STUDY ON ENT MALIGNANCIES – THEIR INCIDENCE, PRESENTATION, ETIO – PATHOGENESIS, TREATMENT AND ASSOCIATION WITH NECK SECONDARIES

Dissertation submitted to

THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY

In partial fulfillment of the degree of

M.S. DEGREE

BRANCH - IV

M.S. OTORHINOLARYNGOLOGY

KILPAUK MEDICAL COLLEGE

CHENNAI – 600 010.

APRIL 2012

CERTIFICATE

This is to certify that **Dr.J.PraveenKumar** postgraduate student (2009 – 2012) in the Department of Otorhinolaryngology, Government Kilpauk Medical College and Hospital, Chennai. Has done this dissertation titled " **STUDY ON ENT MALIGNANCIES – THEIR INCIDENCE, PRESENTATION, ETIO – PATHOGENESIS, TREATMENT AND ASSOCIATION WITH NECK SECONDARIES"** under the direct guidance and supervision in partial fulfillment of the regulations laid down by the TamilNadu Dr. M. G. R. Medical University, Chennai, for M.S., Branch – IV Otorhinolaryngology Degree Examination.

Prof. Dr. G. SankaraNarayanan M.S.D.L.O,DNB,
Professor & Head of Department
Department of Otorhinolaryngology
Govt. Kilpauk Medical college and Hospital
Chennai.

Dean
Govt. Kilpauk Medical College
Chennai

DECLARATION

I **Dr. J.PraveenKumar** solemnly declare that the dissertation titled " **STUDY ON ENT MALIGNANCIES [TUMOURS OF NASOPHARYNX, OROPHARYNX, LARYNX, HYPOPHARYNX , EAR]** " is a bonafide work done by me at Government Kilpauk Medical College under the guidance and supervision of **Dr. G. Sankara Narayanan, M.S.D.L.O,DNB Professor and Head of Department of Otorhinolaryngology**

This dissertation is submitted to the Tamil Nadu DR. M.G.R. Medical University towards the partial fulfillment of the requirements of M.S. Branch - IV, **Otorhinolaryngology** degree examination.

Chennai

Date : **Dr. J. PraveenKumar**

ACKNOWLEDGEMENT

I express my profound gratitude to **Prof. Dr. P. RAMAKRISHNAN M.D D.L.O**, the Dean of Govt. Kilpauk Medical College and Hospital, Chennai for permitting me to use all the needed resources for this dissertation work.

I was fortunate enough to work under my guide **Prof. Dr. G. SankaraNarayanan M.S.D.L.O,DNB**, professor and the head of department, department of Otorhinolaryngology who has wide experience of more than 20 years in head and neck cancer. That was of great help for me to do this dissertation.

I am deeply indebted to **Prof. Dr.K.Ravi M.S.,D.L.O,** Professor and chief for his immense support and encouragement during the course of my study.

I record my heartful gratitude to all my beloved assistant professors, **Dr. R. Ranjana Kumari, Dr. V. Prithviraj, Dr. J. Nirmal Kumar and Dr. K. Sanjay Kumar** for their wholehearted support and valuable suggestions in completing this dissertation.

Last but not the least , I would like to thank our patients who rendered this study possible.

CONTENTS

ABSTRACT

OBJECTIVES:

To find out the incidence rate of head and neck malignancies in males, females and the symptoms with which the patient present, along with their stage of presentation. Lifestyle and habits of patients examined to identify risk factors. Identification of neck secondaries, histopathological types and selection of best treatment option are other objectives of this study.

METHODS:

Prospective analysis of 150 patients with newly diagnosed malignancies of nasopharynx, oropharynx, larynx, hypopharynx and ear from June 2009 to November 2011.

RESULTS:

Most malignancies common in patients greater than 40 years of age. 88% of cancer occur in males. Oropharynx cancer is the most common cancer in our study, with the commonest subsite as base of tongue growth. Supraglottic and pyriform fossa tumours are the commonest tumour in laryngeal and hypopharyngeal cancers. The most common presentation is dysphagia. Synergistic effect of smoking and alcohol is seen in 50% of patients. Almost all cancers seen in stage III

and IV except glottis cancer which is predominantly seen in stage I. Almost all cases are squamous cell carcinoma.

CONCLUSION:

The results of the study are almost similar to many other head and neck malignancies study in various parts of the world. Supraglottic is the common laryngeal tumour as opposed to glottis in certain western studies. Analysis of various factors helped in early diagnosis and management which helped in increasing the survival rate of patients.

KEYWORDS:

Incidence. oropharynx. hypopharynx. larynx. nasopharynx. Malignancy. smoking. alcohol. squamous cell carcinoma. Dysphagia. neck secondaries.

INTRODUCTION

The rate of ENT malignancies is growing day by day. It contributes to a total of 10% among all malignancies reported with a mortality rate of more than 50% in a period of 5 years in Chennai alone.

Madras Metropolitan Tumour Registry[1], a population based cancer registry in Chennai states that as of 2006 – 2008 study, carcinoma oropharynx, hypopharynx and larynx are amongst the top 10 cancers in males. The crude incidence rate (CIR) of oropharynx, hypopharynx and larynx is 6.2, 4.0 and 3.6 respectively (as of 2008 period). Cancers are more common in the age group of 35 – 64 years in both male and female.

It is continuously rising with the ever increasing risk factors. ENT malignancies are one which can be diagnosed clinically to a great extent when compared to others. The secondaries in neck are one of the major presenting symptoms. The study of the ENT malignancies and neck secondaries give us an idea about the prevalence rate of neck secondaries associated with ENT malignancies.

Choosing the correct line of management and predicting the favourable prognosis is of paramount importance to increase the survival rate. This dissertation analysis the incidence of ENT malignancies

(Nasopharynx, Oropharynx, Larynx, Hypopharynx , Ear) in various aspects like male – female sex ratio, role of smoking, alcohol and other risk factors, presenting symptoms, sites and subsite of tumours, stage of presentation, histological type and treatment modality undertaken. This dissertation analysis a total of 150 cases from June 2009 – November 2011.

AIMS AND OBJECTIVES

1. To collect the data about the cases recorded with ENT malignancies over the period of my study.

2. To find out the incidence rate in males and females and the symptoms with which the patients present, along with their stage of presentation.

3. To examine the lifestyle and habits of these people in order to identify the risk factors and etiopathogenesis of these malignancies.

4. To find out the neck secondaries as a presentation in various malignancies.

5. To find different histopathological types and differentiation.

6. To select the best treatment option for the patient, according to their stage of presentation by means of policy taken in tumour board.

MATERIALS AND METHODS

Study design: Prospective study

Study place: Department of ENT, Kilpauk Medical College and Government Royappettah Hospital, Chennai.

Study period: June 2009 – November 2011

Sample size: 150 patients

- Written informed consent obtained from all participating subjects. Privacy will be ensured.

- A thorough clinical examination of the patients was done by means of a questionnaire format.

- The whole information will be compiled. Statistical analysis will be done by using a statistical software.

INCLUSION CRITERIA:

All patients attending ENT department in Kilpauk medical college & Hospital and Government Royappetah Hospital, Chennai who are newly diagnosed with ENT malignancies such as nasopharyngeal

tumours, oropharyngeal tumours, laryngeal tumours, hypopharyngeal, ear tumours.

EXCLUSION CRITERIA:

1. Children (0 - 12 years age group)
2. Patients with poor general condition
3. Patients who are not suitable for any kind of cancer treatment.
4. Patients who were previously treated or undergoing treatment or recurrent cases.
5. Patients with other head and neck cancers .

TECHNIQUES:

1. Detailed history is collected.
2. Primary data were gathered via tick box and interviews. The following data will be gathered.

    i. Patients age and sex

    ii. Habits

    - Smoker/Non smoker
    - Tobacco chewing
    - Alcohol consumption

- Pan chewing / Betal nut

iii. General questions

- Diet

- Symptoms

- Awareness etc..

iv. Histopathological type of malignancies

v. At what stage where they diagnosed

vi. What treatment they are having

3. A thorough clinical examination is done.

REVIEW OF LITERATURE

HISTORICAL REVIEW:

1. Broders (1920)→ four tiered grading system for proportion of highly differentiated cells within entire neoplasm.

2. Rouviere's (1932)→ described ten lymph node of head and neck cancer. This form the base of today naomenclature.

3. Jussawalla (1973) , India→ conducted study which suggested tobacco as a risk factor for hypopharyngeal cancer.

4. Larsson , Sandstrom, and Westlins(1975)→ showed that iron deficiency associated with postcricoid carcinoma, especially in patients with plummer Vinson syndrome.

5. Batsakis (1979) proved a strong association between cigarette smoking and carcinoma larynx.

6. Batsakis(1979)→ great majority of hypopharyngeal tumours are poorly differentiated .

7. Neumen and Byers (1982) recorded the peak incidence of age between 5^{th} and 6^{th} decade in laryngeal malignancies.

8. Study conducted by Royal Morsden Hospital between 1983 and 1991 showed that out of 127 patients, 73 patients are of tonsillar growth, 42 patients are of base of tongue, 8 patients soft palate and 4 patients posterior pharyngeal wall.

9. Chi and Kahyo (1991), korea suggested that synergistic effect of tobacco and alcohol as a risk factor for hypopharyngeal cancer.

10. Jones(1992)→ 20% of hypopharyngeal tumours are well differentiated.

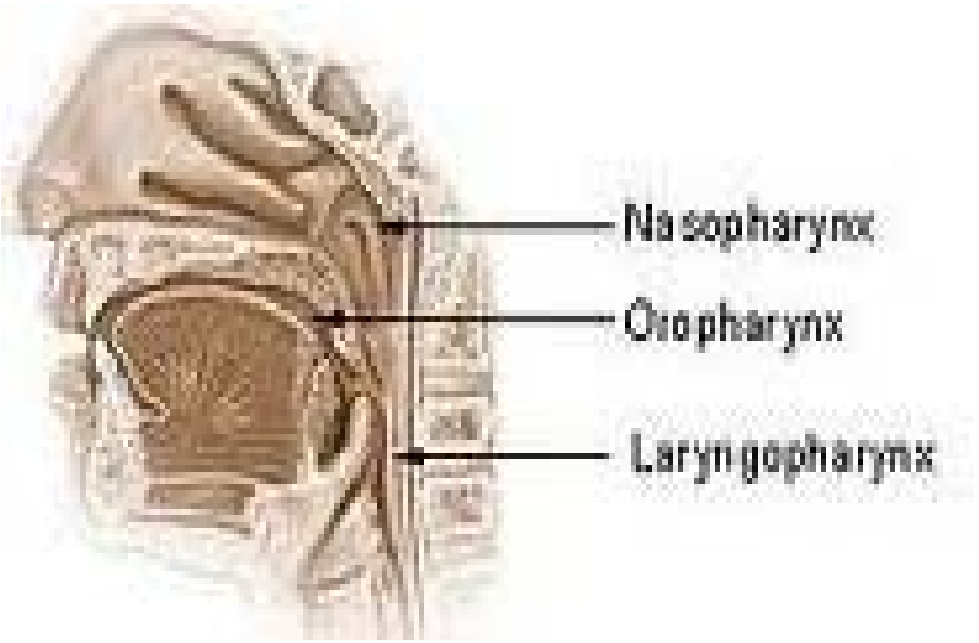
11. Cummings et al (1996) showed various factors causing malignant tumours of larynx and hypopharynx.

12. Danish population study of 28,180 people(recent study)→ association between different alcoholic drinks and aerodigestive cancers. They said subject who drank 7 – 21 units per week of beer (or) spints, but no wine had a relative risk of 3.0 of developing oropharyngeal (or) nasopharyngeal cancer.

13. Lydiatt (recently) said that the the disadvantage of TNM system is that they are not intuitive and would require a chart for most clinicians to stage their patients. The site of stage grouping is small, preventing accurate prediction from previous experience.

14. Fisch and Del Buona – used in vivo lymphangiograph to delineate clinically relevant lymph node groups. Their observation contributed to the development of currently used neck staging system of the Memorial Sloan – Kettering cancer centre, which divides the neck into 6 levels.(levels I to VI)

DIVISIONS OF PHARYNX



TUMOURS OF NASOPHARYNX

ANATOMY OF NASOPHARYNX [9]

Anterior wall: Choana and Nasal septum

Floor: Soft palate

Lateral wall: Eustachian tube and fossa of Rosenmuller

Roof: Basisphenoid and Basiocciput. Occupied by adenoids and mergers with posterior wall of pharynx.

EPIDEMIOLOGY OF NASOPHARYNGEAL CANCER

Incidence in US and Europe is only about 1/1, 00,000, but in Taiwan, Hongkong and China the incidence is approximately 30 times higher[17]. More common in males (M:F:2:1). Incidence peaks about 50 – 60 years of age. Among low risk population it has a bimodal presentation i.e. between 10 – 20 years and later at about 55 – 65 years of age. Genetic analysis revealed that association of HLA A2, HLA B17 and HLA BW26 doubles the risk, especially in endemic population. Other risk factors are EBV infection, chronic nasal infections, poor hygiene, poor ventilation and exposure to nitrosoamines in salt preserved foods[4]. Active and passive smoking have not been conclusively proven as risk factors in high risk population[3].

In India, it is uncommon and constitutes only 0.41% (0.66% in males and 0.17% in females) of all cancers except in Northeast region where people are predominantly of Mongoloid origin.

PATHOLOGY

Most cases are squamous cell carcinomas (85%).

WHO classification[9]

Type 1 (25%) - Keratinsing squamous cell carcinoma

Type 2 (12%) - Non keratinsing carcinoma (with and without lymphoid stroma)

Type 3 (63%) - Undifferentiated carcinoma (with and without lymphoid stroma)

Squamous cell carcinoma is further divided into well differentiated, moderately differentiated and poorly differentiated tumours.

Grossly, tumour presents in three forms:

1. Proliferative
2. Ulcerative
3. Infiltrative

CLINICAL FEATURES

1. Nasal

   - Nasal obstruction
   - Nasal discharge
   - Rhinolalia clausa
   - Epistaxis

2. Otologic

   - Conductive hearing loss
   - Tinnitus
   - Dizziness

Unilateral serous otitis media in an adult should arise suspicion of nasopharyngeal growth.

3. Ophthalmoneurologic

Nearly all cranial nerves may be involved.

   - Squint and Diplopia (VI th nerve)
   - Opthalmoplegia (III, IV, VI)
   - Facial pain and reduced corneal reflex (V th nerve)

- Orbital apex involvement leading to exophthalmos and blindness (II nd nerve)
- Jugular foramen syndrome(IX , X & XI th cranial nerves)
- Hypoglossal canal involvement (XII th nerve)
- Horners syndrome(cervical symphathetic chain involvement)

TROTTERS TRAID

Conductive deafness, ipsilateral temporoparietal neuralgia and palatal paralysis.

4. Cervical Nodal Metastasis (60 – 90 %)
    - Most common presentation
    - May be the only manifestation of Nasopharyngeal cancer
    - When first seen, 50% are with bilateral nodes
5. Distant Metastasis
    - Involves bone, lung, liver and other sites

STAGING (TNM)[3]

T STAGING

T1 → Tumour confined to nasopharynx

T2 a → Tumour extends to soft tissues of oropharynx and/ or oral cavity without parapharyngeal extension.

T2 b → Tumour extends to soft tissues with parapharyngeal extension.

T3 → Tumour invades bony structures and / or paranasal sinuses

T4→ Tumour with intracranial involvement and/ or involvement of cranial nerves, hypopharynx, orbit (or) masticator space.

Parapharyngeal extension denotes posterolateral infiltration of tumour beyond the pharyngo - basilar fascia.

N STAGING

Nx→ Regional lymph nodes cannot be assessed.

N0→ No regional lymph node metastasis

N1→ Unilateral metasatasis in lymph nodes 6 cm (or) less in greatest dimension, above the supraclavicular fossa.

N2→ Bilateral metastasis in lymph nodes 6cm (or) less in greatest dimension, above the supraclavicular fossa

N3 a → Metastasis in lymph nodes greater than 6cm in dimension.

N3 b→ Metastasis in lymph nodes in the supraclavicular fossa.

STAGE GROUPING[2,5,10,12] (different from other head and neck cancer)

Stage	T	N	M
0	Tis	N0	M0
1	T1	N0	M0
II a	T2a	N0	M0
II b	T1 T2a T2 b	N1 N1 N0,N1	M0 M0 M0
III	T1 T2a,T2b T3	N2 N2 N0,N1,N2	M0 M0 M0
IV a	T4	N0,N1,N2	M0
IV b	ANY T	N3	M0
IV c	ANY T	ANY N	M1

DIAGNOSIS

Based primarily on history and physical examination[4]. Definite diagnosis with biopsy. Preferred imaging modalities are CT scan with contrast and MRI with enhancement.

