



*Communication and Swallowing
Disorders Unit (CSDU)*



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<http://fac.ksu.edu.sa/mfarahat>



Communication and Swallowing Disorders



*Communication and Swallowing
Disorders Unit (CSDU)*



Department:

ENT

Course:

ORL 432



*Communication and Swallowing
Disorders Unit (CSDU)*



Lecture Title:

Communication and Swallowing Disorders. Part I

Communication and Swallowing Disorders. Part II

Lecturers:

Khalid H Al Malki, MD, PhD

Mohammed Farahat, MD, PhD

Tamer Mesallam, MD, PhD



*Communication and Swallowing
Disorders Unit (CSDU)*



Lectures' Objectives:

Students at the end of the lecture will be able to:

- **Understand physiology of communication.**
- **Recall different categories of communication and swallowing disorders.**
- **Differentiate different causes of communication and swallowing disorders.**
- **Assess and manage different communication and swallowing disorders.**



*Communication and Swallowing
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References:

- [http://faculty.ksu.edu.sa/kmaliky/Publications/
Courses.aspx](http://faculty.ksu.edu.sa/kmaliky/Publications/Courses.aspx)
- <http://c.ksu.edu.sa/vas>

Aim of this presentation:

AN INTRODUCTION !!

Communication Disorders

Communication difficulties have an impact on the following aspects:

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



Symbolization

LANGUAGE

Articulation

SPEECH

Phonation

VOICE

Respiration

**Communication
Disorders**

Swallowing Disorders

Voice Disorders

Speech Disorders

Language Disorders

Language

A arbitrary symbolic 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

Communication Disorders

Swallowing Disorders

Voice Disorders

Speech Disorders

Language Disorders

Organic

Non-organic

MAPLs

Stuttering

Cluttering

Misarticulation

Hypernasality

Dysarthria

**DLD
(Children)**

**Dysphasia
(Adults)**

A glowing lightbulb is centered within a blue wireframe sphere. The lightbulb is illuminated from within, casting a bright glow. The sphere is composed of a grid of blue lines, and the background is a solid blue color. The text "Language Disorders" is overlaid on the sphere in a bold, yellow font.

Language Disorders

I. Language Disorders:

[1] Delayed Language Development (DLD):

Definition of DLD:

Delay or failure to acquire language matched with age.

Prerequisites of normal language development:

- 1. Normal brain function.**
- 2. Intact sensory channels (eg auditory).**
- 3. Normal psyche.**
- 4. Stimulating environment.**

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.

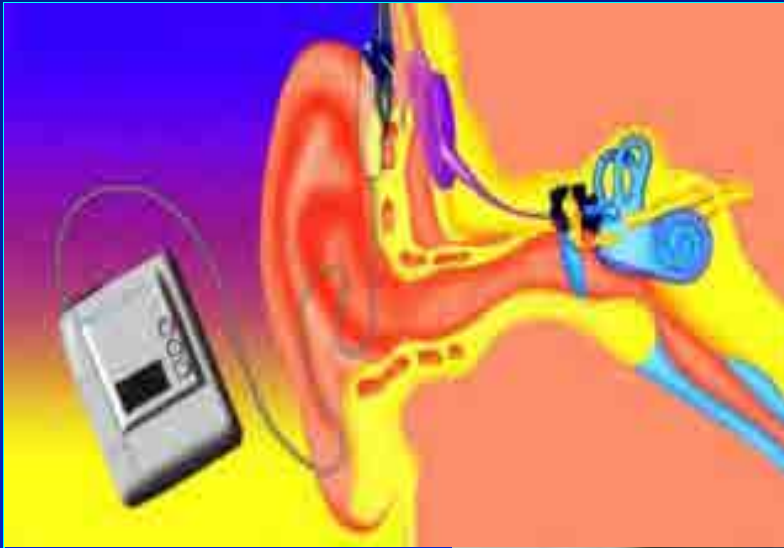
Assessment of the Cause of DLD:

- 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.**





Redneck
Time Out

أبوناواف
ABUNAWAF GROUP

I. Language disorders:

[2] Dysphasia:

Definition:

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

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.**



Speech Disorders

II. 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.**

II. Speech disorders:

2. Stuttering:

Definition:

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

Incidence of stuttering: 1%.

Onset:

- Earliest = 18 months.
- Latest = 13 years.

Epidemiology:

- more in families with history of stuttering.
- can occur in mentally retarded.
- very rare in the hearing impaired.

Gender ratio:

4 : 1 (male : female)

Theories of Stuttering:

The exact cause is unknown.

- Organic theory.**
- Neurosis theory.**
- Learning theory.**

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

Auditory Perceptual Analysis (APA):

A. Core behaviors:

- Intrapophonemic disruption.
- Repetitions.
- Prolongations.
- Blocks.

B. Secondary reactions:

- Muscular activity and struggle.
- Interjection.
- Word substitutions and circumlocution.

C. Concomitant reactions:

- Fear.
- Breathing (antagonism, interruption, prolongation, cessation, ...).
- Eye contact.
- Skin pallor/flushing.

Management of stuttering:

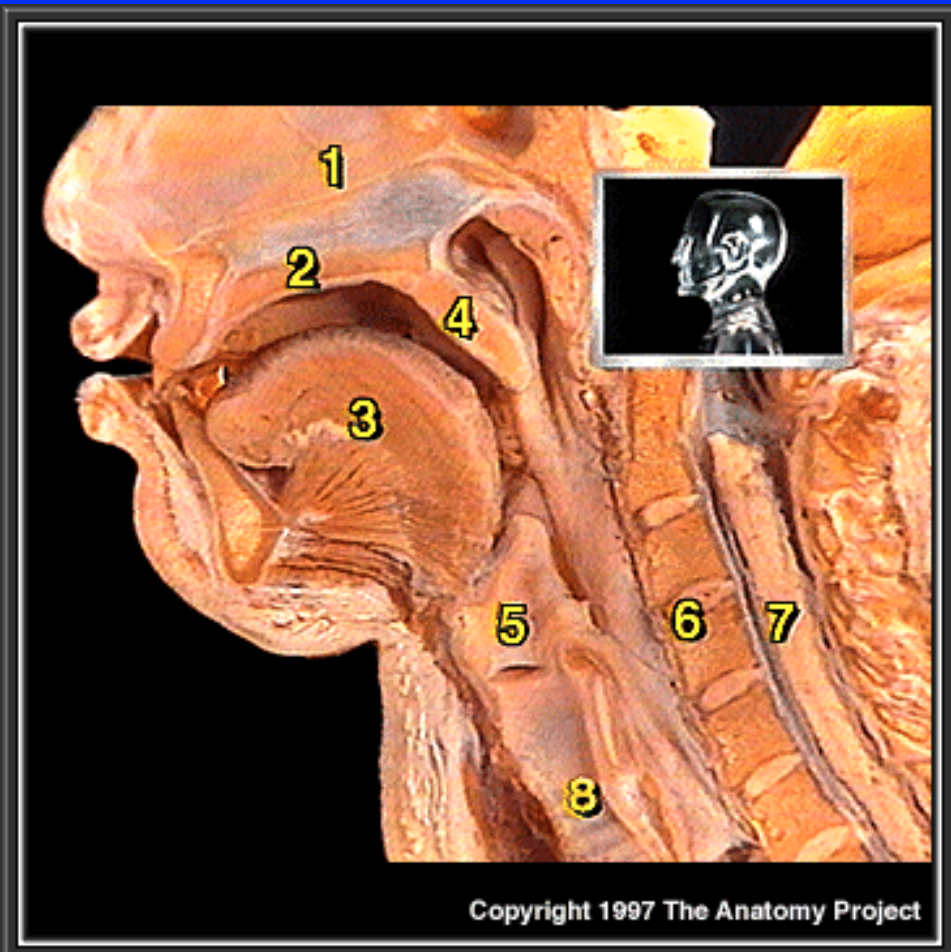
- ✱ Family and patient counseling.
- ✱ Speech therapy:
 - a. Indirect therapy: if not aware.
 - b. Direct therapy: if aware.

II. Speech disorders:

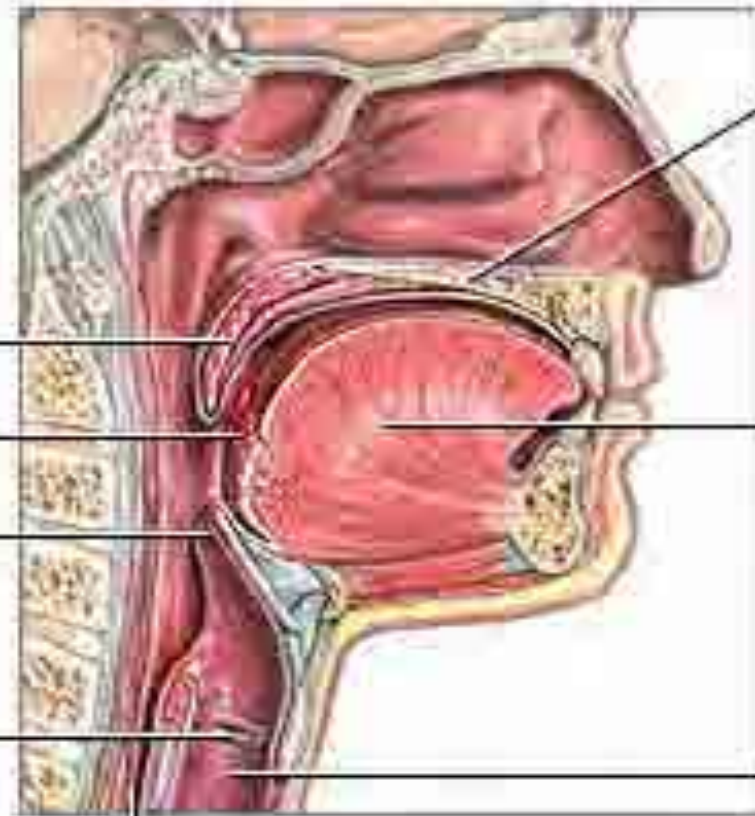
3. Hypernasality:

Definition:

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



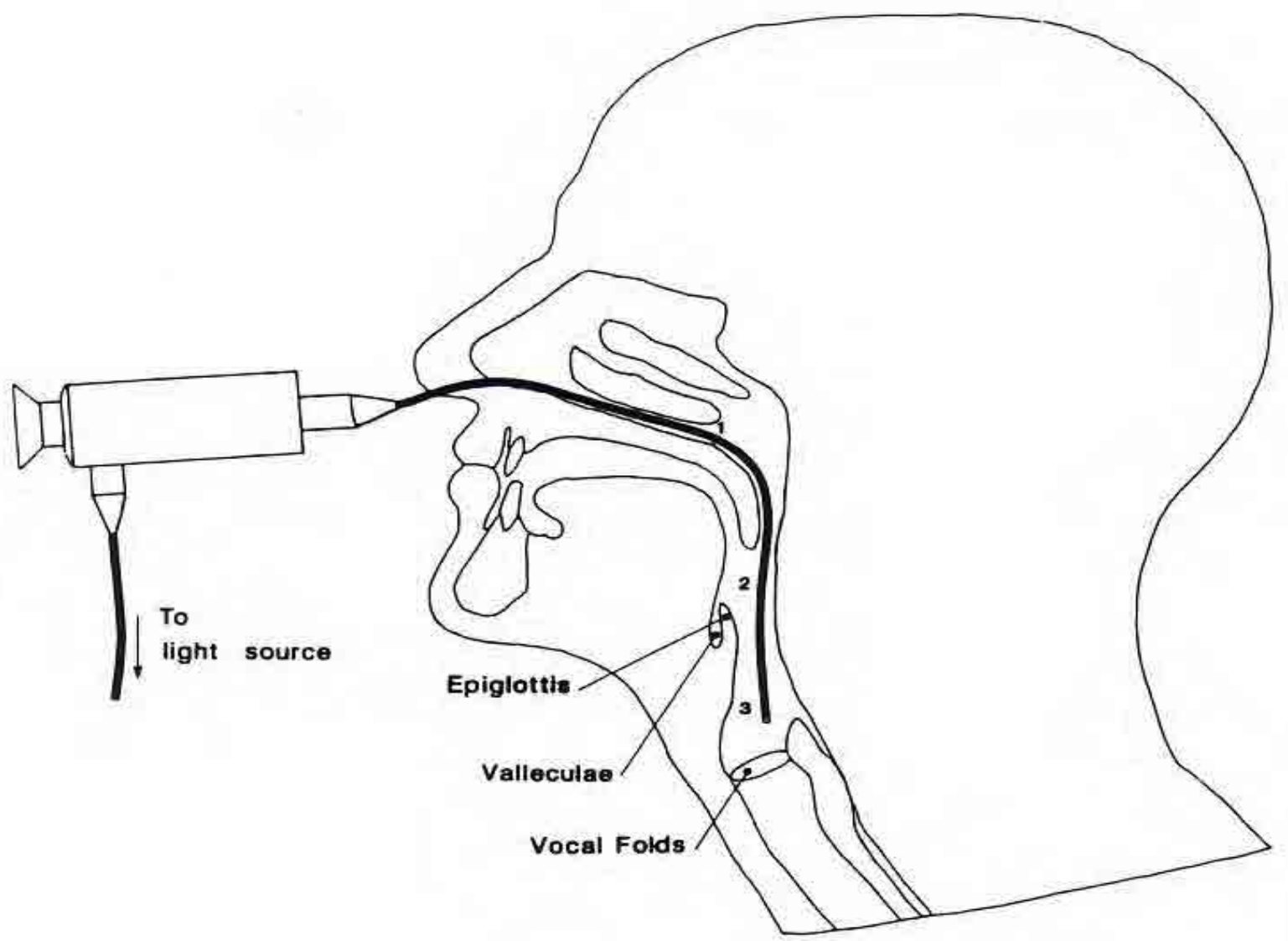
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Soft palate
Palatine tonsil
Epiglottis
Vocal fold

