

المملكة العربية السعودية

وزارة التعليم العالي

جامعة الملك سعود

كلية الطب

مستشفى الملك عبدالعزيز الجامعي



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(Voice, Communication and Swallowing Disorders)  
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Communication Disorders**

<http://faculty.ksu.edu.sa/kmalky/default.aspx>





*Communication  
and Swallowing  
Disorders*

*Aim of this presentation:*

**AN INTRODUCTION !!**

## Objectives :

- ✓ Introduction of the main language disorders and their management.
- ✓ Introduction of the main speech disorders and their management.
- ✓ Introduction of the main voice disorders and their assessment and management.
- ✓ Introduction of the main swallowing disorders and their assessment and management.

# Communication Disorders

**Communication difficulties have an impact on the following aspects:**

- **Academic,**
- **Social,**
- **Psychological,**
- **Employment,**
- **Professional,**
- **Financial,**
- **Family relations.**

مجالات أمراض التخاطب  
**Communication  
Disorders**

أمراض البلع  
Swallowing Disorders

أمراض الصوت  
Voice Disorders

أمراض الكلام  
Speech Disorders

أمراض اللغة  
Language Disorders

## Language

A symbolic arbitrary system relating sounds to meaning.

## Speech

A neuro-muscular process whereby language is uttered. It includes the coordination of respiration, phonation, articulation, resonance and prosody.



## Voice

The result of vibration of the true vocal folds using the expired air.

## Swallowing

The process of successful passage of food and drinks from the mouth through pharynx and esophagus into the stomach.

# *Who is managing Communication and Swallowing Disorders?*

*Two schools:*

- 1. Phoniaticians (MD's).**
- 2. Speech-Language pathologists.**

## *What is Phoniatics?*

- ✱ **A medical specialty** that deals with communication and swallowing disorders.
- ✱ It stems mainly from ORL (ENT), especially when dealing with **VOICE** disorders.

**Union of the European Phoniaticians (UEP)**

**[www.phoniatics-uep.org](http://www.phoniatics-uep.org)**

# *Phoniatrics in Saudi Arabia*

**A medical specialty of ENT, as approved by the**

*Saudi commission for Health Specialties.*

**Communication Disorders**

*Swallowing Disorders*

*Voice Disorders*

*Speech Disorders*

*Language Disorders*

**Organic**

**Non-organic**

**MAPLs**

**Stuttering**

**Cluttering**

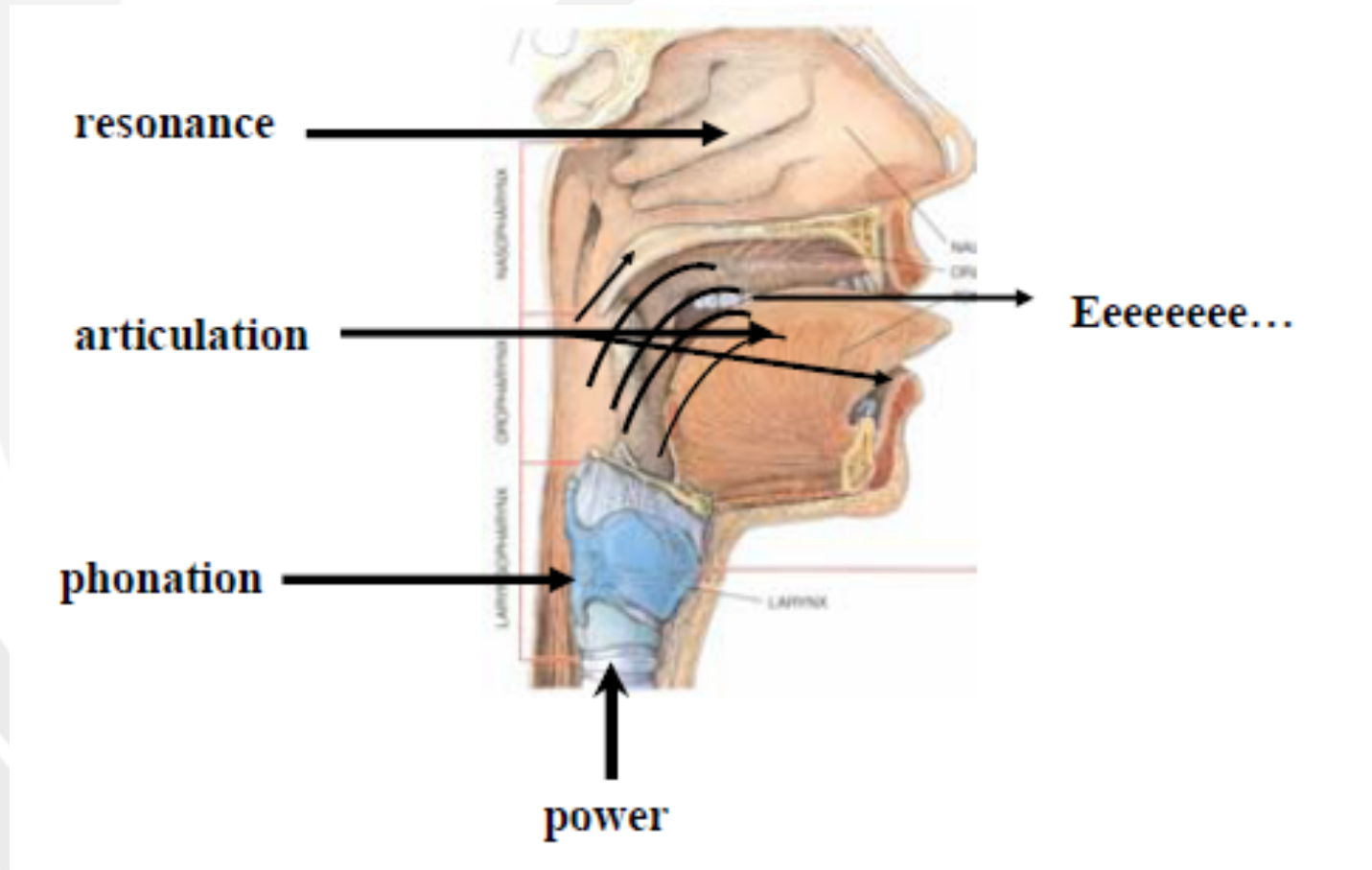
**Misarticulation**

**Hypernasality**

**Dysarthria**

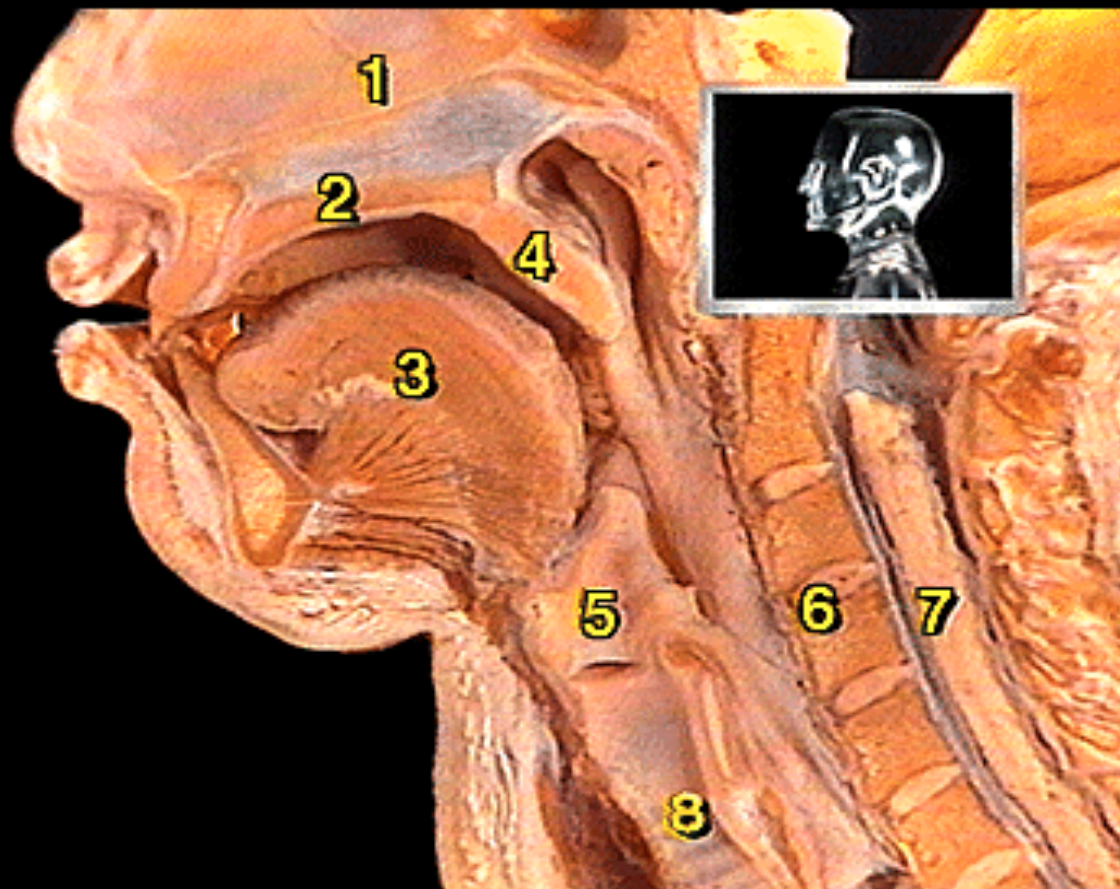
**DLD (Children)**

**Dysphasia (Adults)**



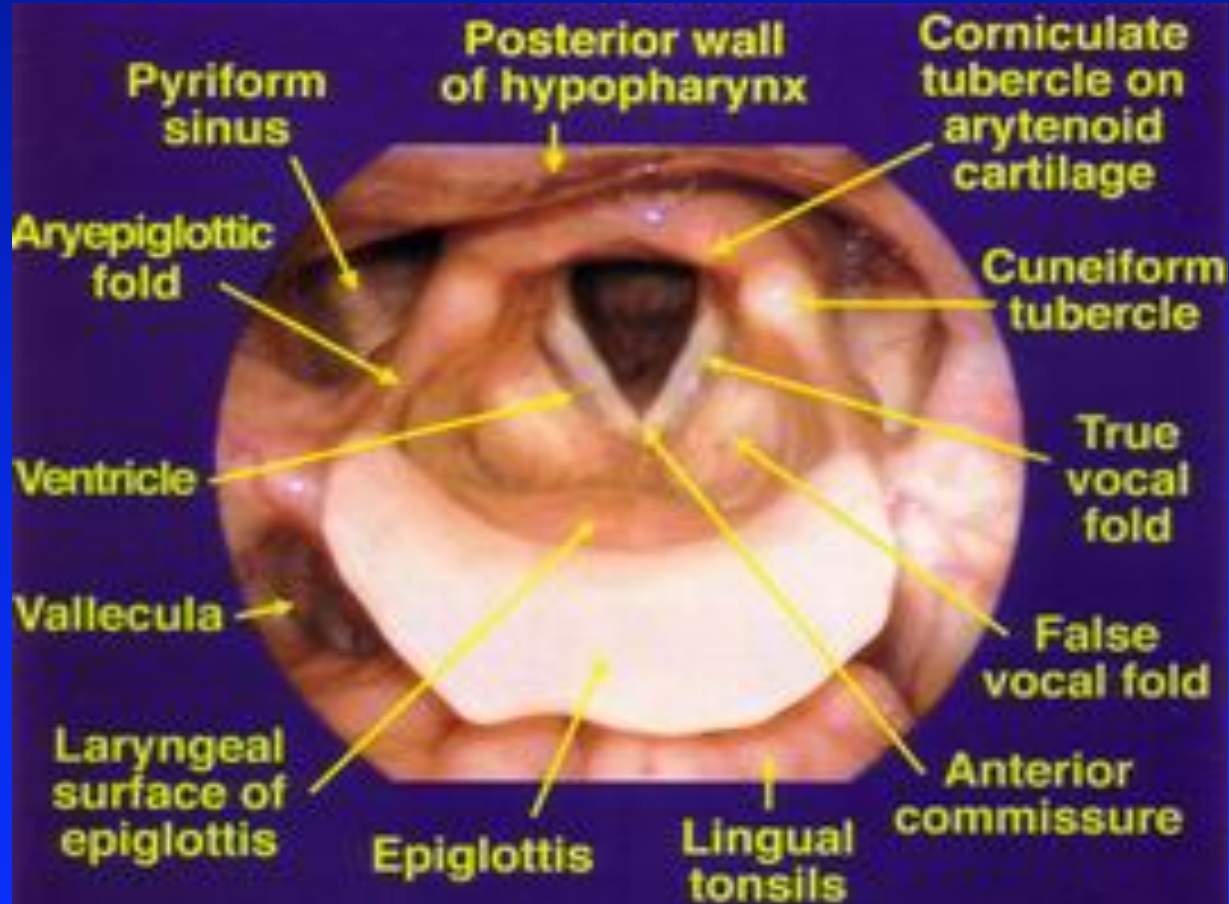
A close-up, endoscopic view of the human larynx, showing the vocal folds and surrounding structures. The image is tinted with a blue color. The text "Voice Disorders" is overlaid in a yellow, cursive font across the center of the image.