TREATMENT

Megavoltage external radiotherapy (MERT) is the primary treatment modality of choice[3].

Stage I and II→ Conventional Radiotherapy

Stage III and IV B→ Radiotherapy + Chemotherapy

Salvage Treatment

a. For local disease – surgery

b. For neck disease - Radical neck dissection

SURGICAL APPROACHES TO NASOPHARYNX[5]

1. ANTERIOR APPROACHES

    i. Lateral Rhinotomy

ii. Transnasal transmaxillary

iii. Midfacial degloving

iv. Lefort I osteotomy

v. Maxillary swing procedure

2. INFERIOR APPROACHES

i. Transpalatal

ii. Mandibular swing

3. Lateral (or) infratemporal approach

LYMPHATIC DRAINAGE

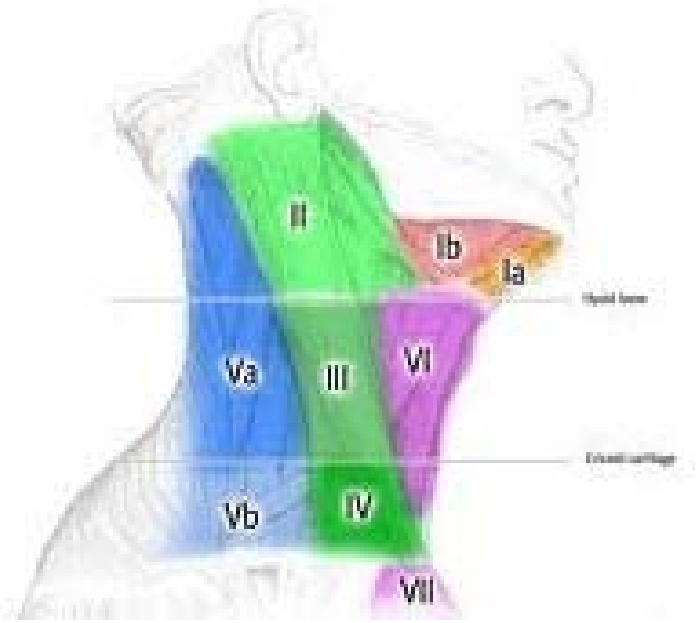
- Drain into upper deep cervical nodes either directly or indirectly through retropharyngeal or parapharyngeal lymph nodes. They also drain into spinal accessory chain of nodes in the posterior triangle of neck. Lymphatics may also cross midline to drain into contralateral lymph nodes.

DIVISION OF NECK NODES ACCORDING TO LEVELS[9]

Level 1 - Submental (IA)

Submandibular (IB)

LEVELS OF NECK NODES



Level 2 - Upper jugular

Level 3 - Mid jugular

Level 4 - Lower jugular

Level 5 - Posterior triangle group

(spinal accessory and transverse cervical chains)

Level 6 - Prelaryngeal

Pretracheal

Paratracheal

Level 7 - Nodes of upper mediastinum

- This division is according to Memorial Sloan Kettering cancer centre

TUMOURS OF OROPHARYNX

ANATOMY OF OROPHARYNX

Extends from the level of hard palate superiorly to the level of hyoid bone inferiorly.

BOUNDARIES[9]

Anterior wall:

ANATOMY OF OROPHARYNX

- Base of tongue
- Vallecula
- Lingual surface of epiglottis

Lateral wall: Medial wall of parapharyngeal space

- Anterior pillar (palatoglossus)
- Posterior pillar (palatopharyngeus)
- Palatine tonsil

Roof:

- Soft palate (containing two heads of palatopharyngeus muscle)
- Levator palati
- Tensor palati
- Palatoglossus

Posterior wall:

Extends from the level of soft palate to the level of hyoid bone and is anterior to C2 and C3 vertebra. This consists of superior and middle constrictors and the bucco pharyngeal fascia, which separates it from prevertebral fascia.

EPIDEMIOLOGY OF OROPHARYNGEAL CANCER[12]

Worldwide, approximately 3, 90,000 new cancer of oral and oropharynx were diagnosed annually. The incidences of these tumours are particularly high in South central Asia, South Africa and Europe[8]. In the USA, the incidence of oral and pharyngeal cancer is 11.9/ 1, 00,000 population per year with approximately 30,000 new cases per year.

Males are three times more commonly affected than females. Among males, the highest rates are in blacks, followed by whites (especially Non- Hispanics), Vietnamese and native Hawaiians[8,9]. Incidence increase in 30 – 54 and 55- 69 year old group.

In India, it is quite common due to the increased usage of betal nut and pan parag along with excessive smoking and alcohol consumption. It is the most common cause of head and neck malignancy in India along with oral cavity.

RISK FACTORS

1. Tobacco and alcohol are the most common etiologic factors associated with squamous cell carcinoma of oropharynx. Compared with persons who never smoked, smokers have an

increased relative risk of 2.7 for 1 to 20 cigarettes per day and 9.0 for more than 20 cigarettes per day. Cigarettes have higher tar content. Regarding alcohol consumption, relative risk increases steadily with amount of alcohol consumed, 1.2 for 1 to 4 drinks per week and 3.3 for 15 to 29 drinks per week and 8.8 for more than 30 drinks per week.

2. Betel nut chewing increase the risk especially in developing countries. Consumption of fruits and vegetables reduces the risk for cancer from one third to one half.

3. Presence of Human Papilloma Virus(HPV type 8 , 16) is considered a risk factor for Squamous cell carcinoma of tonsil. Recently, one study states that HPV infected men had longer survival than HPV negative men.

4. Other factors: Ionizing radiation, iron deficiency anaemia, dental submucous fibrosis of palatine arch[9].

TUMOUR TYPES

- Most common is squamous cell carcinoma (90%),
- Others are Non Hodgkins (8%) and minor salivary gland tumours (2%).
- In squamous cell carcinoma, the most common sites are
  - Lateral wall (60%)
  - Anterior wall, mainly base of tongue (25%)

- Soft palate (10%)
- Posterior wall (5%)

- 90% of lymphomas occur in the lateral wall (or) tongue base[9].
- Minor salivary gland tumours mostly occurred in soft palate.

STAGING (TNM)[10,2]

T STAGING[2,6]

T1 → Tumour 2cm (or) less in greatest dimension.

T2 → Tumour more than 2cm but not more than 4cm in greatest dimension.

T3 → Tumour more than 4 cm in greatest dimension.

T4 a→ Tumour invades any of the following: deep extrinsic muscles of the tongue (genioglossus , hyoglossus, palatoglossus , styloglossus), larynx, medial pterygoid , mandible and hard palate.

T4 b→ Tumour invades any of the following: lateral pterygoid muscle, pterygoid plates, lateral nasopharynx, skull base (or) encasement of the carotid artery.

N STAGING

Nx→ Regional lymph nodes cannot be assessed.

N0→ No regional lymph node metastasis.

N1→ Metastasis in a single ipsilateral lymph node 3 cm (or) less in greatest dimension.

N2a→ Metastasis in a single ipsilateral lymph node involvement more than 3cm, but not more than 6cm in greatest dimension.

N2 b→ Metastasis in multiple ipsilateral lymph node, more than 3cm, but not more than 6cm in greatest dimension.

N2 c→ Metastasis in bilateral (or) contralateral nodes, none more than 6cm in greatest dimension.

N3→ Metastasis in a lymph node more than 6cm in greatest dimension.

STAGE GROUPING[5,10,12]

STAGE	T	N	M
0	T1	N0	M0
I	T1	N0	M0
II	T2	N0	M0
III	T1,T2	N1	M0
IV a	T1,T2,T3 T4a	N2 N0,N1,N2	M0 M0
IV b	ANY T T4b	N3 ANY N	M0 M0
IV c	ANY T	ANY N	M1

PRESENTING FACTORS

1. Sore throat
2. Otalgia
3. Dysphagia
4. Ulcer
5. Pain
6. Trismus
7. Neck mass

TREATMENT PROTOCOL

1. Carcinoma of the tonsil (or) lateral wall[13]

   Stage I, II and some stage III (T1-2,N1) – External beam RT

   Stage III, IV – surgery followed by RT

2. Carcinoma of tongue base

   Stage I, II – RT (or) surgery

   Stage III, IV – If surgery- wide resection with major reconstruction

   Alternative treatment – ChemoRT

3. Soft palate tumours

   Stage I, II – surgical excision (or) EBRT (or) Brachytherapy

   Stage III, IV – RT (or) combined treatment

4. Posterior pharyngeal wall

   Most are advanced when diagnosed.

   Treatment options include RT alone (or) surgical resection with (or) without neck dissection.

SURGICAL APPROACHES

1. Transoral approach

   a. Oral approach

   b. Lip – splitting approach without mandibulotomy

2. Transoral / Transcervical combined approach

   a. Lingual mandibular release

3. Transpharyngeal

   a. Suprahyoid pharyngotomy

   b. Lateral pharyngotomy

4. Transmandibular

   a. Mandibulotomy

   b. Mandibullectomy

TUMOURS OF LARYNX

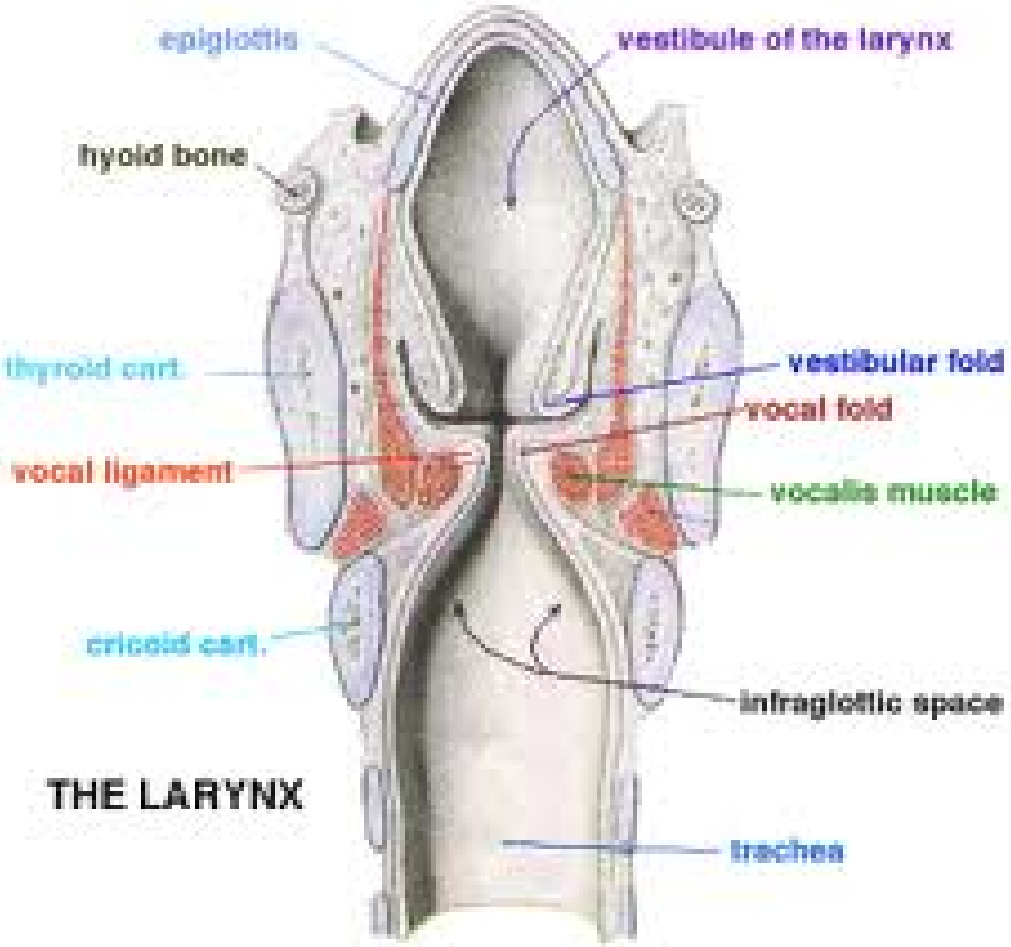
ANATOMY OF LARYNX

It consists of 3 regions – supraglottis , glottis and subglottis. Each region is anatomically and embryologically distinct with separate lymphatic channels.

1. Supraglottis
    - Suprahyoid epiglottis (including lip, lingual and laryngeal surfaces)
    - Aryepiglottic fold, laryngeal aspect
    - Arytenoid
    - Infrahyoid epiglottis
    - Ventricular bands (False cords)
2. Glottis
    - Vocal cords
    - Anterior commissure
    - Posterior commissure

3.Subglottis

ANATOMY OF LARYNX



EPIDEMIOLOGY OF LARYNGEAL CANCER[5,16]

Laryngeal cancer is the most common head and neck cancer worldwide. Incidence is highest in report from South America and the countries surrounding the Mediterranean, while the lowest reported in Finland. Glottis tumours predominate in The Anglo – Saxons, while the Africo Carribean, Indian sub continent and French population have equal cases of glottis and subglottic growth. Most common age at presentation is 7^{th} decade and most common in male.

In India, larynx constitutes 2% of all head and neck malignancies. It is 10 times more common in males than females (4.79% vs 0.47%) its incidence is 3.29 new cases in males and 0.42 new cases in females per 1,00,000 population, according to National Cancer Registry, ICMR, April 2005.

RISK FACTORS[18,19,21,22]

1. Tobacco and Alcohol

Tobacco acts via polycyclic hydrocarbon like benzopyrene, whose products bind directly to DNA and RNA.

Alcohol promote carcinogenesis through acetaldehyde exposure , malnutrition and dessilation of mucosa.

2. HPV - 16
3. Exposure to asbestos, formaldehydeand therapeutic radiation.
4. Diet and Vitamin (A and C) deficiency.
5. Premalignant conditions like laryngeal keratosis and leucoplakia

CLASSIFICATION OF LARYNGEAL TUMOURS

1. Epithelial
    a . Squamous cell carcinoma (MC)
    b. Verrcuous carcinoma
    c. Spindle cell carcinoma
2. Non epithelial
    a. Adenoid cystic carcinoma
    b. Malignant histiocytoma
    c. Osteosarcoma
    d. Neurooendocine carcinoma
    e. Fibrosarcoma
    f. Chondrosarcoma

3. Lymphoproliferative tumours

    a. Lymphoma

    b. Melanoma

4. Metastatic lesion

    a. Breast, kidney

    b. Melanoma

Mostly the tumours are well differentiated squamous cell carcinoma.

PRESENTING FEATURES

1. Progressive hoarseness
2. Breathing difficulty and stridor
3. Pain
4. Dysphagia
5. Swelling in neck

STAGING (TNM)

T STAGING

1. SUPRAGLOTTIS[2,10,12,31]

    T1→ tumour limited to one subsite of supraglottis with vocal cord mobility.

T2→ tumour invades mucosa of more than one adjacent subsite of supraglottis (or) glottis (or) region outside the supraglottis. (eg. : mucosa of base of tongue, vallecula, medial wall of pyriform sinus) without fixation of larynx.

T3→ Tumour limited to larynx with vocal cord fixation and invades any of the following: postcricoid area, pre epiglottic tissues, paraglottic space and/or with minor thyroid cartilage erosion.(eg.: inner cortex)

T4 a→ tumour invades through thyroid cartlage and / or invades tissues beyond the larynx, eg. Trachea, soft tissues of the neck, including deep / extrinsic muscle of the tongue (genioglossus, hygoglossus, palatoglossus and styloglossus) strap muscles, thyroid and oesophagus.

T4b→ Tumour invades prevertebral space, mediastinal structures or encases carotid artery.

2. GLOTTIS[10,12,5]

T1 a→ tumour limited to one vocal cord. (may involve anterior or posterior commissure) with normal mobility.

T1 b → tumour limited to both vocal cords. (may involve anterior or posterior commissure) with normal mobility.

T2→ tumour extends to supraglottis and / or subglottis , and / or with impaired vocal cord mobility.

T3→ tumour limited to larynx with vocal cord fixation and / or invades paraglottic space, and / or with minor thyroid cartilage erosion(inner cortex)

T4 a→ tumour invades through cartilage or invades tissues beyond the larynx. Eg. Trachea, soft tissues of neck including deep extrinsic muscles of tongue. (genioglossus, hyoglossus, palatoglossus and styloglossus) strap muscles, thyroid and oesophagus.

T4b→ Tumour invades prevertebral space, mediastinal structures or encases carotid artery.

3. SUBGLOTTIS[5,12]

T1→ Tumour limited to subglottis

T2→ Tumour extends to vocal cord(s) with normal or impaired mobility.