Hard
palate
Tongue
Trachea

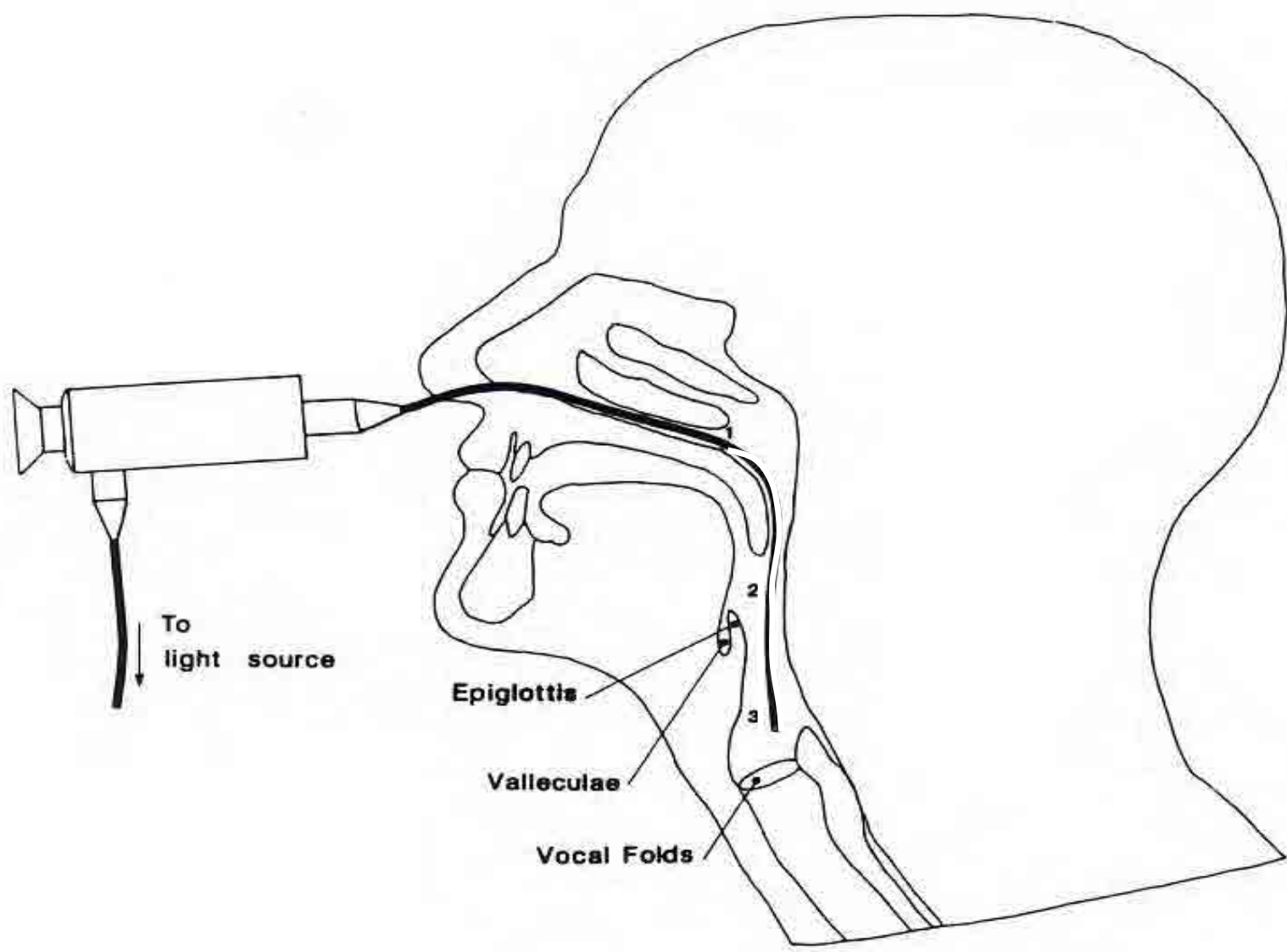
Esophagus

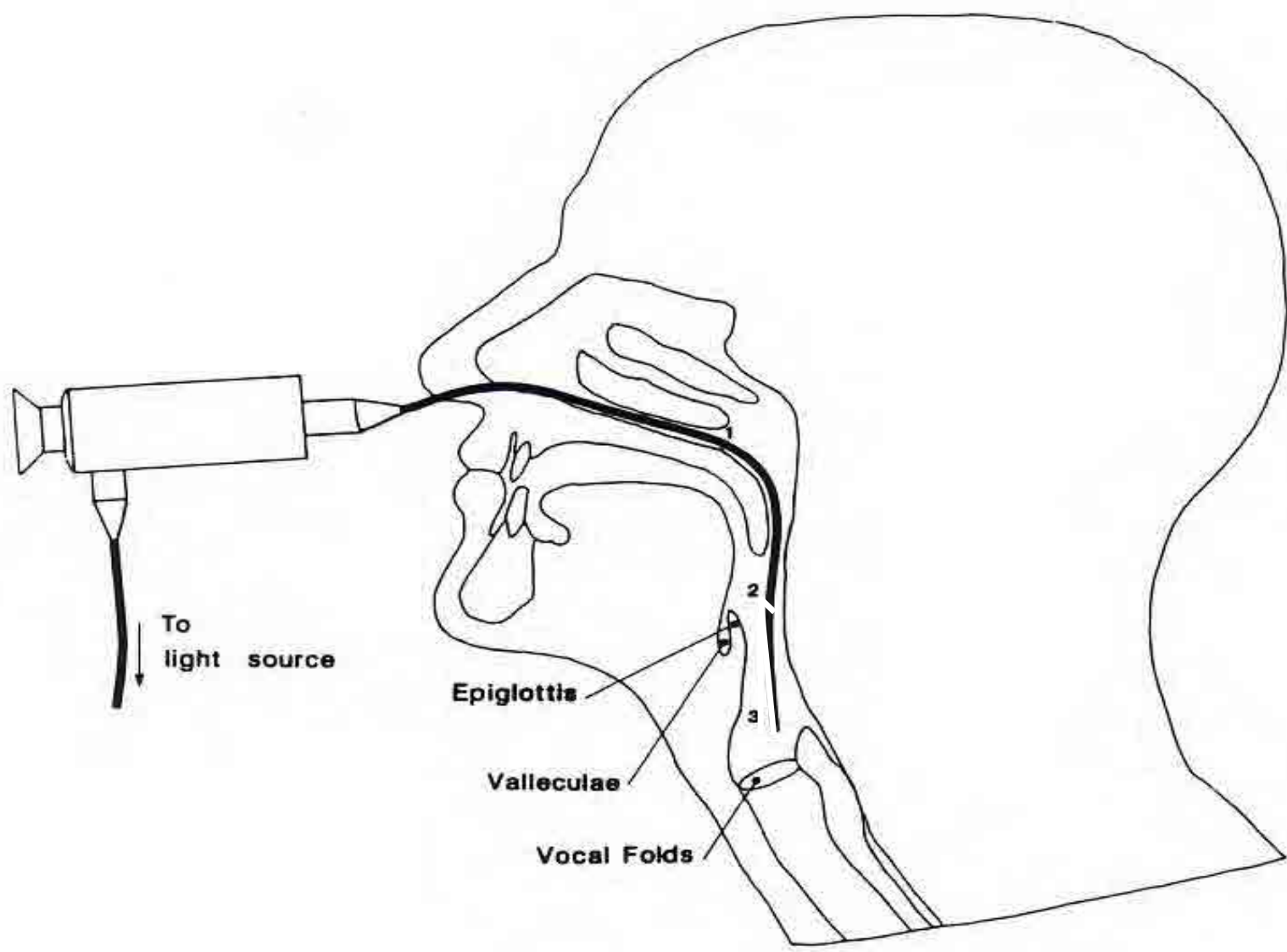


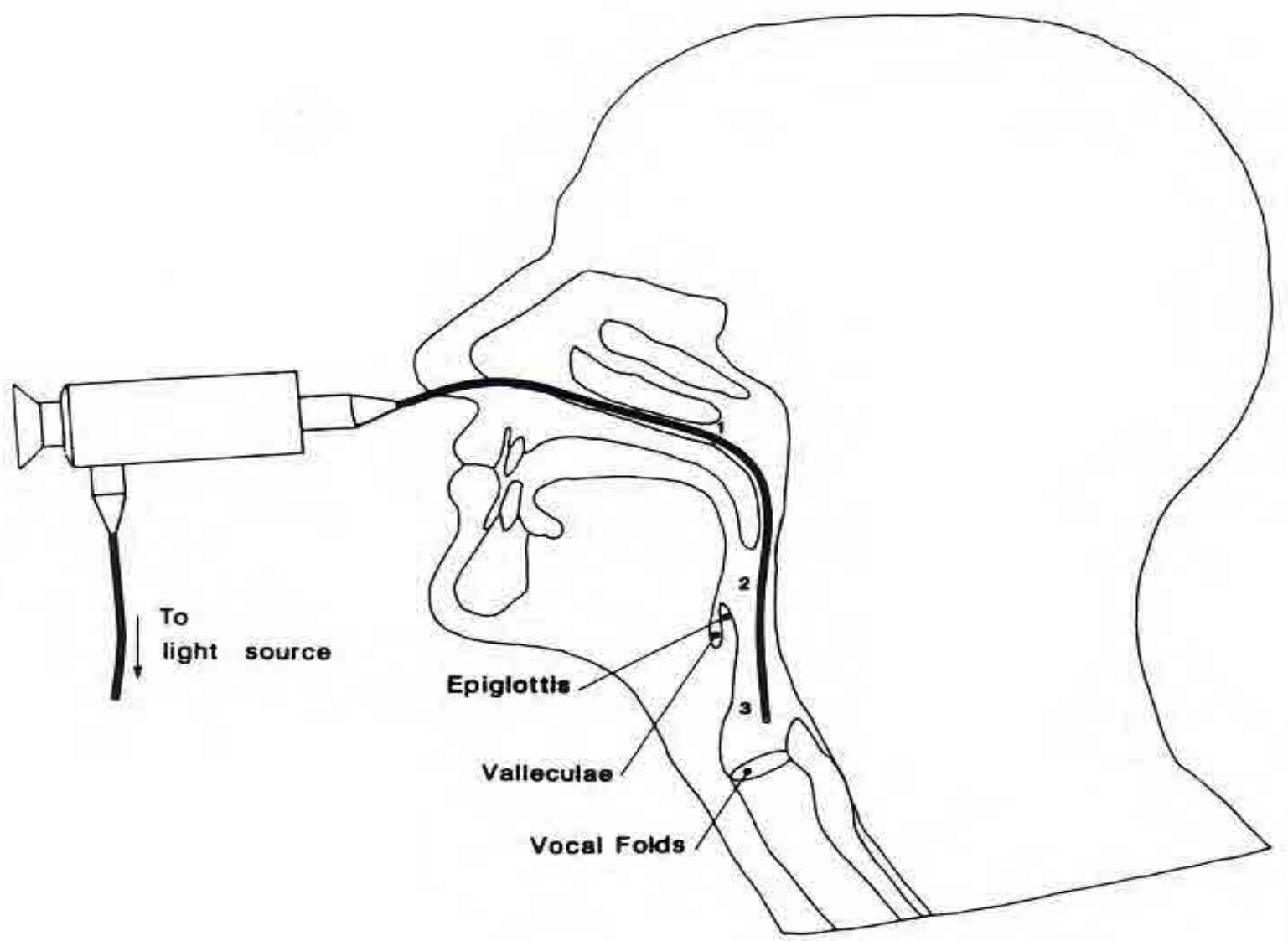
To
light source

Epiglottis
Valleculae
Vocal Folds

2
3
1









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.**
- **Obturators.**
- **Communication:**
 - . **Language: Language therapy.**
 - . **Speech: Speech therapy.**
 - . **Voice: Voice therapy.**

II. 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).

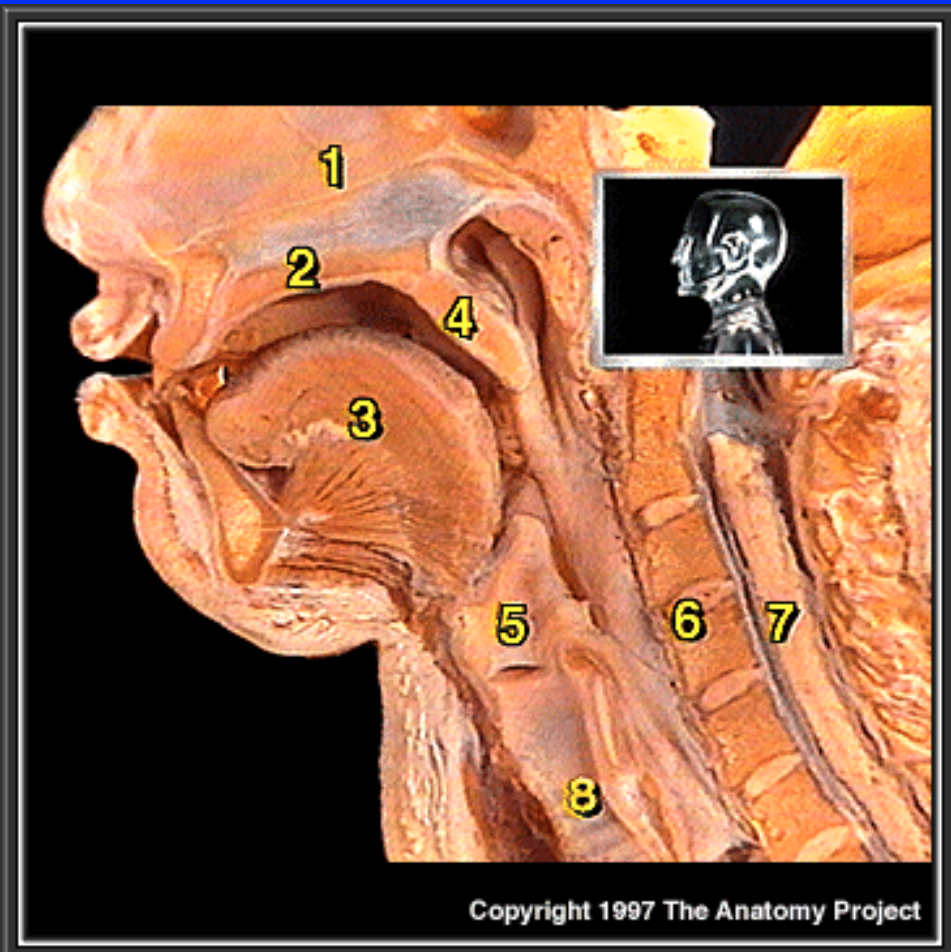
Management of dysarthria:

Individualized:

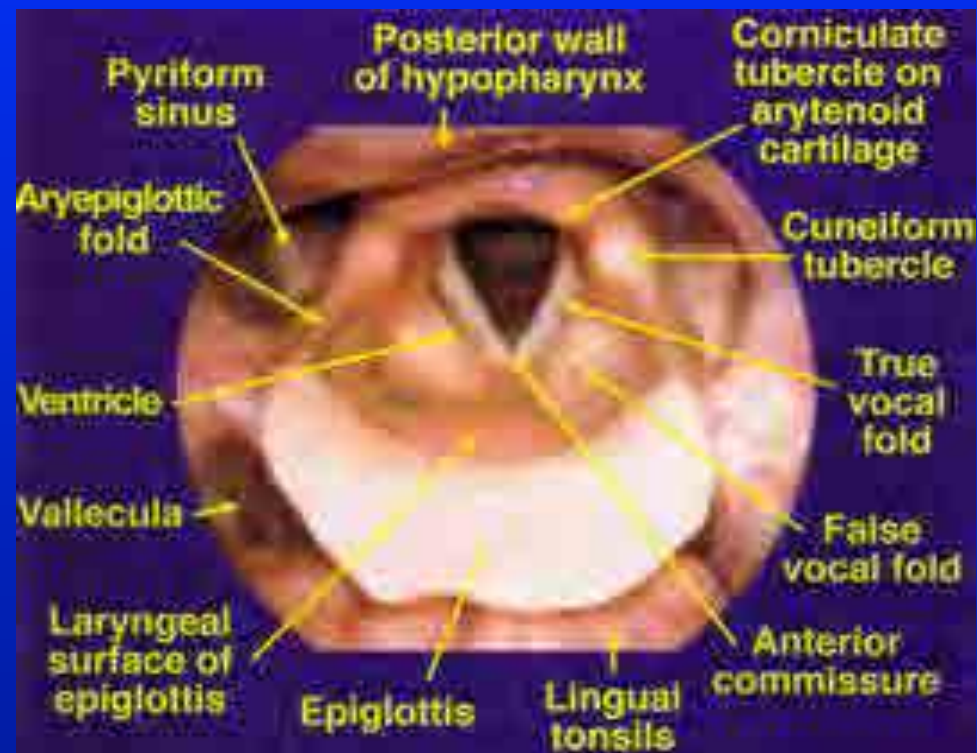
- Management of the cause.
- Patient counseling.
- Communicative therapy:
 - * Articulation.
 - * Phonation.
 - * Resonance.
 - * Respiration.
 - * Prosody.
- Alternative and augmentative communication.

