

A. Swallowing Disorder

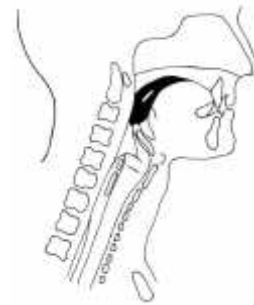
The normal human swallows 2000 to 3000 a day. Including saliva.

Swallowing has four stages normally:

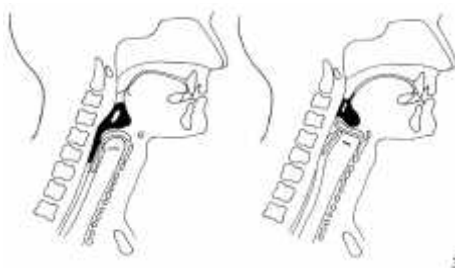
1. Oral preparatory stage: preforming a bolus.
2. Oral propulsive stage, in this stage the bolus is pushed up or back by the base of the tongue.
3. Pharyngeal stage “complicated stage”: last for one second 4 things happen in this stage:
Larynx gets up and then anterior “for protection”, closure of vocal cords, pharynx squeezes, closure of velopharyngeal valve, and then the upper esophageal sphincter open.
4. Esophageal Stage: involuntary stage



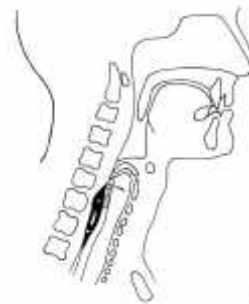
Oral Preparatory stage



Oral propulsive stage



Pharyngeal stage

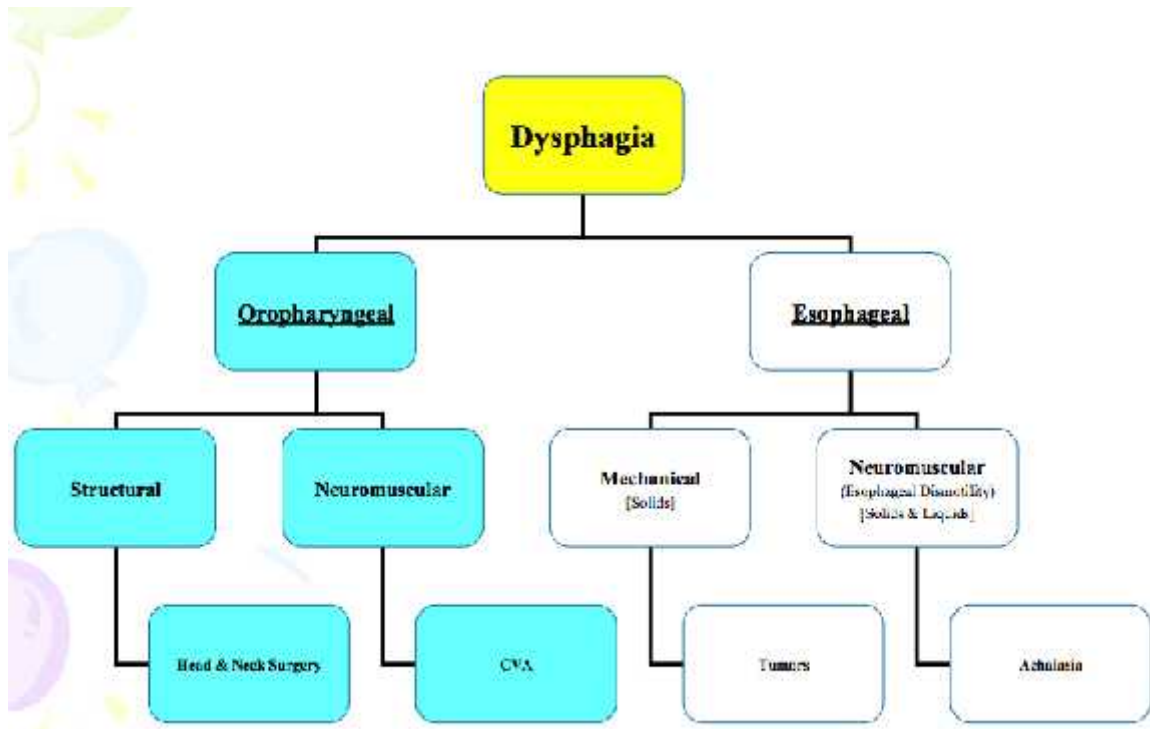


Esophageal stage

Dysphagia:

- “Difficulty in moving food from the mouth to the stomach”.
- “Odynophagia” = painful swallowing due to a disorder of the esophagus
- **Consequence of Dysphagia →**
 - Dehydration may occur
 - Weight loss

- Aspiration pneumonia “fatal especially in old people”,
- Airway obstruction,
- Loss of joy of eating “some patients can’t eat through mouth e.g. tube”.