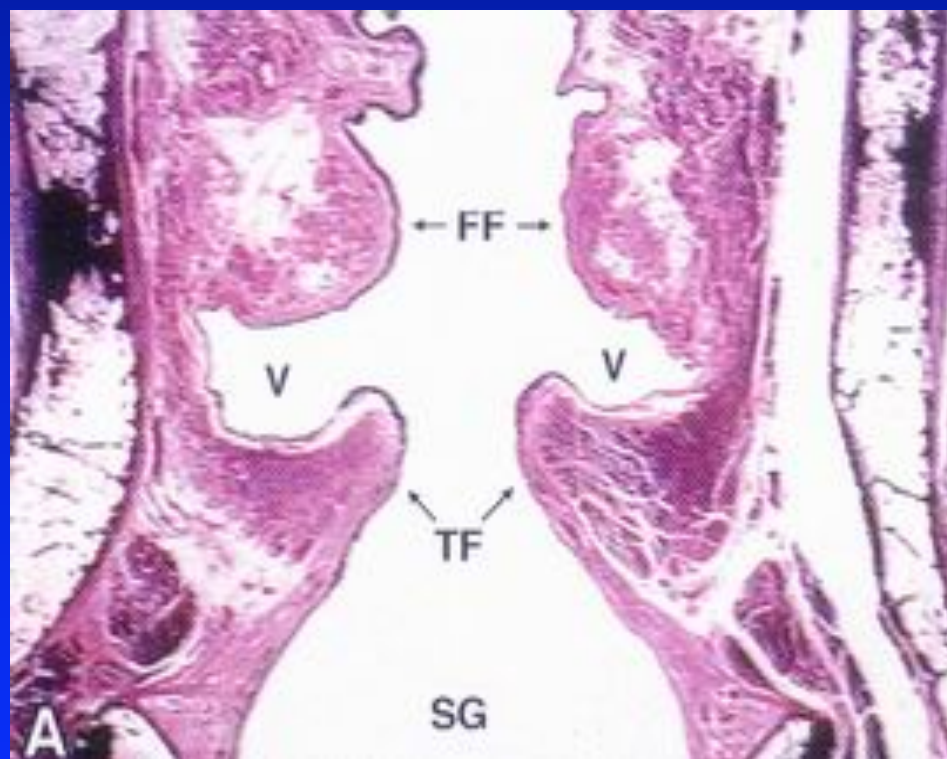
# *Voice Disorders*



Copyright 1997 The Anatomy Project







**MUCOSA**

Epithelium

Lamina Propria

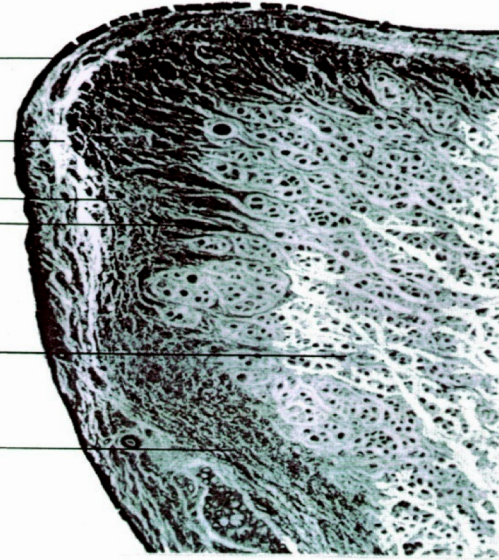
Superficial  
(Reinke's space)

Intermediate

Deep

VOCALIS MUSCLE

Conus Elasticus



**A**

**MUCOSA**

Epithelium

Lamina Propria

Superficial  
(Reinke's space)

Intermediate

Deep

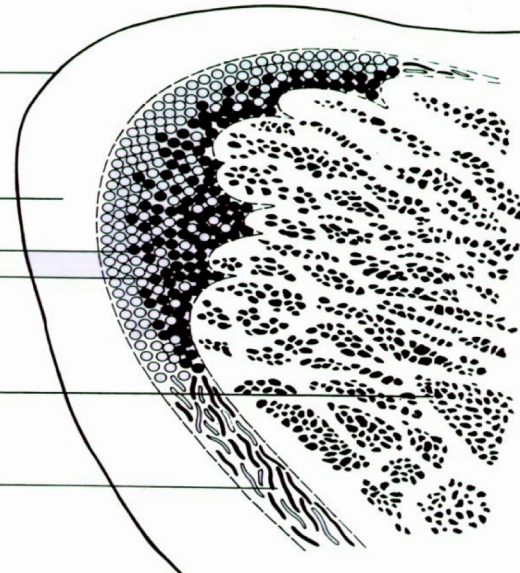
Cover

Transition

Body

VOCALIS MUSCLE

Conus Elasticus

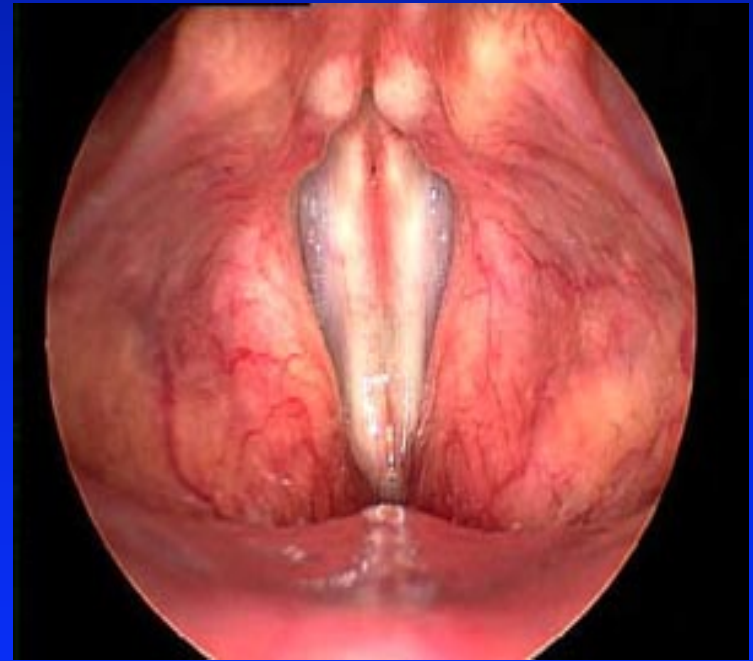


**B**

## True vocal fold movements:



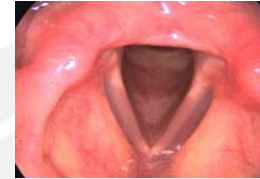
*During breathing  
(Abduction)*



*During phonation  
(Adduction)*

# Functions of the larynx:

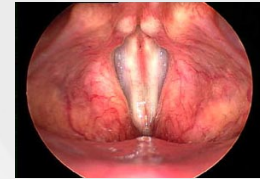
**(1) Airway.**



**(2) Protection.**



**(3) Phonation.**



**(4) Increasing intra-thoracic Pressure.**



## **Definition of dysphonia:**

- **“Difficulty in phonation”.**
- **“Change of voice from his /her habitual”.**
- **“Hoarseness” = roughness & harshness of voice.**

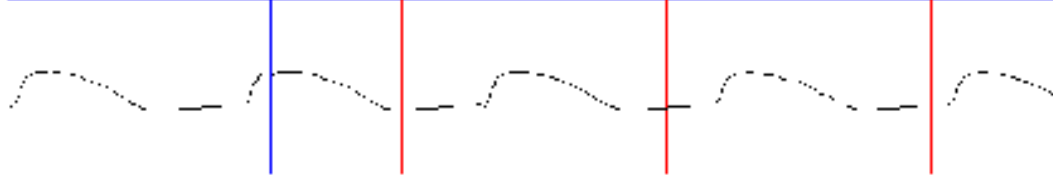
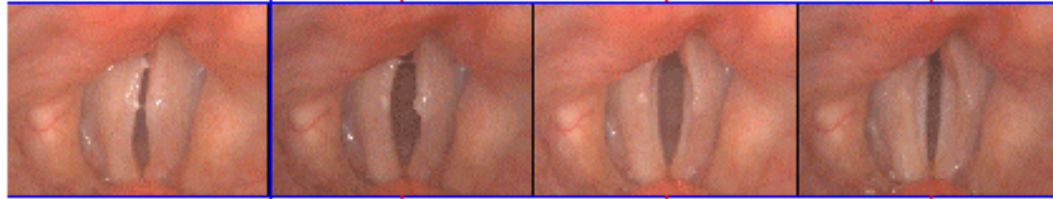
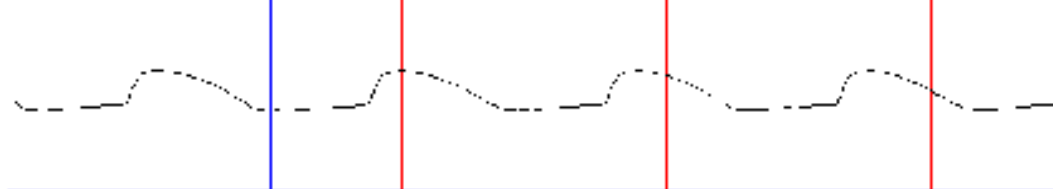
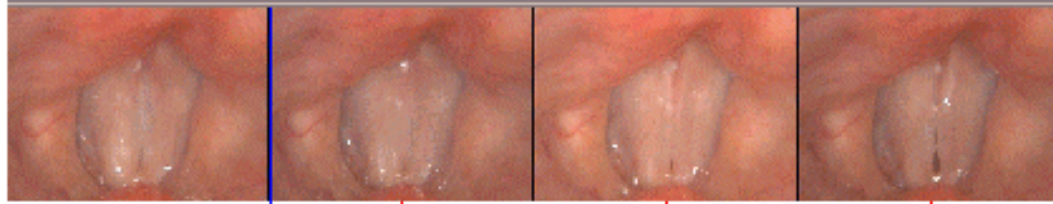
## **Assessment of dysphonia:**

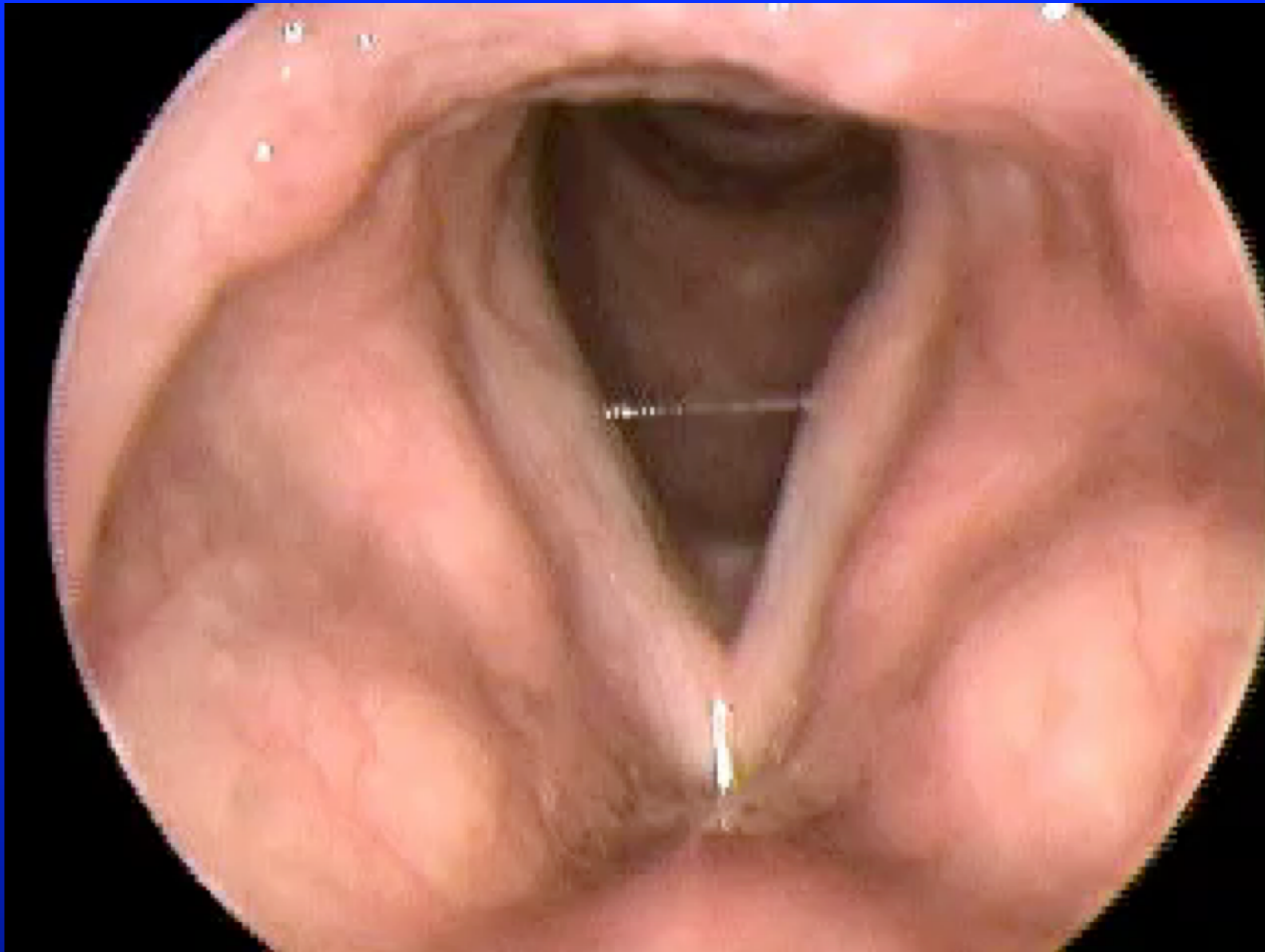
- I. History taking.**
- II. Physical examination: APA , ... , neck , ...**
- III. Investigations:**
  - Audio recording.**
  - Digital laryngostroboscopy.**
  - Digital laryngokymography.**
  - Acoustic analysis (MDVP).**
  - Aerodynamic analysis (Aerophone II).**
  - GERD (LPR) work-up.**
  - CT neck.**