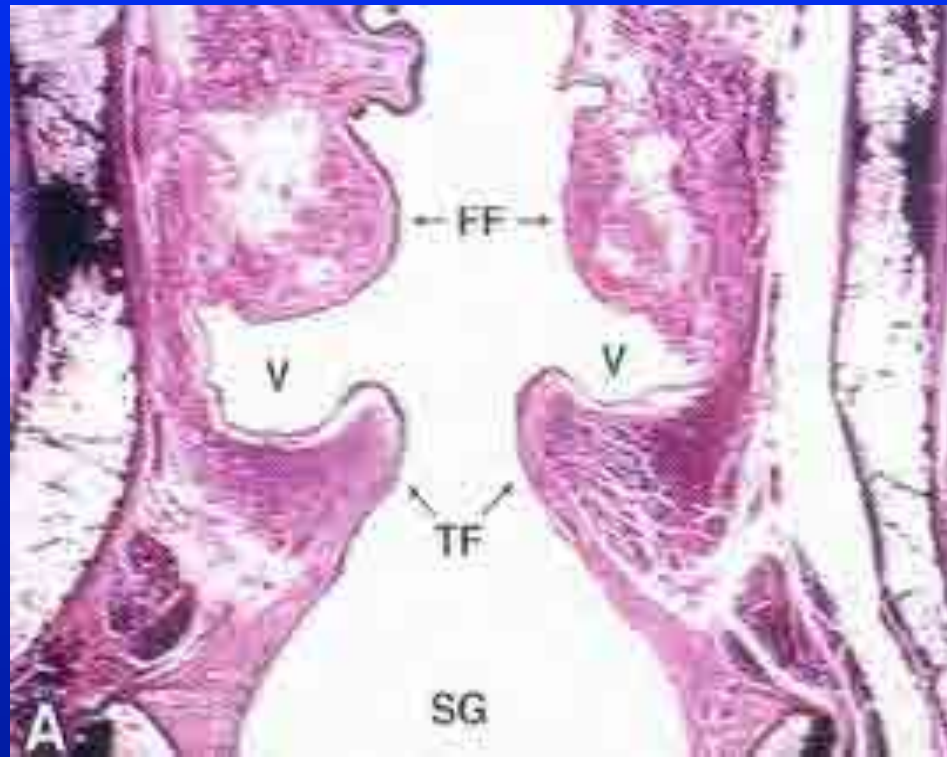


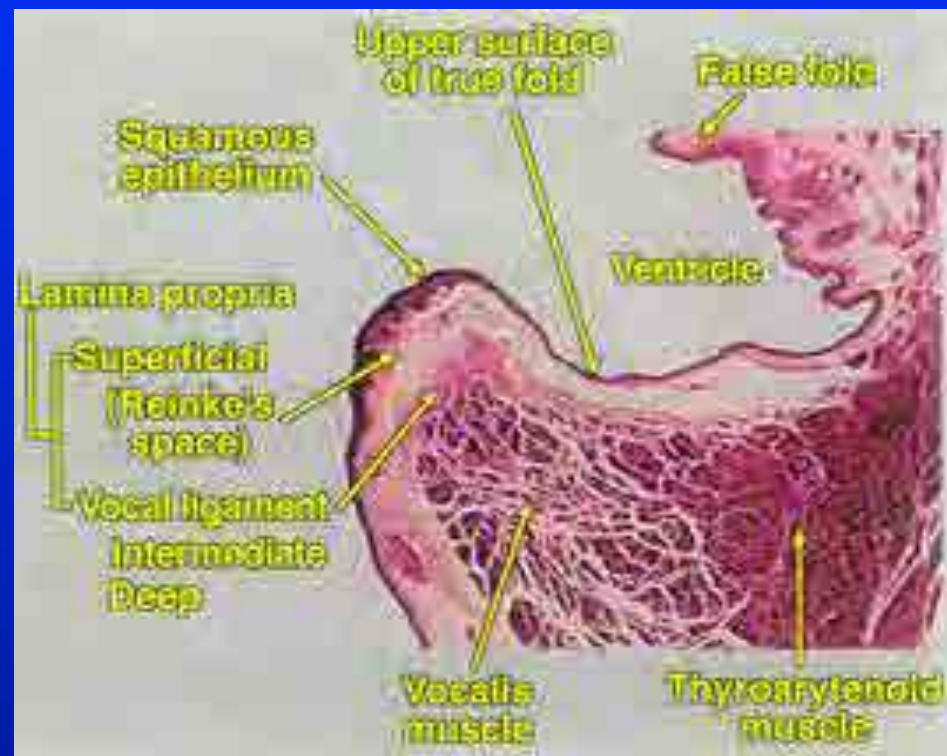
Voice Disorders



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MUCOSA

Epithelium

Lamina Propria

Superficial
(Reinke's space)

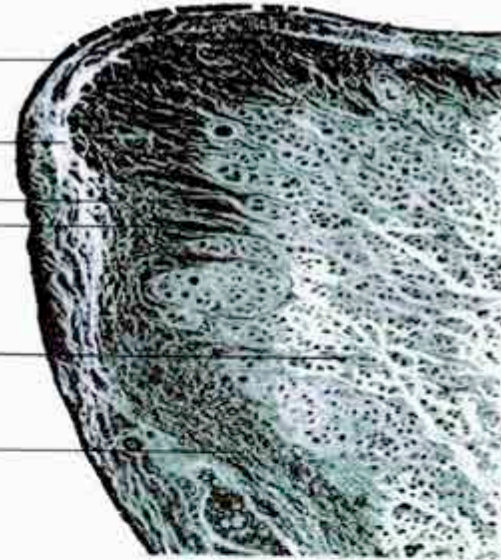
Intermediate

Deep

VOCALIS MUSCLE

Conus Elasticus

A



MUCOSA

Epithelium

Lamina Propria

Superficial
(Reinke's space)

Intermediate

Deep

Cover

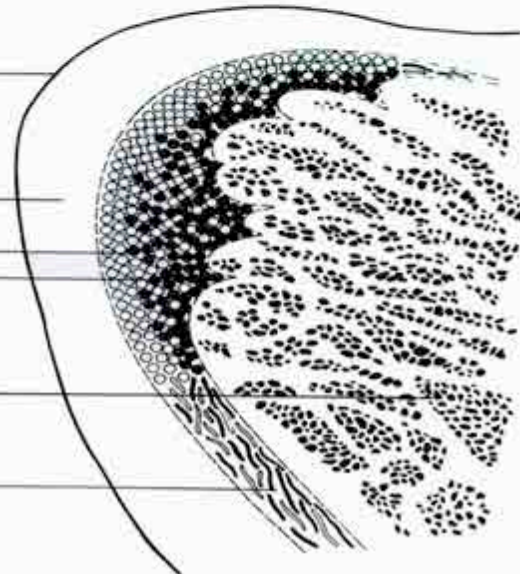
Transition

Body

VOCALIS MUSCLE

Conus Elasticus

B



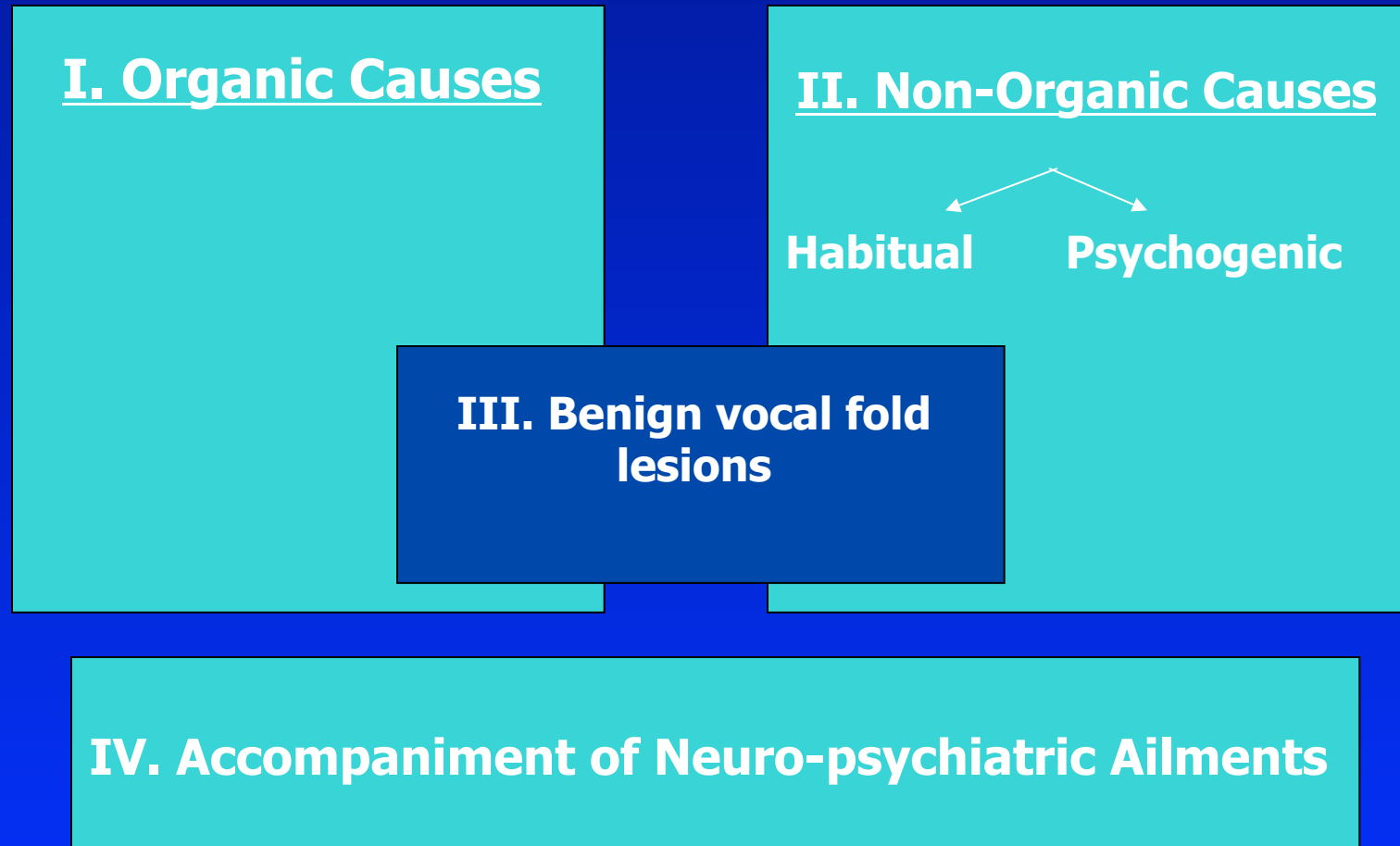
Prerequisites of “normal” voice production:

- 1. Normal range of movement of vocal folds.**
- 2. Normal mobility of mucosa on deep layers.**
- 3. Optimal coaptation of vocal folds’ edges.**
- 4. Optimal motor force.**
- 5. Optimal pulmonary support.**
- 6. Optimal timing between vocal fold closure and pulmonary exhalation.**
- 7. Optimal tuning of vocal fold musculature (int. & ext.).**

Definition of dysphonia:

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

Etiological classification of dysphonia:



III. Voice disorders:

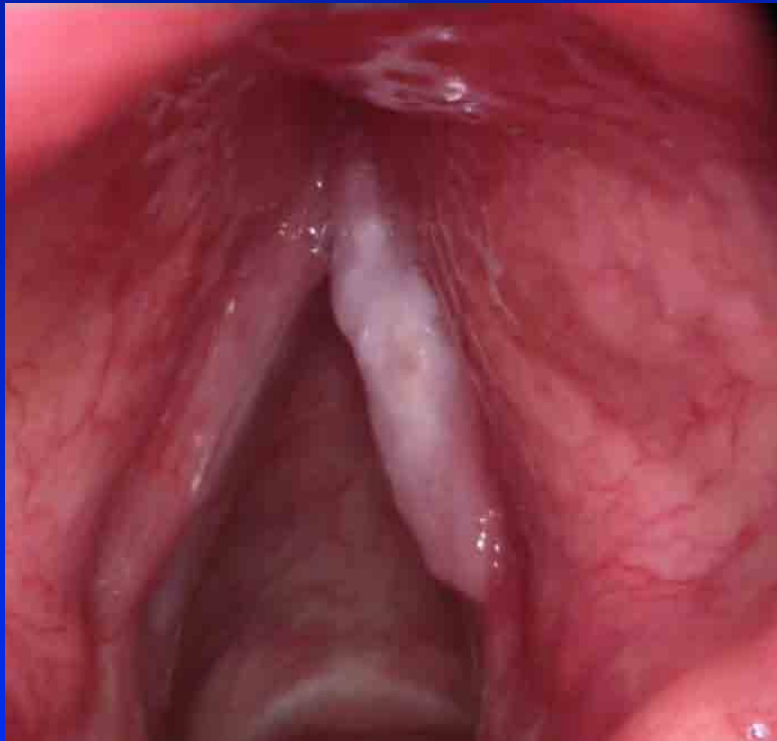
A) Organic voice disorders:

- . Congenital.**
- . Inflammatory.**
- . Traumatic.**
- . Neurological.**
- . Neoplastic.**
- . Hormonal.**
- . Status post-laryngectomy.**

Sulcus vocalis



Laryngeal carcinoma



Respiration



Phonation

Left vocal fold paralysis



Respiration



Phonation

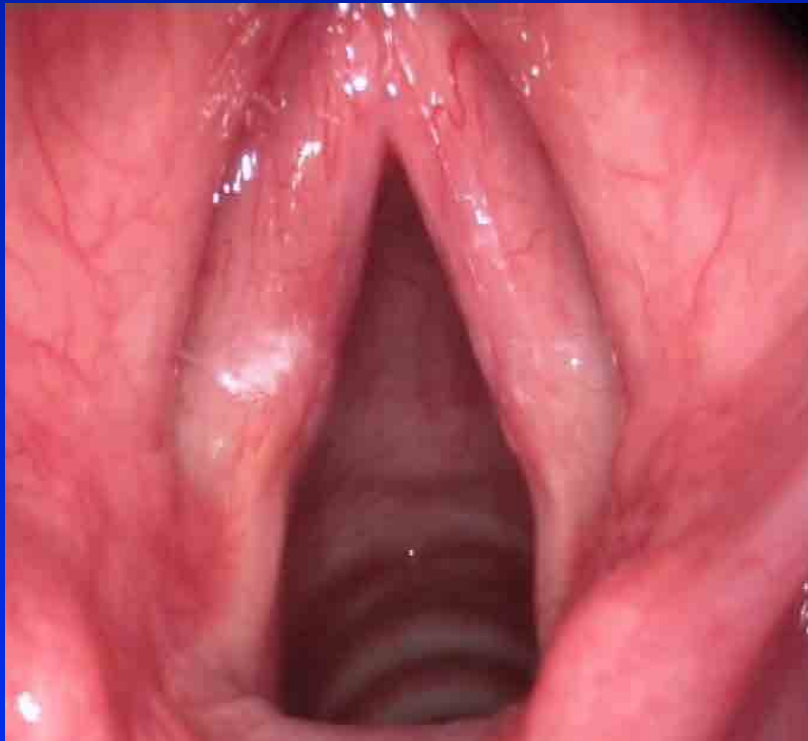
III. Voice disorders:

B) Non-organic voice disorders:

i. Habitual:

- 1. Hyperfunctional childhood dysphonia.**
- 2. Incomplete mutation.**
- 3. Phonasthenia (Voice fatigue).**
- 4. Hyperfunctional dysphonia.**
- 5. Hypofunctional dysphonia.**
- 6. Ventricular dysphonia.**

Hyperfunctional dysphonia



Respiration



Phonation

Phonasthenia



Respiration



Phonation

B) Non-organic voice disorders (cont.):

ii. Psychogenic:

1- Psychogenic dysphonia.

2- Psychogenic aphonia.

III. Voice disorders:

C) Benign vocal folds' lesions:

- 1. Vocal fold nodules.**
- 2. Vocal fold polyps.**
- 3. Vocal fold cysts.**
- 4. Reinke's edema.**
- 5. Contact granuloma.**

