Adult-onset dysphagia

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Background

Dysphagia, characterised by a difficulty in swallowing, stems from various causes and is frequently encountered in general practice. The rise in dysphagia in Australia's ageing population necessitates proper management to prevent complications. Recognising and managing dysphagia improves outcomes and quality of life, and reduces secondary complications.

Objective

This article assists physicians through the work-up and management of dysphagia.

Discussion

Dysphagia, resulting from upper aerodigestive tract disruptions, can be categorised anatomically (oropharyngeal, oesophageal) or by pathophysiology (motility, obstructive). It imposes a substantial community disease burden with high morbidity and mortality rates. Dysphagia might lead to aspiration, malnutrition and poor mental health. A holistic approach involving primary and tertiary specialists, allied health, family and carers is vital. Depending on the aetiology, dysphagia is often treated conservatively in the community; however, complex cases often require a multifaceted approach and integration of multiple specialties.

DYSPHAGIA PRESENTS with a vast array of aetiologies and is a common presenting complaint in the general practice setting.¹ In addition to being a potential symptom of malignancies, dysphagia represents a common chronic disability within our ageing Australian population.² Timely recognition and early management of dysphagia have been shown to improve patient outcomes and quality of life and to reduce hospitalisations from secondary complications.^{3,4}

Aim

This article provides an overview of dysphagia to support general practitioners (GPs) in terms of assessment, common treatment options and the recommended management pathways.

Epidemiology

Dysphagia is a complex anatomical and/or functional disruption of the aerodigestive tract resulting in a poor swallow.⁵

Causes of dysphagia can be broken down into two broad categories relating to the affected anatomical location – oropharyngeal or oesophageal dysphagia – and similarly by its pathophysiology either being a motility disorder or an obstructive disorder.⁵ A list of differential diagnoses and their categorisations can be found in Table 1.

Dysphagia carries a significant disease burden among our communities, with notably high morbidity and mortality rates,6 although global reports vary with population-based incidences estimated to be between 2 and 20%.^{7,8} Australian-specific reports reflect these data, indicating that 20% of Australians aged >50 years experience dysphagia, which increases to up to 50% in those residing in long-term care facilities.6,8 Aspiration pneumonitis was the leading cause of death in people with a disability living in New South Wales residential care facilities in 2016.9 Although multifactorial, risk factors in the geriatric population include previous strokes, dementia and occasionally motor neurone disease. Dysphagia is more prevalent in women than men across all age groups.5,10

Overview and subtypes of dysphagia

Oropharyngeal dysphagia

Oropharyngeal dysphagia relates to either a dysmotility or a mechanical obstruction at or above the level of the upper oesophageal sphincter (UES).

Several neurological conditions can result in dysmotility. Central causes include cerebrovascular accidents (CVAs) and neurodegenerative diseases such as Parkinson's disease and Alzheimer's disease. Peripheral causes include diabetic

Table 1. Differential diagnoses of dysphagia

Oropharyngeal pathology		Oesophageal pathology	
Mechanical obstructions			
Oropharyngeal malignancy	Squamous cell carcinoma is the most common cause of head and neck malignancy. Other cancers include lymphoma and salivary gland tumours	Oesophageal malignancy	Adenocarcinomas are the most common oesophageal malignancy, with dysphagia usually presenting as a sign of late-stage disease
Pharyngitis and abscess formation	Laryngitis, pharyngitis and tonsilitis might progress into parapharyngeal or deep neck space infections	Peptic/Oesophageal stricture dysfunction	Stricture formation secondary to chronic gastric reflux is treated by endoscopic dilatations and gastric acid suppression
Pharyngeal diverticulum	Zenker's diverticulum is the most common pharyngeal diverticulum due to a spasmodic upper oesophageal sphincter resulting in a high-pressure pharynx. This can often be identified in barium swallow studies in the community	Schatzki ring	A pathological narrowing of the distal oesophageal lumen. The pathophysiology is still unclear
Radiation injury	Post-radiotherapy side effects for head and neck cancer treatment include mucositis, xerostomia, fibrosis and strictures. Regular gum chewing to promote salivation, increasing daily fluid intake and using oral lubricants might help with xerostomia. Strictures can be seen on barium swallows and will require endoscopic dilatation	Foreign body	Patients present with hypersalivation, odynophagia and bolus regurgitation. Endoscopic treatment is only considered when medical therapies such as glucagon, benzodiazepines, calcium channel blockers and carbonated liquids have failed
Cervical vertebral osteophytes	Osteophytes commonly seen on barium swallows might protrude into pharyngeal mucosa creating discomfort during the transfer of a food bolus. Osteophytectomy is not routinely recommended		
Thyroid goitre/cancers	Thyroid goitre results in extrinsic compression of the upper aerodigestive tract. Sonographic and CT neck and chest scans are helpful initial investigations		
Motility disorders			
Stroke	Central disorders result in dyscoordination of pre-oral, oral and pharyngeal phases of swallowing. Reflexive swallow is delayed, bolus propulsion is blunted, and airway protection is limited	Eosinophilic oesophagitis	A chronic relapsing food-related inflammatory disorder results in over deposition of eosinophils and subsequent oesophageal fibrosis. Treatment involves targeted allergenic food avoidance and topical corticosteroids
			Table continued on the next page

