

# MALIGNANT TUMORS OF THE LARYNX

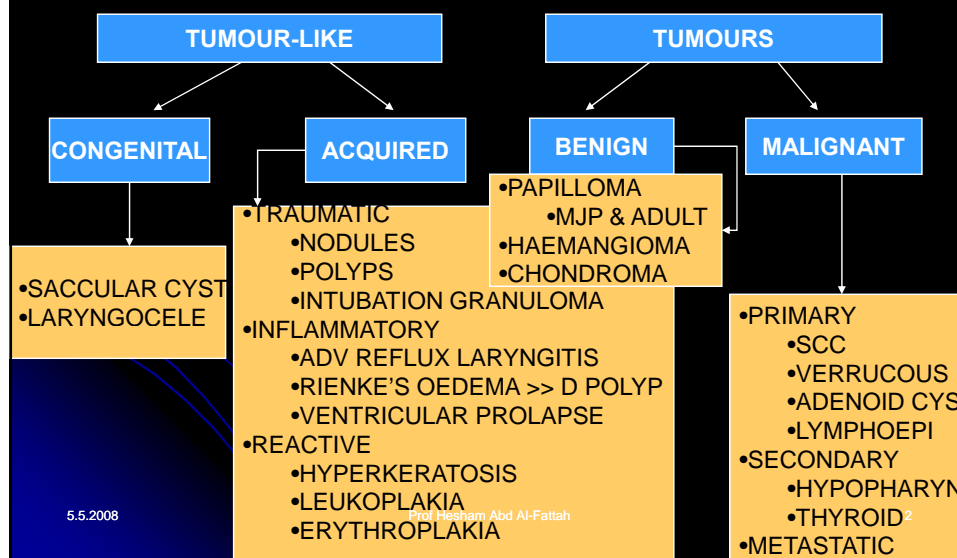
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University of Alexandria



## LARYNGEAL MASSES



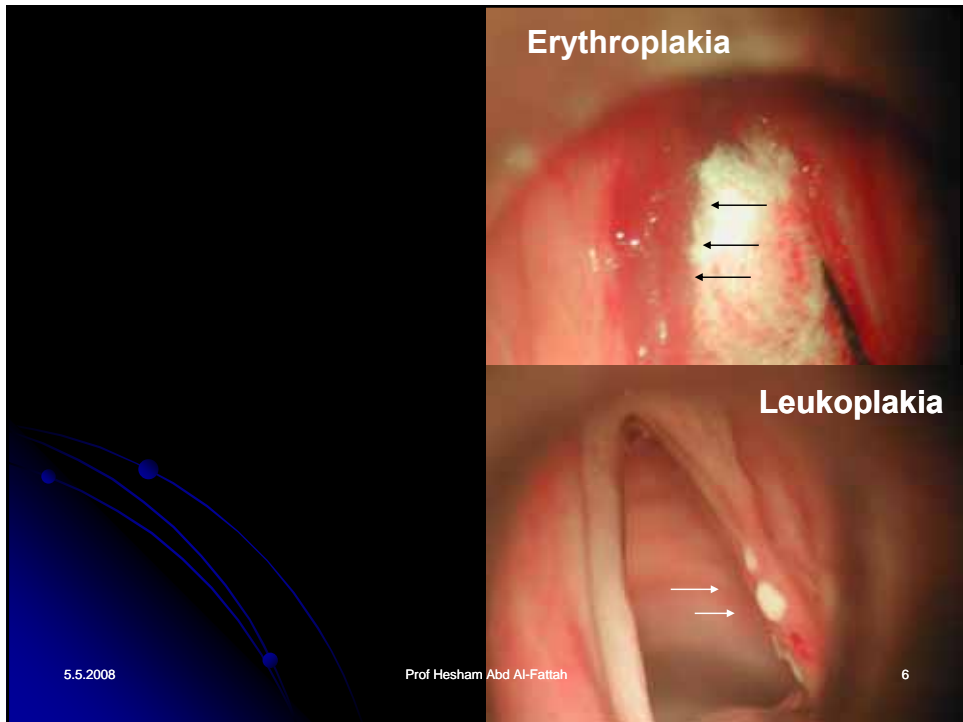
### EPITHELIAL CHANGES IN THE LARYNGEAL M M

<b>Normal St Sq Epi</b> 	<b>Hyerplasia</b> 	<b>Hyperkeratosis</b> 	
<b>Benign Changes</b>			
<b>Dysplasia</b> 	<b>mod</b>	<b>Sever</b> 	<b>Ca in situ</b> 
<b>Premalignant changes</b>			

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<b>HYPERPLASIA</b> 	<b>DYSPLASIA</b> 