**\*Voice Sheet**







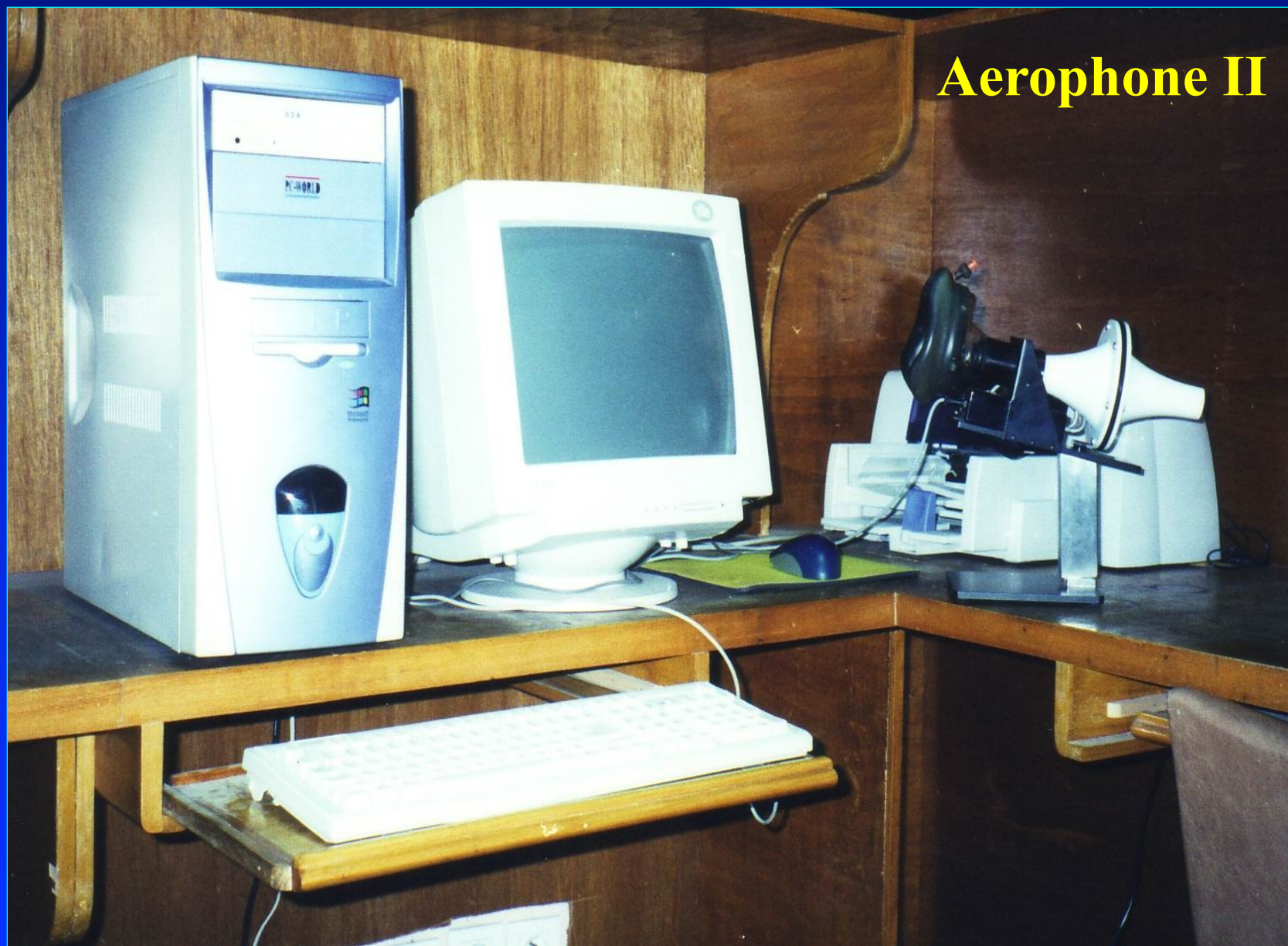


**Stroboscopic Examination**

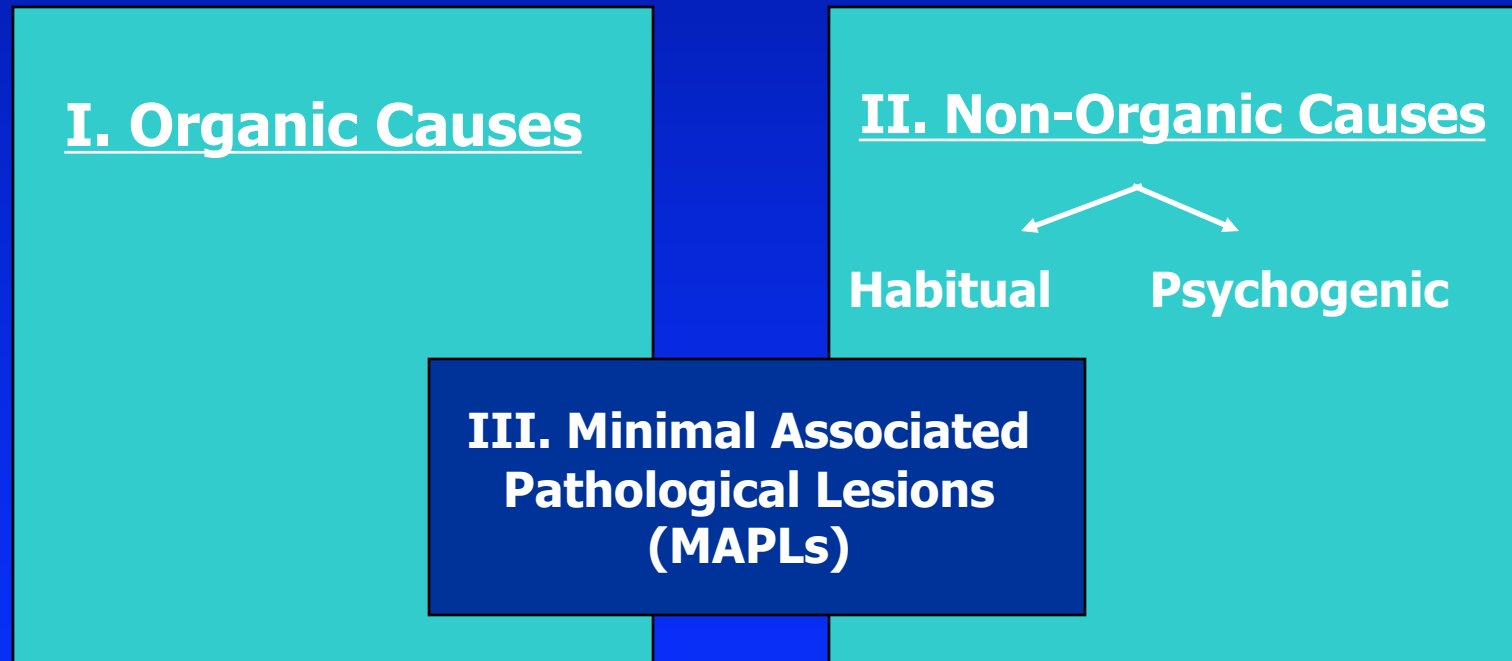
# CSL (MDVP)



