

THE VALUE OF FIBROPTIC ENDOSCOPIC EVALUATION OF SWALLOWING (FEES) IN WEANING A PATIENT WITH A TRACHEOSTOMY

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Background

- Fibreoptic endoscopic evaluation of swallowing (FEES) is an established instrumental assessment tool to evaluate laryngeal and pharyngeal structures related to secretion management and swallowing (Langmore, 2001).
- The various benefits of FEES, have been identified in research findings, including: its ability to visualize aspiration events and pharyngeal secretions (Hiss and Postma 2003).
- Despite its benefits, FEES remains an underutilised tool across the UK and McGowan et.al (2001) found over 40% of SLTs in the UK seldom or never using either FEES or videofluoroscopy with tracheostomised patients.
- The literature gives less emphasis to the role of FEES in informing tracheostomy weaning.
- At St George's Hospital, a 1,000 bedded hospital with specialisms including, neurology, neurosurgery, Head and Neck, trauma and cardiac the use of FEES to aid tracheostomy weaning has been identified.
- This study highlights the value of FEES in progressing tracheostomy weaning with a review of outcomes over 12 months in 2019.

Method

- A retrospective analysis was conducted of all FEES referrals and assessments completed over 12 months across a range of acute SLT services.
- These were recorded on a single spreadsheet that also collated outcome data per patient referral.
- Clinical outcomes were collected for secretion severity rating , penetration aspiration scale, feeding outcomes, alternative feeding and management recommendations.
- An analysis of the data demonstrates trends in activity and impact on clinical decision making.

Results

- 50% of the total number of FEES assessments completed (n=78) in 2019 were patients with a tracheostomy.
- 41% of these tracheostomised patients were still receiving mechanical ventilation at the time of the FEES assessment highlighting the acuity of this patient group (see figure 1) with 59% of these patients being on a critical care unit.
- FEES informed tracheostomy weaning decisions in 59% of these patients (see figure 2 and 3).
- 62% of tracheostomised patients who had a FEES assessment had a secretion severity score of 3 on the Murray Secretion Severity Rating Scale (1996) and subsequently FEES informed pharmaceutical secretion management in 29% of this group.
- 48% of tracheostomised patients who had a FEES assessment had a score of 8 on the Rosenbek (1996) penetration aspiration scale and 18% of patients who were NBM started oral intake following FEES.
- No patients who had commenced oral intake were made NBM following FEES assessment.
- Specific dysphagia therapy plans were enabled following FEES in 48% of patients.
- Referral to ENT following FEES assessment was made in 18% of tracheostomised patients.

Abbreviations:

NBM – Nil by mouth
ENT – Ear Nose and Throat service

PMV – Passy Muir Valve
ICU – intensive care unit

Results

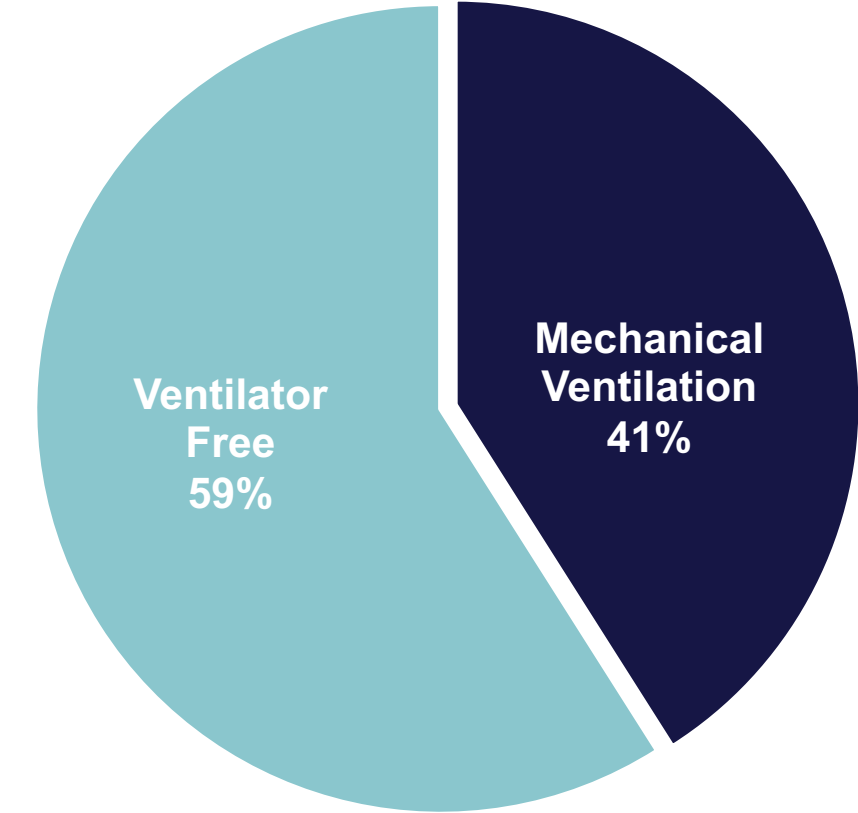


Figure 1- Ventilator status for patients with a tracheostomy at time of FEES assessment