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**SEVERE DYSPLASIA**

**CA IN SITU**

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# T1 glottic Ca

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## Papilloma-Adult type



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## Precancerous lesions

Sever Dysplasia



Leukoplakia



Erythroplakia



Adult Papilloma

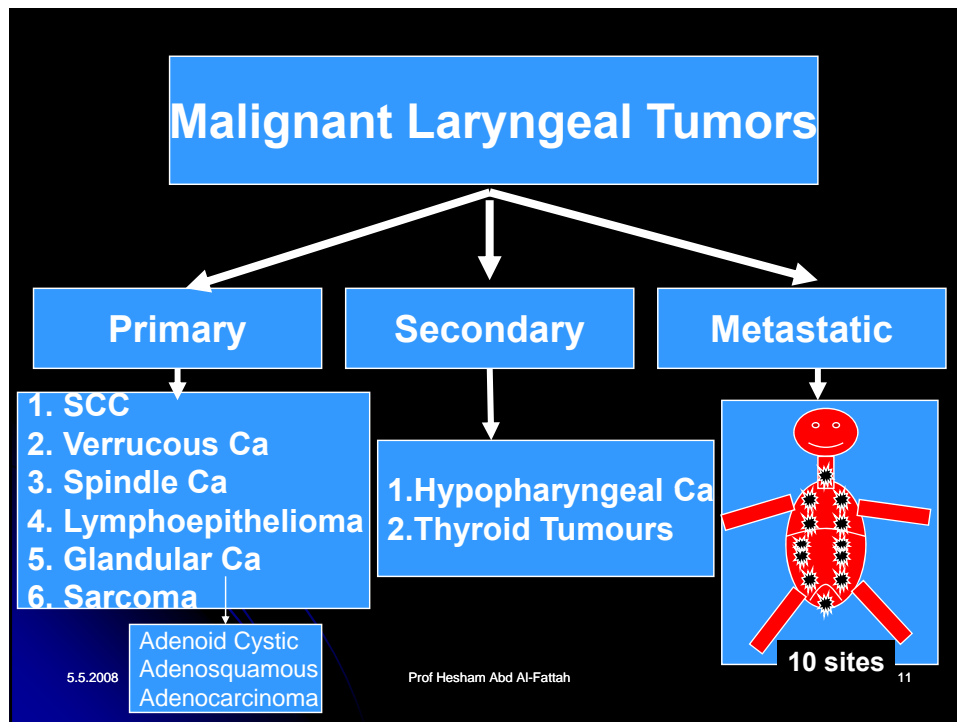


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## Of the larynx



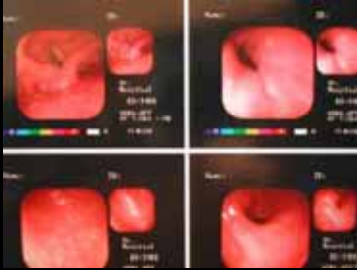




## SCC of Larynx

### Type of Patient

- Male > 50 ys male to female =22-25:1 in Egypt
- Rural >> Urban ( Now-a-days)
- Smoker & Ex-Smoker (up to 20ys)
- Refluxer Takes 10-20ys for a Cell to turn into Carcinoma in situ
- Spices Eater
- Alcohol Drinker

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## Reflux laryngitis (Laryngopharyngitis)

**Symptoms-22**

**Signs**

- Congestion
- Edema
- Post Com Hypertrophy
- Interarytnoid folding
- Webbing

**12y M spasmodic cough**  
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**45y M on steroids for SLE**  
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## Predisposing Factors

1. Hydrocarbons
2. Tar & Benzopyrenes
3. Pesticides
4. Radiation
5. Genetic (variable non consistent genes)
6. Chronic Inflammation
7. Enzymes (acid-pepsin)
8. Viruses (papillomatosis)

**Burning Cigarette produce**  
600 byproducts  
60 Are carcinogenic &  
26 Affects the respiratory tract

- Non-Specific(common)
- Specific
  - T.B. (rare)
  - Syphilis ( does not exist)

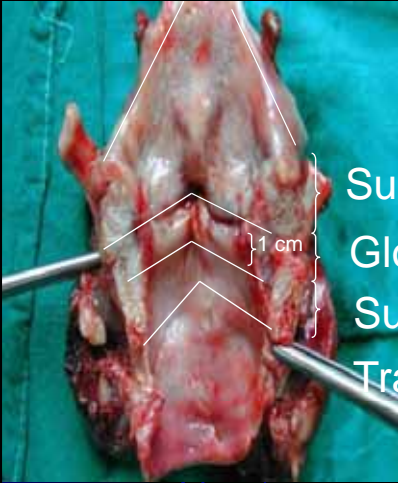
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# I. According to its Location



Supraglottic  
Glottic  
Subglottic  
Transglottic

1 cm

Glottic

Lateral  
Medial  
Arcuate Line

Lateral Arcuate line  
Changes:

- parallel to vascular arcades
- Squamous to pseudo stratified epithelium
- Scarce dispersed to frequent lymphatics
- vocal ligament to vocalis muscle

