Fibreoptic Endoscopic Evaluation of Swallow (FEES)

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Credit to Speech Language Therapy Service – Rehabilitation Centre, KKH
What is FEES?

• An objective evaluation of the pharyngeal stages of swallowing
What happens during FEES?

• Patient is positioned on caregiver’s lap or on own supporting seating

• Flexible fibreoptic laryngoscope is passed to the hypopharynx through the nose

• Scope rests above the epiglottis

• Patient is given food / drink dyed with blue or green food colouring
Identify the parts:

1. Interarytenoid space
2. Pyriforms
3. Arytenoids
4. True vocal folds
5. Cricopharyngeus
6. Posterior pharyngeal wall
7. Aryepiglottic folds
8. Epiglottis
9. Trachea
Types of patients suitable for FEES

Suitable
- Have poor secretion management
- Suspected vocal cord dysfunction/structural abnormalities
- Concerns about microaspiration

Not suitable
- Agitated or uncooperative patients
- History of coagulopathy or untreated epistaxis
Risks of FEES

• Vasovagal response – fainting, bradycardia
• Epistaxis
• Laryngospasm


Willging & Thompson (2005): No cases of laryngospasm / respiratory distress has been reported in the pediatric population.


What do we observe during FEES?

- Anatomy of laryngeal structures
  - Tongue base, epiglottis, arytenoids
  - Edema
  - Vocal fold function

- Path of the food/liquid bolus
  - Spillage before the swallow
  - Strength of swallow (white out)
  - Any aspiration / penetration
  - Residue
Possible interventions

• Compensatory
  – Diet modification
  – Postural changes
  – Modification of bolus temperature / volume / rate

• Direct therapy
  – Swallow manoeuvres during feeding
    (e.g. supraglottic swallow, super-supraglottic swallow)
Case 1: Normal swallow in anatomically abnormal larynx

- 6 months, Female
- Laryngomalacia with a long tubular epiglottis
- Otherwise normal child
- Caregiver expressed some difficulty with feeding—coughing episodes, takes a long time to feed
- Weight gain is satisfactory
Case 1: Normal swallow in anatomically abnormal larynx
Case 2: Left vocal fold palsy

- 6 months old, female
- Medical history:
  - Tetralogy of Fallot
  - Left vocal cord paralysis
  - Chronic lung disease
  - Gastroesophageal reflux
  - Duodenal atresia s/p repair
  - Pulmonary hypertension
Case 2: Left vocal fold palsy
Case 2: Left vocal fold palsy

• Assessment
  – Mild oropharyngeal dysphagia
  – Ability to protect airway may be impacted by the presence of left vocal cord paralysis
  – Consistent laryngeal penetration of thin fluids
Case 3: Gross Aspiration

• 2 years 9 months Male

• Medical history
  – Teratoma of tongue with wide excision of tongue base
  – Tracheostomy dependent at point of assessment
  – Clinical GERD with gastrostomy tube
  – Posterior cleft palate repair done
Case 3: Gross Aspiration
Case 3: Gross Aspiration

• Assessment
  – Profound oropharyngeal dysphagia
## FEES or VFSS?

<table>
<thead>
<tr>
<th></th>
<th>FEES</th>
<th>VFSS</th>
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</thead>
<tbody>
<tr>
<td><strong>View</strong></td>
<td>Pharyngeal stage only</td>
<td>Oral, pharyngeal and oesophageal stages</td>
</tr>
<tr>
<td></td>
<td>Anterior-Posterior view</td>
<td>Lateral view mainly</td>
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<tr>
<td><strong>Secretion</strong></td>
<td>Able to assess secretion management</td>
<td>Unable to view secretions</td>
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<tr>
<td><strong>Assessment</strong></td>
<td></td>
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<tr>
<td><strong>Vocal Fold</strong></td>
<td>Able to assess</td>
<td>Unable to assess</td>
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<tr>
<td><strong>Positioning</strong></td>
<td>Able to use own seating system</td>
<td>In a specific chair</td>
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<tr>
<td><strong>Radiation</strong></td>
<td>Nil</td>
<td>~0.4mSV per study</td>
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<tr>
<td><strong>exposure</strong></td>
<td></td>
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<tr>
<td><strong>Detection of</strong></td>
<td>Unable to view aspiration during the swallow</td>
<td>Able to view aspiration at any point during the swallow</td>
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<tr>
<td><strong>aspiration</strong></td>
<td>Able to detect small amounts of aspiration</td>
<td>Unable to detect small amounts of aspiration</td>
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FEES or VFSS?

• FEES and VFSS has been shown to have 100% agreement in the pediatric population
  Leder & Karas, 2000

• Use of either depends on clinical question
  Logemann, Rademaker, Pauloski, Ohmae & Kahrilas, 1988


KKH FEES Clinic Details

• FEES Clinic, set up in 2013
• Once a month – 4th Monday of each month
• Venue: ENT Centre Room 10
• Professionals involved:
  – ENT: Dr Annette Ang
  – Dedicated team of Speech Therapists: Maria Socorro Conception, Stacy Tan, Wei Zhi

Patients must be...
• Referred to ENT
• On follow up with SLT
Thank you!