

Paediatric dysphagia: The role of the speech and language therapist

Jamie-Leigh Allen¹, Julia Robinson¹ and Zoe Sherlock²

¹ Paediatric Dietetic/ Speech and Language Therapy Department, Southampton Children's Hospital, Hampshire, UK

² Adult Dietetic/ Speech and Language Therapy Department, University Hospital Southampton, Hampshire, UK

Correspondence:

Jamie-Leigh Allen MRCSLT, RegHCPC

Paediatric Dietetics/ Speech and Language Therapy Department,
Southampton Children's Hospital,
University Hospital Southampton, Tremona Road, Southampton, Hampshire, SO16 6YD

E-mail: Jamie-Leigh.Allen@nhs.net

Abstract

We discuss the role of the Speech and Language therapist (SLT) in dealing with infants and children with swallowing disorders. This paper will outline the benefits of the holistic approach of the speech and language therapy swallow assessment and how it complements the ear, nose and throat (ENT) management in the multidisciplinary team (MDT) setting. This is highlighted by a case report.

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Key words

Speech and language therapist, dysphagia, MDT, FEES, VFSS

Introduction

Paediatric dysphagia refers to babies and children with difficulties chewing, sucking and swallowing food, drink and saliva¹. Dysphagia or feeding difficulties can present at birth or as a child progresses to larger volumes of liquids, during weaning and throughout their life following an event or change in medical status. Feeding concerns may be raised by parents or various healthcare professionals including midwives, health visitors, general practitioners (GPs), nurses and paediatricians. On going dysphagia can be associated with aspiration pneumonia, malnutrition, failure to thrive and potentially neurodevelopmental problems^{2,3}.

The SLT plays an integral role in the assessment, diagnosis and management of infants and children with dysphagia. Often children with dysphagia are referred to Speech and Language therapists (SLTS) who provide a holistic approach to the swallowing assessment. In the UK, SLT services are generally arranged in two tiers, hospital based and community based SLTS. There are NHS hospital based specialist paediatric SLTS who manage the swallow and communication needs of complex, acutely unwell or

neurologically impaired inpatient and outpatient children. Close liaison between the services is essential to ensure continuity of care, particularly as feeding support may be required throughout childhood particularly as feeding skills and safety of swallow may change. The main focus of the initial assessment is to undertake a detailed case history and determine if there are any anatomical, physiological, neurodevelopmental or sensory and associated behavioural difficulties with eating and drinking at the pre-oral, oral and/or pharyngeal stage of swallowing.

The SLTS adopt a very holistic approach to feeding emphasising the need for an appropriate setting, neurodevelopmental skills as well as oro-pharyngeal motor skills. Observation of feeding is essential and the use of fiberoptic endoscopic evaluation of swallow (FEES) to look at the pharyngo-laryngeal phase has become increasingly useful as part of the initial assessment. Videofluoroscopic swallow study (VFSS) provides further valuable information but has the risk of radiation exposure so is not generally used in neonates and is restricted to specific cases.

SLT Assessment of swallow

General assessment

A child or an infant refusing or unable to feed is a very emotive situation and it is important to provide a supportive atmosphere and minimise stress for the child, carers and the child's wider support network e.g. school, nursery and playgroups. Introducing fun into feeding may help children who have had negative feeding experiences (e.g. related to medical conditions, force feeding, and lack of experience with oral feeding/ long term alternative methods of feeding) or are demonstrating oral aversive behaviours^{4,5,6}. Optimising positioning through supportive seating and postures for children with poor core strength or reduced head control is essential when optimising feeding skills^{7,8}.

Observing a child's self-feeding skills (where appropriate) and encouraging them will assist with successful feeding and further development of their pre-oral and oral skills. Children with specific pharyngeal dysphagia may benefit from manoeuvres such as chin tuck, head turn or other compensatory strategies which may reduce the risk of aspiration however these should be assessed during the instrumental assessment.

Oral Phase

SLT assessment of oral stage involves offering the child a range of appropriate textures and consistencies while observing lip closure, lip, tongue and jaw movement including mastication, oral transit time, sucking which includes suck type, rhythm of the suck, suck-swallow-breath pattern and suck burst length/ duration subsequently relating these skills to the developmental stages of feeding.