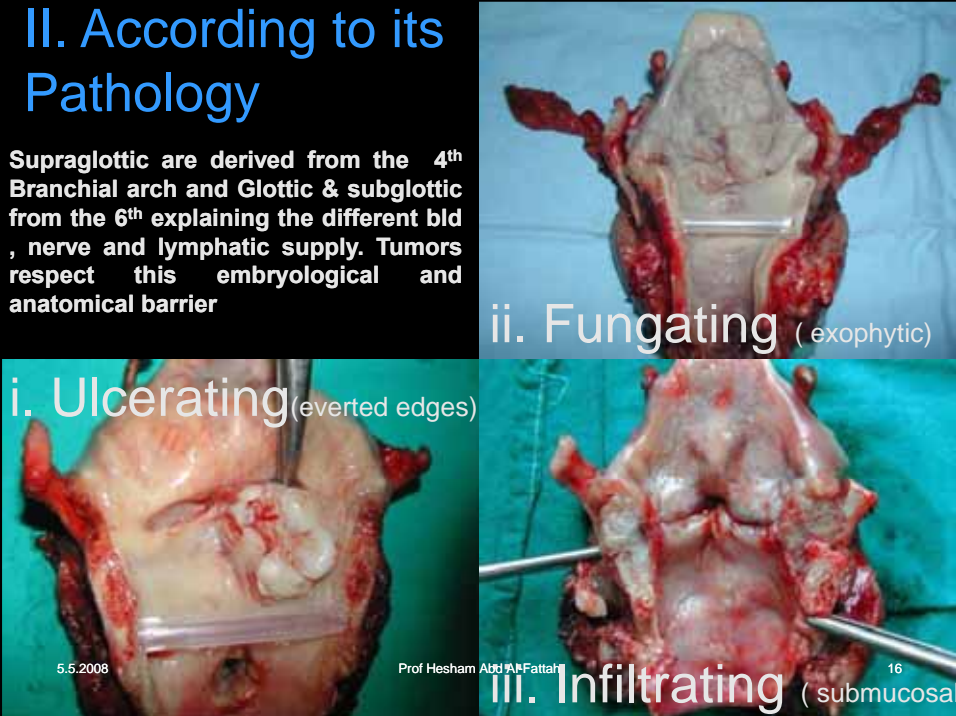
Cord Vasculature

**Tumour Location**

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# II. According to its Pathology

Supraglottic are derived from the 4<sup>th</sup> Branchial arch and Glottic & subglottic from the 6<sup>th</sup> explaining the different bld , nerve and lymphatic supply. Tumors respect this embryological and anatomical barrier



i. Ulcerating (everted edges)

ii. Fungating (exophytic)

iii. Infiltrating (submucosal)

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## II. According to its Pathology

### 2. Microscopic Appearance

#### Modified Broder's Classification (WHO 1987)

- Well Differentiated
- Moderately Differentiated
- Poorly Differentiated



#### Original Broder's

- Grad I, II, III, IV,
- 0-100%
- Undifferentiated

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## III. According To T.N.M Classification

#### **T-primary tumour:**

T1: tumour confined to one anatomical site in the region

T2: tumour involves more than one anatomical site in the same region or adjacent region without cord fixation

T3: Cord fixation or pre-epiglottic/ Postcricoid/ Internal Perichondrium invasion

T4: Cartilage invasion or direct extralaryngeal spread

#### **N-regional Lymph node**

N1: < 3 cm diameter lymph node enlargement

N2: 3-6 cm diameter lymph node enlargement

N3: >6 cm diameter lymph node enlargement

#### **M-distant metastases**

(AJC 1998/2005)

M0: No evidence of distant metastases

M1: Evidence of distant metastases

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### III. According To T.N.M Classification

#### Stages

Stage1: T1N0M0

Stage2: T2N0M0

Stage3: T3N0M0, T1,2,3 N1M0,

Stage4: a. T4N0M0

b. Any T , N2 or more , M0

c. Any T , Any N + M1

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### Tumour Behaviour (Spread & Destruction)

Guarded by:

1. Host Defenses →

2. Tumour

a. Differentiation

b. Size > 4 cm

c. Thickness >1.5 cm

d. Location →

e. Margins (Pushing/Infiltrating)

f. Cell Size

a. Age

b. Systemic disease

c. Inflammatory Reaction

a. Embryological

b. Anatomical

i. Lymphatics

ii. Barriers → •Ligaments  
•Cartilages

iii. Preformed

Pathways

iv. Silent or Not

•Broyles Ligament  
•Pre-epiglottic Sp  
•Paraglottic Sp

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## Tumour Spread

1. Local ( Direct )
2. Regional (Lymphatic)
3. Distant (Blood ) 7.5 %
4. Perineural

- Permeation
- Embolism
- Perilymphatic

- Lungs (50-80 %)
- Liver
- Bones

75 %  
Detected  
after death

**Second Primary**  
10-25 %

Upper Aerodigestive  
Other Organs (10 sites)

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## Manifestations

### A. Symptoms

#### Early:

1. Change of Voice
2. Hoarseness
3. F.B. Sensation
4. Otalgia
5. Irritative Cough
6. Sense of Air Way Obstruction

#### Late:

1. Hot Potato Voice
2. Stridor
3. Dysphagia
4. Lump in the Neck
5. Pain
6. Bld Tinge Sputum

#### Very Late:

1. Weight Loss
2. Fetor Oris

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# Manifestations

## B. Signs (Inspect, Palpate)

### Early:

1. Neck Free, except Marginal Ts
2. Laryngeal Examination
  - Disturbed Vascular Pattern
  - Thickening/Mass/Ulcer

- Upper Deep C LN
- Prelaryngeal LN

### Late:

1. Neck
2. Cord Fixation

- Lump
- Fullness Thyrohyoid m
- Broadening laryngeal Box
- Tender laryngeal Box

- Mechanical
- Infiltrative
- Paralytic

Muscles

Joint

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# Diagnosis

## 1. History

## 2. Clinical Manifestations

## 3. Office Laryngoscopy

## 4. Operating Laryngoscopy & Biopsy

## 5. Radiological Investigations:

- a. Plain Neck & Chest
- b. Barium Swallow & Meal
- c. Ultrasound Abdomen
- d. Multi-slice CT scan Neck & Upper Chest
- e. Bone Scan (Whole Body Isotope study)