Vocal Fold Nodules: Adult Type



Respiration



Phonation

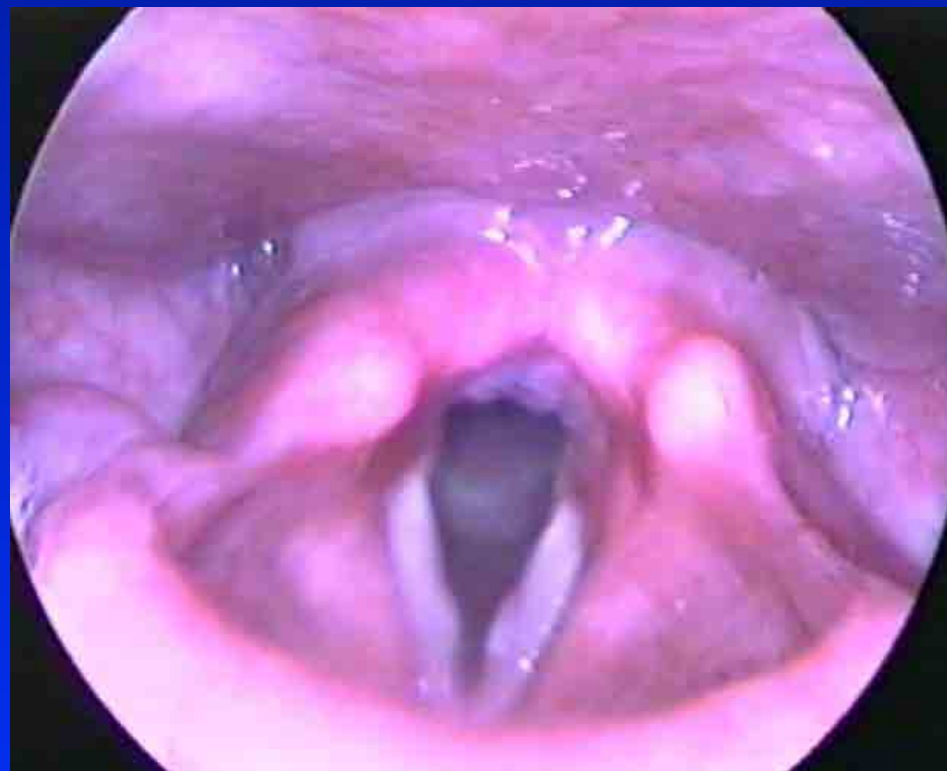
Vocal Fold Nodules: Juvenile Type



Respiration



Phonation



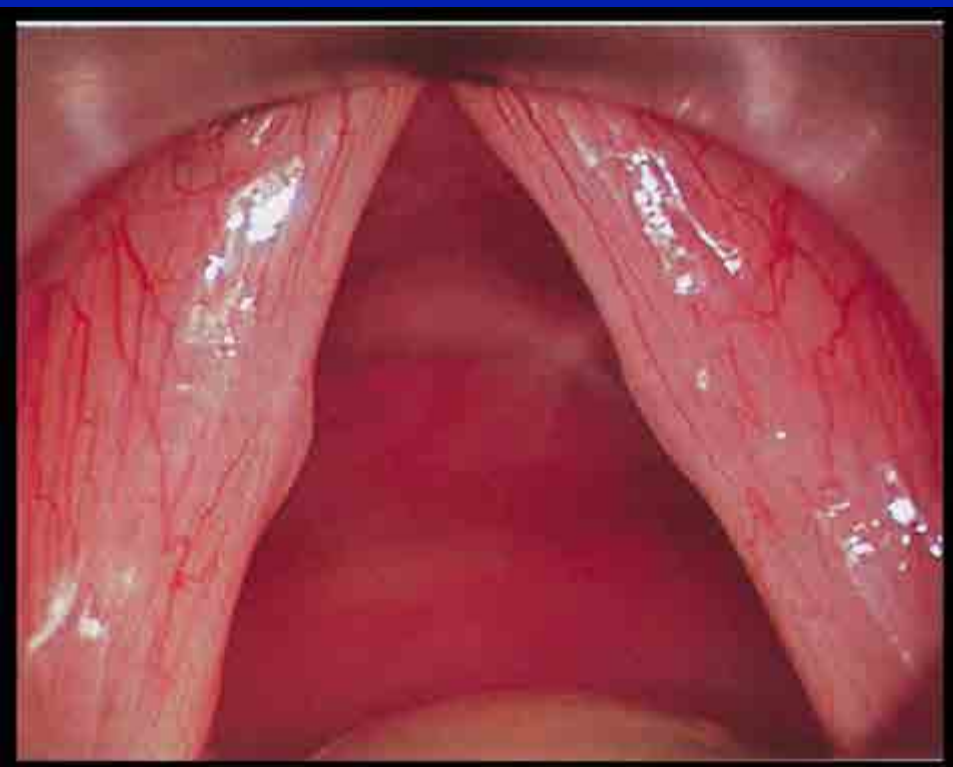


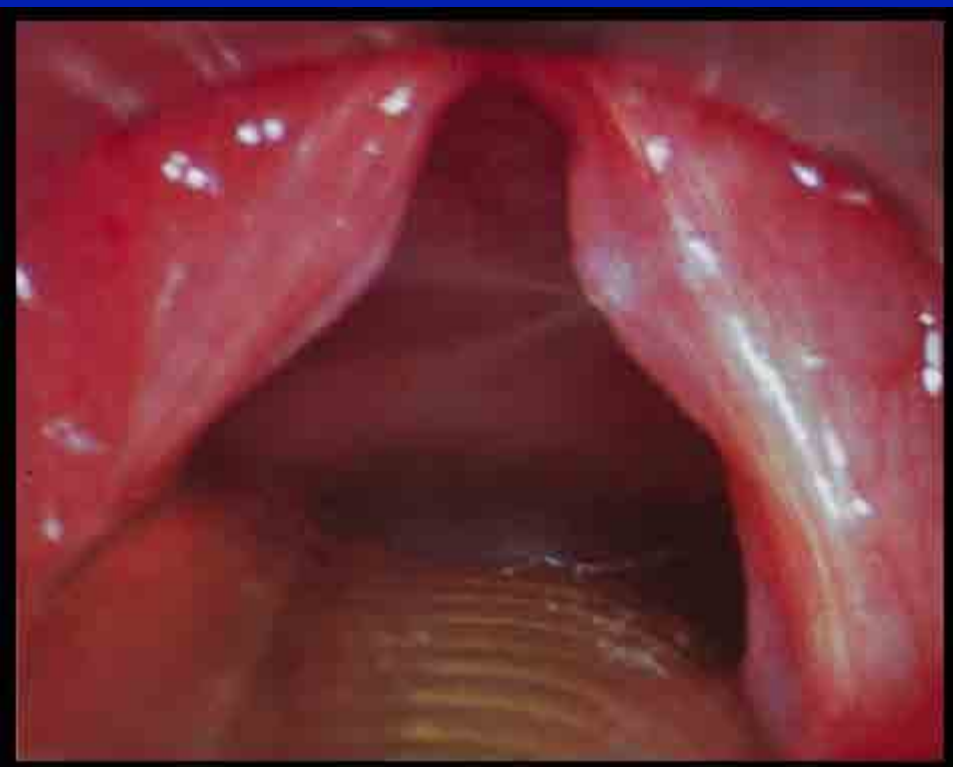












Left Vocal Fold Polyp with a Reaction



Respiration



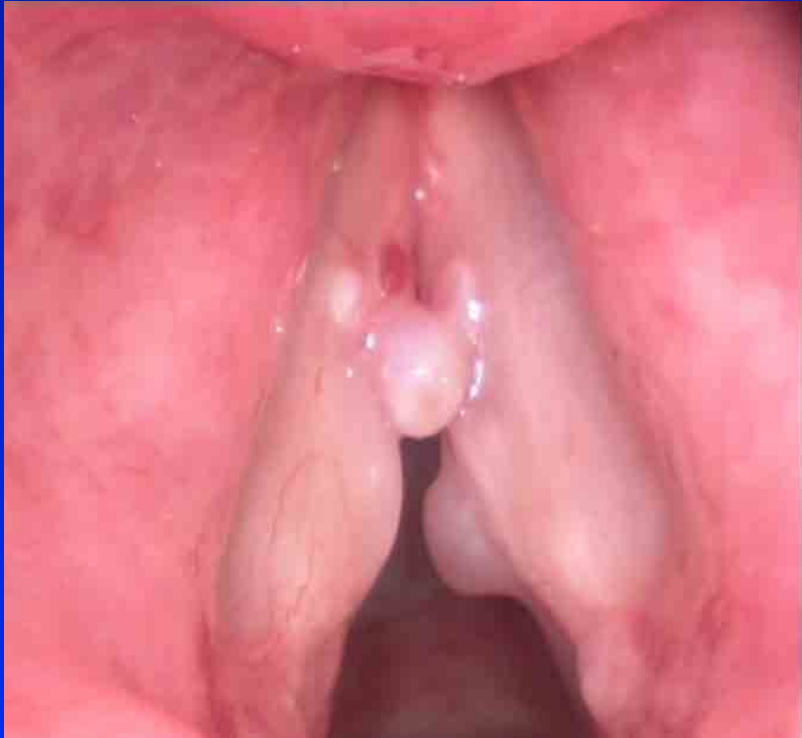
Phonation



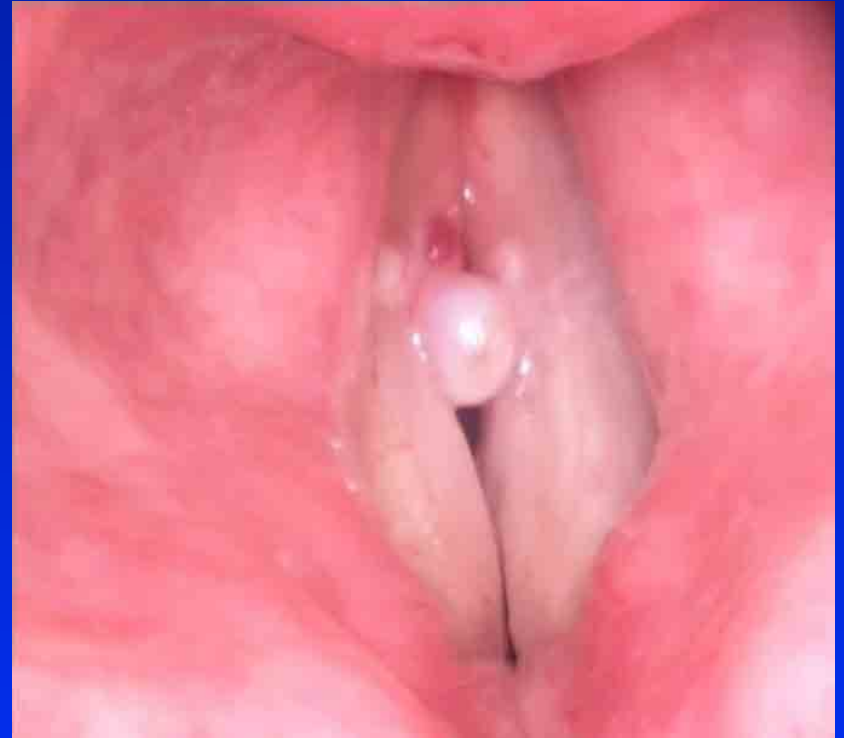
Respiration



Phonation



Respiration



Phonation



Respiration



Phonation











Left Vocal Fold Cyst



Respiration



Phonation









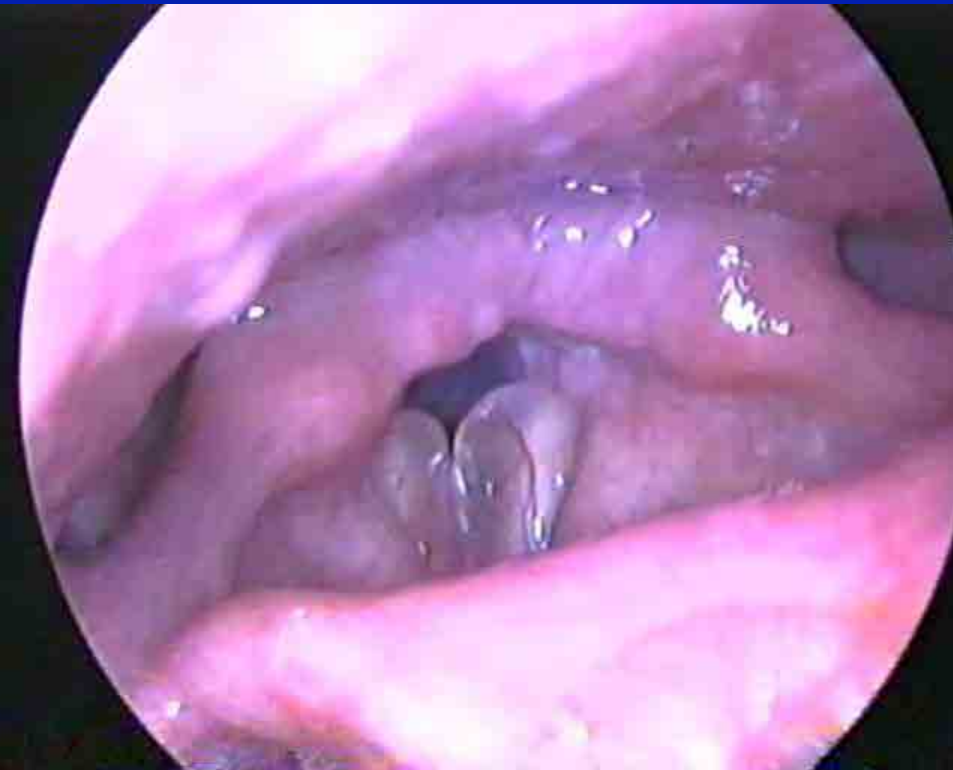
Right-sided Reinke's Edema



Respiration

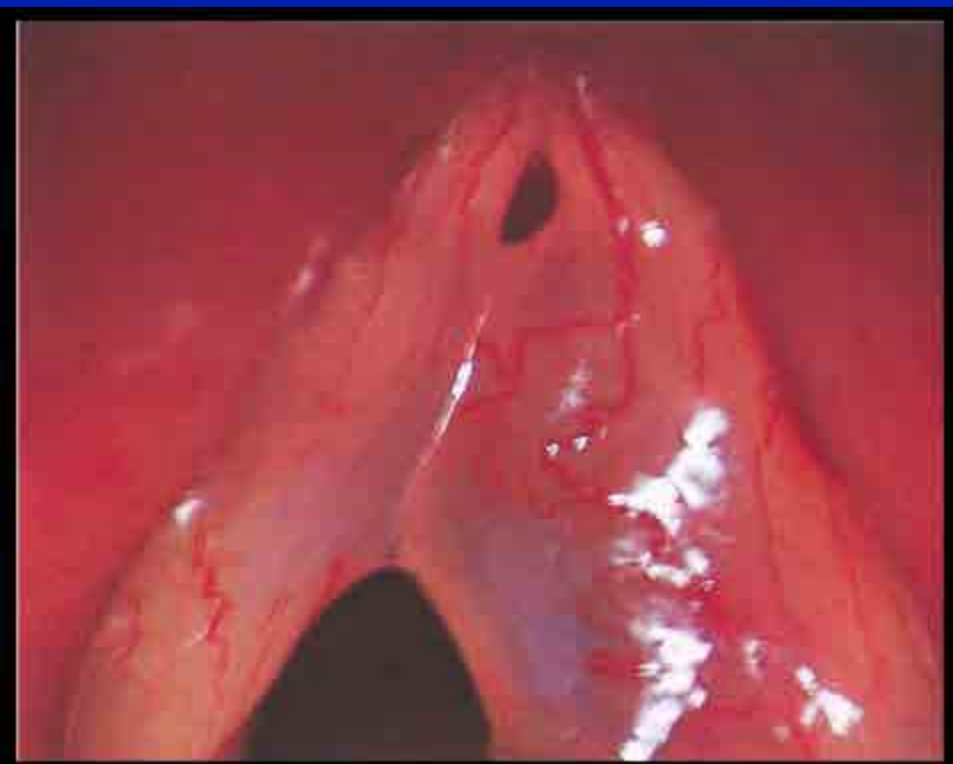


Phonation









Right-sided Contact Granuloma



Respiration



Phonation







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)



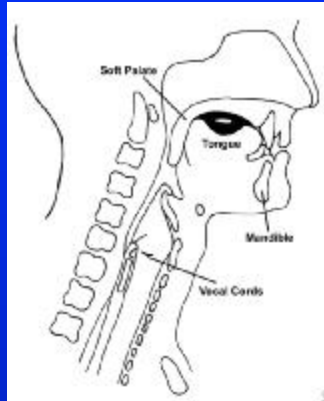
Management of voice disorders:

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