- **Diagnosis of dysphagia:**
 - History taking.
 - Physical examination:
 - ✓ General examination.
 - ✓ Language and Speech assessment.
 - ✓ Vocal tract examination.
 - ✓ Neck examination.
 - ✓ Trail feeding.
 - Investigations:
 - FEES “Fiberoptic Endoscopic Evaluation of Swallowing”:
 - ✓ They get the patient something to eat or drink during the procedure,
 - ✓ We should put with the drink a dye “so we are able to see” in the fluid we give different consistency
 - ✓ During endoscopy give him something to eat
 - ✓ The fiberoptic is important
 - ✓ During propagation of the fiberoptic tip:
 - 1st stage the tip arrive to the velopharyngeal valve to evaluate the whole area and the voice

*Normally in the laryngeal rim nothing is allowed to enter

- **FEES protocol of evaluation:**
 - I. Anatomic and physiologic assessment
 - II. Assessment of food and liquid swallowing
 - III. Assessment of therapeutic interventions.
- VFES (MBS) “Modified Barium Swallow”:
 - ✓ Done in the radiology department
 - ✓ X-ray is needed
 - ✓ 2 views: Lateral, and PA
 - ✓ The barium is in different consistency: thin, soft, pure, and solid.
 - ✓ Normally: the bolus will go into the esophagus
 - ✓ Abnormal: the bolus will go into the trachea
- GERD (LPR) work-up

- **Penetration:** close to the airway but above the level of vocal cords “ we call it penetration if it’s above the vocal folds

- **Aspiration:** when it’s below the vocal folds “more severe”, and most severe form is the **silent aspiration:** the vocal folds can’t close and the patient can’t cough “ the patient is not feeling anything” can be fatal.

*The most common patient with problem in swallowing is the Head Trauma patients and the CVA “cerebrovascular injury”.

- **Management of Dysphagia:**
 - Oral vs. Non-oral feeding:
 - ✓ Non-oral feeding when:
 - a. Aspiration > 10%.
 - b. Oral + pharyngeal transit time > 10 sec.
 - Direct vs. Indirect therapy:
 - ✓ Direct: food or liquid is given to the patient.
 - ✓ Indirect: no food or liquid is given (only saliva).
 - Compensatory vs. Therapy techniques:
 - ✓ Compensatory: elimination of symptoms but no change in swallowing physiology, such as postural techniques.
 - ✓ Therapy techniques: change of swallowing physiology, such as swallowing maneuvers.
 - Swallowing Therapy
 1. Diet Modification:
 - Vocal cord paralysis → the patient cannot close the vocal cords during swallowing, in this case fluids are more dangerous than

solids “ cause fluids are faster” and the patient is slow and weak, patients have to put with fluids a thickener.

2. Postural Technique:

Vocal paralysis of the right side → during swallowing the patient have to turn his/her head to the right, “ the head turning to the damage side (but its not a rule some patient can rule the head to the opposite side)

*The Endoscopy in the FEES may take one hour to try the maneuver and discuss and assess

3. Swallowing maneuver

- When you cough you has a problem in the airway, so you turn the head down
- Supraglottic swallow:
First, take a deep breath. Hold it as you swallow, and then cough to clear any residues of saliva or food “ends his swallow by a cough to protect the airway”, which might have gone down past your vocal cords.

4. Sensory innervation:

The patient can't feel, so we give the patient something cold like ice.

5. Motor exercise

- Surgery to reduce the gab e.g. medicalization, and laryngoplasty
- Medication e.g. anti-parkinsonism
- Prosthesis
- Patient with stroke “cant swallow”: we give him a
 - ✓ **NG tube**: the ideal time to keep the NG tube for several weeks but some patient refuse the alternative, which is:
 - ✓ **PEG** “Percutaneous endoscopic gastrostomy”: for prolong feeding, in very severe cases or prolong stroke patients.

B. Speech Disorders

Problem in the letter

1. Misarticulation “Dyslalia”:

- Normal language
- Child can understand.
- Can make good sentences.
- But he has a problem with one or two letters.
- **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-non-voiced dyslalia:
 - /g/ /k/
 - /d/ /t/
 - /z/ /s/ etc.
- **Types of Misarticulation:**
 - History taking.
 - Physical examination
 - Investigations:
 - ✓ Audio recording.
 - ✓ Articulation test.
 - ✓ Psychometry (IQ).
 - ✓ Audiometry
- **Treatment:**
 - Nonorganic by speech therapy:
 - Where we educate the child about his/her problem and tell him/her where to put his tongue in the right place.
 - Surgical intervention may be a solution:
 - In tongue tie (frenulum nerve will be short so the tongue cant be raised up effect the letter ر & ل) but not all tongue tie need operation some can be managed, so in the surgical intervention we cut the frenulum nerve.
- Normally the children can have problem in speech until they reach 7-8 years (س & ش problem will resolve earlier than other).