# Aerophone II



## Etiological classification of dysphonia:



# Etiological classification of dysphonia:

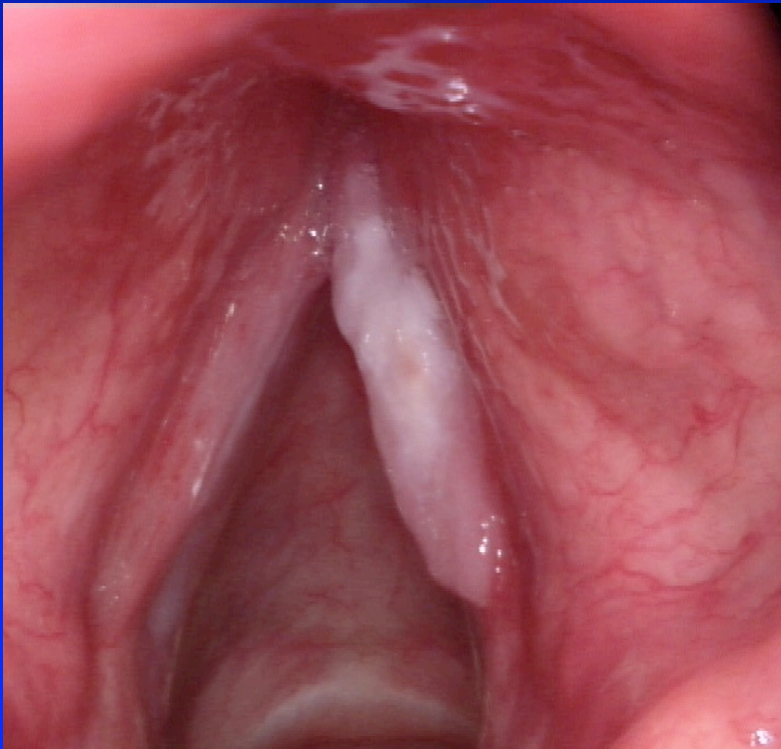
I. Organic Causes



## *Sulcus vocalis*



*Laryngeal carcinoma*



**Respiration**



**Phonation**



*Left vocal fold paralysis*

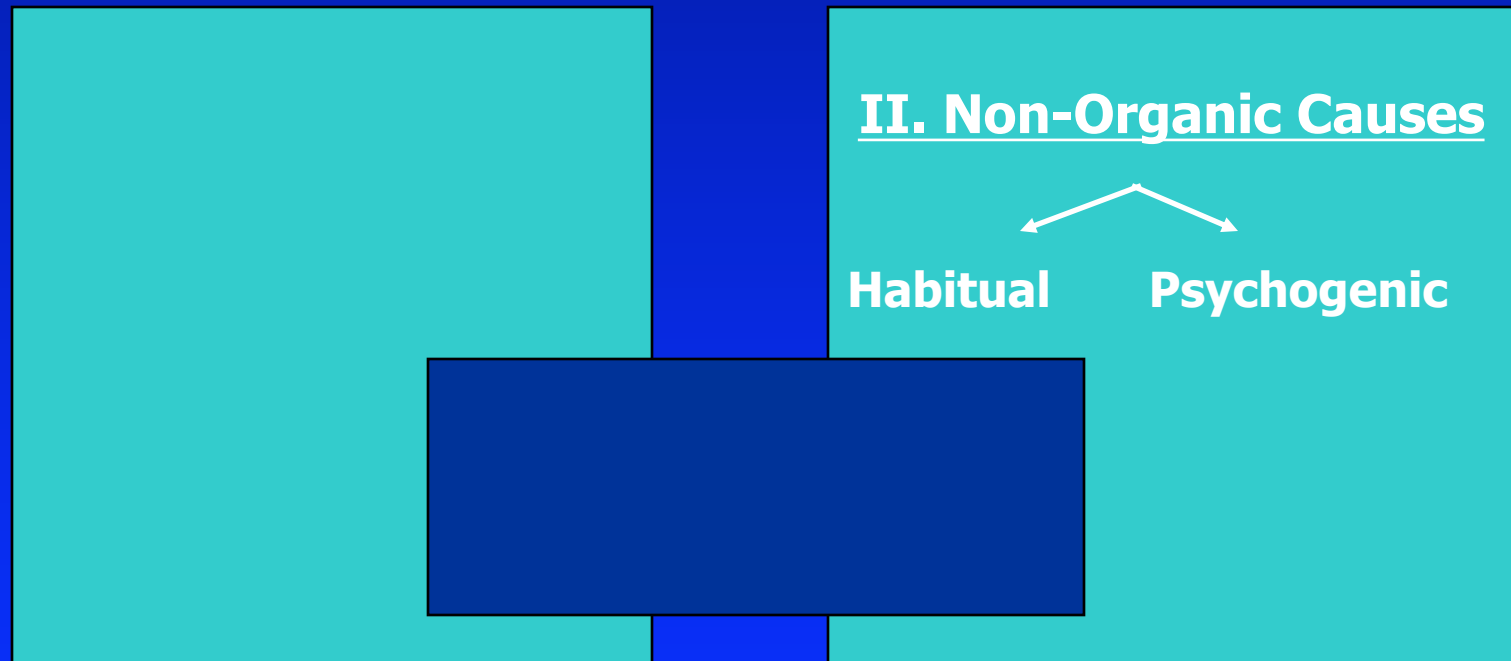


**Respiration**



**Phonation**

## Etiological classification of dysphonia:



*Hyperfunctional dysphonia*

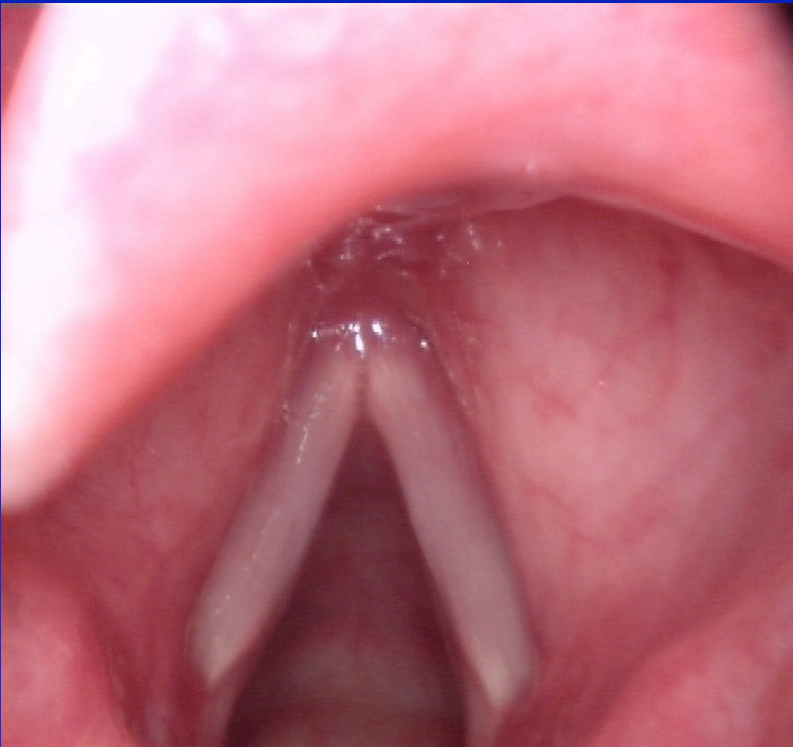


**Respiration**



**Phonation**

# *Phonasthenia*



**Respiration**



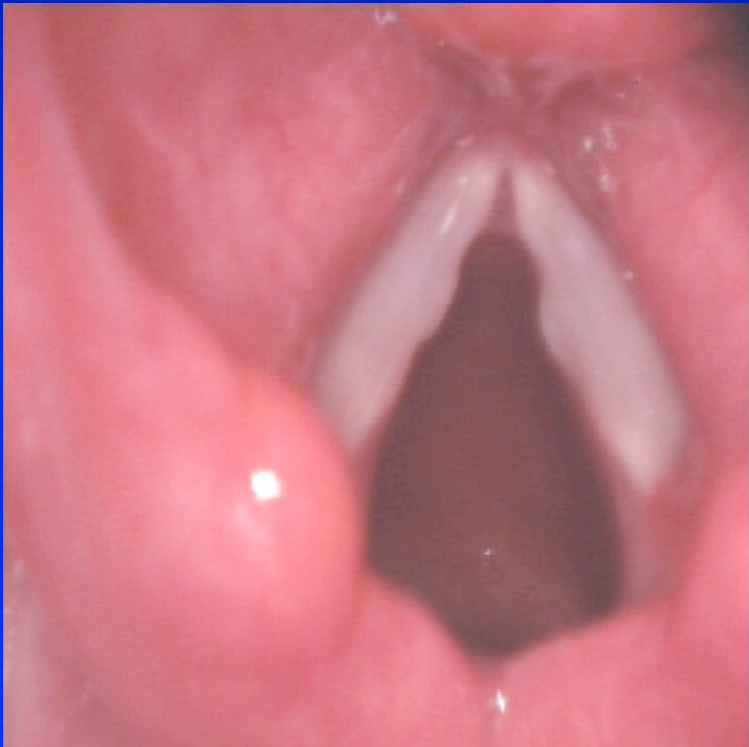
**Phonation**

## Etiological classification of dysphonia:



**III. Minimal Associated  
Pathological Lesions  
(MAPLs)**

*Vocal Fold Nodules: Adult Type*



**Respiration**

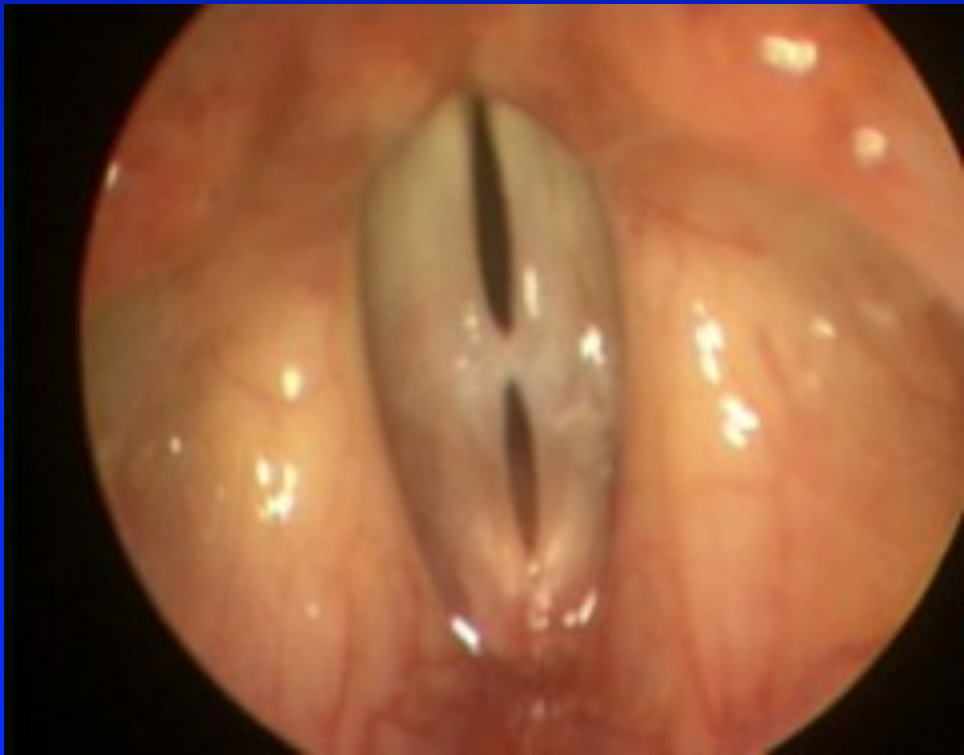


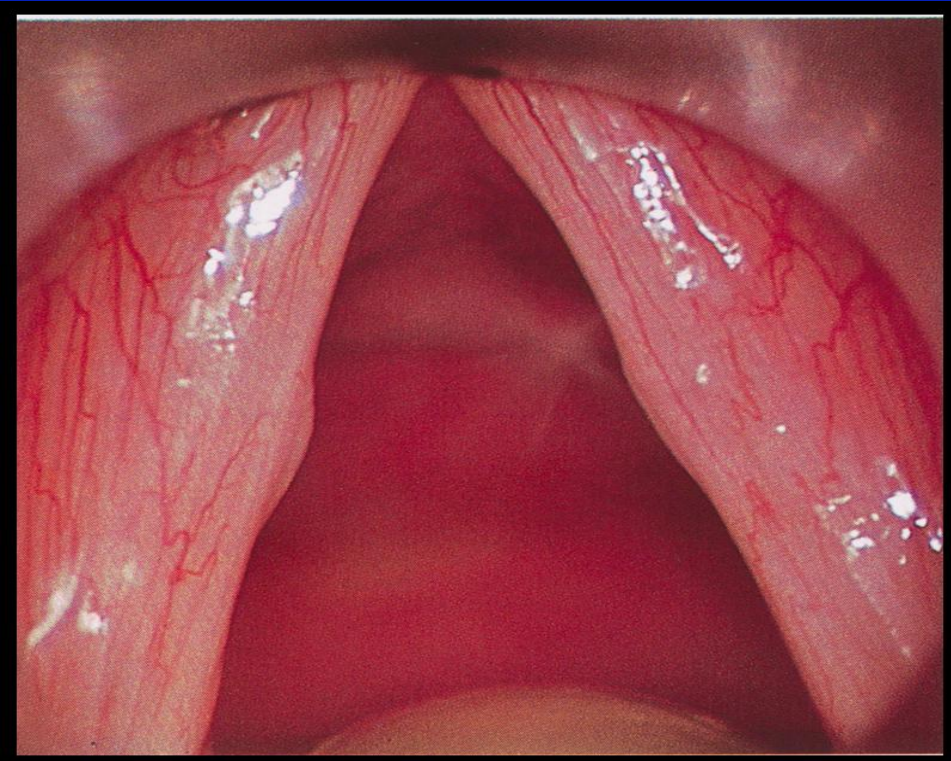
**Phonation**











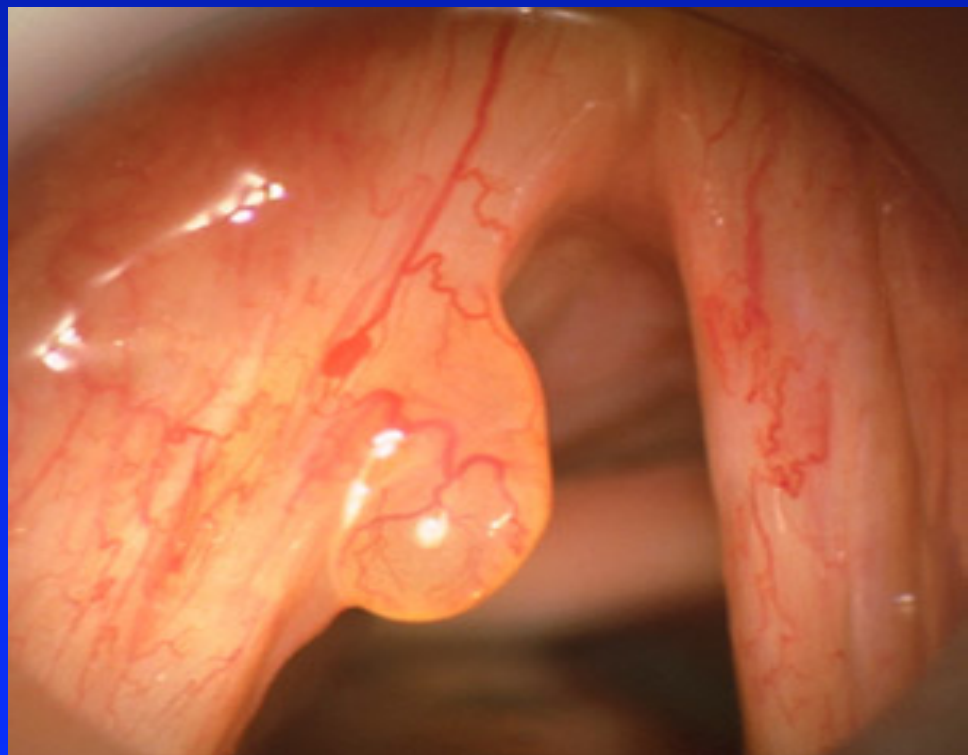
*Left Vocal Fold Polyp*



**Respiration**



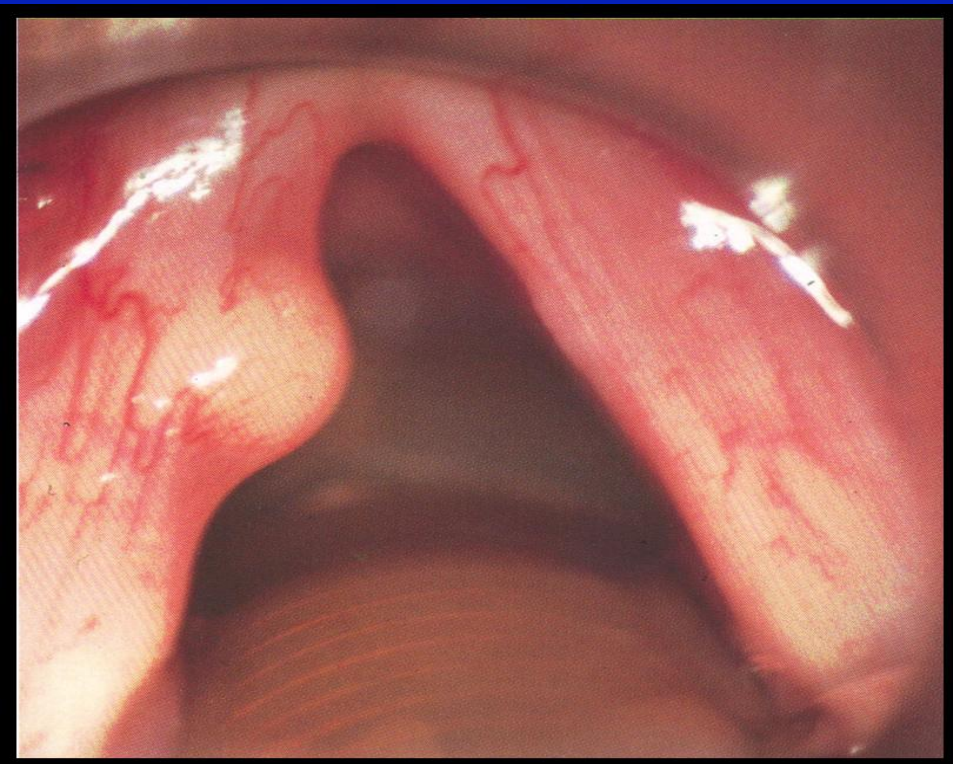
**Phonation**





*Left Vocal Fold Cyst*

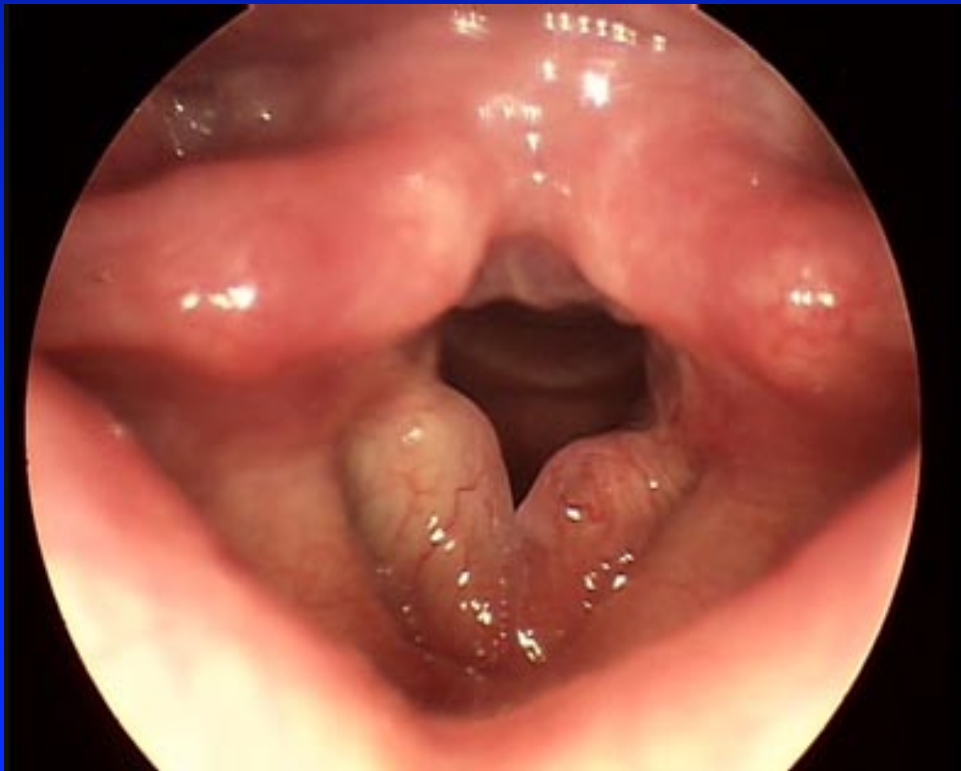




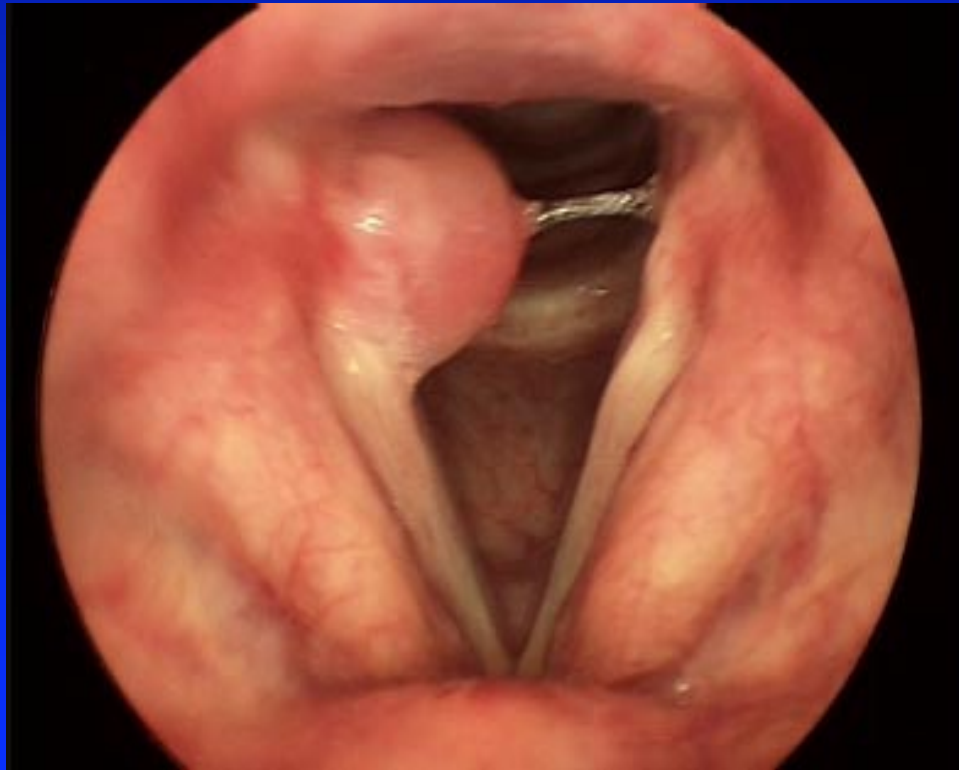
## *Reinke's Edema*

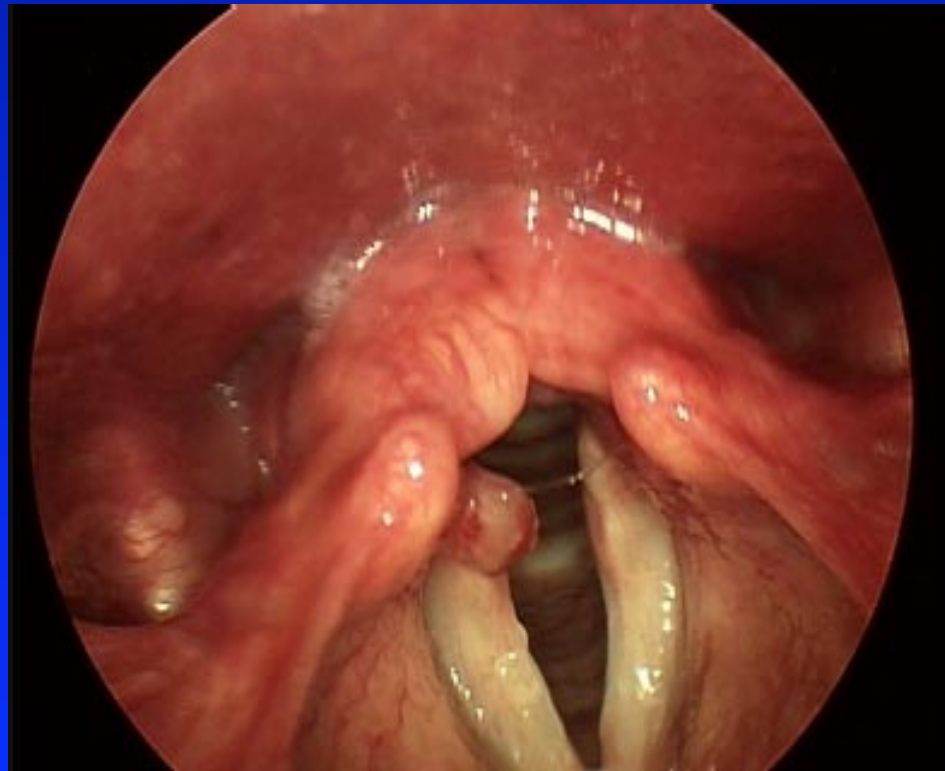