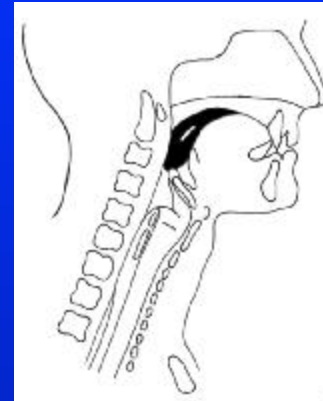
The background is a solid blue color with a subtle, glowing globe in the center. The globe is rendered in a lighter blue and white, showing the outlines of continents and a grid of latitude and longitude lines. The globe has a soft, ethereal glow around it, making it stand out against the darker blue background.

Swallowing Disorders

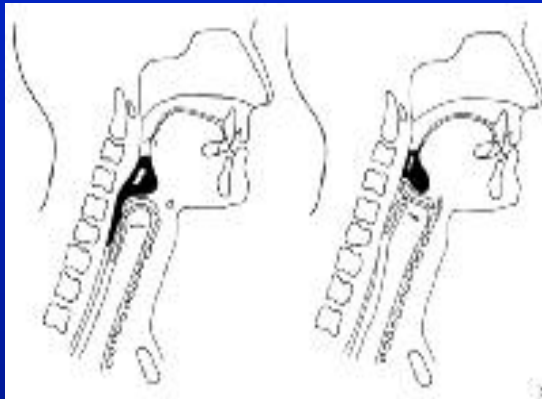
Phases of normal swallowing:



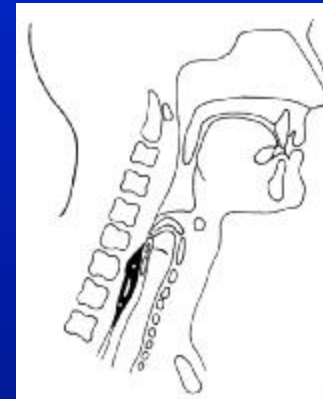
1. Oral preparatory phase



2. Oral propulsive phase



3. Pharyngeal phase



4. Esophageal phase

Definitions

Swallowing: is the successful passage of food and drinks from the mouth to the stomach.

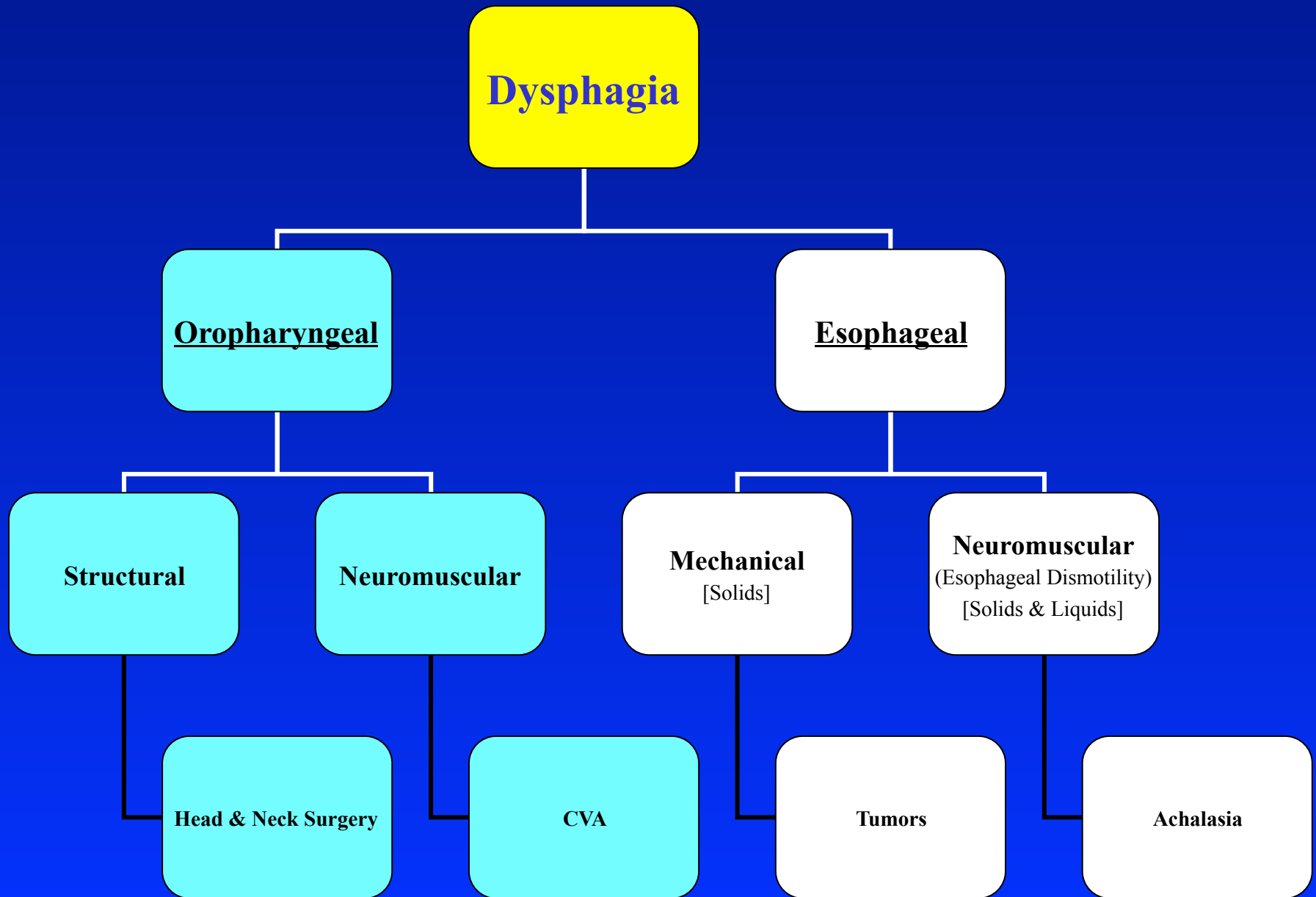
Dysphagia: pain, discomfort and/or difficulty in initiating or completing the act of swallowing.

Consequences of dysphagia:

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



Causes of dysphagia:



Assessment of dysphagia:

I. History taking.

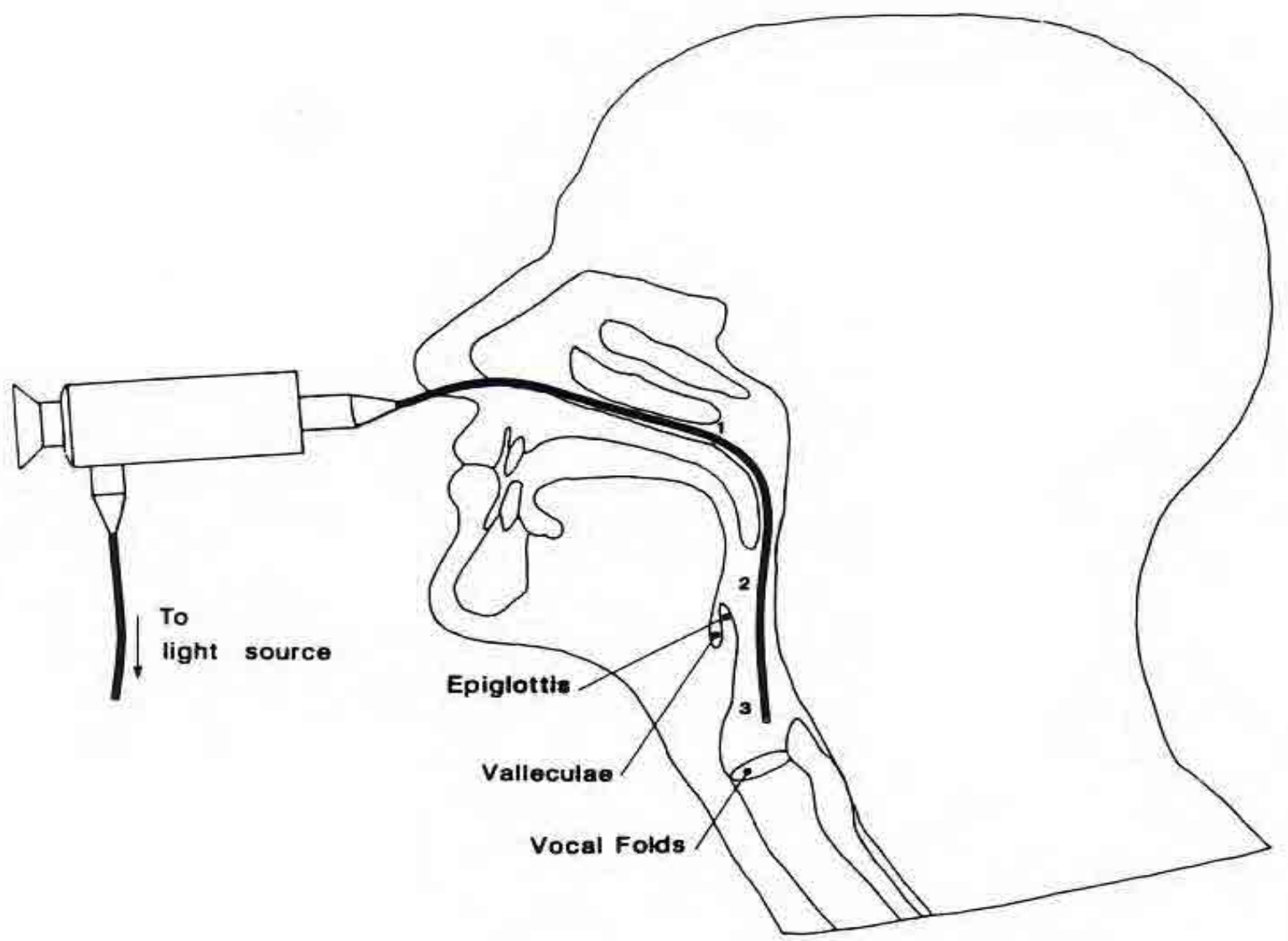
II. Physical examination:

- **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



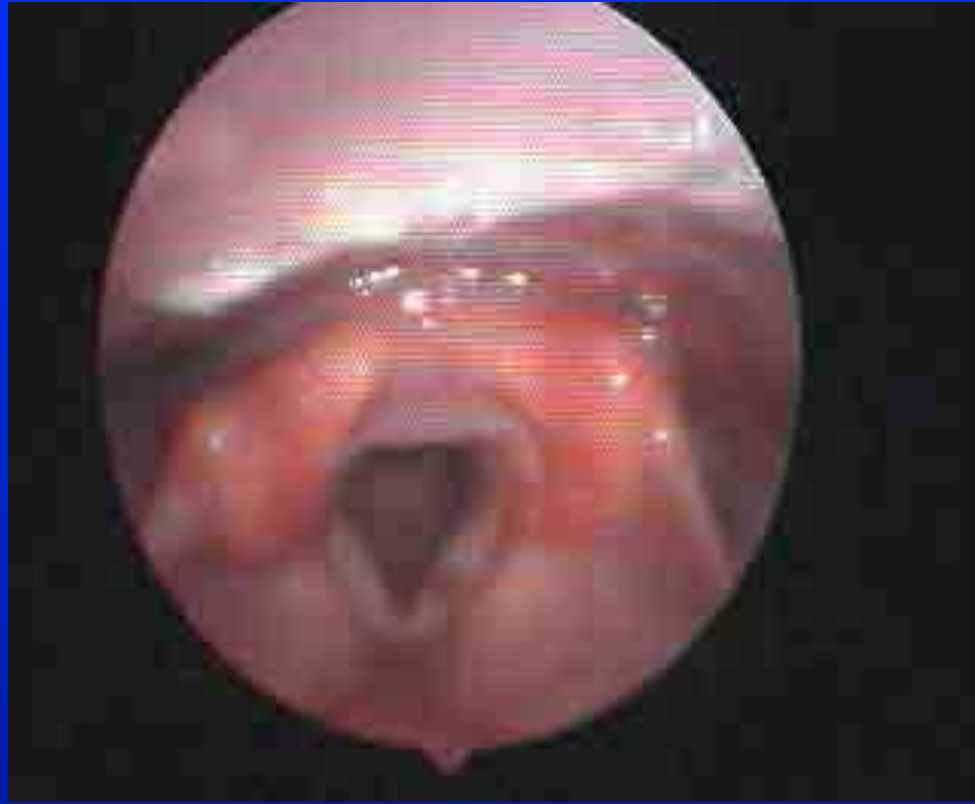
FEES protocol of evaluation (Langmore, 2003):

- I. Anatomic and physiologic assessment.**

- II. Assessment of food and liquid swallowing.**

- III. Assessment of therapeutic interventions.**

FEES Form

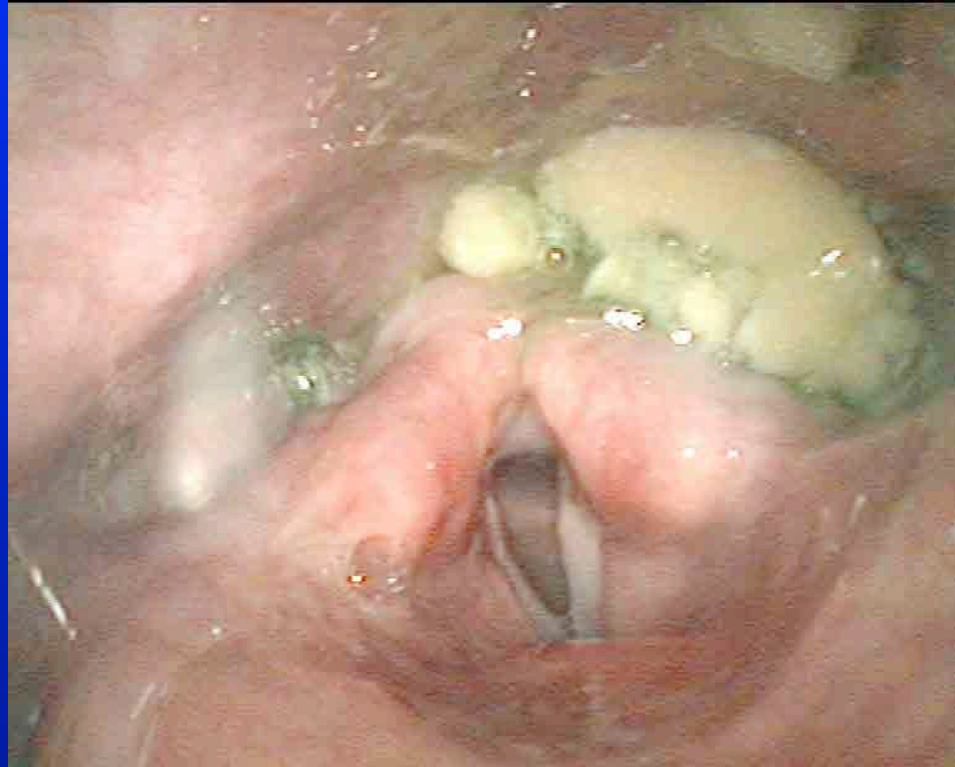


**Talking Pharynx
youtube**

Normal FEES
(Thin fluid dyed blue)



Residue



Residue



Residue



Penetration



Penetration



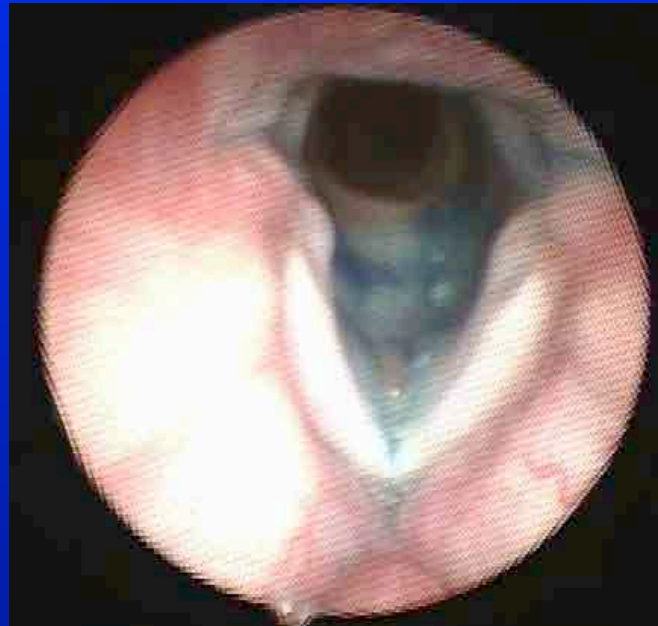
Aspiration



Aspiration



Aspiration



Aspiration



Aspiration



VFES (MBS)



Management of dysphagia:

☀ Oral vs. Nonoral feeding:

Nonoral feeding when:

- a. Aspiration > 10%.
- b. Oral + pharyngeal transit time > 10 sec.

☀ Direct vs. Indirect therapy:

- a. Direct: food or liquid is given to the patient.
- b. Indirect: no food or liquid is given (only saliva).

☀ Compensatory vs. Therapy techniques:

- a. Compensatory: elimination of symptoms but no change in swallowing physiology, such as postural techniques.
- b. Therapy techniques: change of swallowing physiology, such as swallowing maneuvers.

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.**

Communication Disorders

Swallowing Disorders

Voice Disorders

Speech Disorders

Language Disorders

Organic

Non-organic

MAPLs

Stuttering

Cluttering

Misarticulation

Hypernasality

Dysarthria

**DLD
(Children)**

**Dysphasia
(Adults)**



Office Hours

- Sunday: 9-11 am
- Tuesday: 9-11 am

Building 5 level 2 CSDU

A tropical sunset scene with palm trees and the text "Thank you" overlaid. The background features a vibrant orange and red sky over a dark ocean, with the sun low on the horizon. Several palm trees are silhouetted against the sky, their trunks and fronds visible. The text "Thank you" is centered in a large, white, sans-serif font with a subtle drop shadow.

Thank you