAMY	72	M	472/08	B,S,A,T	ALVEOLUS	SCC	I	$T_2N_1M_0$	CT		Defau
255	DURAIRAJ	54	M	473/08	S	HARD PAL	SCC	II	$T_2N_0M_0$	CT + RT		Asymp
256	KAVERI	57	F	480/08	B, T	R. BUCCAL	SCC	I	$T_3N_2M_0$	CT + RT		Progr
257	RENGAMMAL	52	F	484/08	B	TONGUE	SCC	I	$T_4N_1M_0$	CT		Defau
258	RENGRAJ	65	M	509/08	S, A, T	FOM	SCC	II	$T_3N_1M_0$	CT + RT		Asymp
259	VALLIAMMAL	80	F	527/08	B	LIP	SCC	I	$T_3N_0M_0$	SY + CT	WE, MF	Asymp
260	MURUGAN	55	M	530/08	B, A	TONGUE	SCC	I	$T_4N_1M_0$	CT + RT		Defau
261	PALANISWAMY	50	M	533/08	S	TONGUE	SCC	I	$T_3N_1M_0$	CT		Progr
262	RAJA	36	M	534/08	B,S,A,T	TONGUE	SCC	II	$T_4N_1M_0$	CT + RT		Defau
263	KAMACHI	80	F	556/08	B	LIP	SCC	I	$T_4N_0M_0$	CT		Asymp
264	KARUPATHAL	65	F	567/08	B	ALVEOLUS	SCC	I	$T_2N_0M_0$	CT + RT		Asymp
265	PENYAL	78	F	576/08	B	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT		Defau
266	MARIVEL	45	M	583/08	S, A, T	TONGUE	SCC	I	$T_3N_1M_0$	CT + RT		Asymp
267	VELLINGIRI	70	F	607/08	B	TONGUE	SCC	I	$T_3N_1M_0$	CT		Defau
268	AJAMATHULLA	52	M	612/08	S, A, T	ALVEOLUS	SCC	II	$T_2N_1M_0$	SY + CT + RT	WE, STM	Asymp
269	DEVAKI	70	F	618/08	B	R. BUCCAL	SCC	I	$T_3N_0M_0$	CT		Asymp
270	PARVATHI	70	F	637/08	B, T	L. BUCCAL	VC		$T_1N_0M_0$	SY	WE, TF	Rec, ct
271	RAJAPPAN	50	M	645/08	B, T	L. BUCCAL	SCC	I	$T_4N_0M_0$	CT		Defau
272	PAPATHY	48	F	652/08	B	R. BUCCAL	SCC	II	$T_4N_1M_0$	RT + SY +CT	WE,HM,DPF	Asymp
273	PITCHAIMUTHU	68	M	682/08	B,A, T	R. BUCCAL	SCC	I	$T_3N_2M_0$	CT + RT		Progr

274	RUKUMANI	68	F	692/08		TONGUE	SCC	II	$T_2N_0M_0$	CT		Asymp
275	YESUDAS	65	M	709/08	S, T	TONGUE	SCC	I	$T_4N_1M_0$	CT		Asymp
276	CHINNAMMAL	50	F	743/08	B, T	L. BUCCAL	SCC	I	$T_3N_1M_0$	CT + RT		Asymp
277	SHUNMUGAM	62	M	749/08	S, T	R. BUCCAL	SCC	I	$T_3N_0M_0$	CT		Defau
278	PALANISWAMY	57	M	763/08	S, A, T	TONGUE	SCC	II	$T_2N_2M_0$	CT + RT		Asymp
279	PALANISWAMY	45	M	768/08	S	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT		Defau
280	AMUTHA	60	F	778/08	B	R. BUCCAL	SCC	I	$T_4N_2M_0$	CT + RT		Progr
281	PAPATHY	60	F	781/08	B	R. BUCCAL	SCC	II	$T_3N_2M_0$	CT + RT		Defau
282	BEGAM	60	F	786/08	B	R. BUCCAL	SCC	I	$T_2N_1M_0$	CT		Asymp
283	PALANISWAMY	45	M	787/08	S	TONGUE	SCC	I	$T_2N_2M_0$	CT + RT		Progr
284	MOHAMEDHABERLLA	40	M	792/08	B, T	R. BUCCAL	SCC	I	$T_4N_1M_0$	CT		Asymp
285	RENGAL	45	F	793/08	B, T	L. BUCCAL	SCC	III	$T_2N_2M_0$	CT + RT		No resp
286	THANGAVEL	57	M	846/08	S, A, T	ALVEOLUS	SCC	I	$T_2N_0M_0$	SY + CT	HM, DPF	Defau
287	RAMAL	50	F	849/08	B	LIP	SCC	II	$T_3N_2M_0$	CT + RT		Defau
288	NACHAMMAL	60	F	852/08	B	R. BUCCAL	SCC	I	$T_4N_0M_0$	CT		Asymp
289	KONDAPPAN	62	M	864/08	S, T	TONGUE	SCC	II	$T_3N_1M_0$	CT		Defau
290	SAROJINI	48	F	866/08	B	R. BUCCAL	SCC	I	$T_4N_1M_0$	CT		Defau
291	MALATHY	45	F	867/08	B	L. BUCCAL	SCC	II	$T_3N_0M_0$	CT		Asymp
292	THERASAMMAL	70	F	870/08	B	ALVEOLUS	SCC	I	$T_3N_2M_0$	CT + RT		Progr
293	CHELLAMMAL	45	F	875/08	B	L. BUCCAL	SCC	II	$T_3N_0M_0$	CT		Asymp
294	SARASU	50	F	888/08	B	ALVEOLUS	SCC	I	$T_2N_2M_0$	CT + RT		Defau
295	ISMAIL	46	M	906/08	B, S, T	L. BUCCAL	VC		$T_4N_1M_0$	CT		Defau
296	RAMAIH	60	M	947/08	B, S, T	L. BUCCAL	SCC	I	$T_3N_1M_0$	CT		Asymp
297	IYYASWAMY	60	M	953/08	S, T	FOM	SCC	II	$T_3N_2M_0$	CT + RT		Defau
298	NAGAMMAL	45	F	958/08		L. BUCCAL	SCC	I	$T_2N_1M_0$	CT		Asymp
299	ANANTH	38	M	988/08	S, A, T	LIP	SCC	II	$T_4N_1M_0$	CT		Defau
300	SELVI	43	F	1020/08	B, T	L. BUCCAL	SCC	I	$T_3N_1M_0$	CT		Asymp
301	UDAYAKUMAR	48	M	1029/08	S, T	TONGUE	SCC	II	$T_2N_2M_0$	CT + RT		Progr
302	DANDAPANI	52	M	1033/08	S, A, T	FOM	SCC	I	$T_2N_0M_0$	CT		Asymp
303	DHANARAJ	47	M	1038/08	S, A, T	ALVEOLUS	VC		$T_4N_1M_0$	CT		Defau
304	RAMATHAL	60	F	1045/08	B, T	TONGUE	SCC	I	$T_4N_0M_0$	CT		Asymp
305	PALANIVEL	45	M	1053/08	B, S, T	R. BUCCAL	SCC	I	$T_3N_0M_0$	CT		Asymp
306	THIRUMATHAL	45	F	1057/08	B	R. BUCCAL	SCC	I	$T_4N_0M_0$	CT		Asymp
307	GOVINDARAJ	59	M	1060/08	S, A, T	R. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Progr
308	POOVATHAL	75	F	1076/08	B	ALVEOLUS	SCC	I	$T_4N_0M_0$	CT + RT		Asymp