T3→ Tumour limited to larynx with vocal cord fixation

T4 a→ tumour invades through cartilage or invades tissues beyond the larynx. Eg. Trachea, soft tissues of neck including deep extrinsic muscles of tongue. (genioglossus, hyoglossus, palatoglossus and styloglossus) strap muscles, thyroid and oesophagus.

T4b→ Tumour invades prevertebral space, mediastinal structures or encases carotid artery.

N staging and stage grouping similar to oropharyngeal tumours.

TREATMENT PROTOCOL

1. For insitu carcinoma:

   Vocal cord stripping can be done. Frequent followup and repeat biopsy 6 to 12 weeks later if needed.

2. For T1 and T2 leison:

   Radiotherapy is the treatment of choice.

3. For T3 and T4 tumours:

   Total laryngectomy with neck dissection followed by post OP RT

4. For residual (or) recurrent (or) resistant tumours following RT → Total laryngectomy

CONSERVATIVE LARYNGEAL SURGERIES

Criteria:

1. Young patients(<60yrs) with a good pulmonary reserve
2. Tumour should be limited to the larynx and preferably one arytenoids should be free of tumour.
3. Laryngeal spaces should be free of disease.
4. Preferably unirradiated neck

Types:

1. Vertical partial hemilaryngectomy
2. Horizontal partial hemilaryngectomy(supraglottic hemilaryngectomy)
3. Subtotal laryngectomy
4. Near total laryngectomy

TUMOURS OF HYPOPHARYNX

ANATOMY OF HYPOPHARYNX

It is a highly important anatomical site, since physiologically a component of upper aerodigestive tract and in its upper part, it represents conduit for both respiration and degluttion.

LYMPHATIC DRAINAGE

Pyriform fossa - 75%(5% bilateral)- mainly levels2,3

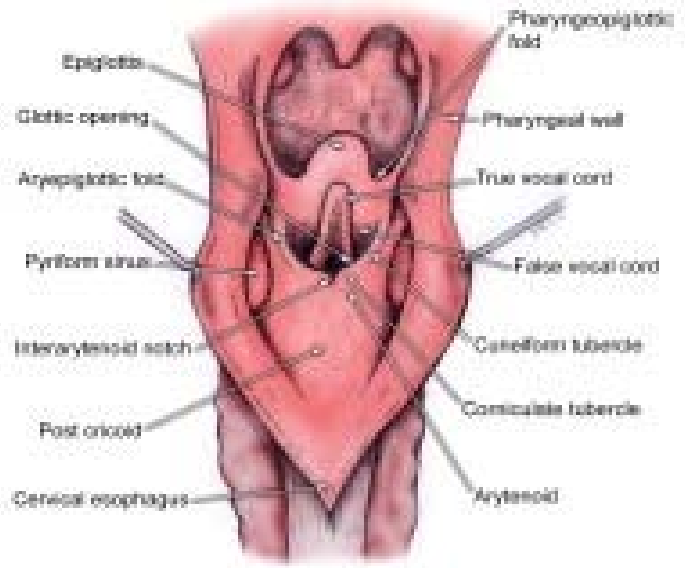
Post cricoids - 20%(5% bilateral)- paratracheal nodes

Posterior pharyngeal wall – 50% → Retropharyngeal and upper deep cervical.

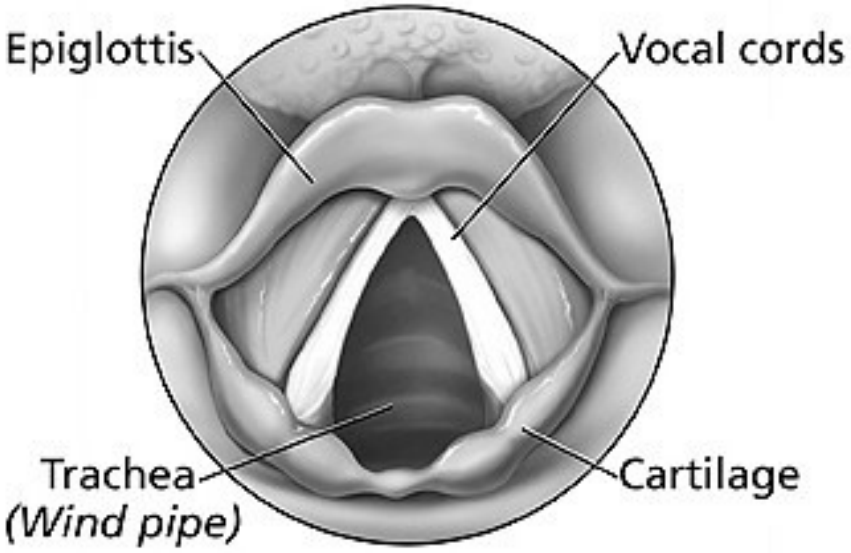
EPIDEMIOLOGY OF HYPOPHARYNGEAL CANCER[5]

Rare tumours. Otherwise called " extrinsic laryngeal tumours". Tumours present in late stages. Poorest prognosis for any head and neck cancer. Incidence is 1 in 1,00,000. Mostly seen in male >45 years except post cricoid carcinoma common in young females. Post cricoid carcinoma has wide geographical variation in its frequency.

ANATOMY OF HYPOPHARYNX



INDIRECT LARYNGOSCOPY EXAMINATION



In India, hypopharyngeal tumours are more common than laryngeal tumours, as compared to western world due to the increasing incidence of smoking and alcohol consumption and various nutritional deficiencies.[25,27,28]

SITEWISE DISTRIBUTION

1. Pyriform sinus – 60%
2. Post cricoid – 30%
3. Posterior pharyngeal wall – 10%

RISK FACTORS

1. Smoking and alcohol
2. Low intake of fruits and vegetables
3. Diet deficiency in vitamin C, E and PUFA, Zinc
4. Exposure to welding fumes, polycyclic aromatic hydrocarbons
5. Radiation exposure – for thyroid cancer
6. Post cricoids carcinoma in patients with iron deficiency
7. Association with lung cancer (RR →2 : 3)
8. Association with HPV16,18.

TYPES OF HYPOPHARYNGEAL CANCER[5,29]

Almost all are squamous cell carcinomas.

1. Squamous cell carcinomas → 70% well differentiated (or) moderately differentiated.
2. Non squamous tumours and carcinomas (3.5%) → Benign (<1%)
3. Carcinoma in situ
4. Lymphoma
5. Small cell neuroendocrine
6. Adenoid cystic
7. Adenocarcinoma
8. Transitional cell
9. Malignant fibrous histiocytoma
10. Undifferentiated
11. Metastases

CLINICAL PRESENTATION

1. Persistent and progressive Dysphagia – may not be present in posterior pharyngeal wall tumour.
2. Referred otalgia
3. Throat pain
4. Hoarseness of voice
5. Neck mass
6. Hemoptysis
7. Weight loss
8. Chest symptoms
9. Aspiration

STAGING (TNM)[5,10,12]

T STAGING

T1→ Tumour limited to one subsite of hypopharynx and 2cm or less in greatest dimension.

T2→ Tumour invades more than one subsite of hypopharynx or an adjacent site , or measures 2 – 4 cm in greatest dimension, without fixation of hemilarynx.

T3→ Tumour invades more than 4 cm in greatest dimension, or with fixation of hemilarynx.

T4 a→ Tumour invades any of the following : thyroid/ cricoid cartilage, hyoid bone, thyroid gland, oesophagus, central compartment of soft tissue.

T4 b→ Tumour invades prevertebral fascia, encases carotid artery or invades mediastinal structures.

N staging and stage grouping similar to oropharynx and larynx.

TREATMENT

Stage I , II → Primary RT (or) surgery

Stage III , IV→ Surgery and Post OP RT

SURGERIES FOR PYRIFORM SINUS TUMOURS[32]

1. Partial laryngopharyngectomy
2. Total pharyngectomy with partial pharyngectomy
3. Total laryngectomywith pharyngeal reconstruction

SURGERIES FOR POST CRICOIDS CARCINOMA:

1. Total pharyngolaryngectomy with free jejunal transfer.

2. Total pharyngolaryngooesophagectomy with gastric transposition

POSTERIOR PHARYNGEAL WALL TUMOUR

1. Lateral pharyngotomy and primary repair (or) laser / diathermy excision.
2. Lateral transhyoid (or) midline suprahyoid pharyngectomy.
3. Total pharyngolaryngectomy with reconstruction.

INVESTIGATIONS

1. Routine blood and urine examination
2. X ray chest PA view – to look for secondaries and GA fitness
3. X ray soft tissue AP and lateral view – to look for subglottic air column and widening of prevertebral soft tissue.
4. X ray Barium swallow
5. Rigid (or) flexible scopy (Pan endoscopy)
    a. Diagnostic nasal endoscopy
    b. Nasopharyngoscopy
    c. Videolaryngoscopy
    d. Direct laryngoscopy
    e. Microlaryngoscopy

6. FNAC
7. Biopsy
8. CT scan neck
9. CT scan PNS – for nasopharyngeal carcinoma extent
10. CT SCAN OF CHEST AND LIVER → TO RULE OUT METASTASIS
11. MRI
12. PET
13. SPECT

TUMOURS OF EAR

1. Tumours of external auditory canal:

Aetiology of EAC tumours:

a. Chronic inflammation
b. Irradiation injury
c. Azoxymethane – induces squamous cell carcinoma of sebaccous glands of ear.

Types:

90% are squamous cell carcinomas. Mostly arise from bony EAC. Slow growing and 20% of tumours have cervical lymphadenopathy.

Other tumours :

a. Adenocarcinoma

b. Mucoepidermoid carcinoma

c. Adenoid cystic carcinoma

d. Malignant melanoma

e. Sebaccous cyst carcinoma

2. Tumours of middle ear :

Incidence:

In UK, 1 per million per year for women and 0.8 per million per year for men. Male : female ratio is 1: 1.2.

Aetiology:

a. Preexisting chronic otitis media (85%)

b. Irradiation induced.

Types:

Mostly, squamous cell carcinoma. It causes extensive bony destruction and nerve involvement. Lymphadenopathy seen in 10 – 15 % at presentation . Adenocarcinoma rare and seen in females.

Staging for carcinoma of ear: [9,2]

Neither UICC nor AICC has developed staging system for carcinoma of ear.

T1 - Tumour limited to the site of origin, no facial nerve paralysis and no bone destruction.

T2 - Tumour extending beyond the site of origin, indicated by facial paralysis or radiological evidence of bone destruction, but no extension beyond the organ of origin.

T3 - Clinical or radiological evidence of extension to surrounding structures (dura, base of the skull, parotid gland, temperomandibular joint, etc.)

T4 - Patients with insufficient data for classification, including patients previously seen and treated elsewhere.

➔ In both tumours, syrgery is the treatment of choice.

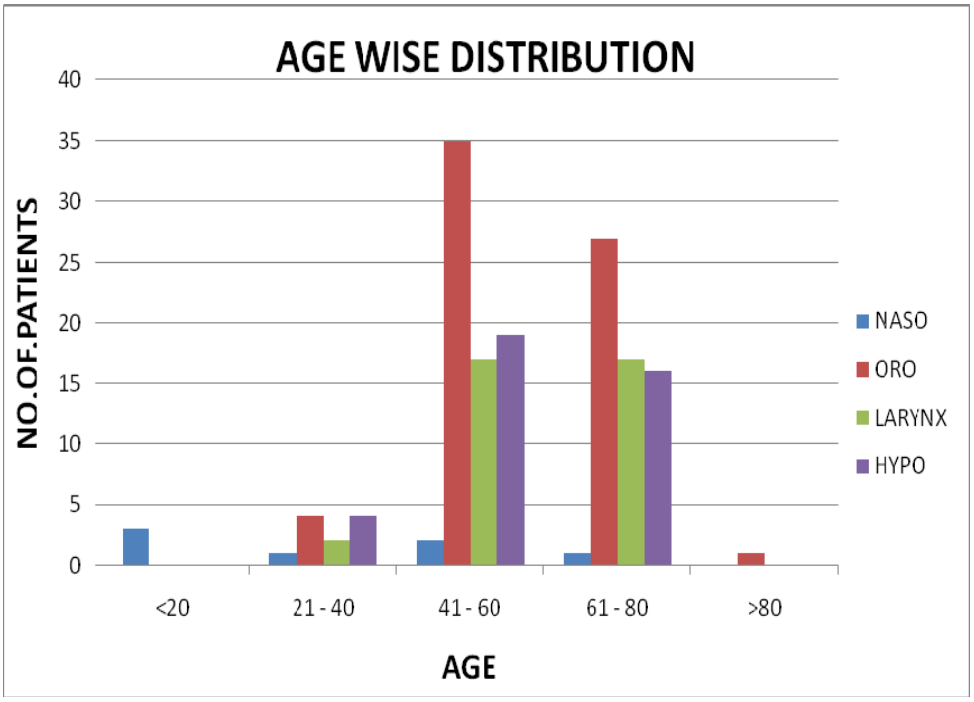
➔ Punch biopsy under local (or) general anaesthesia is the diagnostic procedure of choice.

RESULTS

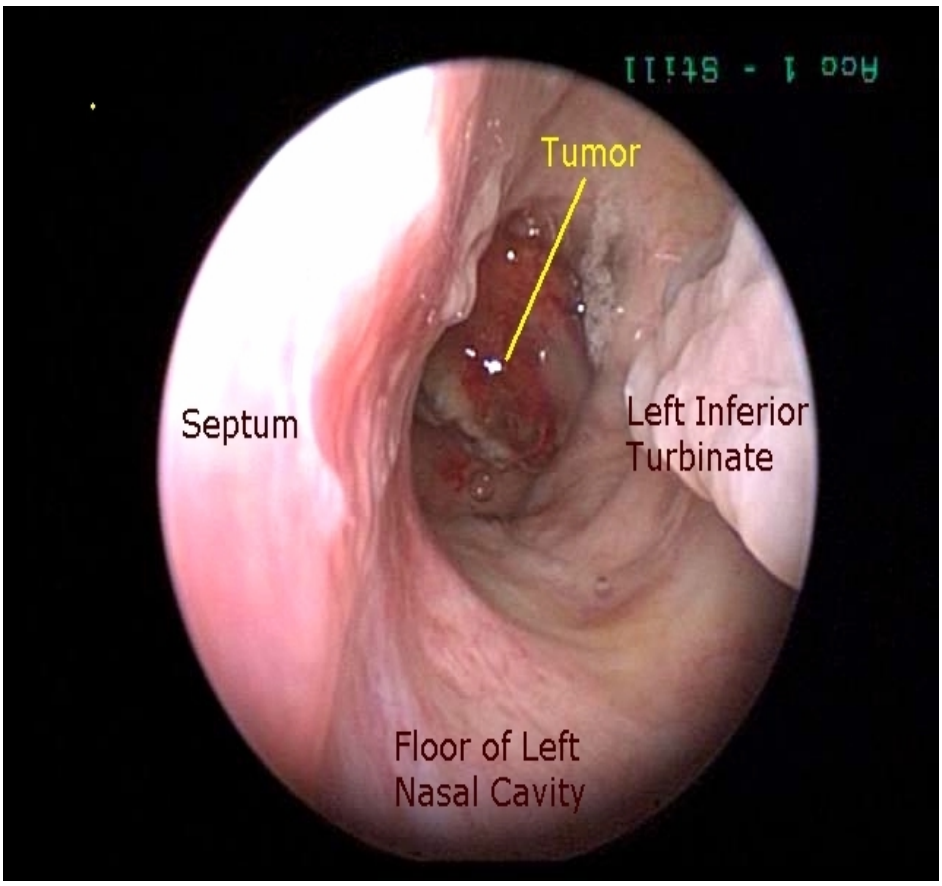
The various results of my study are as follows:

AGE WISE DISTRIBUTION

AGE	NASO	ORO	LARYNX	HYPO
<20	3	0	0	0
21 – 40	1	4	2	4
41 – 60	2	35	17	19
61 – 80	1	27	17	16
>80	0	1	0	0



NASOPHARYNGEAL CARCINOMA



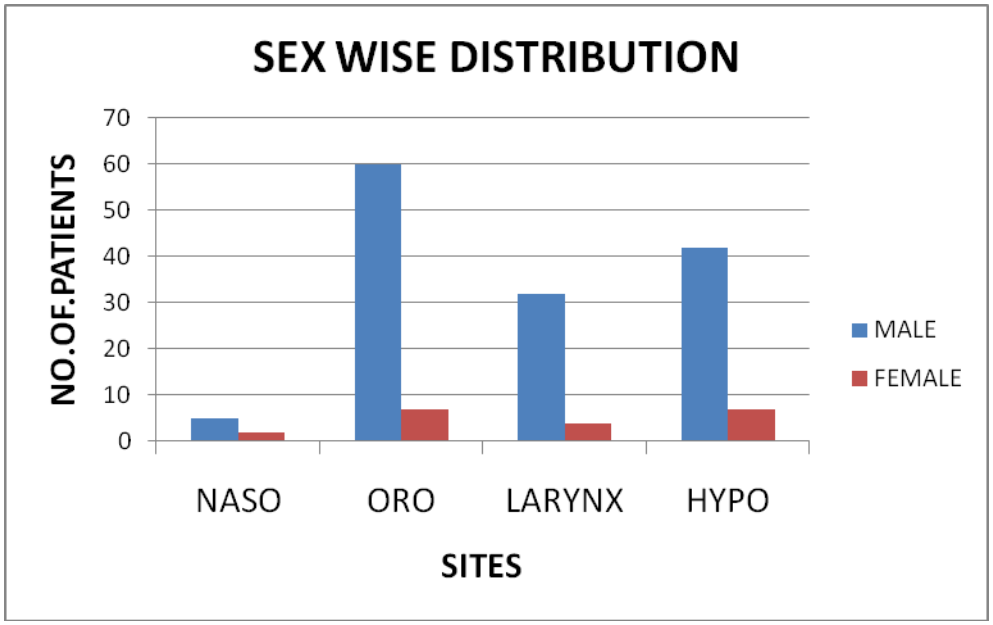
From my study I compared the age distribution of 150 patients with respect to five ENT malignancies. The youngest patient – a 14 year old male with nasopharyngeal carcinoma and the oldest patient – a 83 year old male with CA tonsil.