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# Management Diagnosis & Treatment

## Aim of Treatment

1. Local Control
2. Regional Control
3. Distal Control
4. Rehabilitation
5. Palliation

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## Local Control

### 1. Early ( T1 & T2)

#### a. Conservative Surgery

i. Endoscopic 

ii. Open Surgery

• M L S  
• Laser

#### b. Radiotherapy

### 2. Late ( T3 & T4)

#### a. Total Laryngectomy

#### b. Laryngeal Preservation Protocol ( Combined Chemo radiotherapy)

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**Local Control**

1. Early ( T1 & T2)

a. Conservative Surgery

i. Endoscopic →

ii. Open Surgery

• M L S  
• Laser

- Supraglottic Laryngectomy
- Extended S L
- BOT
- Arytenoid

- Frontal
- Frontolateral
- Hemilaryngectomy
- Supracricoid
- 3/4 Laryngectomy

**Supraglottic SCC**      **Glottic SCC**

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**Local Control**

1. Early ( T1 & T2)

a. Conservative Surgery

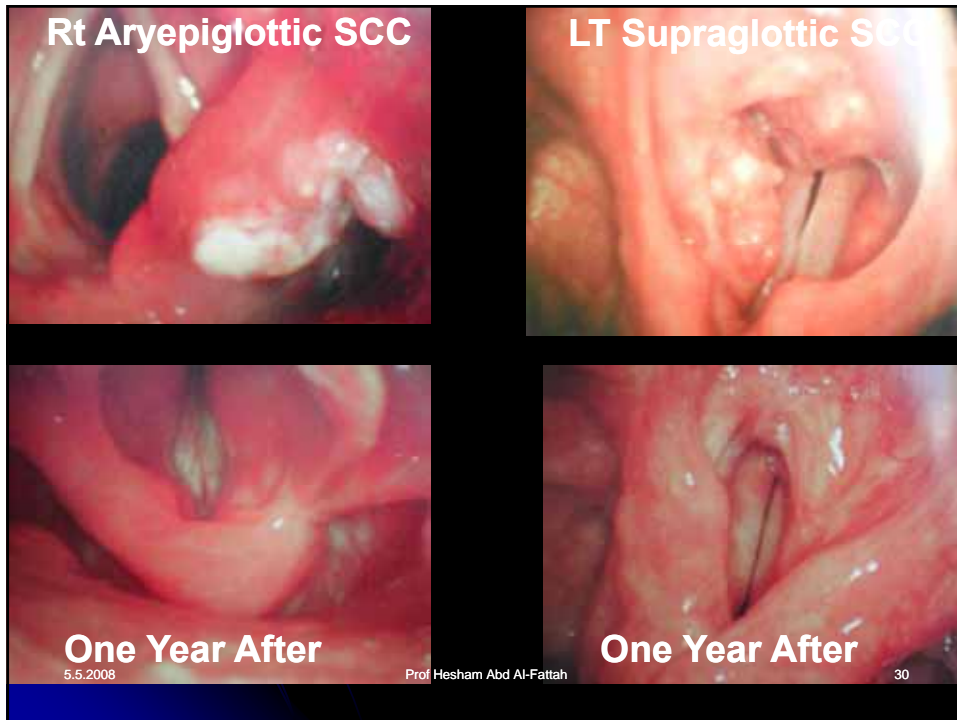
i. Endoscopic →

ii. Open Surgery

**Laser**

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# Local Control

## 1. Early ( T1 & T2)

### a. Conservative Surgery

- i. Endoscopic →
- ii. Open Surgery

• M L S  
• Laser

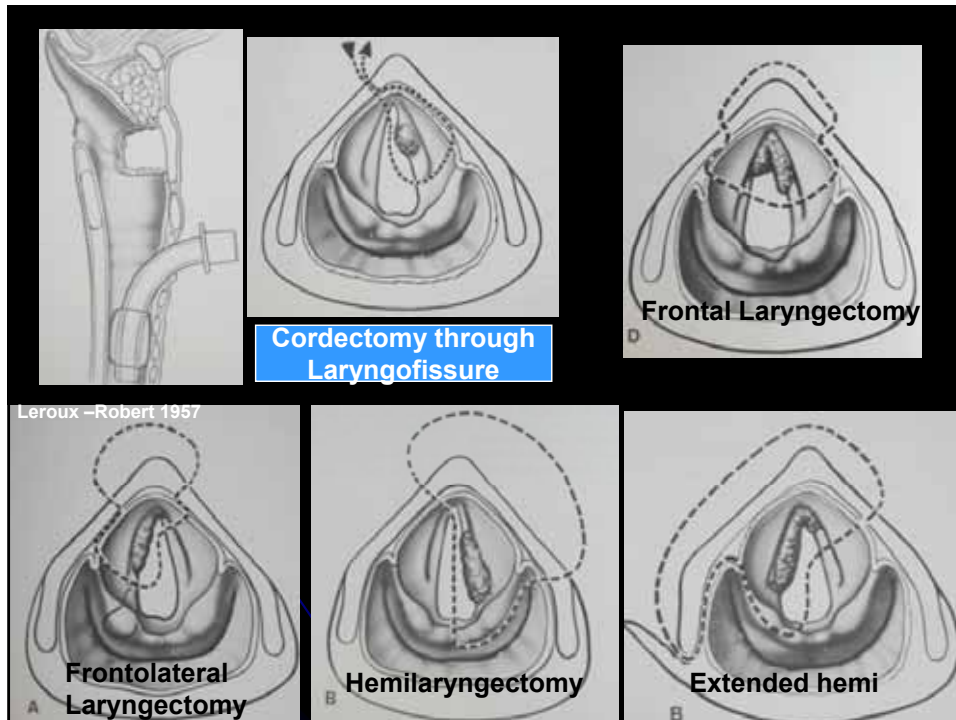
- Frontal
- Frontolateral
- Hemilaryngectomy
- Supracricoid
- <sup>3</sup>/<sub>4</sub> Laryngectomy