Assessment of swallow

The pharyngeal phase of swallow is initiated at the point where the swallow reflex is triggered. The SLT may comment on the hyolaryngeal movement (elevation and excursion/ anterior tilt), timing of swallow trigger, number of swallows per bolus, wet sounding voice/ breathing post swallow and adverse signs of aspiration/ penetration which may include coughing, eye watering, gagging and colour change. Cervical auscultation may also be used when commenting on the phases of swallowing and swallow breath pattern. Cervical auscultation is part of the SLT's bedside assessment which can include palpation of the larynx, observation of saturation levels, heart rate and respiratory rate during feeding^{9,10}. Where a bedside assessment may not provide full information of the child's dysphagia the SLT may recommend further instrumental assessment including FEES/ VFSS.

Fees

The Royal College of Speech and Language Therapists (RCSLT) position paper¹¹ describes the use of FEES in the SLT's assessment and management of dysphagia within paediatrics as well adults. The purpose of FEES can be to; diagnose dysphagia and assess the nature of the problem along with guiding dietary and behavioural management.

Although in adults the SLTS often perform the FEES independently of ENT surgeons, the complex developmental nature of paediatric swallow benefits from an MDT approach. The SLT's role during FEES is to assess the swallow function with a range of appropriate textures/ consistencies and provide recommendations regarding the swallow, whether oral feeding is advisable and whether any interventions are required to facilitate safe and efficient feeding. Observations can also be made

on the child's neurodevelopment and the skills seen at the pre-oral (self-feeding skills versus being fed), oral stage (developmental stages of mastication, oral transit time, sucking which includes suck type, rhythm of the suck, suck-swallow- breath pattern and suck burst length and duration) as well as the pharyngeal stage of the swallow (see below). SLT's can also provide developmentally appropriate recommendations and goals for children, their family/ carers and for community SLTS including school teams.

During the pharyngeal phase, the following observations are made:

- The appearance of the tissues, base of tongue, velum, nasopharynx at rest and during swallow.
- Potential nasal obstruction causing mouth breathing.
- Any asymmetry of main structures.
- Presence of copious secretions (studies have shown pooled secretions have high correlation with aspiration¹²). We may describe them (foamy, thick, capacious). Amount of standing secretions: normal, excessive. Pooling within the laryngeal vestibule.
- Observing the movement and sensation of critical structures within the hypopharynx and larynx at rest and on swallow, any vocal fold immobility or laryngomalacia.
- Secretions during swallowing. Is there any evidence of overspill into the subglottis? How does the child react to the secretions? Are there spontaneous swallows to clear, ineffective attempts to clear or no attempt to clear these secretions?
- Is there evidence of airway protection during the swallow?
- Directly observed laryngeal penetration or aspiration.
- Can we improve the swallow by using a change of posture/position, flow rate of fluids, consistency of the diet and fluids, utensils and/ or bolus volume?

Following the FEES, the MDT often reviews recorded images and a feeding strategy developed with the family. This is integral as the family/ carers can understand the reasoning behind the recommendations given and feel involved in the decision making. Along with discussions with the family/ carers the SLT in the clinic will often hand over the recommendations to the child's community SLT who will be able to support the family/ child at home. Onward referrals may also be discussed and requested following the FEES clinic for example referrals to occupational therapy (OT), physiotherapy (PT), dietetics, gastroenterology and neurology. When determining if a

child is suitable for FEES a joint discussion with ENT/SLT/parent/carers will occur and may include all or some of the following: some/ all of the wider range of medical teams involved with the child, the nursing team looking after the child, paediatricians, respiratory teams and cardiac teams. The parent is prepared as best as possible and is given the option to preferably stay or alternatively leave the room for the period of the assessment.

Strengths for using FEES within our clinical setting (inpatient and outpatient):

FEES allows the child to be assessed in a number of settings such as inpatient wards or outpatient clinics. FEES can be used safely and reliably when assessing laryngeal and pharyngeal aspiration in NICU infants (38 weeks+ gestational age)¹³. FEES enables assessment of very young children and neonates in a more natural position such as the parents arms, whilst breastfeeding, with which there is no other instrumental assessment of swallows that exists for this population¹⁴. Unlike with VFSS there is no “screening” time constraint with a FEES assessment that has proven helpful in determining issues that may be evident during the middle or end of a feed.