The highest incidence of carcinoma for the respective age intervals.

Nasopharyngeal carcinoma is common in < 20 years and 41 – 60 years age group. Oropharyngeal, Larngeal and Hypopharyngeal carcinoma are common in patients > 40 years of age. One patient diagnosed with CA middle ear was a 44 year male.

SEX WISE DISTRIBUTION

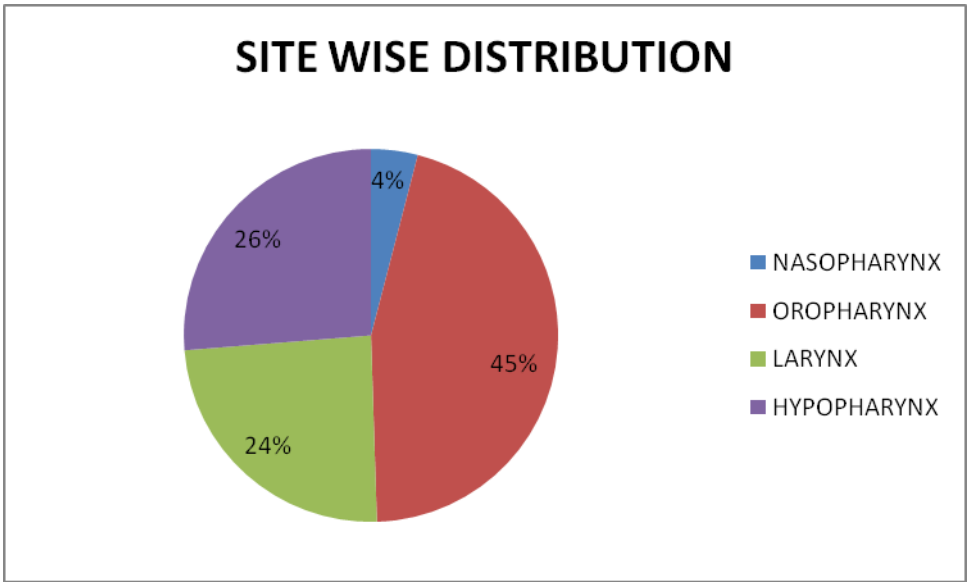
SEX	NASO	ORO	LARYNX	HYPO
MALE	5	60	32	42
FEMALE	2	7	4	7



In my study 130 patients are male and 20 patients are female which accounts for 88% of cancer incidence in males. All carcinomas are common in males except post cricoid carcinoma where out of 9 cases, 6 cases occurred in females.

SITE WISE DISTRIBUTION

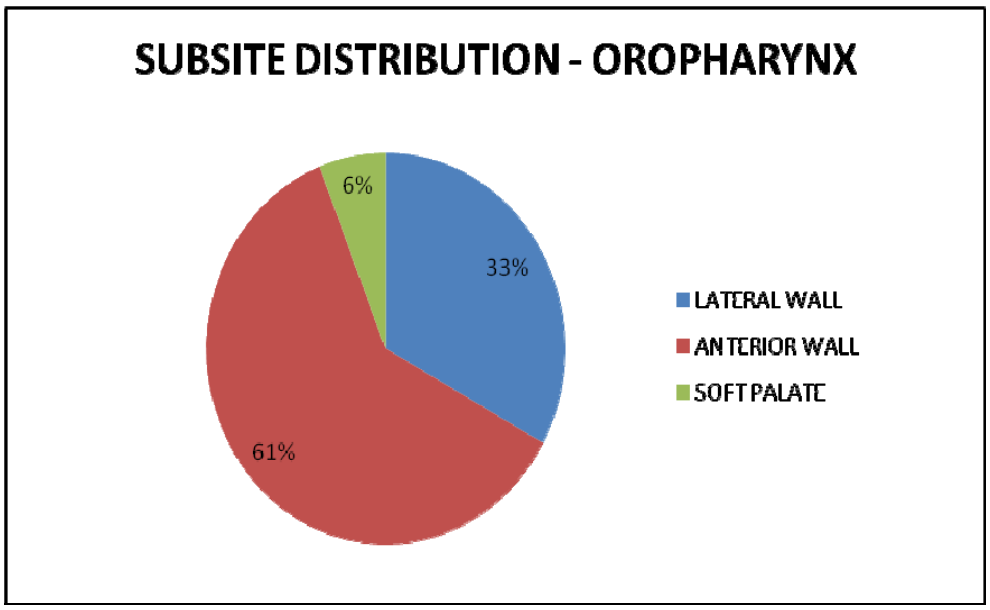
SITEWISE DISTRIBUTION	NO.OF.CASES	PERCENTAGE
NASOPHARYNX	7	4%
OROPHARYNX	67	45%
LARYNX	36	24%
HYPOPHARYNX	39	26%



In my entire study oropharynx topped with 45% of cases, followed by hypopharynx, larynx and nasopharynx. There was only one case of carcinoma middle ear.

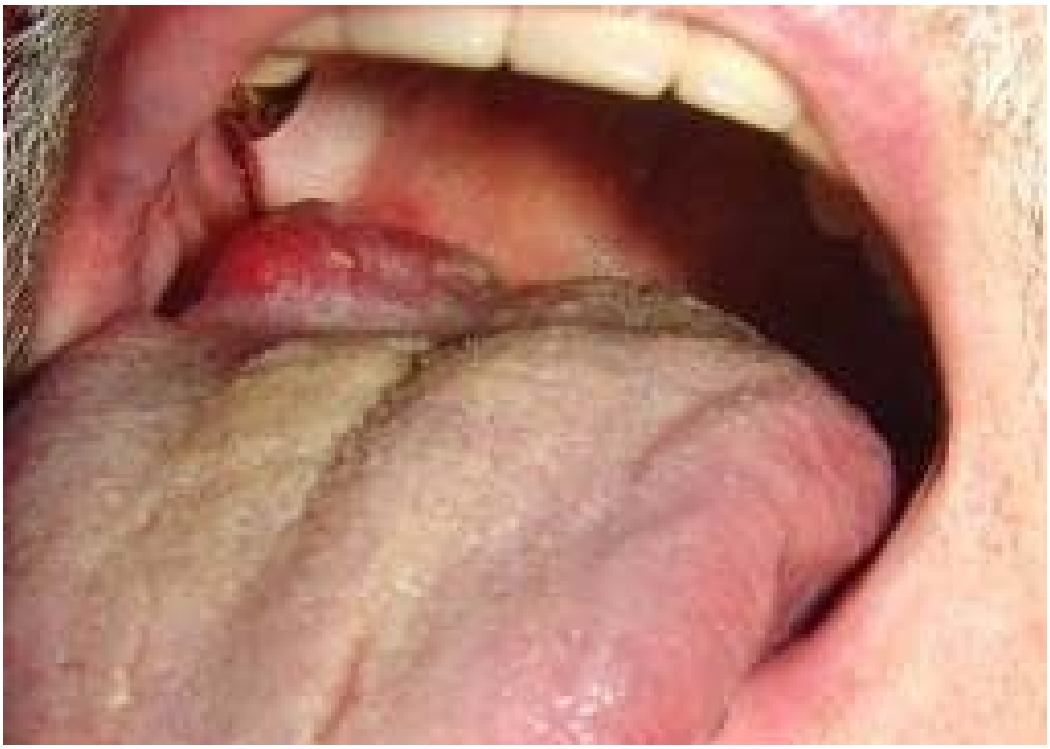
SUBSITE DISTRIBUTION OF OROPHARYNX

SITES	NO.OF.CASES	PERCENTAGE
LATERAL WALL	23	33%
ANTERIOR WALL	48	61%
SOFT PALATE	4	6%

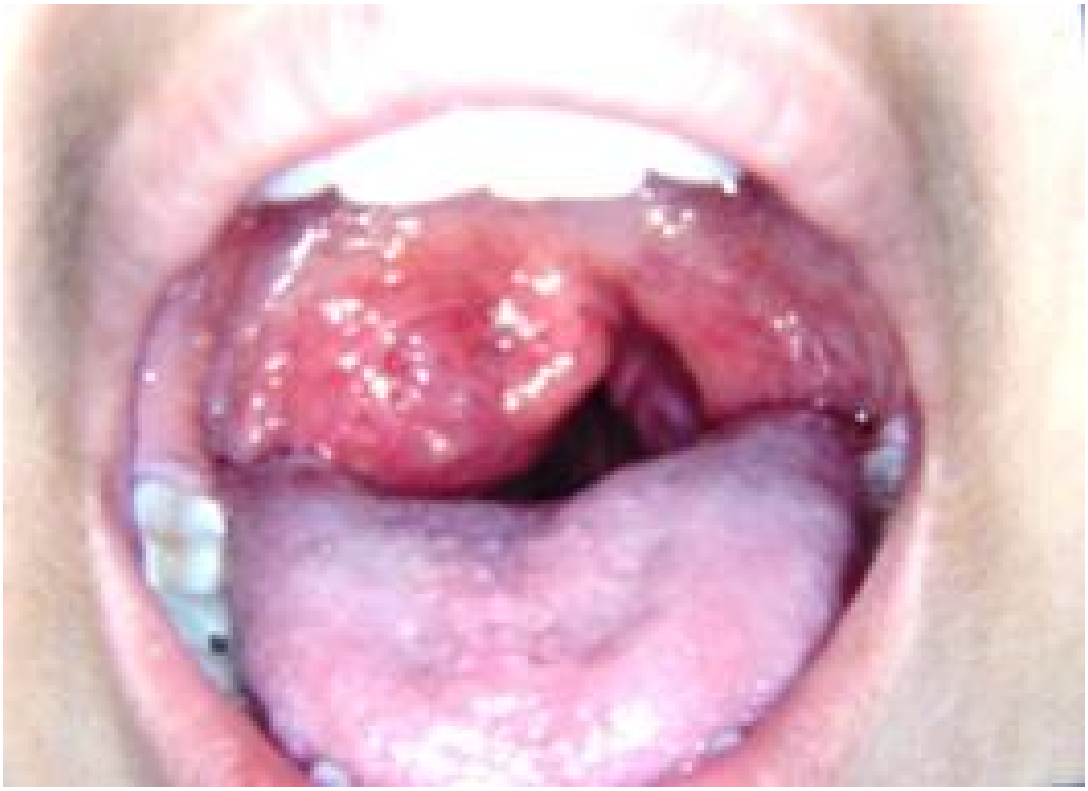


From the above pie chart, it can be seen that the commonest site affected in oropharyngeal tumours is Anterior wall, followed by lateral wall and soft palate tumours. In the anterior wall tumours 51% are tumours involving posterior one – third or base of the tongue, 10% are tumours involving vallecula. In lateral wall tumours out of 33% , 31% are seen involving tonsil, followed by 2% of anterior pillar growth. In my study there was no case of posterior oropharyngeal growth.

CANCER OF BASE OF TONGUE

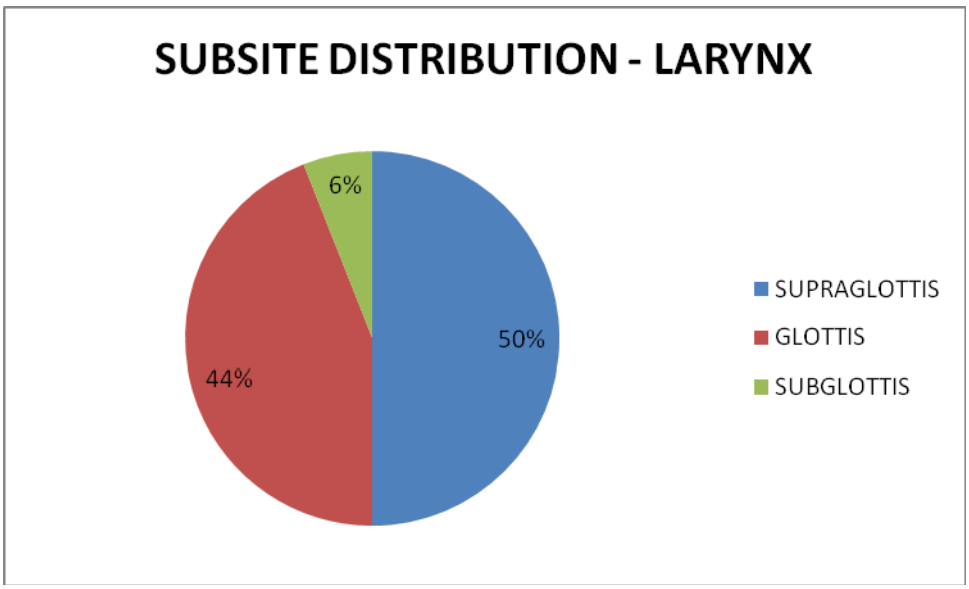


CARCINOMA RIGHT TONSIL



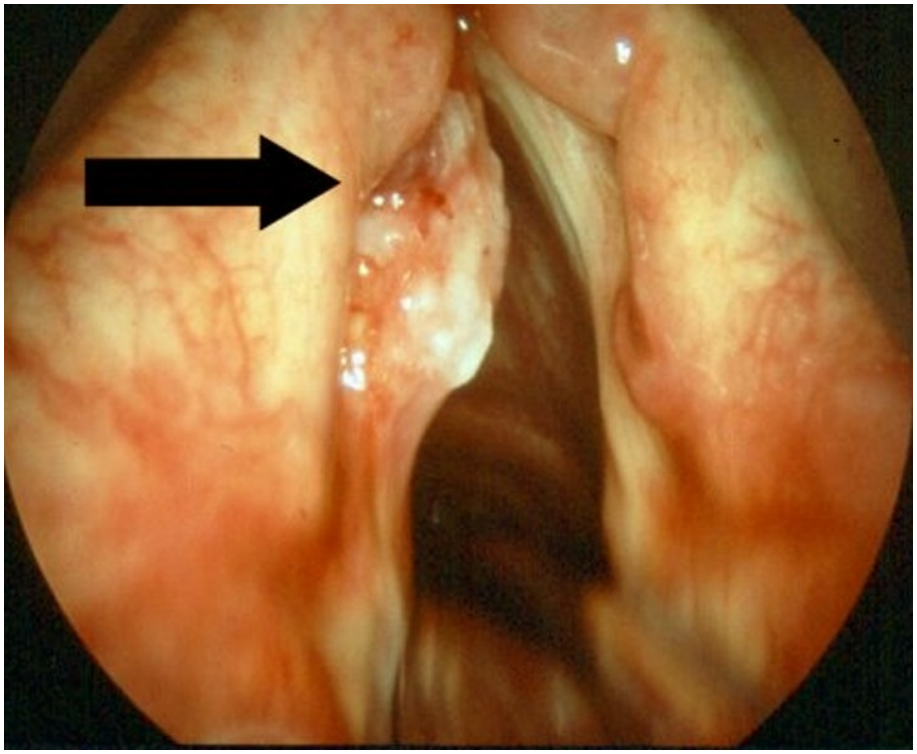
SUBSITE DISTRIBUTION OF LARYNX

SITES	NO.OF.CASES	PERCENTAGE
SUPRAGLOTTIS	18	50%
GLOTTIS	16	44%
SUBGLOTTIS	2	6%



The pie chart depicts the subsite distribution of laryngeal malignancies. Out of 36 cases of larynx, 50% cases are seen in supraglottis followed by glottis and subglottis.