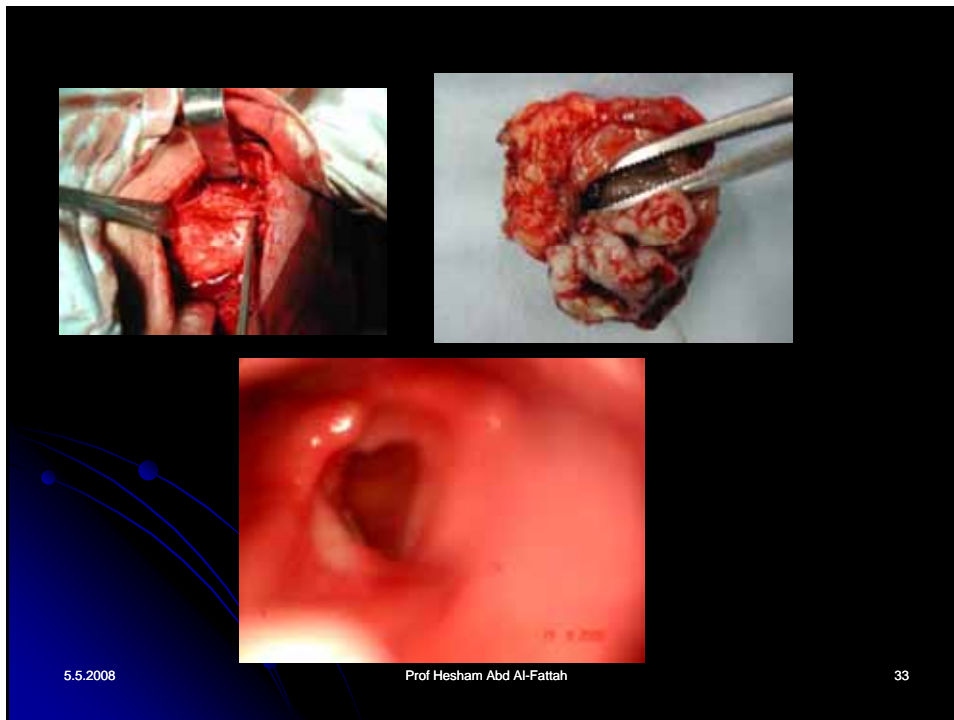
## Glottic SCC

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## Local Control

### 1. Early ( T1 & T2)

#### a. Conservative Surgery

- i. Endoscopic
- ii. Open Surgery

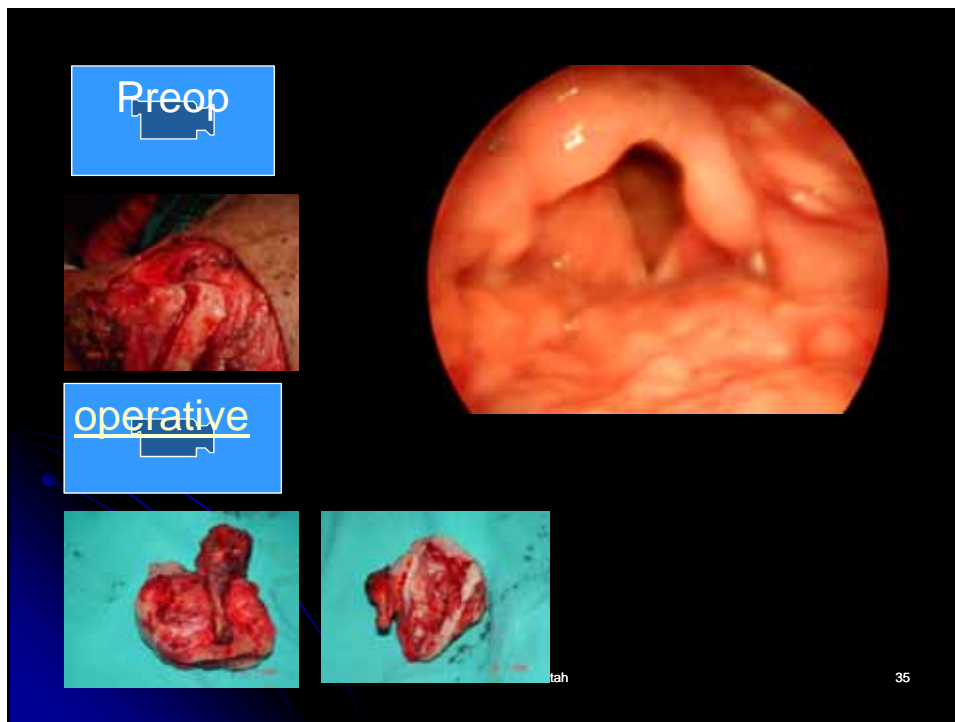
- Supraglottic Laryngectomy
- Extended S L
  - BOT
  - Arytenoid