*Right-sided Contact Granuloma*





## Management of voice disorders:

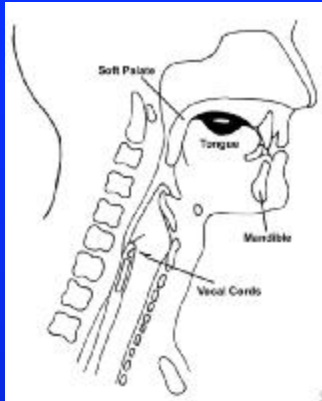
- Pharmacological agents.
- Surgical procedures (Phonosurgery).
- Technical aid devices.
- Voice therapy.



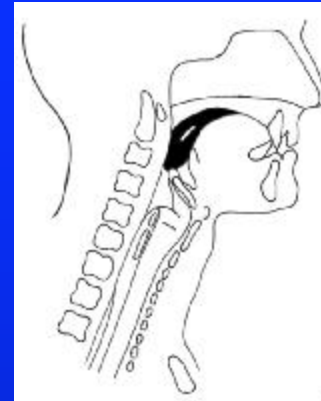
*Swallowing  
Disorders*



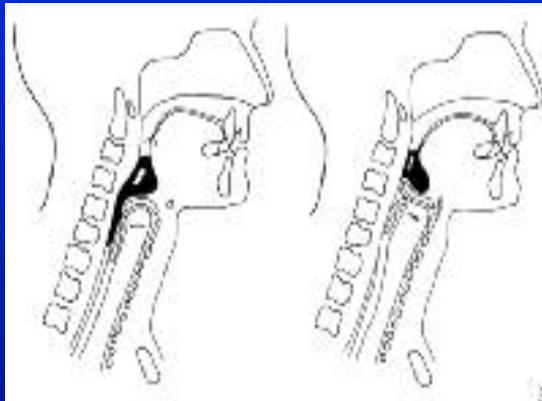
## Phases of normal swallowing:



**1. Oral preparatory phase**



**2. Oral propulsive phase**



**3. Pharyngeal phase**



**4. Esophageal phase**

## **Definition of dysphagia:**

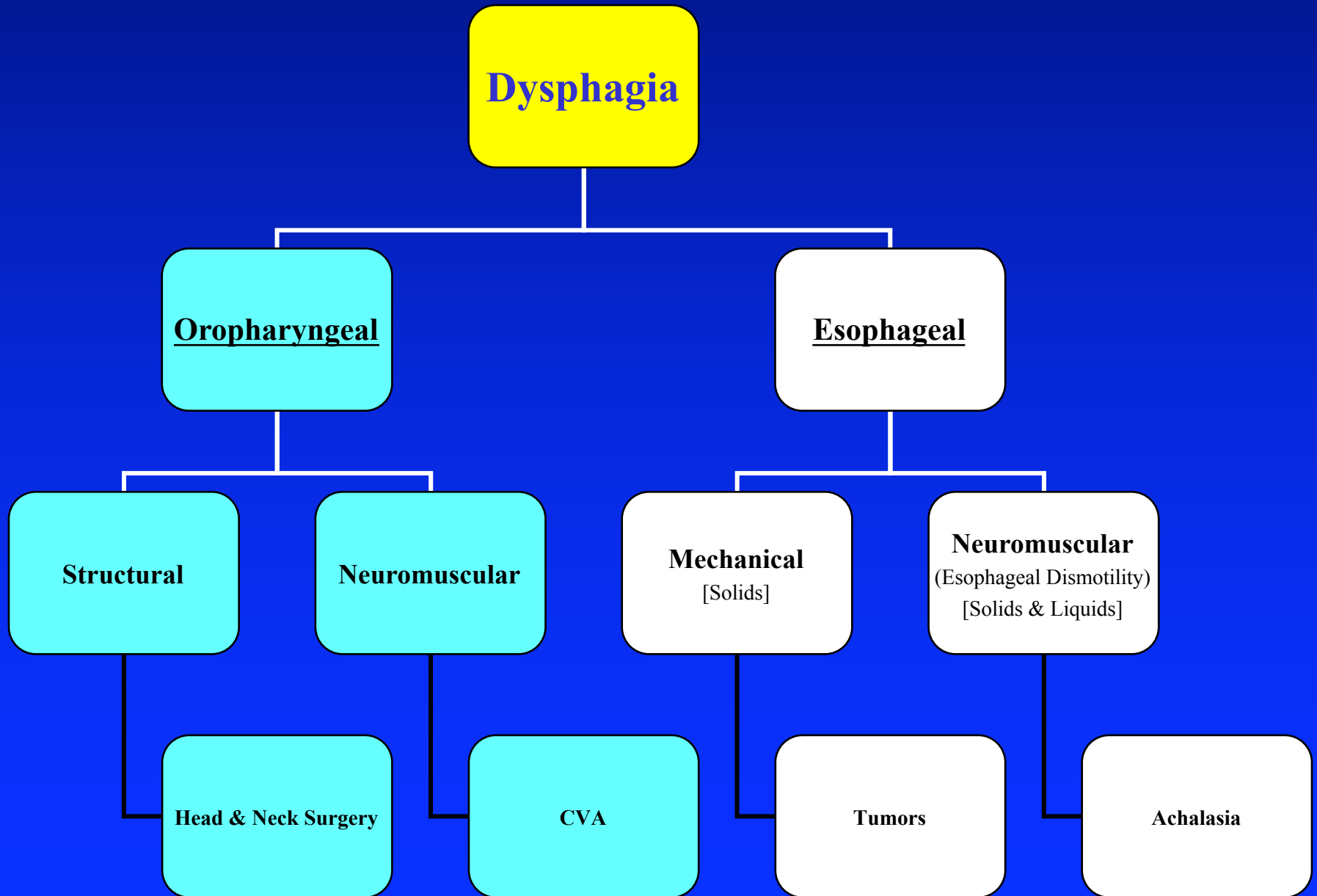
- **“Difficulty in moving food from the mouth to the stomach”.**
- **“Odynophagia” = painful swallowing due to a disorder of the esophagus.**



## Consequences of dysphagia:

- Dehydration.
- Weight loss.
- Aspiration pneumonia.
- Airway obstruction.
- Loss of joy of eating.

# Causes of dysphagia:



## **Assessment of dysphagia:**

### **I. History taking.**

### **II. Physical examination:**

- General examination.
- Language and Speech assessment.
- Vocal tract examination.
- Neck examination.
- Trail feeding.

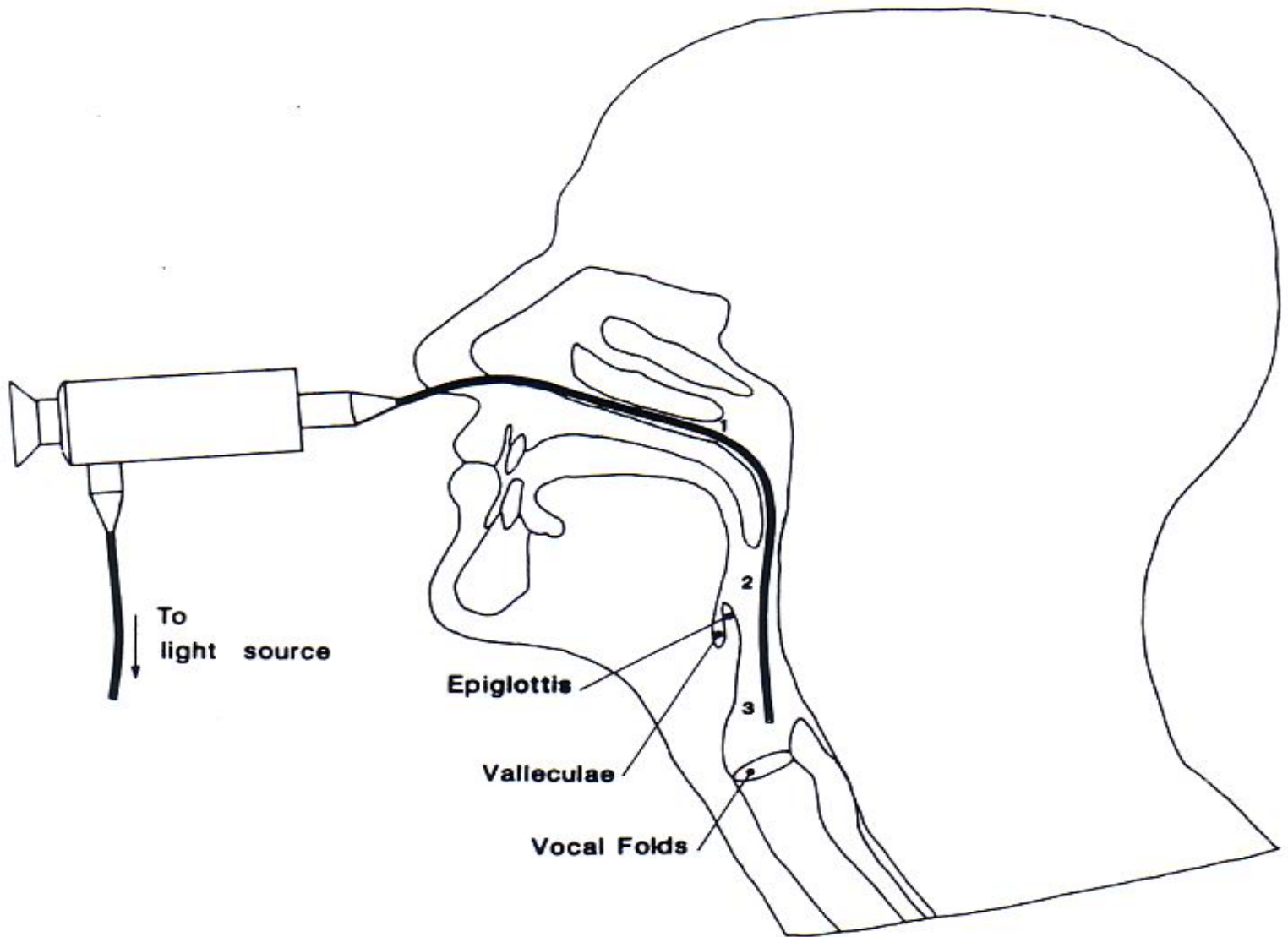
### **III. Investigations:**

- FEES.
- VFES (MBS).
- GERD (LPR) work-up.