309	SAKALIAMMAL	70	F	1093/08		TONGUE	SCC	I	$T_2N_0M_0$	SY	WE, PC	Defau
310	KUNCHAMMAL	66	F	1096/08	B	L. BUCCAL	SCC	I	$T_3N_1M_0$	CT + RT		Defau
311	MANICHANDRA	80	F	1107/08	B	R. BUCCAL	SCC	II	$T_3N_2M_0$	CT + RT		Progr
312	KARUPPASWAY	70	M	1110/08	B,S,A,T	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT		Defau
313	KASIM	65	M	1136/08	S, A, T	LIP	SCC	I	$T_1N_1M_0$	CT + RT		Asymp
314	MALAIYAL	65	F	1139/08	B	L. BUCCAL	SCC	I	$T_3N_2M_0$	CT		Defau
315	KUPPAMMAL	45	F	1147/08		R. BUCCAL	SCC	II	$T_3N_1M_0$	CT + RT		Asymp
316	LAKSHMI	40	F	1153/08	B	TONGUE	SCC	I	$T_4N_1M_0$	CT + RT		Defau
317	NACHIMUTHU	37	M	1166/08	S, A, T	TONGUE	SCC	II	$T_4N_0M_0$	CT		Asymp
318	NANCHI	70	F	1172/08	B, T	ALVEOLUS	SCC	I	$T_2N_1M_0$	CT + RT		Defau
319	SELVARAJ	50	M	1186/08	S,A, T	TONGUE	SCC	I	$T_3N_2M_0$	CT		Progr
320	SUBRAMANI	60	M	1210/08	S, A	TONGUE	SCC	I	$T_1N_1M_0$	CT + RT		Defau
321	PALANIAMMAL	65	F	1211/08	B	L. BUCCAL	SCC	II	$T_3N_2M_0$	CT		Progr
322	RENGAN	75	M	1215/08	B, S	R. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Defau
323	THULSIMANI	65	F	1223/08	B	L. BUCCAL	SCC	II	$T_4N_0M_0$	CT		Asymp
324	PALANISWAMY	66	M	1226/08	S, A	L. BUCCAL	SCC	I	$T_4N_1M_0$	CT + RT		Defau
325	RAJENDRAN	54	M	1233/08	B, A	R. BUCCAL	SCC	I	$T_3N_1M_0$	CT		Asymp

HM – Hemimandibulectomy
HG - Hemiglossectomy
WE – Wide Excision
SM – Segmental Mandibulectomy
DPF – Deltopectoralflap
STM – Subtotal Maxillectomy
TF – Tongue Flap
MF – Modified Flap
AF – Abbes Flap
RND – Radical Neck Dissection
MRND – Modified Radical Neck Dissection
SOD – Supra Omohyoid Dissection
FF – Forehead Flap
NLFC – Nasolabial Flap Cover
PC – Primary Closure