## Supraglottic SCC

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## Local Control

### 1. Early ( T1 & T2 )

#### a. Conservative Surgery

i. Endoscopic

ii. Open Surgery

• M L S  
• Laser

#### b. Radiotherapy

### 2. Late ( T3 & T4 )

#### a. Total Laryngectomy

#### b. Laryngeal Preservation Protocol

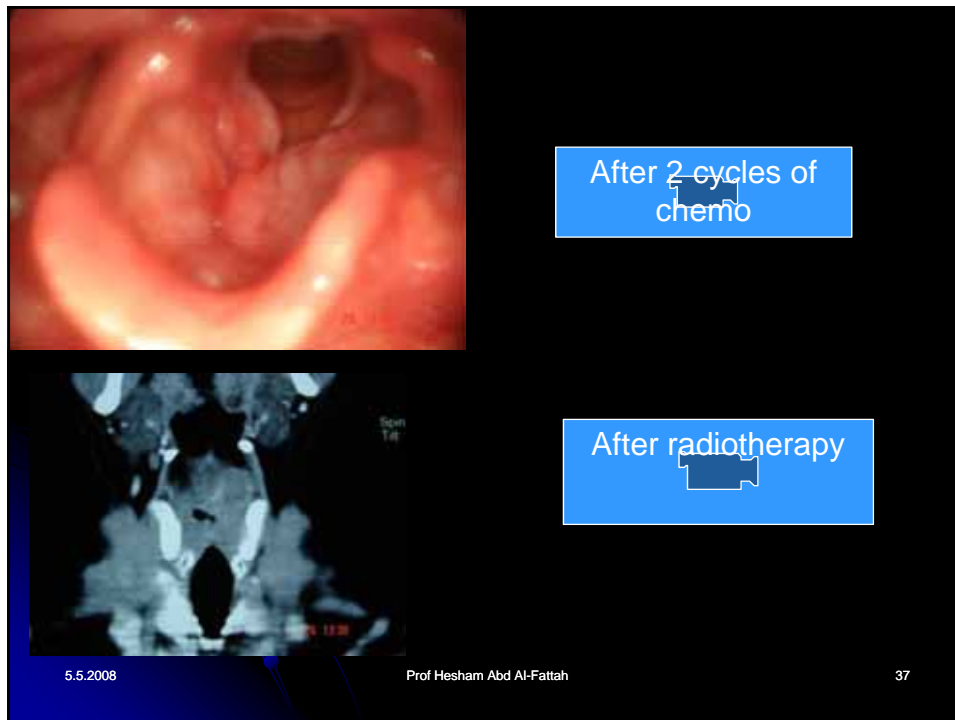
( Combined Chemo radiotherapy : 2cycles  
Of Cis/carbo platin 100g/m<sup>2</sup> on day 1+ 5 FU  
1-5 days..... Response.....45Gy+25Gy

.....If no Response.....TL)

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## Regional Control

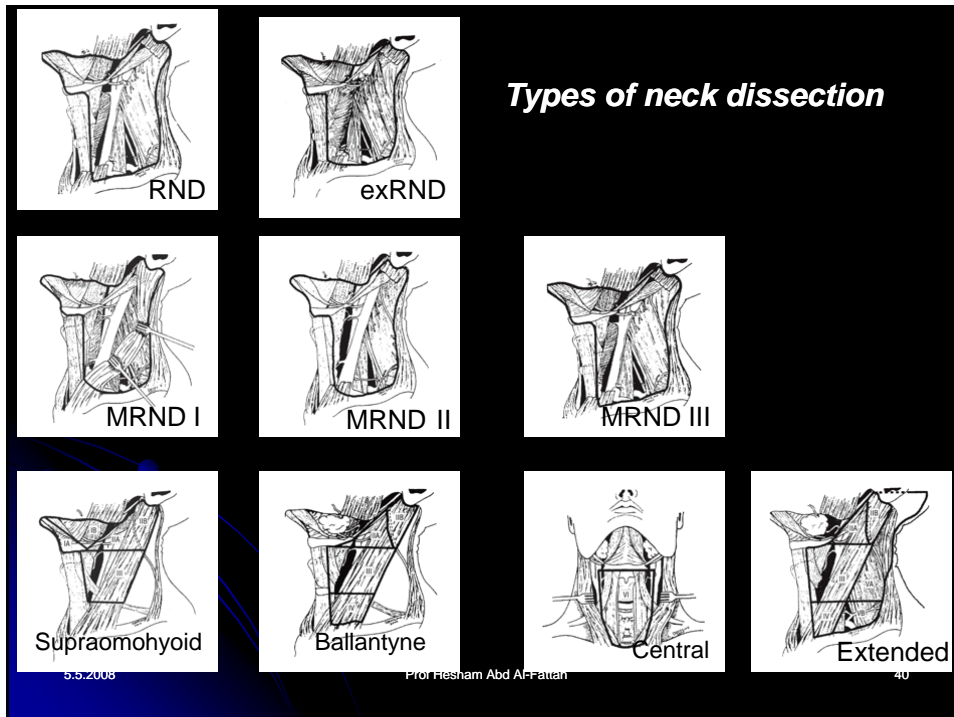
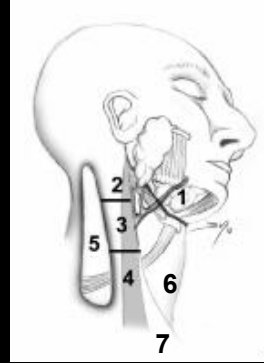
1. Prophylactic > N0
2. Therapeutic > N+