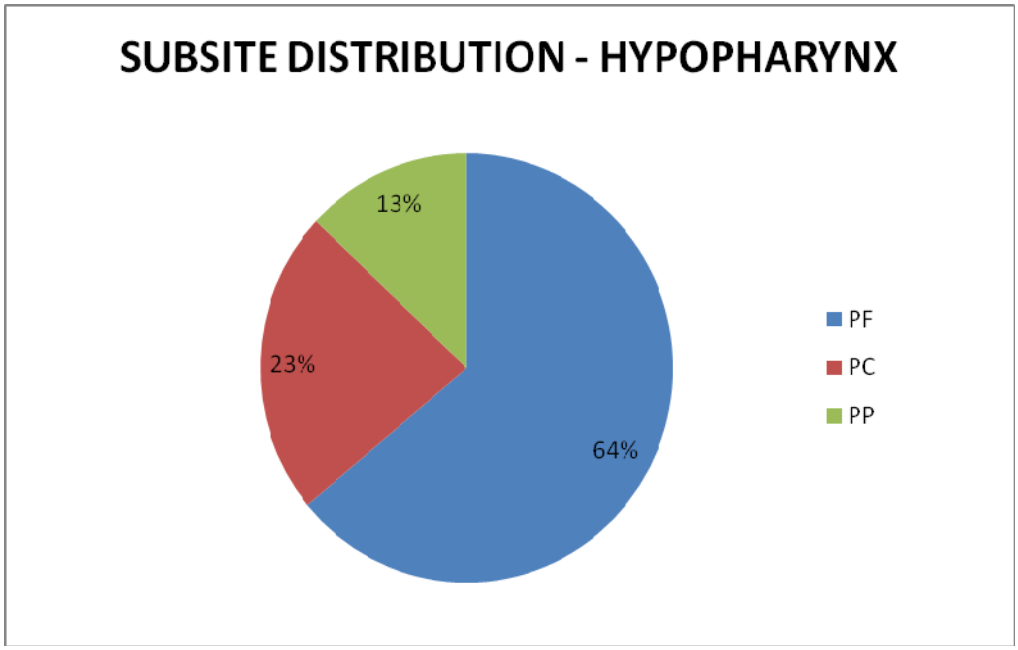
CANCER RIGHT VOCAL CORD



In supraglottic tumours the most commonly seen subsite is Aryepiglottic fold (10 cases), followed by Arytenoid (3 cases), Infrahyoid epiglottis (3 cases), suprahyoidepiglottis (2 cases) . there was no case of carcinoma arising in ventricular band or sinus region. In glottic tumours , all the cases are vocal cord carcinomas. There was no primary tumour involving only the anterior commissure or only the posterior commissure in this series. I have encountered 2 cases of subglottic growth with extension to vocal cords.

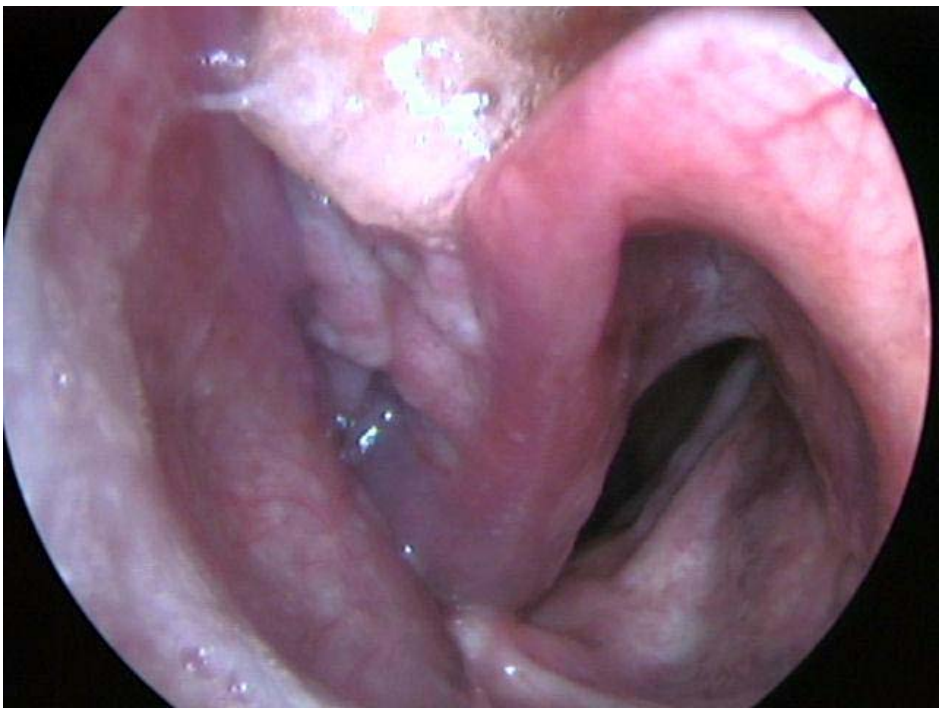
SUBSITE DISTRIBUTION OF HYPOPHARYNX

SITES	NO.OF.CASES	PERCENTAGE
PF	25	64%
PC	9	23%
PP	5	13%



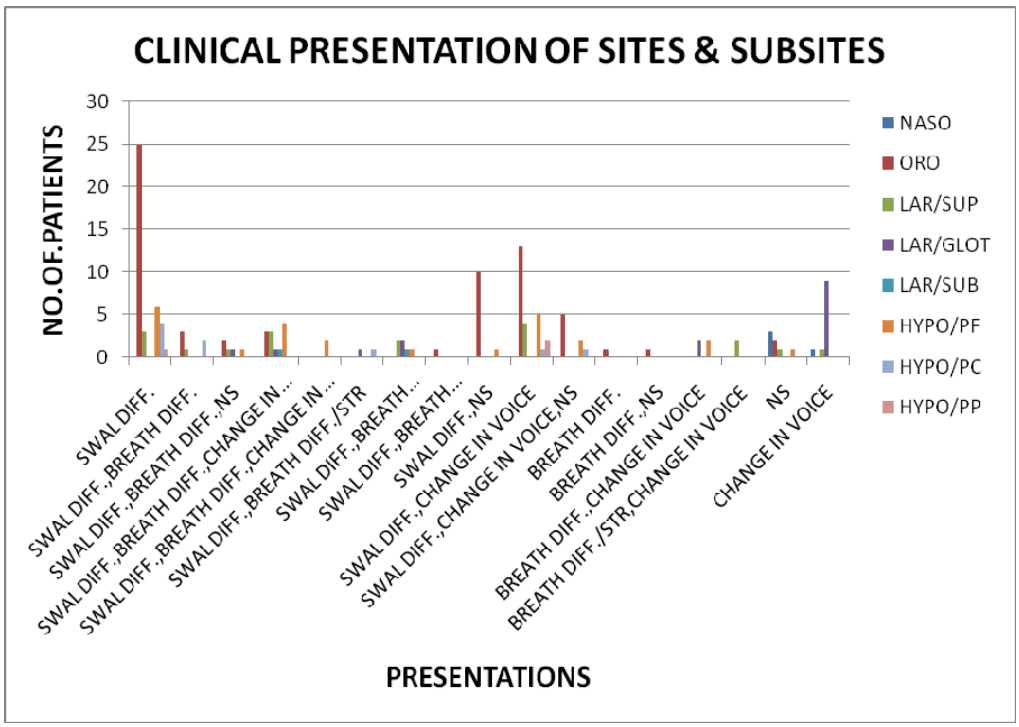
Most common hypopharyngeal tumour is pyriform sinus, followed by post cricoid and posterior pharyngeal wall.

CANCER RIGHT PYRIFORM SINUS



CLINICAL PRESENTATIONS

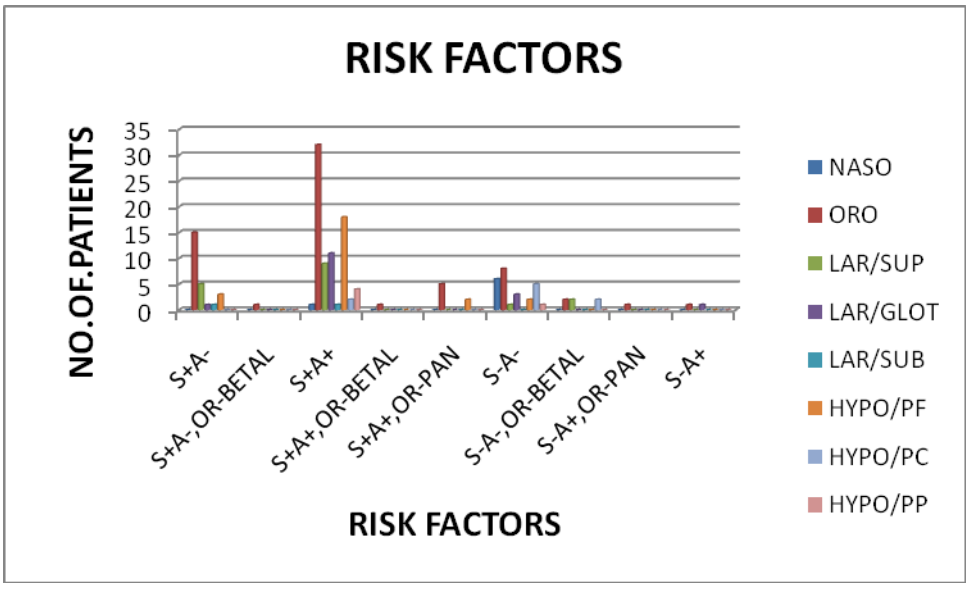
CLINICAL PRESENTATIONS	NASO	ORO	LAR/ SUP	LAR /GLOT	LAR/ SUB	HYPO/ PF	HYP O/PC	HYP O/PP
SWAL DIFF.	0	25	3	0	0	6	4	1
SWAL DIFF., BREATH DIFF.	0	3	1	0	0	0	2	0
SWAL DIFF.,BREATH DIFF.,NS	0	2	1	1	0	1	0	0
SWAL DIFF.,BREATH DIFF.,CHANGE IN VOICE	0	3	3	1	1	4	0	0
SWAL DIFF.,BREATH DIFF.,CHANGE IN VOICE,NS	0	0	0	0	0	2	0	0
SWAL DIFF.,BREATH DIFF./STR	0	0	0	1	0	0	1	0
SWAL DIFF.,BREATH DIFF./STR,CHANGE IN VOICE	0	0	2	2	1	1	0	0
SWAL DIFF.,BREATH DIFF./STR,CHANGE IN VOICE,NS	0	1	0	0	0	0	0	0
SWAL DIFF.,NS	0	10	0	0	0	1	0	0
SWAL DIFF.,CHANGE IN VOICE	0	13	4	0	0	5	1	2
SWAL DIFF.,CHANGE IN VOICE,NS	0	5	0	0	0	2	1	0
BREATH DIFF.	0	1	0	0	0	0	0	0
BREATH DIFF.,NS	0	1	0	0	0	0	0	0
BREATH DIFF.,CHANGE IN VOICE	0	0	0	2	0	2	0	0
BREATH DIFF./STR,CHANGE IN VOICE	0	0	2	0	0	0	0	0
NS	3	2	1	0	0	1	0	0
CHANGE IN VOICE	1	0	1	9	0	0	0	0



From the above chart it is seen that most patients presents with Dysphagia. Nasopharyngeal carcinoma patients presented with neck swelling, nasal symptoms like blood stained discharge, nasal obstruction, frank epistaxis. Oropharyngeal , supraglottic and hypopharyngeal malignancies mostly presented with dysphagia. Change of voice more commonly seen in glottic tumours and the 2 case of subglottic tumour in our study presented with stridor.

RISK FACTORS

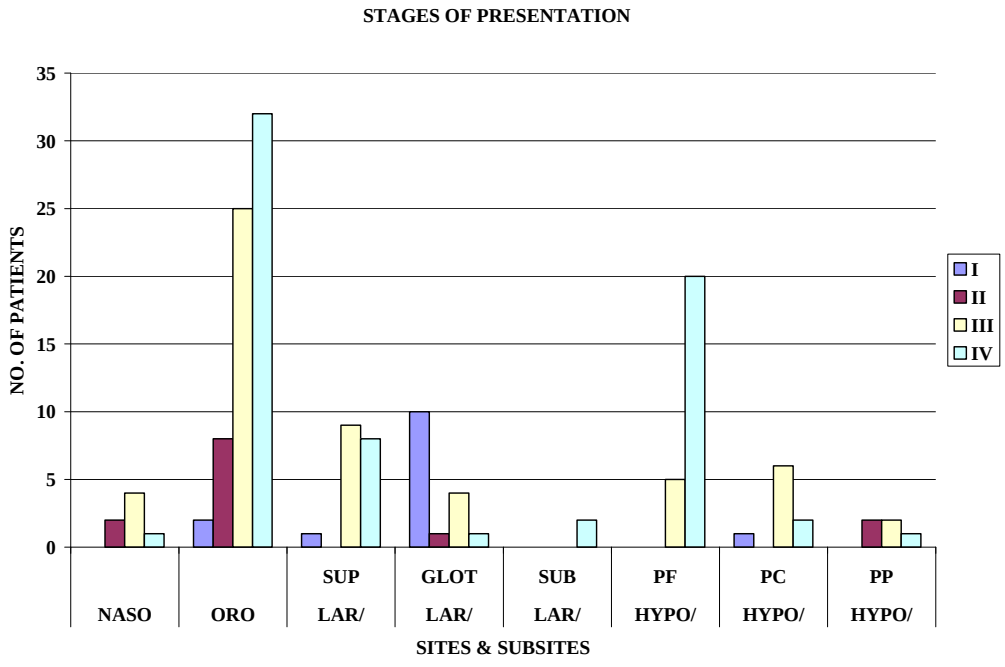
RISK FACTORS	NASO	ORO	LAR/ SUP	LAR/ GLOT	LAR/ SUB	HYPO/ PF	HYPO/ PC	HYPO/ PP
S+A-	0	15	5	1	1	3	0	0
S+A-,OR-BETAL	0	1	0	0	0	0	0	0
S+A+	1	32	9	11	1	18	2	4
S+A+,OR-BETAL	0	1	0	0	0	0	0	0
S+A+,OR-PAN	0	5	0	0	0	2	0	0
S-A-	6	8	1	3	0	2	5	1
S-A-,OR-BETAL	0	2	2	0	0	0	2	0
S-A+,OR-PAN	0	1	0	0	0	0	0	0
S-A+	0	1	0	1	0	0	0	0



In my study, synergistic effect of smoking and alcohol seen in almost 57% of patients. Smoking alone as an independent risk factor seen in 26% but alcohol as an independent risk factor seen in just 3 cases. Post cricoid carcinoma patients (7 female cases)are not associated with risk factors of smoking and alcohol.Betal nut and pan parag usage as an independent risk factor is seen in very few patients.

STAGE OF PRESENTATION

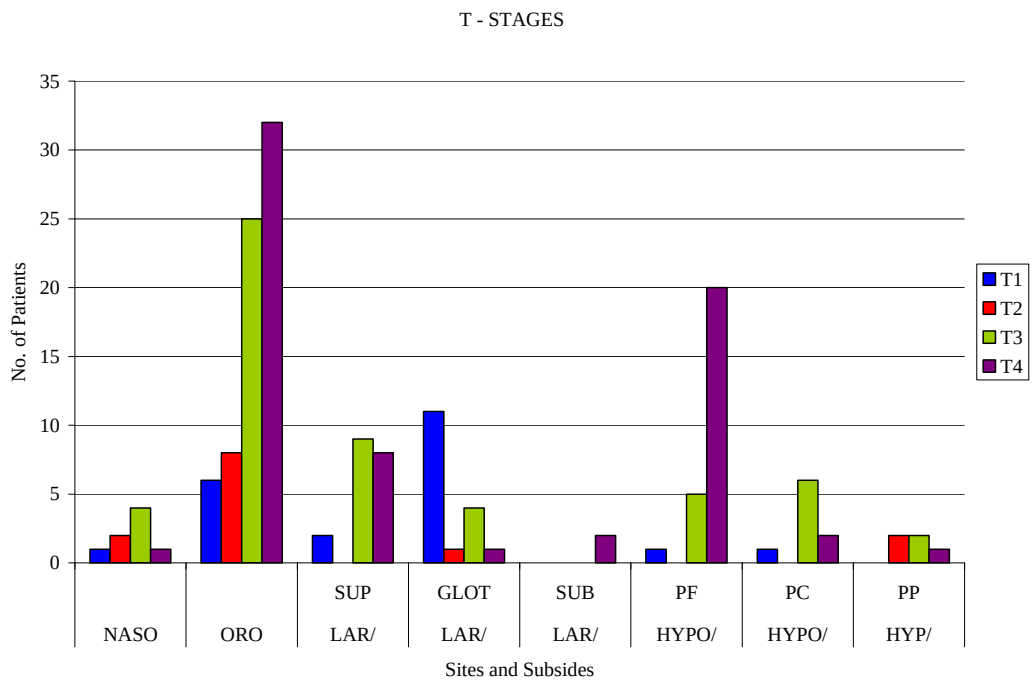
STAGES	NASO	ORO	LAR/ SUP	LAR/ GLOT	LAR/ SUB	HYPO/ PF	HYPO/ PC	HYPO/ PP
I	0	2	1	10	0	0	1	0
II	2	8	0	1	0	0	0	2
III	4	25	9	4	0	5	6	2
IV	1	32	8	1	2	20	2	1



Almost all cancers in our study are seen in stage 3 and 4 except glottic cancer involving vocal cord which is predominantly seen in stage 1.In our study, early glottis cancer patients are subjected to curative radiotherapy treatment and they responded well.Surgery (TLN WITH POST OP RT) done for 2 patients who are ideal candidates.Most patients rejected surgery and opted for CHEMORT,eventhough they are ideal candidates.