VFSS versus FEES

FEES is a very effective investigation that can be used in the inpatient and outpatient setting to provide useful advice regarding swallow. Its main limitations are that in our experience some children often age 2-7 find it difficult to tolerate and it does not examine the oesophageal phase of swallow¹⁵. VFSS examines all 4 phases of swallow and can be used to detect reflux and site of aspiration. VFSS however involves ionising radiation exposure therefore there are screening time constraints and repeated tests are restricted. In complex patients however, FEES and VFSS are complementary.

The following case is used to highlight the integral role the SLT has within the FEES assessment along with the repeatability and flexibility of the FEES assessment itself.

Case Study:

A 6 week-old baby girl was referred from the local ENT team to the tertiary children’s hospital ENT clinic with a history of stridor post-bottle feeding, poor weight gain and nasogastric (NG) feeding. The differential diagnosis given was reflux, laryngomalacia, low tone or an underlying laryngeal cleft. There was no SLT involvement noted. Her past medical history included; term birth, 22q duplication, hypotonic, stridor, poor feeding and failure to thrive.

Her initial examination was unremarkable however laryngeal cleft could not be excluded on fiberoptic

nasolaryngoscopy alone. She was commenced on anti-reflux medication, referred to a dietician with a plan for follow up by community SLT.

On review a month later, community SLT had advised pacing with bottles and to use the NG tube when she was not managing full amounts, coughing, spluttering, increased work of breathing, turning head away or getting fatigued. ENT referred to the joint ENT/SLT clinic for follow up.

During joint ENT/SLT initial clinic at age four months, parents reported that she has had four episodes of “bronchiolitis” but had been slowly continuing with bottles (with pacing), NG top ups and tasters of apple puree.

On FEES examination stertor was noted and the uvula was sucking in posteriorly to posterior pharyngeal wall. No vocal cord palsy or obvious stridor was detected. Increased secretions were noted at valleculae and pyriform fossa, frank aspiration seen with milk from the fast flow bottle (unable to trial slower flow teat due to reduced oral strength). No frank aspiration seen with apple puree from weaning spoon therefore recommended:

- NBM for milk (all via NG tube)
- IDDSI (international dysphagia diet standardisation initiative) level 4 (pureed) 16 tasters to develop oral skills
- SLT suggested review of supportive seating by OT’s
- Handover to community SLT service for ongoing therapy for hands to mouth play and oral skill development

At Joint ENT/SLT follow up clinic two months later (aged six months old) parents report that she has been managing her purees “very well” with improved head control, and now has supportive seating from OT. On going chest infections could be related to 22q immunodeficiency but chest x-ray showed right upper lobe shadowing suggesting possible aspiration (intra-swallow) or reflux. VFSS is now planned if the chest does not improve. Repeat FEES showed fatigue following IDDSI level 4 testing therefore not assessed with fluids. IDDSI level 4 revealed appropriate base of tongue movement and pharyngeal wall contraction, vocal cords normal, some nasal secretions noted however cleared on swallow, appropriate swallow trigger with IDDSI level 4 diet with no residue, no aspiration or penetration. Recommendations for her:

- Continue to promote oral intake of IDDSI level 4
- Referral back to her paediatrician for review of immunodeficiency

- Continued development of her gross and fine motor skills for sitting and feeding along with continued community SLT input.

Joint SLT/ ENT follow up clinic: seen at nine months of age, parents report increased puree intake, ongoing NG feeding but now able sit up with independent head control. FEES assessed her safe with IDDSI level 1 fluids which are now to be encouraged.

VFSS summary: penetration with IDDSI level 1 fluids but no frank aspiration seen. She therefore continued with IDDSI level 1 fluids using an open cup and regular pacing with single sips.

Conclusion

Joint ENT/ SLT FEES clinics enable ENT and SLT teams to develop robust and comprehensive services for children with dysphagia. Clear decisions regarding feeding strategies may reduce hospital stays, time with NG feeding and subsequent ongoing difficulties with adequate nutrition and hydration. The SLT's role enables the child to receive a holistic approach to feeding and increases communication with secondary care and community based teams regarding recommended input to develop fine and gross motor skills for feeding (for example seating/ hand to mouth play, weaning to solids advice and developmental appropriate feeding skills and thickener). The use of FEES and intermittent VFSS is also instrumental in the assessment and subsequent development and review of safe feeding strategies. This integrated care system across a network of providers offers new perspectives on feeding and the management of feeding throughout the child's life.

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