**Dysphagia Sheet**

# FEEES

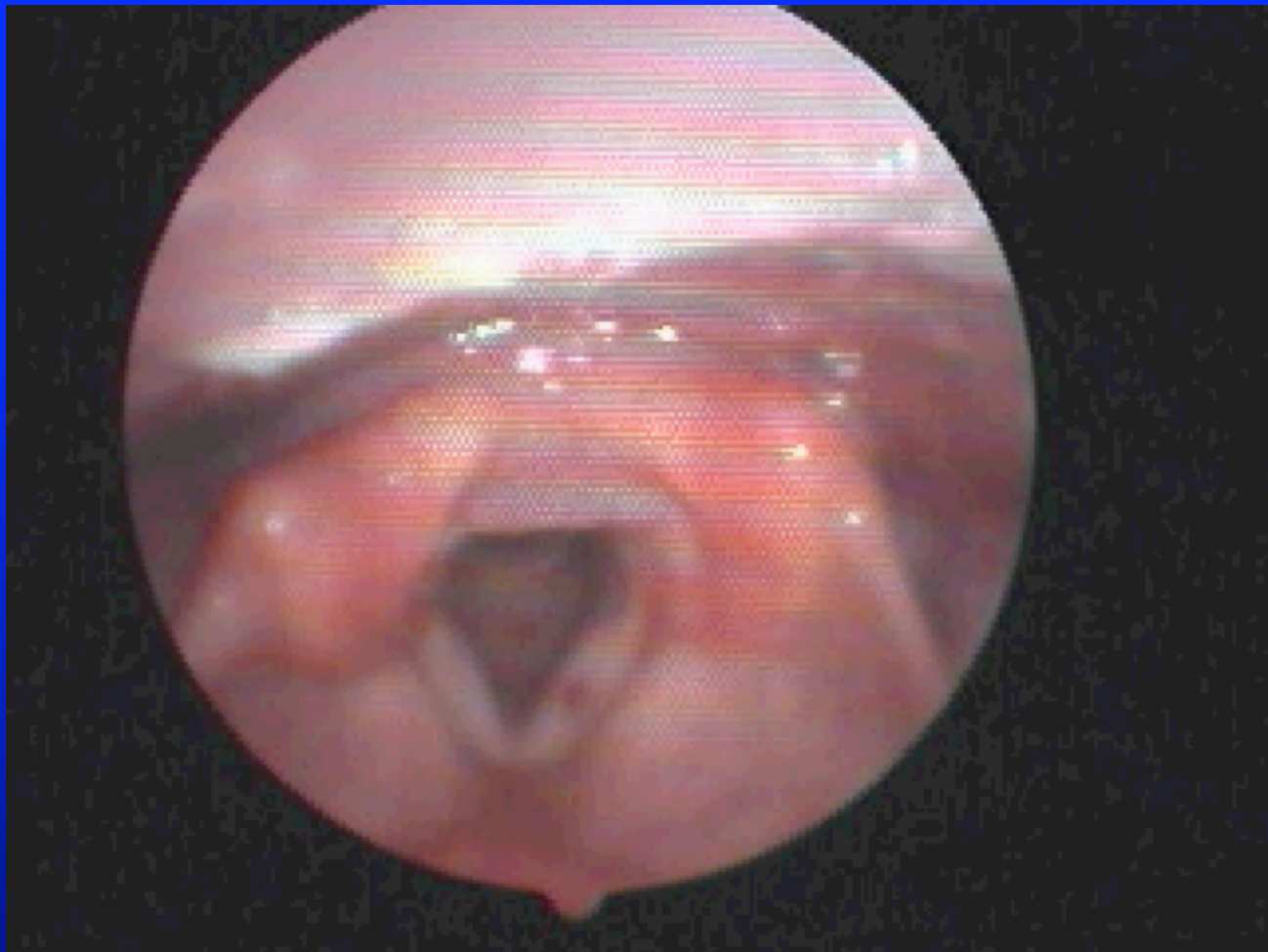




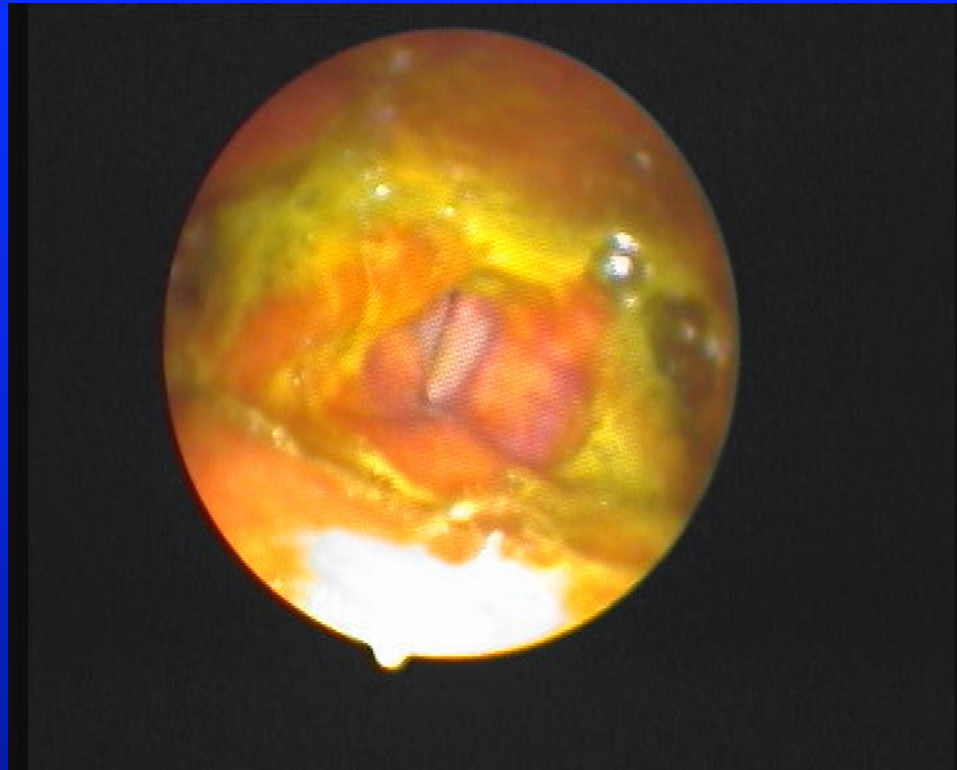
*FEES protocol of evaluation (Langmore, 2003):*

- I. Anatomic and physiologic assessment.**
- II. Assessment of food and liquid swallowing.**
- III. Assessment of therapeutic interventions.**

**FEES Form**

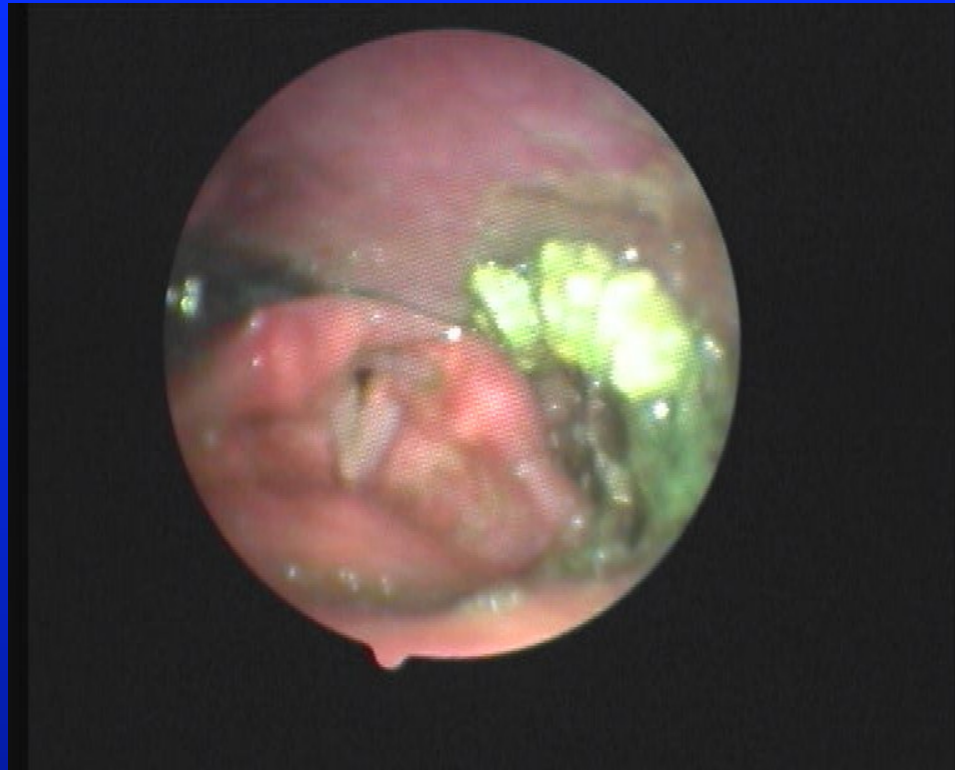


(Thin fluid dyed blue)