T STAGE

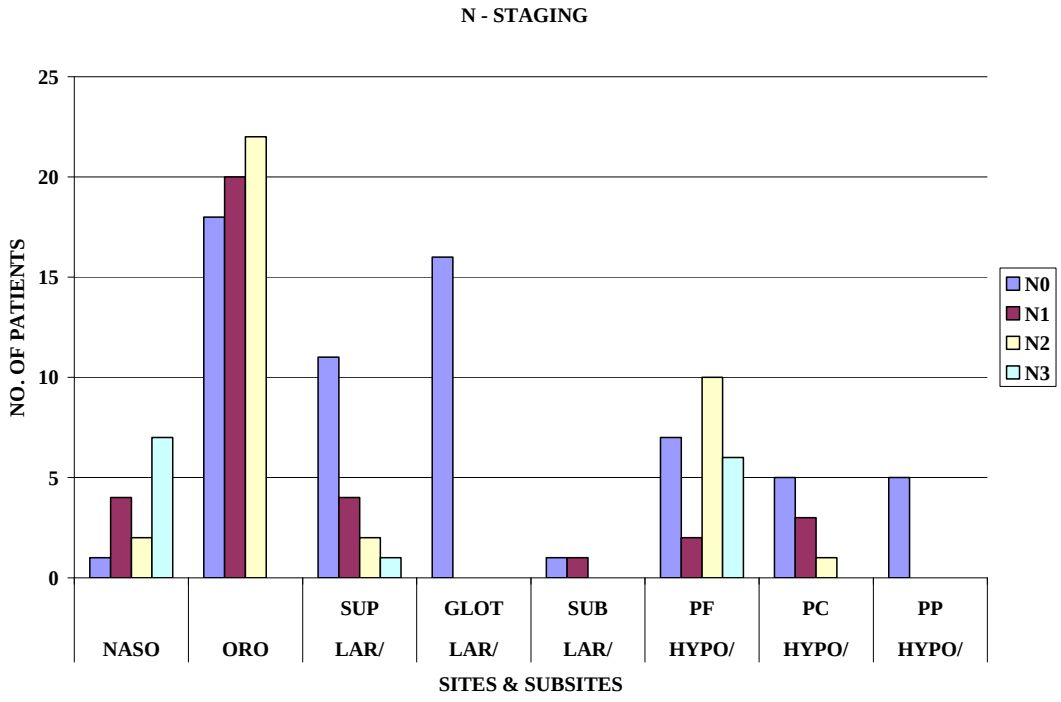
STAGES	NASO	ORO	LAR/ SUP	LAR/ GLOT	LAR/ SUB	HYPO/ PF	HYPO/ PC	HYP/ PP
T1	1	6	2	11	0	1	1	0
T2	2	8	0	1	0	0	0	2
T3	4	25	9	4	0	5	6	2
T4	1	32	8	1	2	20	2	1



As seen in the above table and bar diagram ,most patients presented with T3 and T4 growth especially pyriform sinus tumours ,where most of the patients presented in stage 4.11 cases of glottic cancer presented in T1 stage.

N STAGING

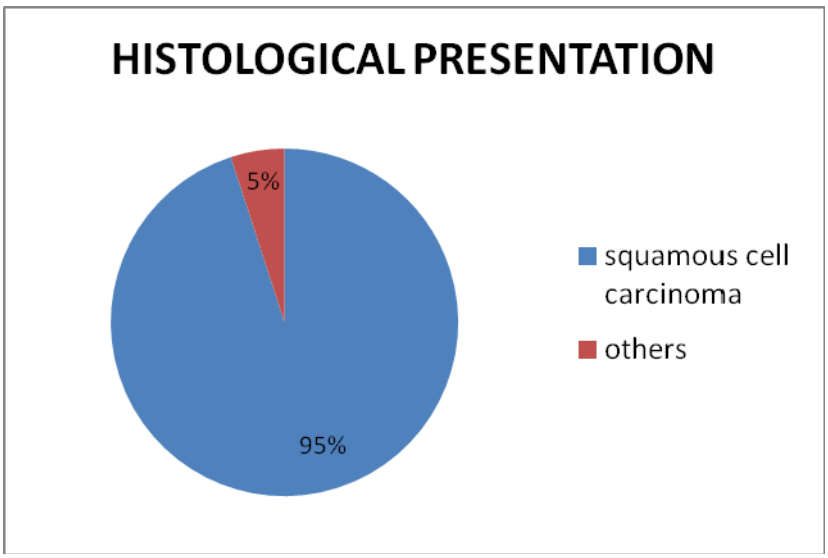
STAGES	NASO	ORO	LAR/ SUP	LAR/ GLOT	LAR/ SUB	HYPO/ PF	HYPO/ PC	HYPO/ PP
N0	1	18	11	16	1	7	5	**5**
N1	4	20	4	0	1	2	3	**0**
N2	2	22	2	0	0	10	1	**0**
N3	7	0	1	0	0	6	0	**0**



In my study,64 cases(43%)presented without neck secondaries. All glottis patients presented with no neck secondaries . Surprisingly 11 out of 18 supraglottic cancers presented with no neck secondaries, eventhough their T staging is mostly T3 or T4.Mostly the patients with neck secondaries presented in N2 stage,except nasopharyngeal cancer presenting with N3 mostly.

HISTOLOGICAL PRESENTATION

HISTOLOGY	NASO	ORO	LAR/ SUP	LAR/ GLOT	LAR/ SUB	HYPO/ PF	HYPO/ PC	HYPO/ PP
WDSCC	2	18	1	9	1	4	3	3
MDSCC	2	39	13	5	1	17	6	1
PDSCC	0	7	4	2	0	3	0	1



Adeno carcinoma - CA base of the tongue (1 case)

Diffuse large B cell lymphoma – CA tonsil (1 case)

Low grade mucoepidermoid carcinoma – CA tonsil (1 case)

Non keratinsing SCC – CA nasopharynx (1 case)

Undifferentiated carcinoma – CA nasopharynx (2 cases)

Small round cell tumour – CA pyriform sinus (1 case)

In my 2.5 years of study I found that squamous cell carcinoma (95%) as the most common type of cancer. Only 5% of cases are non squamous tumours.Mostly the tumours are moderately differentiated except glottis carcinoma which is predominantly well differentiated.

We have only one case of carcinoma ear, involving middle ear. Patient is a 44 year old male with chronic history of ear pain, ear discharge and hard of hearing. Patient presented in stage II and the biopsy report is well differentiated squamous cell carcinoma.

In my study period, I have seen only these 5 malignancies in our hospital. We have not come across other head and neck malignancies.

TOTAL LARYNGECTOMY PATIENT (POST OP PICTURE)

DISCUSSION

In this section I have compared important results of my study with previous National and International studies. Mostly I have drawn comparison with statistical data from Madras Metropolitan Tumour Registry,[1] National cancer Registry program, ICMR, who documented cancer incidence and mortality in Chennai, India from the year 2006 – 2008.

I. PEAK AGE INCIDENCE

STUDY	NASO	ORO	LAR	HYPO
MMTR	20 – 40 &40 – 60	40 – 60	60 – 80	60 – 80
Present Study	<20 & 40 - 60	40 – 60	40 – 60 & 60 – 80	40 – 60

In both the studies , there is bimodal distribution of nasopharyngeal carcinoma. However in my study, the first peak is < 20 years as compared to 20 – 40 years in MMTR. In my study, patients with laryngeal and hypopharyngeal malignancies presented predominantly in 40 – 60 years of age group as compared to a relatively younger age group in MMTR.

In Ray Chowdury's study on topographical distribution of laryngeal carcinoma in 50 patients (published in Indian Journal of Otolaryngology and head and neck surgery, Dec 2002). laryngeal carcinoma occurred commonly in 40 – 60 years age group.

II. SEX WISE DISTRIBUTION

STUDY	ORO	LAR	HYPO
MMTR			
M	89%	88%	71%
F	11%	12%	29%
Present Study			
M			
F	90%	89%	82%
	10%	11%	18%

In nasopharyngeal carcinoma, the male female ratio is 2.4 : 1 whereas in a study conducted by John kong Sangwoo and Andrew van Hasselt, male female ratio is 3:1.

In Ray Chowdury's study(1997), male female ratio in laryngeal carcinoma is 16: 1, whereas in our study male female ratio is 8:1. In Ahmedin Jemal, Rebecca siegel, cancer statistics(2007) study, male female ratio in larynx is 4:1[34].

In our study, in oropharyngeal cancer male female ratio is 3:1, whereas 8:1 in MMTR study and 2:1 in cancer statistics (2007) study and Nationwise study of epidemiology of oropharyngeal cancer in Netherlands, Mak kregar, Hilgers(1995)[35].

In our study, male female ratio is 4.6:1 in hypopharyngeal malignancy, whereas 3:1 in MMTR study and 1.7:1 in Pingree and KimDavis study.

SUBSITE DISTRIBUTION

OROPHARYNX

Study	Base Of Tongue	Tonsil	Vallecula	Soft Palate	Others
MMTR	40%	23%	3%	10%	24%
Present Study	51%	31%	10%	6%	2%
Mac Kregar Study(1995)	28% (includes vallecula)	58%	-	10%	4%

In Mac Kregar and Hilgers study, 28% involves both base of tongue and vallecula growth. There is 4% of posterior oropharyngeal wall growth cases in this study. However in our present study, we found no cases of posterior oropharyngeal wall. Tonsil is the most common site of involvement in Mac Kregar study, whereas in MMTR and our study base of tongue growth is the commonest oropharyngeal subsite.

LARYNX

STUDY	SUPRA-GLOTTIS	VOCAL CORD	SUBGLOTTIS	NOS
MMTR	34%	38%	1%	27%
Present Study	50%	44%	6%	-
Lederman(1952)	25%	61%	12%	-
Powel & Robin(1983)	19%	76%	5%	-
Thawley(1991)	40%	59%	1%	-
Chakraborty(1992)	78%	13%	4%	5%
Ray Chowdury's study(1995)	58%	40%	2%	-

In Indian studies like MMTR, Chakraborty, Ray Chowdury and our study, the most common laryngeal cancer is Supraglottis, whereas in Lederman, Powel & Robin and Thawley study, the most common laryngeal cancer is glottis involving vocal cords. In our study, aryepiglottic fold is the most common subsite as in the case of Powel & Robin study. The demerit of Lederman's study is that, he considered suprahyoid epiglottis, AE folds and arytenoids as a part of hypopharynx.

HYPOPHARYNX

STUDY	PYRIFORM SINUS	POST CRICOID	POSTERIOR PHARYNGEAL WALL	NOS
MMTR	41%	26%	1%	32%
Present Study	64%	23%	13%	-
Jones & Stell Liverpool study series	45%	40%	8%	-

In all above 3 studies commonest site for hypopharyngeal tumour is pyriform sinus. We have a good number of posterior pharyngeal wall cases. In Jones & Stell Liverpool study series, post cricoids carcinoma cases are almost equal to PF tumours. The Liverpool series also included cervical oesophagus growth which accounted for 7% of cases.

ASSOCIATION OF SMOKING AND ALCOHOL

Study	S+A+	S+A-	S-A+	S-A-
Hashibe & Brennan study(2007)	70%	16%	10%	4%
Present study	57%	26%	2%	15%

From our study, alcohol as an independent risk factor is seen in 2% of cases as compared to 10% of cases in Brennan study[36]. William J Blot and Joseph K Mc Laughlin (1988) published an article in American association of cancer Research, showing that smoking and alcohol drinking together causes 75% of oropharyngeal cancers[35]. Similar results found in our study.

STAGE OF PRESENTATION

NASOPHARYNGEAL CANCERS	N0	N1
John Kong Sangwoos study	25%	75%
Present study	7%	93%

In both the studies, patients predominantly present with neck nodes.

OROPHARYNGEAL CANCERS	Stage I	II	III	IV	N0	N1
Mac Kregars(1995)[33]	7%	17%	24%	52%	40%	60%
Present study	3%	12%	37%	48%	27%	73%

Mac Kregar, Hilgers(1995) conducted a nation wide study of epidemiology, treatment and survival of oropharyngeal carcinoma in Netherlands. The results of both the studies are almost similar. Most of the oropharyngeal cancers are advanced at presentation.

LARYNGEAL CANCERS	N0	N1
Martin A Birchall study	41%	59%
Present study	78%	22%

As compared to Martin Study, most of the laryngeal cancers in our study presents with N0 neck which becomes important in treatment and survival of the patient.

HYPOPHARYNGEAL CANCERS	N0	N1
Jones % Stell Liverpool series	55%	45%
Present study	44%	56%

Hypopharyngeal cancers are advanced at presentation in most of the studies and carries poor prognosis.

HISTOLOGY – SQUAMOUS CELL CARCINOMA

STUDY	ORO	LAR	HYPO
MMTR	87.5%	89%	91%
PRESENT STUDY	96%	100%	97%

As in the above 2 and many other studies squamous cell carcinoma is the most common type of carcinoma in head and neck malignancies.

CONCLUSION

From our analysis of 150 newly diagnosed cancer cases in our department, we found various results from our study are almost similar to many National and International studies. Smoking and alcohol once again proves to be an important risk factor in the etiopathogenesis of head and neck cancer. Since smoking and alcoholic habits continues to rise and its incidence is rising among females too. Various programs and counsellings are needed to educate the people especially in developing countries, about the ill effects of smoking and alcohol. In India, education is also directed towards untoward effects of betal chewing and pan parag usage, which is commonly associated with oropharyngeal cancers. Preventive measures of these risk factors will play a vital role in reducing the incidence of cancer.

Most of the cases are advanced at presentation. Cancer education should be aimed at screening the patients early, to have an early diagnosis and treatment which will improve the overall 5 - year survival rate of the patients. We are able to diagnose many glottis cancers early and most of the cases responded well to radiotherapy treatment. Glottis cancers are one among the very few cancers, having a good prognosis if detected early.

In the present era, future studies should analyse the genetic and molecular basis of cancer which can play a vital role in cancer treatment. More and more understanding of the pathogenesis of cancer will help in the treatment and the future is towards non surgical management of cancers.

PROFORMA

STUDY ON ENT MALIGNANCIES – THEIR INCIDENCE, PRESENTATION, ETIO – PATHOGENESIS, TREATMENT AND ASSOCIATION WITH NECK SECONDARIES IN THE DEPARTMENT OF ENT.

GOVERNMENT ROYAPPETTAH HOSPITAL AND KILPAUK MEDICAL COLLEGE HOSPITAL.