2. Stuttering:

- Fluency problem
- **Three main things:**
 - Repetition: repeating the 1st letter in the 1st sentence or in severe cases in the 1st letter of each sentence.
 - Prolongation: prolong the 1st letter
 - Block: more difficult, it causes distressing
 - It can occur separate or together.
- Don't help the patient when he is speaking!
- Incidence of stuttering: 1%.
- The onset usually:
 - Before 13 of age and
 - Below 6 or 5 years old "its start in 18 month according to the slides"
- The cause of stuttering is not psychological but can cause a psychological problem,
- The cause is unknown but it may be organic.
- **Epidemiology:**
 - Family history is associated
 - Can occur in mental retarded.
 - Very rare in hearing impaired
- **Diagnosis of stuttering:**
 - History taking.
 - Physical examination: APA, VPA, ...
 - Investigations:
 - ✓ Audio and video recording.
 - ✓ Stuttering severity (e.g. SSI).
 - ✓ Articulation test.
 - ✓ Psychometry (IQ).
- **Auditory Perceptual Analysis (APA):**
 - Core behaviors:
 - ✓ Intrapophonemic disruption.
 - ✓ Repetitions.
 - ✓ Prolongations.
 - ✓ Blocks.
 - Secondary reactions:
 - ✓ Muscular activity and struggle.
 - ✓ Interjection.
 - ✓ Word substitutions and circumlocution.
 - Concomitant reactions:
 - ✓ Fear.
 - ✓ Breathing (antagonism, interruption, prolongation, cessation).

- ✓ Eye contact.
- ✓ Skin pallor/flushing.
- **Treatment:**
 - Family Counseling
 - Speech therapy:
 - ✓ Weekly.
 - ✓ Training the patient in how to ease the onset.
 - ✓ Direct: if the patient aware
 - ✓ Indirect: if the patient not aware.
- **Normal dysfluency:**
 - Less than 6 years.
 - Only repetitions. Repeating the words. “ Not the letters”
 - - No associated muscular activity.
 - Not aware.

3. Cluttering:

Rapid speaking that affect understanding

4. Nasality:

Have 3 types:

a) **Hypernasality:**

- Velopharyngeal incompetence,
- The Velopharyngeal valve is not closed always open which -called nasal contamination,
- In normal person the Velopharyngeal valve is closed during speaking except when saying “mmm” and “nnn”)
- The Velopharyngeal valve consists of (hard palate, soft palate and posterior pharyngeal wall).

Causes of Hypernasality:

- I. Organic:
 - 1. Structural:
 - a) Congenital:
 - ✓ Overt cleft palate.
 - ✓ - Submucous cleft palate.
 - ✓ Non-cleft causes:
 - Congenital short palate.
 - Congenital deep pharynx.
- *The most common cause is cleft palate

b) Acquired:

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

2. Neurogenic:

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

II. Non-organic (Functional):

- Faulty speech habits.
- Mental retardation.
- Neurosis or hysteria.
- Hearing impairment. "It's occur because there is no feedback"
- 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.

Diagnosis of Hypernasality:

- History taking.
- Physical examination:
 - ✓ . Gutzman's (a/i) test. "May help but its not enough"
 - ✓ . Czermak's (cold mirror) test.
- 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

- b) **Hyponasality:** closed nasality
- c) **Mixed**

5. **Dysarthria:**

- The articulates are paralyzed
- **Dysarthria has 5 levels:**
 - I. Breathing
 - II. Prosody
 - III. Articulation
 - IV. Nasality
 - V. Phonation
- Monotones speaking

Types of dysarthria: *Note the doctor didn't take about the types*

1. Flaccid dysarthria:

- Lesion: lower motor neuron level.
- Communication:
 - ✓ Breathly phonation.
 - ✓ Hypernasality.

2. Spasticdysarthria:

- Lesion: upper motor neuron level.
- Communication:
 - ✓ Strained strangled phonation.
 - ✓ Labored breathing.

3. Ataxic dysarthria:

- Lesion: cerebellum level.
- Communication:
 - ✓ increased equal stresses.
 - ✓ * irregular articulatory breakdown.

4. Dyskinetic dysarthria:

- Lesion: basal ganglia level.

A. Hypokinetic type (Parkinsonism):

- ✓ breathly phonation.
- ✓ rapid rate.