1. Radical Neck
2. Modified RND
  - a. Accessory N
  - b. Jugular V
  - c. a + b + SCM
3. Selective → According to the level cleared
4. Extended

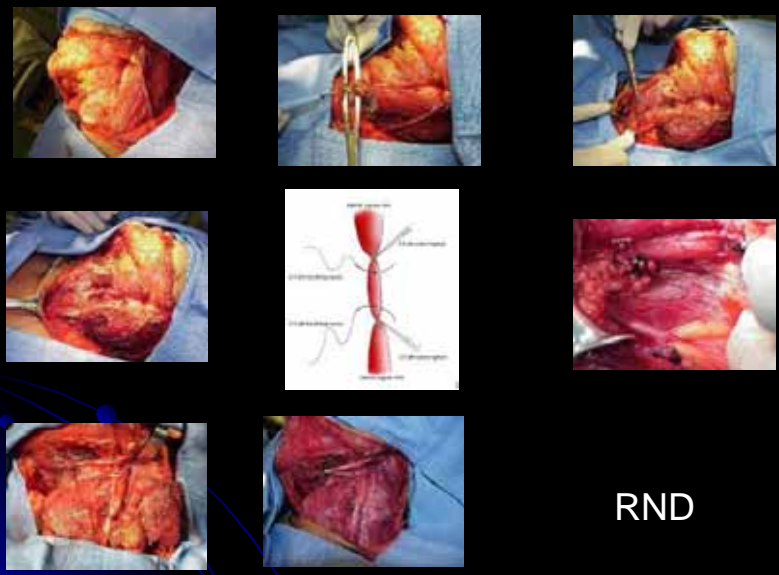
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# Memorial Sloan-Kettering Hospital

- **Level I** - Submental and submandibular
  - **Ia** - Nodes in the submental triangle bound by the anterior belly of the digastric and the hyoid bone
  - **Ib** - Nodes in the triangle bound by the anterior and posterior bellies of the digastric and body of the mandible
- **Level II** - Upper jugular lymph nodes, including the jugulodigastric nodes
  - **Ila** - Nodes in the region anterior to the spinal accessory
  - **Ilb** - Nodes in the region posterior to the spinal accessory
- **Level III** - Nodes from the carotid bifurcation to the omohyoid muscle
- **Level IV** - Nodes of the lower jugular area that extend from the omohyoid to the clavicle
- **Level V** - All lymph nodes within the posterior triangle of the neck
- **Level VI** - Nodes in the anterior compartment group, including the lymph nodes that surround the midline structures of the neck (These nodes extend from the hyoid bone superiorly to the suprasternal notch inferiorly.)







RND

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MRND II

MRND III

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- Distal Control
- Rehabilitation →
- Palliation
  - Tracheostomy
  - Chemotherapy
  - Radiotherapy

More than 66Gy

Cis/Carboplatin 100mg/ m<sup>2</sup> Day 1  
& 5-FU Days 1-5

1. Voice

- Esophageal
- Prosthesis

2. Swallowing

3. Psychological

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# Calcified Saccular Cyst

- Vestigial Structure
- Congenital in origin
- Important to Aquatic Apes
- Usually Asymptomatic