**Residue**

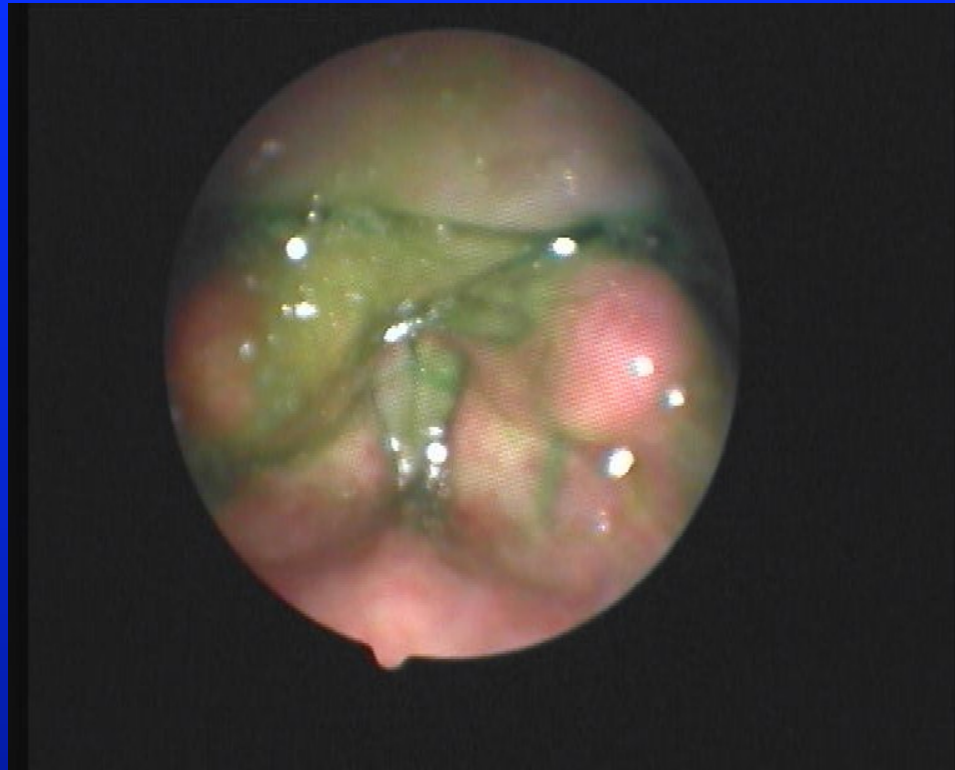




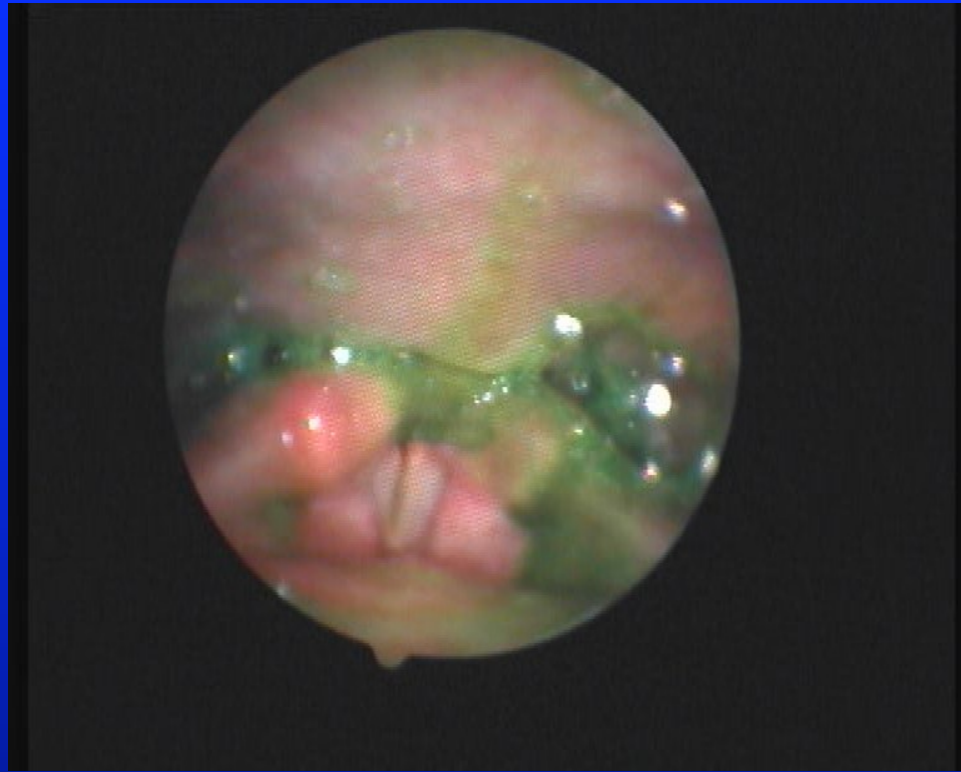
**Residue**



**Penetration**



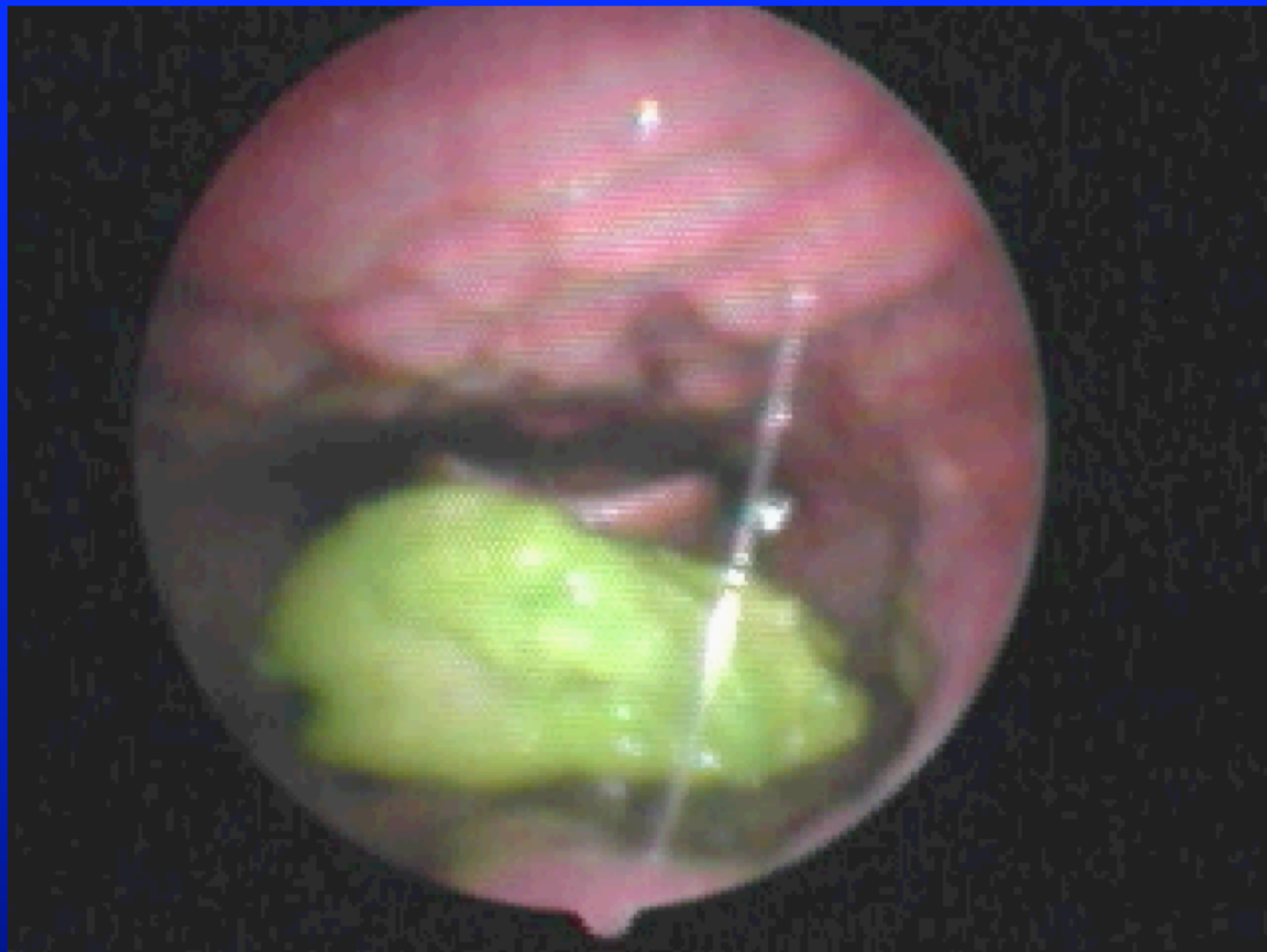
**Penetration**



**Aspiration**



**Aspiration**



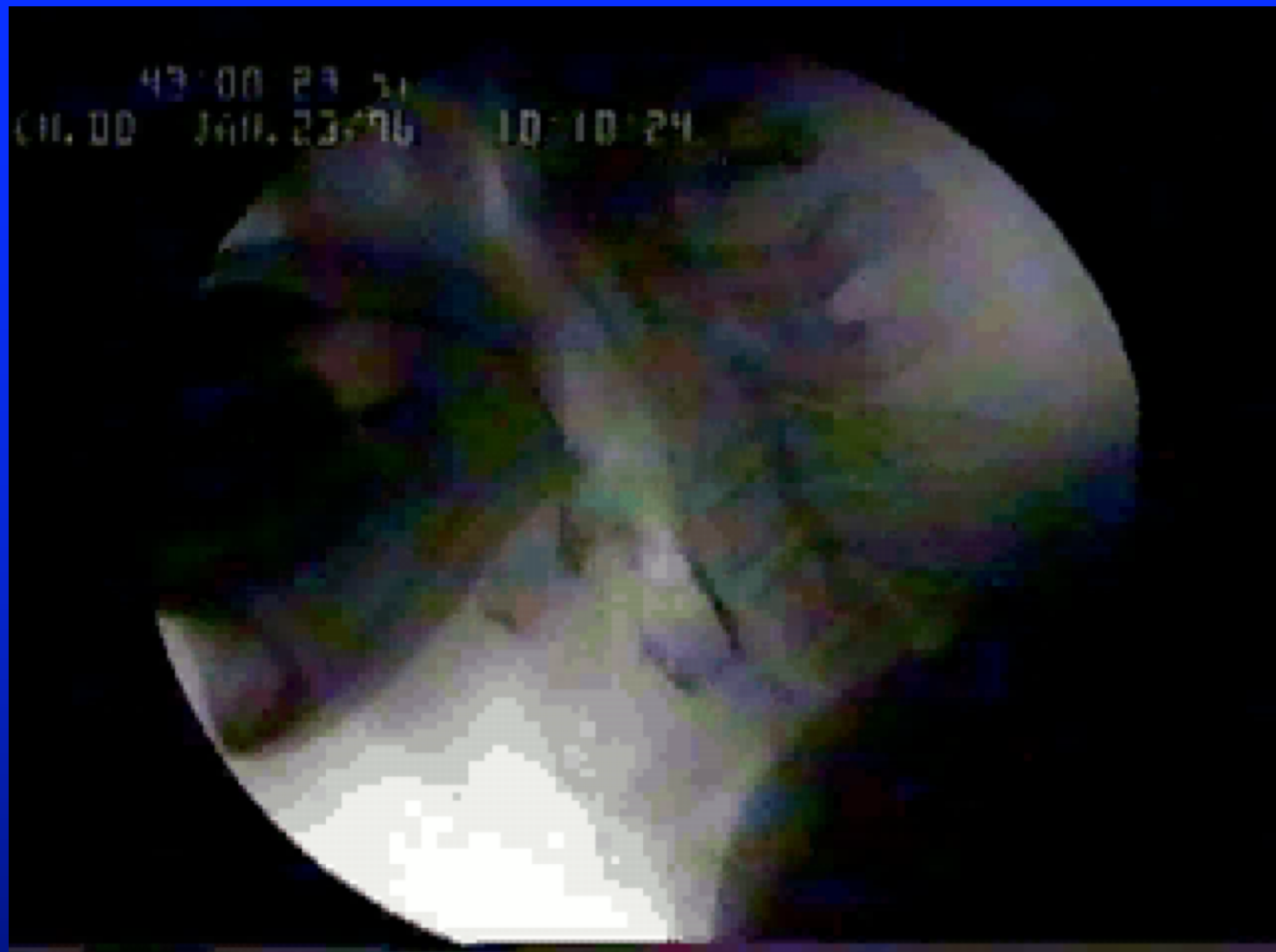
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CH.00 00:00:00



43:00 29 21  
CH. 00 JAN. 23/96 10:10:24





## Management of dysphagia:

- **Swallowing therapy:**
  - **Diet modification.**
  - **Postural techniques.**
  - **Swallowing maneuvers.**
  - **Sensory enhancement techniques.**
  - **Motor exercises.**
  
- **Surgical treatment, eg medialization laryngoplasty.**
  
- **Medical (Drug) treatment, eg anti-parkinsonism drugs.**
  
- **Intraoral prosthesis.**
  
- **Alternative routes of feeding, eg NG tube feeding.**

A close-up, artistic photograph of a human mouth with the tongue resting on the roof, set against a blue background. The image is slightly blurred, focusing on the central part of the mouth. The text "Speech Disorders" is overlaid in a yellow, cursive font.

*Speech  
Disorders*

## Speech disorders:

### 1. *Dyslalia (Misarticulation):*

#### **Definition:**

**Faulty articulation of one or more of speech sounds not appropriate for age.**

## Types of dyslalia:

### A) Sigmatism (/s/ defect):-

- Interdental sigmatism.
- Lateral sigmatism.
- Pharyngeal sigmatism.

### B) Back-to-front dyslalia:-

/k/ → /t/

/g/ → /d/

### C) Rotacism (/r/ defect).

### D) Voiced-to-nonvoiced dyslalia:-

/g/ → /k/

/d/ → /t/

/z/ → /s/ etc...

## Assessment of dyslalia:

- I. History taking.
- II. Physical examination: ... , tongue, ...
- III. Investigations:
  - Audio recording.
  - Articulation test.
  - Psychometry (IQ).
  - Audiometry.

Dyslalia Sheet

## Management of dyslalia:

- **Treatment of the cause:**
  - . **Tongue tie.**
  - . **Dental anomalies.**
  
- **Speech therapy.**

## Speech disorders:

### *2. Stuttering:*

#### **Definition:**

The intraphonemic disruptions resulting in sound and **syllable repetitions, sound prolongations, and blocks.**

## **Normal dysfluency:**

- **Less than 6 years.**
- **Only repetitions.**
- **No associated muscular activity.**
- **Not aware.**



## Assessment of stuttering:

- I. History taking.
- II. Physical examination: APA, VPA, ...
- III. Investigations:
  - Audio and video recording.
  - Stuttering severity (eg SSI).
  - Articulation test.
  - Psychometry (IQ).

Stuttering Sheet

## Management of stuttering:

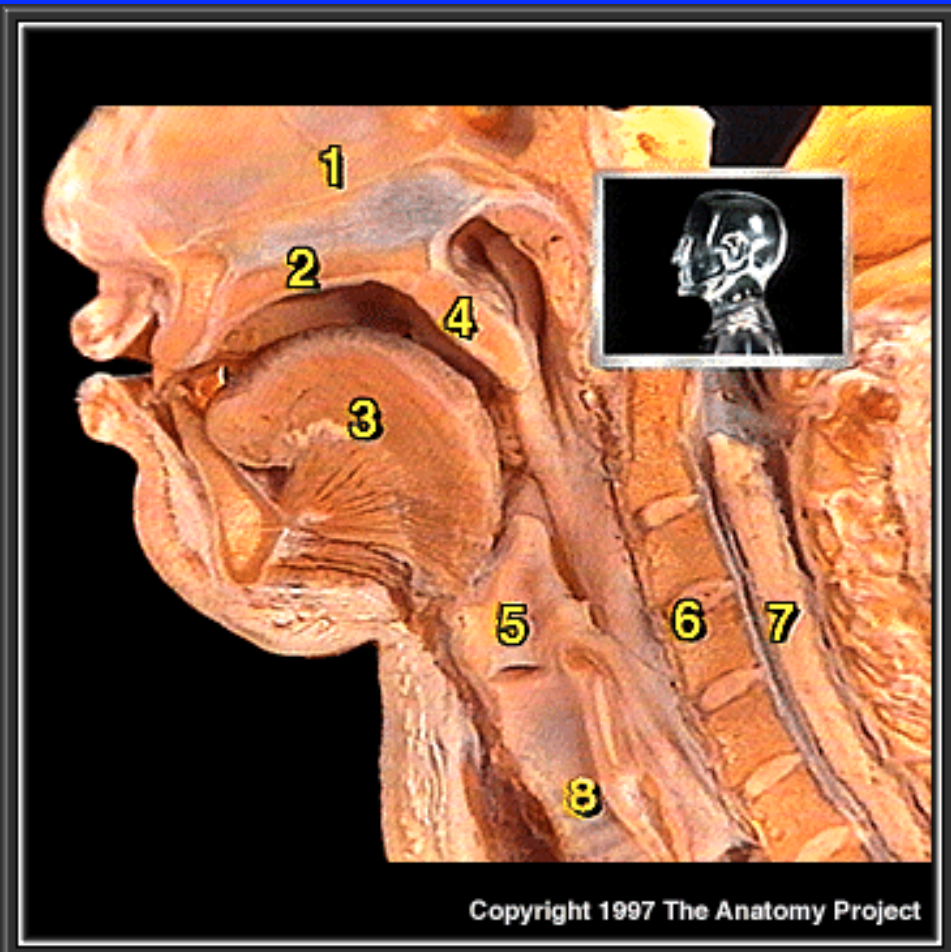
- ✱ Family and patient counseling.
- ✱ Speech therapy:
  - a. Indirect therapy: if not aware.
  - b. Direct therapy: if aware.