CASE SHEET

GENERAL INFORMATION

- NAME
- AGE
- SEX -
- OCCUPATION -
- ADDRESS -
- PHONE NO. -
- SOCIO ECONOMIC STATUS -

HISTORY

PRESENTING COMPLAINTS

- DIFFICULTY IN SWALOWING - YES / NO

  DURATION:

  FOR SOLIDS/LIQUIDS/BOTH

  PROGRESSION:

- DIFFICULTY IN BREATHING - YES / NO

  DURATION:

PROGRESSION:

STRIDOR - YES / NO

- CHANGE IN VOICE YES / NO

DURATION:

PROGRESSION:

- NECK SWELLING - YES / NO

DURATION:

PROGRESSION:

- MASS IN ENT YES / NO

DURATION:

- LOSS OF WEIGHT - YES / NO
- LOSS OF APPETITE YES / NO

<u>PERSONAL HISTORY</u>

- SMOKING - YES / NO

TYPE:

NO.OF.YEARS

QUANTITY:

- ALCOHOL YES / NO

TYPE

NO.OF.YEARS

QUANTITY:

- PAN PARAG - YES / NO

IF YES DURATION:

- DIETARY HABITS

VEG / NON VEG

IF NON VEG & FREQUENCY — PREFERENCE

- HEAD PHONE USAGE — YES / NO
- EXPOSURE TO LOUD SOUND - YES / NO
- EXPOSURE TO RADIATION - YES / NO

- EXPOSURE TO CHEMICALS - YES / NO
- EXPOSURE TO FUMES - YES / NO
- PREVIOUS DRUG USAGE - YES / NO
- SPEAKING IN LOUD VOICE - YES / NO
- GERD - YES / NO
- OBESITY YES / NO
- STRESS YES / NO
- FAMILY H/O MALIGNANCY - YES / NO

PHYSICAL EXAMINATION

- HEIGHT -
- WEIGHT -
- BP -
- PULSE -
- TEMPERATURE -
- PULSE RATE -

GENERAL EXAMINATION

- PALLOR -
- CYANOSIS -
- ICTERUS -
- BREATH DIFF.OEA -
- CLUBBING
- LYMPHADENOPATHEIS -
- DIETARY DEFICIENCY -

ENT EXAMINATION

EXAMINATION OF THE ORAL CAVITY

BUCCAL MUCOSA

DENTITION

EXAMINATION OF OROPHARYNX

EXAMINATION OF NASOPHARYNX

BY POST NASAL EXAMINATION

EXAMINATION OF LARYNGOPHARYNX

BY INDIRECT LARYNGOSCOPY

EXAMINATION OF NOSE

ANTERIOR RHINOSCOPY

POSTERIOR RHINOSCOPY

EXAMINATION OF THE EAR

EXAMINATION OF THE NECK

PROVISIONAL DIAGNOSIS

INVESTIGATIONS

- HEMATOLOGICAL
- RADIOLOGICAL
- BIOPSY REPORT

STAGING

TUMOR BOARD NUMBER
POLICY

TREATMENT UNDERTAKEN

MASTER CHART

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
1	MALLIGA	30	F	CHANGE IN VOICE	S-A-	LAR/GLOT	T1 b	N 0	I	PDSCC	CHEMO RT
2	ARUMUGAM	55	M	SWAL DIFF.A,BREATH DIFF./STR,CHANGE IN VOICE	S+A+	LAR/SUB	T4	N 0	IV	WDSCC	TL/ POST OP RT
3	MURALI	46	M	CHANGE IN VOICE	S+A+	LAR/GLOT	T4	N 0	IV	WDSCC	TL/ POST OP RT
4	RANGANATHAN	50	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	HYPO/PS	T3	N 2 a	IV	MDSCC	CHEMO RT
5	APPAVU	75	M	NS	S+A-	HYPO/PS	T3	N 2 c	IV	MDSCC	RT
6	POONGAVANAM	65	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	LAR/SUP	T3	N 0	III	MDSCC	CHEMO RT
7	SELVARAJ	44	M	EAR PAIN,DISCHARGE, HARD OFHEARING	S-A-	RIGHT MIDDLE EAR	T2	N 0	II	WDSCC	RT
8	RASHIYA KATHOOR	55	F	SWAL DIFF.A,NS	S-A-	ORO/SP	T2	N 0	III	PDSCC	RT
9	AMEER	58	M	SWAL DIFF.A,NS	S+A-	ORO/SP	T1	N 1	III	MDSCC	RT
10	SUBRAMANIAM	60	M	SWAL DIFF.A,NS	S+A+	ORO/ANT	T3	N 2 b	IV	MDSCC	RT
11	RAJENDRAN	52	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	ORO/ANT-VAL	T3	N 1	III	MDSCC	CHEMO RT

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
12	ARUMUGAM	52	M	SWAL DIFF.A,BREATH DIFF./STR,CHANGE IN VOICE,NS	S+A+	ORO/ANT-VAL	T4	N 2 c	IV	MDSCC	CHEMO RT
13	ENGIAH	45	M	SWAL DIFF.A,BREATH DIFF.	S+A-	ORO/LAT	T2	N 0	II	MDSCC	CHEMO RT
14	THIRUNAVUKARASU	54	M	SWAL DIFF.A	S+A+	ORO/LAT	T3	N 2 c	IV	MDSCC	CHEMO RT
15	KULASEKARAN	70	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE	S+A+	ORO/ANT	T3	N 2 c	IV	WDSCC	CHEMO RT
16	KANYAKUMARI	53	F	SWAL DIFF.A,BREATH DIFF.	S-A-	ORO/ANT	T3	N 0	IV	MDSCC	CHEMO RT
17	KRISHNAN	65	M	SWAL DIFF.A,CHANGE IN VOICE,NS	S+A+	ORO/LAT	T4	N 1	IV	MDSCC	CHEMO RT
18	PAKKIRISAMY	53	M	SWAL DIFF.A	S+A+	HYPO/PS	T1	N 2 b	IV	MDSCC	CHEMO RT
19	VENKATESAN	41	M	SWAL DIFF.A	S+A+,OR - PAN	ORO/LAT	T1	N 1	II	MDSCC	CHEMO RT
20	BABU	66	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE	S+A+	HYPO/PS	T3	N 3	IV	MDSCC	CHEMO RT
21	LOGU	70	M	SWAL DIFF.A,CHANGE IN VOICE,NS	S+A+	ORO/ANT	T3	N 2 c	IV	MDSCC	CHEMO RT

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
22	VIJAYAN	35	M	SWAL DIFF.A,CHANGE IN VOICE,NS	S+A+,OR - PAN	ORO/ANT	T1	N 2 c	IV	MDSCC	CHEMO RT
23	KALIAMURTHY	55	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE,NS	S+A+	HYPO/PS	T4	N 2 b	IV	MDSCC	RT
24	VELUCHAMY	76	M	SWAL DIFF.A	S+A-	ORO/ANT	T3	N 1	III	MDSCC	RT
25	VAIDHYALINGAM	65	M	SWAL DIFF.A,CHANGE IN VOICE	S+A-	ORO/ANT	T3	N 0	III	LOW GRADE MC	RT
26	ARUMUGAM	48	M	SWAL DIFF.A,BREATH DIFF.	S+A+,OR - PAN,BETAL	ORO/LAT	T3	N 1	III	MDSCC	CHEMO RT
27	KANNAYAN	73	M	SWAL DIFF.A	S+A+	ORO/ANT	T4	N 2 c	IV	PDSCC	RT
28	MANI	52	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+, OR - BETAL	ORO/ANT	T3	N 0	III	PDSCC	CHEMO RT
29	DAMODHARAN	65	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE	S+A+	ORO/ANT	T3	N 3	IV	PDSCC	RT
30	KATHIRVEL	70	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE	S+A+	HYPO/PS	T4	N 2	IV	PDSCC	RT
31	CHEMBAN	67	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+,OR - PAN	HYPO/PS	T4	N 0	IV	MDSCC	RT

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
32	RANJITHAM	65	F	SWAL DIFF.A,BREATH DIFF.,NS	S-A-,OR - BETAL	LAR/SUP	T4	N 1	IV	MDSCC	CHEMO RT
33	RANGANATHAN	55	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	LAR/SUP	T3	N 0	III	MDSCC	CHEMO RT
34	MURUGESAN	70	M	SWAL DIFF.A,CHANGE IN VOICE	S+A-	ORO/LAT	T3	N 1	III	MDSCC	CHEMO RT
35	ALAGESAN	17	M	NS	S-A-	NASO	T4	N 1	IV	UNDIFF CA	CHEMO RT
36	RAGHUPATHY	61	M	SWAL DIFF.A	S+A+	HYPO/PP	T3	N 0	III	WDSCC	RT
37	MANICKAM	61	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE	S+A-	LAR/SUP	T3	N 1	III	MDSCC	RT
38	RAVIKUMAR	45	M	SWAL DIFF.A	S-A-	HYPO/PS	T3	N 0	III	SRC	CHEMO RT
39	RADHA	55	F	SWAL DIFF.A	S-A-,OR - BETAL	LAR/SUP	T4	N 0	IV	MDSCC	CHEMO RT
40	KRISHNAN	67	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE	S+A+	LAR/SUP	T3	N 0	III	PDSCC	RT
41	KABIR	51	M	CHANGE IN VOICE	S+A-	LAR/SUP	T3	N 1	III	MDSCC	RT
42	BHASKAR	62	M	CHANGE IN VOICE	S-A-	LAR/GLOT	T1 a	N 0	I	PDSCC	RT
43	AKAMBARAM	61	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN	S+A+	LAR/GLOT	T1 b	N 0	I	WDSCC	RT

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
				VOICE							
44	KUTTIAH	72	M	CHANGE IN VOICE	S+A-	ORO/ANT	T3	N 1	III	PDSCC	RT
45	SURYANARAYANAN	62	M	BREATH DIFF.,CHANGE IN VOICE	S+A-	HYPO/PS	T4	N 3	III	MDSCC	CHEMO RT
46	JALENDRAN	50	M	BREATH DIFF./STR,CHANGE IN VOICE	S+A+	LAR/SUP	T4	N 0	IV	PDSCC	CHEMO RT
47	MOHAIDEN	15	M	NASAL SYM	S-A-	NASO	T1	N 1	II	NON KER SCC	CHEMO RT
48	LAZAR	72	M	SWAL DIFF.A	S+A-	ORO/ANT	T3	N 0	III	PDSCC	RT
49	SANKAR	74	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	ORO/ANT	T4	N 2 b	IV	MDSCC	RT
50	PETER	50	M	SWAL DIFF.A	S+A+	ORO/LAT	T2	N 0	II	MDSCC	CHEMO RT
51	GANAPATHY	76	M	BREATH DIFF./STR,CHANGE IN VOICE	S+A-	LAR/SUP	T3	N 0	III	MDSCC	RT
52	BALU	63	M	SWAL DIFF.A	S+A-	LAR/SUP	T3	N 1	III	MDSCC	CHEMO RT
53	MAGARAJAN	50	M	BREATH DIFF.,CHANGE IN VOICE	S+A+	HYPO/PS	T4	N 0	IV	MDSCC	RT
54	VENGIAH	48	M	SWAL DIFF.A	S+A+	ORO/SP	T3	N 1	III	MDSCC	CHEMO RT
55	VISUVASAM	46	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE	S+A+	HYPO/PS	T3	N 0	III	WDSCC	CHEMO RT

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
56	BALU	60	M	BREATH DIFF.,CHANGE IN VOICE	S+A+	LAR/GLOT	T2	N 0	II	MDSCC	CHEMO RT
57	RAGAVAN	50	M	BREATH DIFF.	S+A+	ORO/LAT	T2	N 1	III	MDSCC	CHEMO RT
58	VELLAIYAN	39	M	CHANGE IN VOICE	S+A+	LAR/GLOT	T1	N 0	I	WDSCC	RT
59	RAJA	61	M	SWAL DIFF.A	S+A+	ORO/ANT	T1	N 0	I	MDSCC	RT
60	MUTHUCHAMY	72	M	SWAL DIFF.A	S+A+	ORO/LAT	T2	N 0	II	MDSCC	CHEMO RT
61	APPAYA	67	M	NS	S+A-	ORO/LAT	T2	N 3	IV	MDSCC	CHEMO RT
62	MANI	58	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	LAR/SUP	T3	N 3	IV	WDSCC	CHEMO RT
63	UVARAJ	51	M	SWAL DIFF.A,NS	S+A+	ORO/LAT	T1	N 1	III	MDSCC	CHEMO RT
64	PAPPAMMAL	60	F	SWAL DIFF.A	S-A-	HYPO/PP	T4	N 0	IV	PDSCC	CHEMO RT
65	MOHANA SUNDARAM	52	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE	S+A+	LAR/SUP	T3	N 0	III	MDSCC	CHEMO RT
66	GOVINDAN	70	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE	S+A-	LAR/SUB	T4	N 1	IV	MDSCC	CHEMO RT
67	RANGANATHAN	75	M	SWAL DIFF.A,BREATH DIFF./STR	S-A-	HYPO/PC	T1	N 0	I	MDSCC	RT
68	GOVINDACHAMY	80	M	SWAL DIFF.A	S+A-, OR-BETAL	ORO/ANT	T2	N 0	II	MDSCC	RT
69	PAUL	63	M	NS	S-A-	NASO	T3	N 1	III	WDSCC	RT

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
70	KRISHNAN	66	M	BREATH DIFF.,CHANGE IN VOICE	S+A+	LAR/GLOT	T1	N 0	I	WDSCC	RT
71	ALI	50	M	NS	S+A+	ORO/ANT	T3	N 3	IV	MDSCC	CHEMO RT
72	MOHAN	47	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	HYPO/PS	T3	N 2 a	IV	WDSCC	CHEMO RT
73	BABU	57	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE	S+A+	HYPO/PS	T3	N 3	IV	PDSCC	CHEMO RT
74	RAJAMANICKAM	48	M	SWAL DIFF.A,NS	S+A+	ORO/ANT	T4	N 2 b	IV	WDSCC	CHEMO RT
75	ARUMUGAM	51	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	ORO/LAT	T2	N 0	II	WDSCC	CHEMO RT
76	SAMPATH	70	M	SWAL DIFF.A	S+A-	ORO/ANT	T4	N 2 c	IV	WDSCC	CHEMO RT
77	NIZAMMUDIN	62	M	SWAL DIFF.A,NS	S-A-	HYPO/PS	T4	N 2 a	IV	MDSCC	CHEMO RT
78	SHANMUGAM	40	M	SWAL DIFF.A,BREATH DIFF./STR,CHANGE IN VOICE	S+A+	HYPO/PS	T4	N 0	IV	MDSCC	CHEMO RT
79	BALAKRISHNAN	68	M	BREATH DIFF.,NS	S+A+	ORO/ANT	T3	N 3	III	ADENO / CA	CHEMO RT
80	RAJ	53	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	HYPO/PS	T4	N 1	IV	WDSCC	CHEMO RT
81	PADMAVATHY	45	F	NASAL SYM	S-A-	NASO	T2	N 0	II	WDSCC	RT
82	NARASIMHAN	62	M	CHANGE IN VOICE	S-A-	LAR/GLOT	T1 b	N 0	I	WDSCC	RT

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
83	SHANMUGAM	48	M	SWAL DIFF.A,CHANGE IN VOICE,NS	S+A+	HYPO/PS	T3	N 3	IV	MDSCC	CHEMO RT
84	ANBALAGAN	58	M	SWAL DIFF.A,NS	S+A+	ORO/ANT	T3	N 1	III	WDSCC	CHEMO RT
85	SEENIVASAN	38	M	SWAL DIFF.A	S-A+	ORO/LAT	T2	N 0	II	WDSCC	CHEMO RT
86	CHELLIAH	64	M	SWAL DIFF.A,BREATH DIFF./STR	S+A-	LAR/GLOT	T3	N 0	III	MDSCC	CHEMO RT
87	SRINIVASAN	14	M	NS	S-A-	NASO	T2	N 1	III	MDSCC	CHEMO RT
88	ANWARUDDIN	76	M	SWAL DIFF.A	S+A-	ORO/SP	T3	N 2 c	IV	MDSCC	CHEMO RT
89	PADMA	55	F	SWAL DIFF.A,BREATH DIFF.	S-A-	HYPO/PC	T2	N 1	III	MDSCC	CHEMO RT
90	PERIYAVAN	60	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE,NS	S+A+	HYPO/PS	T3	N 3	IV	MDSCC	CHEMO RT
91	SRINIVASAN	43	M	SWAL DIFF.A	S+A+,OR - PAN	ORO/LAT	T3	N 2 c	IV	WDSCC	CHEMO RT
92	KARUPPAYEE	63	F	SWAL DIFF.A	S-A-,OR - BETAL	ORO/ANT	T3	N 1	III	MDSCC	CHEMO RT
93	PALANI	55	M	SWAL DIFF.A	S+A+	ORO/ANT	T4	N 2 a	IV	WDSCC	CHEMO RT
94	DAWOOD	65	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	HYPO/PS	T4	N 2	IV	MDSCC	CHEMO RT
95	RAJENDRAN	49	M	SWAL DIFF.A	S+A+	HYPO/PS	T3	N 2 b	IV	WDSCC	CHEMO RT
96	ANGAMMAL	60	F	SWAL DIFF.A,CHANGE	S-A-,OR - BETAL	ORO/ANT	T3	N 0	III	WDSCC	CHEMO RT