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# CYSTS



CORDAL CYST

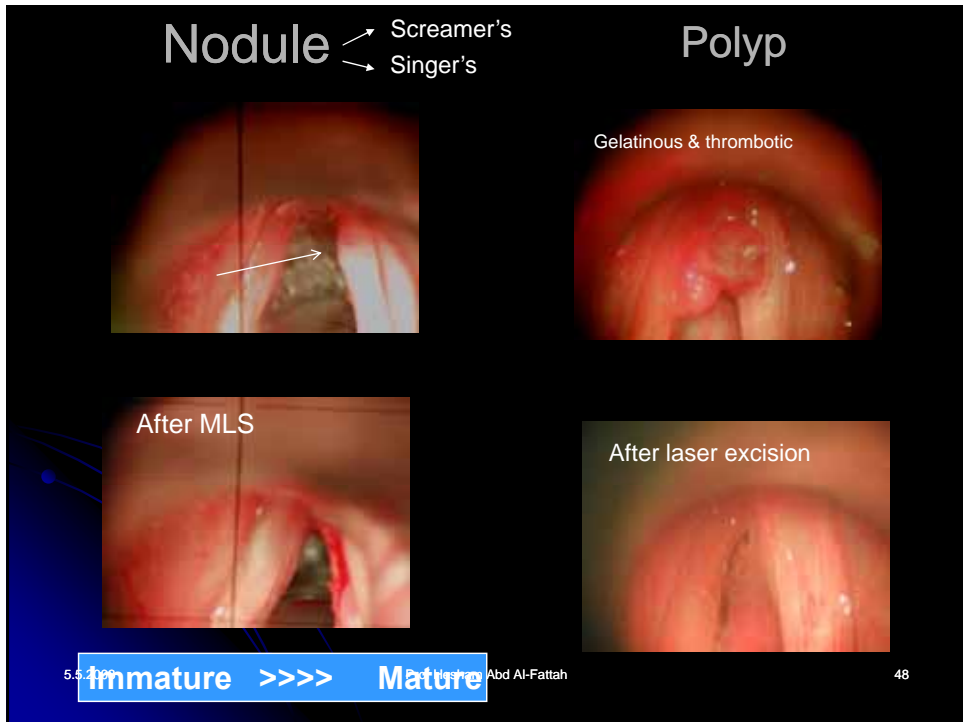
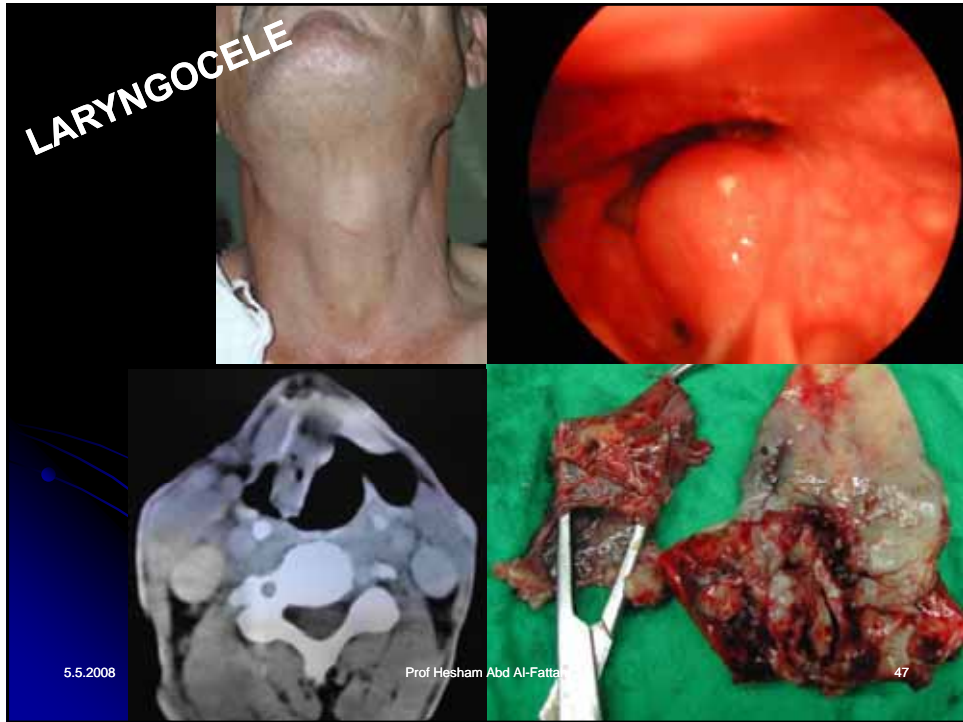
SACCULAR

PATTERN VOCAL CORD VASCULATURE

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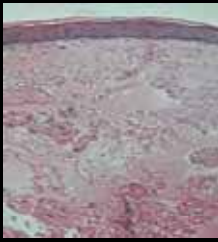



# Polyps


1. Gelatinous
2. Hyaline
3. Vascular → Thrombotic
4. Myxomatous
5. Mixed



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**Rienke'S Oedema** → **Diffuse Cordal Polyposis**



**Ventricular prolapse**

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## Contact granuloma

### Signs of RLP

- Signs:
- Congestion
  - Edema
  - Inter-arytenoid folding>> Webbing
  - Contact ulcer>> Contact Granuloma

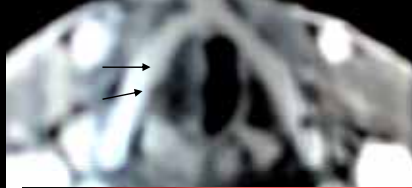


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## T2 SCC Glottic T



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## INTUBATION GRANULOMA



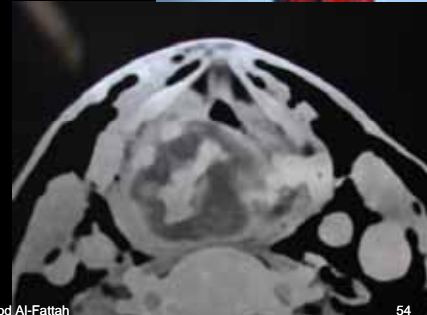
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## Chondroma

- Arises from the cricoid or thyroid
- TL is the treatment
- Malignancy depends on behavior



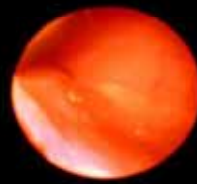
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# Haemangioma

- Subglottic
- Posterior
- 50 % other haemangiomas
- Laser Debulking +  
Prophylactic Tracheostomy



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