- ✓ short rushes of speech with final decay.

B. Hyperkinetic type:

- Quick hyperkinetic (Chorea):
 - ✓ Variable rate and loudness.
- Slow hyperkinetic (Athetosis):
 - ✓ Slow rate.

5. Mixed dysarthria:

- The most common.
- Examples:
 - ✓ Motor neuron diseaseFlaccid + Spastic.
 - ✓ Multiple sclerosis Ataxic + Spastic.
 - ✓ Wilson's disease Ataxic + Spastic +Hypokinetic.

• **Diagnosis of dysarthria:**

- History taking.
- Physical examination
- 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

C. Language Disorders

1. Delay Language Development (DLD):

If the child didn't develop any word or sentence from 2 words by 2 years of age the parents should bring him to the clinic

Age	Language Level
3-11 months	Babbling
1 year	1 st Word
18 months – 2 years	1 st Sentence

- **Causes:**

- a) Brain damage:

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

- b) B) Sensory deprivation:

- ✓ Hearing impairment.

- c) Psychiatric disorders:

- ✓ Autism.
- ✓ Childhood schizophrenia.

- d) Non-stimulating environment.

- e) Idiopathic

- **Diagnosis of the Cause of DLD:**

- History taking.
- Physical examination.
- Investigations:
 - ✓ Psychometry(IQ).
 - ✓ Audiometry.

- **Management of DLD:**

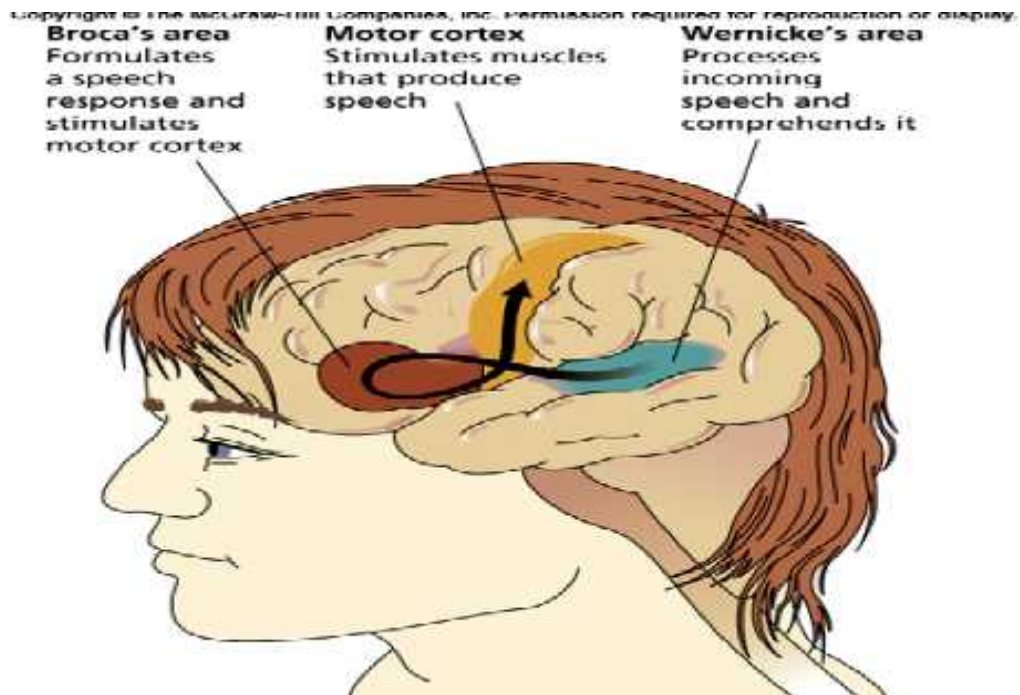
- **Early detection is very important.**
- Providing the suitable aid (HA or CI). In Bilateral Sensory hearing loss “sever”: hearing aid is better than cochlear implantation in children
- Family counseling: how to talk with the child
- Language therapy.

2. Dysphasia:

Losing normal language in adult due to (CVA), tumors, and smoking

- **Types:**

- Expressive: can understand but unable say it
- Receptive: inability to understand language correctly
- Mixed predominantly expressive
- Mixed predominantly receptive
- Global



- **Diagnosis of Dysphasia:**

- History talking
- Examination
- Investigation:
 - ✓ CT/MRI brain
 - ✓ Dysphasia test
 - ✓ Psychometry (IQ)
 - ✓ Audiometry

- **Treatment:**

- Language therapy.
- Treat the cause.
- Family counseling: don't leave the patient alone.
- Physical rehabilitation (Physiotherapy).
- Alternative and augmentative communication.

*Anarthric: loss of motor ability that enables speech