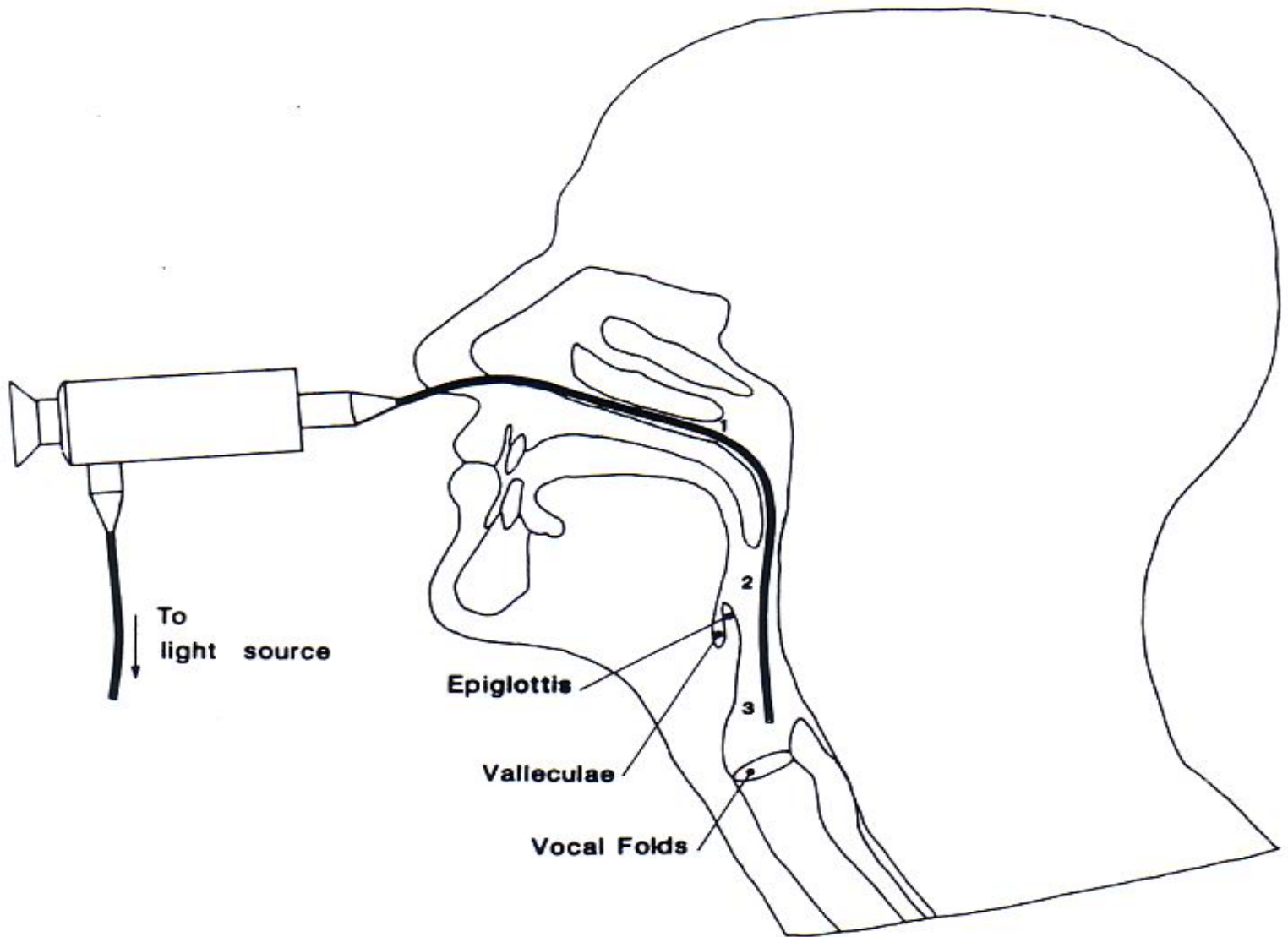
## Speech disorders:

### *3. Hypernasality:*

#### **Definition:**

**Faulty contamination of the speech signal by the addition of nasal noise. It results from velopharyngeal insufficiency (VPI).**







Fiberoptic nasopharyngolaryngoscopy

## Causes of hypernasality:

### I. Organic:

#### *1. Structural:*

##### a) Congenital:

- Overt cleft palate.
- Submucous cleft palate.
- Non-cleft causes:
  - . Congenital short palate.
  - . Congenital deep pharynx.

##### b) Acquired:

- Adenotonsillectomy.
- Palatal trauma.
- Tumors of the palate & pharynx.

#### *2. Neurogenic:*

- Palatal upper motor neuron lesion.
- Palatal lower motor neuron lesion.

## Causes of hypernasality (cont.):

### II. Non-organic (Functional):

- Faulty speech habits.
- Mental retardation.
- Neurosis or hysteria.
- Hearing impairment.
- Post-tonsillectomy pain.



## **Effects of VPI:**

- **Feeding problems: nasal regurgitation.**
- **Ear infections (tensor palati: V).**
- **Psychosocial problems.**
- **Communicative problems:**
  - . **Speech: hypernasality.**
  - . **Language: DLD.**
  - . **Voice: hyper or hypofunction.**

## Assessment of hypernasality:

### I. History taking.

### II. Physical examination:

- General.
- ENT examination: ..., palate (inspection, palpation) ...
- Simple tests:
  - . Gutzman's (a/i) test.
  - . Czermak's (cold mirror) test.

### III. Investigations:

- Audio recording.
- Fiberoptic nasopharyngolaryngoscopy.
- Psychometry (IQ).
- Audiometry.
- Articulation test.
- Nasometry.

## **Management of hypernasality:**

- **Team work.**
- **Feeding.**
- **Hearing.**
- **Maxillofacial.**
- **Palatal and lip surgeries.**
- **Obtulators.**
- **Communication:**
  - . **Language: Language therapy.**
  - . **Speech: Speech therapy.**
  - . **Voice: Voice therapy.**

## Speech disorders:

### 4. *Dysarthria:*

#### Definition:

**Any combination of disorders of respiration, phonation, articulation, resonance, and prosody, that may result from a neuromuscular disorder.**

## Assessment of dysarthria:

**I. History taking.**

**II. Physical examination: ... , mouth, palate, ... , neurological exam, ...**

**III. Investigations:**

- **Audio recording.**
- **Fiberoptic nasopharyngolaryngoscopy.**
- **CT/MRI brain**
- **Dysphasia test.**
- **Psychometry (IQ).**
- **Articulation test.**
- **Audiometry.**
- **Nasometry.**
- **MDVP.**
- **Aerodynamics (Aerophone II).**

## Management of dysarthria:

### Individualized:

- Management of the cause.
- Patient counseling.
- Communicative therapy:
  - \* Articulation.
  - \* Phonation.
  - \* Resonance.
  - \* Respiration.
  - \* Prosody.
- Alternative and augmentative communication.

A close-up, artistic photograph of a human mouth with the tongue resting on the roof, set against a blue background. The image is slightly blurred, focusing on the central part of the mouth. The text "Language Disorders" is overlaid in a yellow, cursive font.

*Language  
Disorders*

## 9. Language Disorders:

[1] *Delayed Language Development (DLD):*

### **Definition of DLD:**

Delay or failure to acquire language matched with age.



## **Causes of DLD:**

### **A) Brain damage:**

- Diffuse brain damage (MR).
- Brain damaged motorly handicapped child (CP).
- Minimal brain damage (ADHD).

### **B) Sensory deprivation:**

Hearing impairment.

### **C) Psychiatric disorders:**

- Autism.
- Childhood schizophrenia.

### **D) Non-stimulating environment.**

### **E) Idiopathic.**

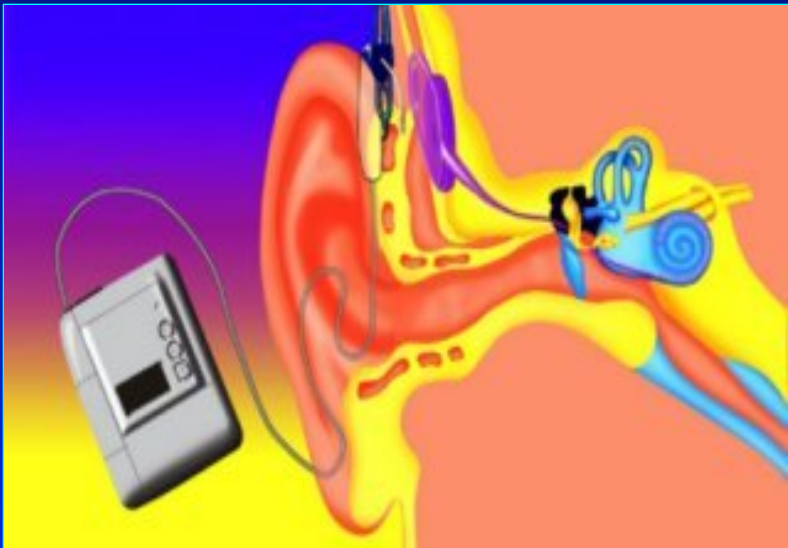
## Assessment of the Cause of DLD:

- I. History taking.
- II. Physical examination.
- III. Investigations:
  - Psychometry (IQ).
  - Audiometry.

DLD Sheet

## Management of DLD:

- ✿ **Early detection.**
- ✿ **Providing the suitable aid (HA or CI).**
- ✿ **Family counseling.**
- ✿ **Language therapy.**



## 9. Language disorders:

### [2] *Dysphasia:*

#### **Definition:**

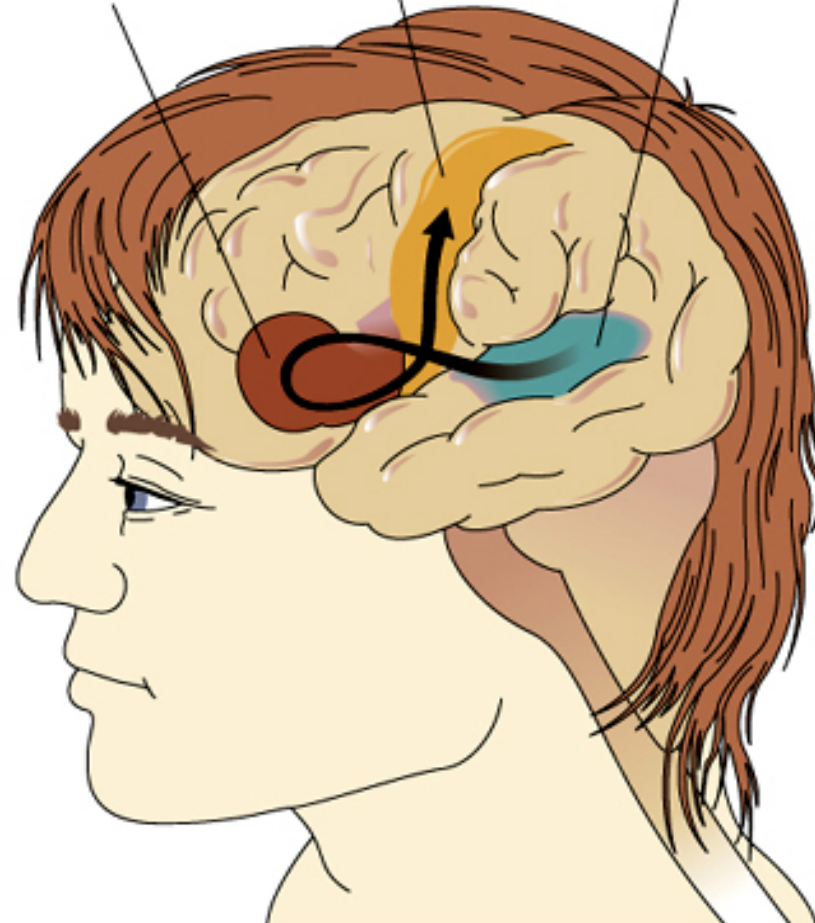
**Language deterioration after its full development due to brain insult: infarction, hemorrhage, atrophy, etc**

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**Broca's area**  
Formulates  
a speech  
response and  
stimulates  
motor cortex

**Motor cortex**  
Stimulates muscles  
that produce  
speech

**Wernicke's area**  
Processes  
incoming  
speech and  
comprehends it



## Assessment of dysphasia:

- I. History taking.
- II. Physical examination: ... , neurological exam.
- III. Investigations:
  - CT / MRI brain.
  - Dysphasia test.
  - Psychometry (IQ).
  - Audiometry.

Dysphasia Sheet

## **Management of dysphasia:**

### **Individualized:**

- **Management of the cause.**
- **Physical rehabilitation (Physiotherapy).**
- **Family counseling.**
- **Language therapy.**
- **Alternative and augmentative communication.**



**Communication Disorders**

*Swallowing Disorders*

*Voice Disorders*

*Speech Disorders*

*Language Disorders*

**Organic**

**Non-organic**

**MAPLs**

**Stuttering**

**Cluttering**

**Misarticulation**

**Hypernasality**

**Dysarthria**

**DLD (Children)**

**Dysphasia (Adults)**

*For More Information*

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**<http://faculty.ksu.edu.sa/kmalky>**

**<http://c.ksu.edu.sa/vas>**



*Thank you*