



Fibreoptic Endoscopic Evaluation of Swallow (FEES)

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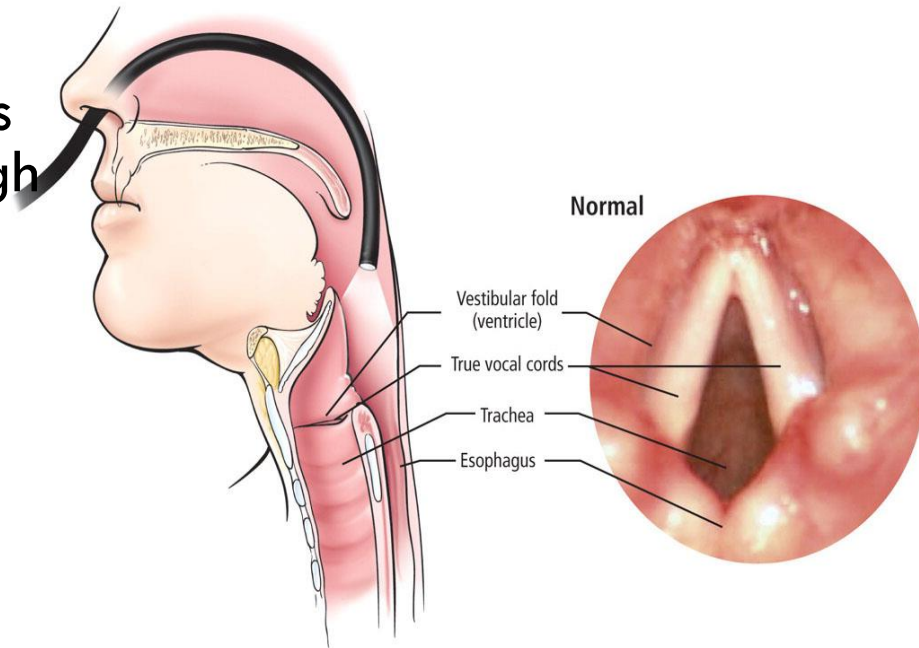
What is FEES?

- An objective evaluation of the pharyngeal stages of swallowing

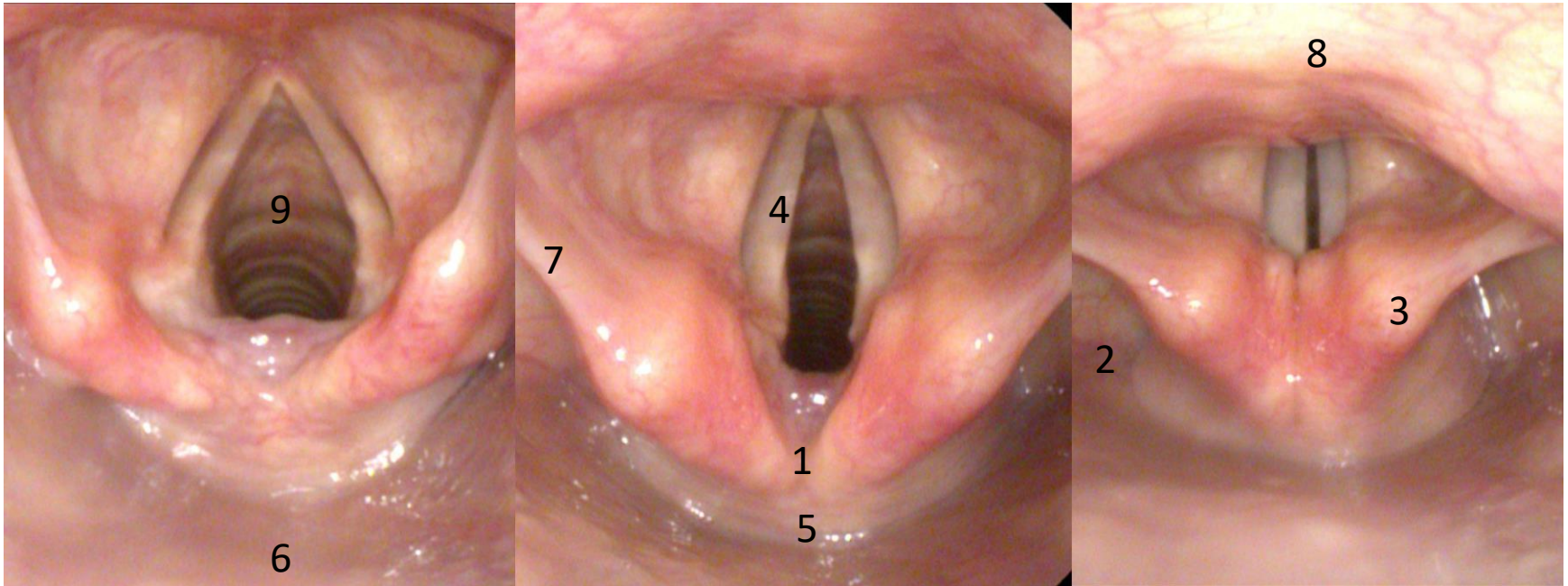


What happens during FEES?

- 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

Aviv, et al. (2000): 3 instances of epistaxis occurred in 498 evaluations in adults. No cases of airway compromise. No significant differences in heart rate in pre and post test measurements.

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

Aviv, J.E., Kaplan, S.T., Thomson, J.E., Spitzer, J., Diamond, B. & Close, L.G. (2000). The safety of flexible endoscopic evaluation of swallowing with sensory testing (FEESST): An analysis of 500 consecutive evaluations. *Dysphagia*, 15(1), 39-44.

Willging, J.P. & Thompson, D.M. (2005). Pediatric FEESST: Fiberoptic endoscopic evaluation of swallowing with sensory testing. *Current Gastroenterology Reports*, 7(3), 240-243.

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?

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

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

Leder, S.B., & Karas, D.E. (2000). Fiberoptic endoscopic evaluation of swallowing in the pediatric population. The Laryngoscope, 110, 1132-1136.

Logemann, J.A., Rademaker, A.W., Pauloski, B.R., Ohmae, Y., Kahrilas, P.J. (1998). Normal swallowing physiology as viewed by videofluoroscopy and videoendoscopy. Folia Phoniatrica Logopaedica, 50, 311-319.

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!