Figure 2- Weaning decisions informed following FEES assessment

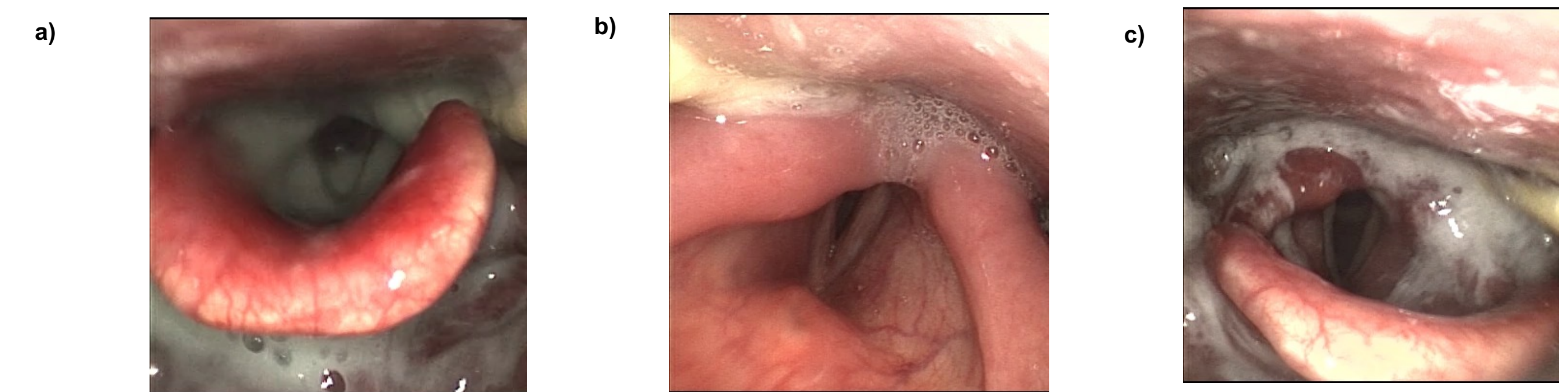


Figure 3: Still images from FEES data set a) creamy secretions within laryngeal vestibule obscuring view of glottis b) supraglottic oedema and reduced abduction of vocal cords bilaterally c) penetration of yoghurt residue

Score	Secretion Severity Rating Scale (Murray 1999)
0	Normal rating: no visible secretions anywhere in the hypo-pharynx, to some transient secretions visible in the valleculae and pyriform sinuses. These secretions are not bilateral or deeply pooled.
1	Any secretions evident upon entry or following a dry swallow in the protective structures surrounding the laryngeal vestibule that are bilaterally represented or deeply pooled. This rating would include cases in which there is a transition in the accumulation of secretions during observation segment.
2	Any secretions that change from "1" rating to a "3" rating during the observation period.
3	Most severe rating. Any secretions seen in the area defined as laryngeal vestibule. Pulmonary secretions are included if they are not cleared by swallowing or coughing by the close of the segment.
Score	8-POINT Aspiration Penetration Scale (Rosenbek et al 1996)
1	Material does not enter the airway
2	Material enters the airway, remains above the vocal folds, and is ejected from the airway
3	Material enters the airway, remains above the vocal folds, and is not ejected from the airway
4	Material enters the airway, contacts the vocal folds, and is ejected from the airway
5	Material enters the airway, contacts the vocal folds, and is not ejected from the airway
6	Material enters the airway, passes below the vocal folds, and is ejected into the larynx or out of the airway
7	Material enters the airway, passes below the vocal folds, and is not ejected from the trachea despite effort
8	Material enters the airway, passes below the vocal folds, and no effort is made to eject

Figure 4: Secretion severity rating scale (Murray 1999) , 8 point penetration aspiration scale (Rosenbek et al 1996)

Conclusions

- This data highlights the value of FEES assessment with patients who have a tracheostomy.
- St Georges Speech and Language Therapists are increasingly recognising this with 1/2 of the total number of FEES assessments in 2019 being with tracheostomised patients.
- FEES assessments with this patient group allowed detailed assessment of oral pharyngeal secretion management and dysphagia which in turn influenced tracheostomy weaning decisions and oral feeding.
- Using FEES early in a patient's critical care journey can provide objective clinical findings to inform weaning management plans with the overall aim to reduce the time to decannulation.

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Acknowledgments

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