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
				IN VOICE							
97	RAMAN	70	M	SWAL DIFF.A	S+A+,OR - PAN	ORO/ANT	T4	N 1	IV	WDSCC	CHEMO RT
98	LOGANATHAN	64	M	SWAL DIFF.A,BREATH DIFF./STR,CHANGE IN VOICE	S+A+	LAR/SUP	T4	N 0	IV	MDSCC	RT
99	RAJU	83	M	SWAL DIFF.A	S+A+	ORO/LAT	T3	N 1	III	WDSCC	RT
100	BHUVANAGIRI	60	M	SWAL DIFF.A,BREATH DIFF.,CHANGE IN VOICE	S+A+	ORO/ANT	T3	N 2 b	IV	WDSCC	CHEMO RT
101	DHANALAKSHMI	62	F	SWAL DIFF.A	S-A-,OR - BETAL	HYPO/PC	T3	N 2 c	IV	MDSCC	RT
102	GOVINDHAN	71	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+,OR - PAN,BETAL	LAR/SUP	T3	N 0	III	PDSCC	RT
103	KRISHNAN	75	M	SWAL DIFF.A,BREATH DIFF./STR,CHANGE IN VOICE	S+A-	LAR/SUP	T4	N 0	IV	MDSCC	CHEMO RT
104	MANICKAM	49	M	SWAL DIFF.A,BREATH DIFF.	S+A+	LAR/SUP	T1	N 0	I	PDSCC	RT
105	SAROJA	67	F	NS	S-A-	LAR/SUP	T1	N 2 b	IV	MDSCC	RT
106	LALITHA	66	F	SWAL DIFF.A	S-A-	HYPO/PC	T3	N 0	III	WDSCC	CHEMO RT
107	KARPAGAVALLI	75	F	SWAL DIFF.A	S-A-	ORO/ANT	T3	N 0	III	WDSCC	CHEMO RT

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
108	PUNNIYAKODI	51	M	SWAL DIFF.A,CHANGE IN VOICE,NS	S+A+	ORO/ANT	T2	N 3	III	MDSCC	CHEMO RT
109	GANESAN	55	M	SWAL DIFF.A,BREATH DIFF./STR,CHANGE IN VOICE	S+A+	LAR/GLOT	T3	N 0	III	WDSCC	CHEMO RT
110	SAMPATH	65	M	CHANGE IN VOICE	S-A+	LAR/GLOT	T1	N 0	III	WDSCC	CHEMO RT
111	MANI	60	M	SWAL DIFF.A,BREATH DIFF./STR,CHANGE IN VOICE	S+A+	LAR/GLOT	T3	N 0	III	MDSCC	CHEMO RT
112	SUMATHY	35	F	SWAL DIFF.A,NS	S-A-	ORO/LAT	T2	N 1	III	DLBL	CHEMO RT
113	MANI	52	M	SWAL DIFF.A,NS	S+A+	ORO/ANT-VAL	T3	N 2	IV	MDSCC	CHEMO RT
114	RAMAKRISHNAN	60	M	SWAL DIFF.A,CHANGE IN VOICE	S+A-	ORO/ANT-VAL	T2	N 2 c	IV	MDSCC	RT
115	GOVINDARAJ	65	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	HYPO/PP	T3	N 0	III	MDSCC	RT
116	PANDURANGAN	45	M	SWAL DIFF.A,CHANGE IN VOICE	S-A+, OR - PAN	ORO/LAT	T4	N 2 c	IV	WDSCC	RT
117	VEERAMMAL	60	F	SWAL DIFF.A,CHANGE IN VOICE,NS	S-A-,OR - BETAL	HYPO/PC	T3	N 0	III	WDSCC	CHEMO RT

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
118	GUNA	55	M	SWAL DIFF.A	S+A+	HYPO/PS	T3	N 0	III	MDSCC	CHEMO RT
119	KRISHNAN	64	M	SWAL DIFF.A,NS	S+A-	ORO/LAT	T3	N 3	IV	MDSCC	CHEMO RT
120	YEDIAPPA	60	M	SWAL DIFF.A	S+A+	ORO/LAT	T2	N 1	III	WDSCC	RT
121	INDIRA	24	F	NASAL SYM,NS	S-A-	NASO	T2	N 2	III	UNDIFF CA	RT
122	MANI	52	M	CHANGE IN VOICE	S+A+	LAR/GLOT	T1	N 0	I	WDSCC	RT
123	KANDASAMY	71	M	SWAL DIFF.A,BREATH DIFF.,NS	S+A+	HYPO/PS	T3	N 0	III	MDSCC	RT
124	KABIRDOSS	50	M	SWAL DIFF.A,BREATH DIFF.,NS	S+A+	LAR/GLOT	T1	N 0	I	WDSCC	RT
125	SUBRAMANIAN	65	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	HYPO/PP	T2	N 0	II	WDSCC	RT
126	SUBRAMANI	65	M	SWAL DIFF.A	S+A+	HYPO/PP	T2	N 0	II	WDSCC	RT
127	RATHINAM	58	F	SWAL DIFF.A	S-A-	ORO/ANT-VAL	T2	N 1	III	MDSCC	CHEMO RT
128	SELVAM	56	M	SWAL DIFF.A,CHANGE IN VOICE	S-A-	ORO/ANT-VAL	T2	N 0	II	MDSCC	RT
129	SUBRAMANIAN	60	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	ORO/ANT-VAL	T1	N 0	I	WDSCC	RT
130	DHANAM	47	M	SWAL DIFF.A	S-A-	ORO/ANT	T3	N 2	IV	WDSCC	CHEMO RT
131	NANDAGOPAL	38	M	SWAL DIFF.A	S+A-	HYPO/PS	T4	N 2	IV	PDSCC	CHEMO RT
132	SAMY	75	M	SWAL DIFF.A	S+A-	ORO/ANT	T4	N 0	IV	MDSCC	CHEMO RT

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
133	RAJ	56	M	SWAL DIFF.A,CHANGE IN VOICE	S+A+	ORO/LAT	T4	N 0	IV	WDSCC	CHEMO RT
134	GOVINDASAMY	48	M	SWAL DIFF.A,CHANGE IN VOICE	S+A-	ORO/ANT	T4	N 2 c	IV	MDSCC	CHEMO RT
135	RANGANATHAN	78	M	SWAL DIFF.A,BREATH DIFF.,NS	S+A+,OR - PAN	ORO/LAT	T3	N 3	IV	MDSCC	CHEMO RT
136	MEGAN	55	M	CHANGE IN VOICE	S+A+	LAR/GLOT	T1	N 0	I	MDSCC	RT
137	ENKIAH	50	M	SWAL DIFF.A,BREATH DIFF.,NS	S+A+	ORO/ANT	T4	N 2 c	IV	PDSCC	CHEMO RT
138	RAVI	60	M	SWAL DIFF.A	S+A+	LAR/SUP	T3	N 2	IV	MDSCC	CHEMO RT
139	RAJENDRAN	32	M	SWAL DIFF.A	S-A-	ORO/ANT	T3	N 1	III	MDSCC	RT
140	RAMANATHAN	75	M	SWAL DIFF.A	S+A-	ORO/LAT	T2	N 1	III	MDSCC	RT
141	SUBRAMANI	65	M	SWAL DIFF.A,NS	S+A+	ORO/ANT	T3	N 2 c	IV	MDSCC	RT
142	MAHENDRAN	46	M	SWAL DIFF.A	S+A+	HYPO/PS	T4	N 1	IV	MDSCC	CHEMO RT
143	SUBRAMANI	65	M	SWAL DIFF.A,CHANGE IN VOICE,NS	S+A+	ORO/ANT	T4	N 2 b	IV	MDSCC	CHEMO RT
144	VENKATESAN	23	M	SWAL DIFF.A,BREATH DIFF.	S+A+	HYPO/PC	T4	N 1	IV	WDSCC	RT
145	PITCHAI	60	M	CHANGE IN VOICE	S+A+	LAR/GLOT	T1 b	N 0	I	MDSCC	RT

S. No	Name	Age	Sex	Presenting Illness	Risk Factors	Site & Subsite	T Staging	N Staging	Stage	Histology	Treatment
146	ELUMALAI	36	M	SWAL DIFF.A,CHANGE IN VOICE,NS	S+A+,OR - PAN	HYPO/PS	T3	N 3	IV	MDSCC	CHEMO RT
147	SUBRAMANI	70	M	SWAL DIFF.A	S+A+	HYPO/PC	T3	N 0	III	MDSCC	CHEMO RT
148	LAKSHMI	55	F	SWAL DIFF.A,CHANGE IN VOICE	S-A-	HYPO/PC	T3	N 0	III	MDSCC	RT
149	PAPPA	55	F	SWAL DIFF.A	S-A-	HYPO/PC	T3	N 1	III	MDSCC	CHEMO RT
150	SHANMUGAM	55	M	NASAL SYM,NS	S+A+	NASO	T3	N 2	III	MDSCC	CHEMO RT

BIBLIOGRAPHY

1. Madras Metropolitan tumour registry, National cancer registry program , ICMR , Cancer Institute (W.I.A), Chennai , India ,2010. Dr. V.Shanta M.D , Dr. R.Swaminathan MSc, PhD.

2. American Joint committee on cancer , manual for staging of cancer, 4th edition, Philadelphia : J.B. Lippincott,1992.

3. Scott Brown's laryngology and head and neck surgery 1997, 6th edition, ch.13, 9.

4. Review of Nasopharyngeal cancer – AnitaJeyakumar M.D; Todd M.Brickman M.D; Alwin Jeyakumar M.D, Timothy Doerr M.D,2006,volume 85, number 3 168 – 173.

5. Scott Brown's otorhinolaryngology, head and neck surgery, 7th edition (2008), volume 2, 2359 – 2371.

6. Fleming ID, Cooper IS, Henson DE, et al,eds. AICC cancer staging manual, 5th edition, Philadelphia, Lippincott – Raven ,1997.

7. International Agency for research on cancer (1992), cancer Incidence in fire continents (D.M.Parah , S.L. Whelan, J.Ferby, L.Raymond and J.Young, Eds), IARC scientific publications, Lyon.

8. Shah J.P (1996) oral cavity and oropharynx in head and neck surgery, 2nd edition, Mosby – Wolfe, London , chapter 6, PP 167 – 234.

9. Stell and Marans head and neck surgery, 4th edition, John C. Watkinson MSc, MS,FRCS,DLO and Mark N. Gaze MD, FRCP,FRCR.

10. UICC(1997) TNM classification of Malignant tumours (C.H.Sobin and C.H. Wittekind) 5th edition , Wiley – Liss, Newyork.

11. Charles W.cummings otorhinolaryngology head and neck surgery, 4th edition, vol.2, 2005,1729.

12. Sobin LH, Wittekind Ch. TNm classification of malignant tumours, UICC, 6th edition, Newyork, Wiley – Liss,2002. A summary and cornerstone for accurate staging.

13. Mak.Kregar S, Hilgers FIM, Levendag PC, Manni JJ, Hart AA, Visson KPP et al. Disease specific survival and locoregional control in tonsillar carcinoma. Clinical otolaryngology and allied sciences 1996, 21: 550 – 6.

14. Surgical management of neck metastases, Jack L Gluckman Mb.ChB FACS FCS (SA) FRCS, Jonas T. Johnson Md FACS, 2004, pg 8 – 9.

15. Otolaryngologic clinics of North America – laryngeal cancer,

Nasir I Bhatti MD , Ralph P. Tufano MD, aug 2008, vol.41,no 4, pg 657 – 670.

16. Ramadan MF, Morton RP, Stell PM, Pharoah PO. Epidemiology of laryngeal cancer. Clinical otolaryngology and allied sciences 1982, 7 : 417 – 28.

17. Goldsmith DB, West TM, Mortan R. HLA associations with nasopharyngeal carcinoma in southern Chinese ; a metaanalysis. Clinical otolaryngology and allied sciences 2002; 27: 61 – 7.

18. Stephenson WT. Barnes DE, Holmes FF, Morris CW.Gender influences subsite of origin of laryngeal carcinoma, archives of otolaryngology- head and neck surgery 1997; 117: 774 – 8.

19. Falk RT, Pickle LW, Brown LM, Mason TS, Buffler PA, Fraumeni jr. JF. Effect of smoking and alcohol consumption on laryngeal cancer in coastal areas, Texas, cancer rese4arch. 1989; 49; 4024 – 9.

20. Gamote LF, Herrero R, Reyes RM, Vaccarella S, Anta JL, Ferbeye L et al. risk factors for cancer of oral cavity and oropharynx in cuba. British Journal of cancer 2001; 85: 46 – 54.

21. Rothman KJ, Cann CL, Flanders D, Fried MP, Epidemiology of laryngeal cancer. Epidemiologic reviews. 1980;2:195 – 209.

22. Kaufman JA, Burke AJ. The aetiology and pathogenesis of laryngeal carcinomas. Otolaryngologic clinics of North America .1997;30:1 – 19. Excellent reviews of causation of laryngeal cancer.

23. Hart AAM, MAk – kregars, Hilgers FSM. The importance of correct stage grouping in oncology, results of a nationwide study of oropharyngeal cancer in Netherlands ,1996;77: 587 – 90.

24. Fortin A, Coutura C, doucet R, Albert M, Allard I, Tetu B. Does histologic grade have a role in the management of head and neck cancer.

25. Olsen J, Sabore S, Ipsen J. effect of combined alcohol and tobacco exposure on risk of cancer of hypopharynx. Journal of epidemiology and community health,1985; 39: 304 – 7.

26. Flanders WP, Cann C, Rothman KJ, Fried MP, Risk factors of laryngeal cancer. American Journal of Epidemiology,1984;119:23 – 32.

27. Gronbak M, Becker Y, Johansen D, Tonnesen H, Jensen G, Sorensen TIA. Population based cohort study of association between alcohol intake and cancer of upper aerodigestive tract.

British Medical Journal 1998; 317: 844 – 8.

28. Choi S.Y. and Kahyo H (1991). Effect of cigarette smoking and alcohol in aetiology of cancer of oropharynx, pharynx and larynx.

29. Harrison D.F.N (1970). Pathology of hypopharyngeal cancer in relation to surgical management.

30. Jones A.S., Roland N.J., Field, J.K and Pillips, D,E(1994) The level of cervical lymph node metastasis : their prognosis relevance and their relationship.

31. Batsakis J.G (1979) Tumours of head and neck,2nd edition, Baltimore: Williams and Wilkins.

32. Vander brouck, L. , Rocheforiere , A, SICOT, H. Mamelle, G., LE Ridant, A.M. et al (1987) – squamous cell carcinoma of pyriform sinus retrospective study of 351 cases treated at institute Gustara Roussy. Head and neck surgery.10, 4 – 13.

33. Nationwide study of epidemiology of oropharyngeal cancer in Netherlands, Mak Kregar, Hilgers (1995).

34. Cancer stastics study by Ahmedin Jamal and Rebecca (2007).

35. American Association on cancer research – William J Blot and Joseph KMC Laughlin (1988) study of association of smoking and alcohol in upper aero digestive tract.

36. Hashibe and Bremans (2007) study of association of alcohol in upper aero digestive tract.

ABBREVATION

M	-	Male
F	-	Female
EBV	-	Ebstein barr virus
HLA	-	Human Leucocyte Antigen
HPV	-	Human Papilloma Virus
RT	-	Radiotherapy
Chemo	-	Chemotherapy
EBRT	-	External beam radiotherapy
EAC	-	External Auditory canal
ICMR	-	Indian Council Of Medical Research
DNA	-	Deoxyribonucleic Acid
RNA	-	Ribonucleic Acid
MC	-	Most common
OP	-	Operation
RR	-	Relative risk
GA	-	General Anaesthesia
AP	-	Anteroposterior
PA	-	Posteroanterior
FNAC	-	Fine Needle Aspiration Cytology
PNS	-	Para Nasal sinuses
PET	-	Positron Emission Tomography

NASO	-	Nasopharynx
ORO	-	Oropharynx
HYPO	-	Hypopharynx
CA	-	Carcinoma
PF	-	Pyriform Fossa
PP	-	Posterior pharyngeal wall
PC	-	Post Cricoid
SWAL DIFF.	-	Swallowing difficulty
BREATH DIFF.	-	Breathing difficulty
STR	-	Stridor
NOS	-	Not Otherwise specified
AE	-	Aryepiglottic
SUP	-	Supraglottis
SUB	-	Subglottis
GLOT	-	Glottis
S	-	Smoking
A	-	Alcohol
TLN	-	Total Laryngectomy
WDSCC	-	Well differentiated squamous cell carcinoma
MDSCC	-	Moderately differentiated squamous cell carcinoma
PDSCC	-	Poorly differentiated squamous cell carcinoma