Feeding disorders in infants in children
Feeding problems

- Behavioral
  - bonding
  - issues of control
  - poor parenting skills
  - severe illnesses

- Organic
  - former premature infants
  - complicated postnatal course
  - neurological problems

COMBINED FORMS
Problems affecting feeding

- Oromotor skills:
  - Tongue (thrusting)
  - lips (poor seal)
  - cheeks (poor strength)
  - jaw (prolonged/exaggerated bite reflex)

- Sensory component:
  - tactile hyper/hyposensitivity
  - increased/decreased gag reflex
Problems affecting feeding

- Mechanical problems:
  - tracheostomy (limited pharyngeal elevation)
  - craniofacial dysmorphism
  - Gastroesophageal reflux
Problems affecting feeding

- Uncoordinated suck/swallow/breathe pattern:
  - immaturity
  - underlying neurological and/or medical problems:
    - cerebral palsy
    - increased endocranial pressure
    - bronchopulmonary dysplasia
    - cardiac disease
Indications for consultation

- choking
- coughing
- brady/tachycardia
- apnea during feeds
- audible respiration
- wet gurgly vocal quality
- asthma

- Excessive drooling/poor handling secretions
- Frequent emesis +/- nasal regurgitation
- Recurrent:
  - nasal congestion
  - pneumonia
Indications for consultation

- Failure to thrive
- Feeding longer than 30 minutes
- Unusual parental behaviors:
  - child eats for some adults and not for others
  - parents keep detailed records of intake
  - inappropriate concerns (i.e., normal growth)
  - h/o forceful feeding
  - very disorganized visit (child uncontrollable)
Triggering Factors

- Parent/physician perceives that the child is not:
  - Growing appropriately
  - Eating sufficiently
  - Unwilling to transition to solids

- Organic causes may or may not be identified:
  - GER usually mild, without much emesis
  - Congenital abnormalities
  - Neonatal illness
Triggering Factors

- Inappropriate caretaker behavior towards infant or food leading to obsessive feeding/timing
  - Anxiety, Depression
  - Family instability
  - Socioeconomic instability

- Unpleasant events associated to feeding:
  - NG tube
  - Force feeding
  - OT intubation
When to evaluate children with neurodevelopmental disabilities:

- Caretakers report behavioral changes which may be too subtle to be detected by health-care providers not familiar with the child

- Child experiences:
  - weight loss
  - loss of acquired feeding skills
  - frequent episodes of coughing, choking, or recurrent pneumonia
Steps in the evaluation: Clinical

- Non-nutritive skills include:
  - examination of the oral musculature & reflexes,
  - posture control and
  - respiration.

- Nutritive skills
  - Breast/bottlefeeding
  - Cup-drinking
  - Spoon feeding
Evaluation by the Occupational Therapist

- Oromotor evaluation and clinical feeding assessment can provide valuable information regarding the oromotor skills and the oral phase of swallowing.

- May fail to identify disorders in the pharyngeal and esophageal phases of swallowing and/or aspiration, which may be detected with a videofluoroscopic study.
Effect of muscle tone on feeding problems: hypertonicity

- Retracted lower jaw
- Tongue thrusting
- Extended neck and trunk and
- Retracted arms with legs in extension.

The tongue, jaw, lips, and oral musculature need a point of stability to function, provided by the chin-tuck position, in which the neck is slightly flexed.
Effect of muscle tone on feeding problems: hypotonicity

- Weak oral musculature: poor anterior lip seal, liquid or food escapes from the mouth.
- Develops abnormal patterns to create a point of stability: fixing the tongue against the hard palate (this prevents the child from spontaneously opening the mouth to receive either the nipple or a spoon).
- Disorganization: suck/swallow/breathe.
Steps in the evaluation: Indications for videofluoroscopy

- Absolute:
  - Recurrent pneumonia
  - Nasal regurgitation after the age of 3 months

- Relative:
  - Recurrence of the following with feeds:
    - Coughing
    - Choking
    - Apnea
    - Cyanosis
  - Persistent hoarseness
  - Nasal congestion despite therapy

Consider it in slow feeders with a history of other relative indications.
Abnormal findings in a Swallow Function Study (1)

- Reduced tongue movement
- Retracted tongue
- Reduced palatal movement +/- N-P reflux
- Laryngeal penetration
- Tracheal aspiration
Abnormal findings in a Swallow Function Study (2)

- Cricopharyngeal dysfunction
- Delayed initiation of swallowing reflex (pooling in valleculae/pyriform sinuses)
- Pharyngeal residue
Figure 2. Schematic lateral view of the infant upper aerodigestive tract. Structures of the oral cavity and pharynx can be seen, as well as the laryngeal inlet, trachea, and esophagus.

Figure 3. Schematic lateral view of the adult upper aerodigestive tract, demonstrating anatomical limitations of nasopharynx, oropharynx, and hypopharynx.

Findings in swallow function studies

- Griggs et al., (Dev Med Child Neurol 1989;31:303).
  - 70% CP aspirated, 60% "silent" aspiration.

- Rogers (Dysphagia 1994;9:69). n= 90 CP.
  - 100% abn. oral & pharyngeal phases,
  - 97% delayed initiation swallow reflex, &
  - 58% pharyngeal residue after swallow.
  - Of 38% who aspirated, 97% "silent" aspiration. Liquids most commonly aspirated consistency.
Other diagnostic tests

- Bronchoscopy: lipid laden macrophages in bronchial washings and/or chronic bronchial inflammation. (Nussbaum et al. J Pediatr, 1987; 110:190)
- ENT: nasolaryngoscopy while the patient swallows a colored liquid.
- Recurrent otitis media and/or hoarseness
- GER? Esophagitis. OCRG. pH probe
Intervention (1)

- Manipulation of posture and positioning to elicit more normal tonal patterns
- Provision of oral exercises to improve oral motor skills
- Prescription of adaptive aids and/or
- Education regarding developmentally appropriate eating behaviors and patterns.
Intervention (2)

- Occupational therapists utilize techniques such as neurodevelopmental therapy, positioning, sensory integration, and joint mobilization to normalize muscle tone as much as possible.

- Evaluation of physical and emotional eating environment: appropriate seating and eating surfaces.
Supplemental Feedings

- Nasogastric tube

- Gastrostomy: many parents reluctant to accept it: pros & cons clearly explained

- Fundoplication: pros & cons.
Psychosocial

- Family dynamics, expectations,

- Issues of parental competence

- Need to care and provide pleasure to the child