neuropathy or myasthenia gravis.^{11,12} CVAs are the leading cause of oropharyngeal dysphagia, and are also associated with a higher risk of aspiration due to an uncoordinated swallow and an inability to protect the airway. As a result, up to one-third of stroke survivors will develop aspiration pneumonia in their first month of recovery.¹³ Dysphagia related to neurological disorders is often chronic and can result in significant disability, especially within the institutionalised geriatric population.¹⁴⁻¹⁶

The most common mechanical obstruction of the oropharynx includes benign or malignant lesions of the head and neck (H&N), strictures, post-radiation changes and external compressive pathologies (ie goitre, cervical osteophytes). The most common malignancy of the oropharynx is squamous cell carcinoma (SCC), which accounts for >90% of H&N malignancies.¹⁷ These SCCs can be classified as non-human papillomavirus (HPV)-related SCCs, commonly associated with tobacco smoking and heavy alcohol use, or by HPV-associated SCC, which is steadily rising in incidence.¹⁸

Oropharyngeal pathology		Oesophageal pathology	
Parkinson's disease	Dysphagia secondary to muscular rigidity and bradykinesia increases the likelihood of silent aspiration. Swallow assessments and rehabilitation with a speech pathologist is vital in slowing the progression of dysphagia	Achalasia	Achalasia results from an inappropriate contraction of the lower oesophageal sphincter
Alzheimer's disease	Dysphagic geriatric populations with dementia often develop malnutrition, dehydration, cachexia, social isolation and a general decline in quality of life	Distal oesophageal spasm	Distal oesophageal spasms result from rapid prolonged propagations of peristalsis resulting in oesophageal muscular hypertrophy over time
Amyotrophic lateral sclerosis	A progressive neurodegenerative disease affecting motor neurones of the central nervous system. This disease might manifest with progressive bulbar pathology. No reversible treatment options are available. Management revolves around swallow rehabilitation through a speech pathologist. These patients will require neurology and ENT input to manage sialorrhoea, reduce aspiration and improve communication		
Myasthenia gravis	Myasthenia gravis is a rare autoimmune inflammatory myopathy induced by antibody- associated destruction of neuromuscular endplates of voluntary muscle. Although many different muscles are affected, patients might describe 'fluctuating and fatigable swallowing'	Scleroderma	Scleroderma is an autoimmune disorder that results in the recomposition of oesophageal musculature into fibrotic aperistaltic tissue
Multiple sclerosis	Multiple sclerosis is an autoimmune demyelination disease of the central nervous system. Dysphagia is a prevalent symptom in these patients, though there is a paucity of evidence-based management options to guide clinicians	Autonomic neuropathy	The most common cause of autonomic neuropathy is diabetes mellitus, which results in dysregulation of the autonomic system
Functional dysphagia	Functional dysphagia is a diagnosis of exclusion and refers to a psychogenic aetiology that is not explained by other causes		
Laryngopharyngeal reflux	An impaired upper oesophageal sphincter results in gastric reflux irritating pharyngeal and laryngeal mucosa. Patients often complain of throat clearing	_	
CT computed tomography: ENT	our page threat		

Oesophageal dysphagia

Oesophageal dysphagia relates to dysmotility or a mechanical obstruction below the level of the UES. The most common mechanical obstruction is a stricture secondary to gastroesophageal reflux disease (GORD).¹⁹ Recurrent gastric acid reflux can result in oesophagitis, which can lead to benign peptic stricture development. Alternatively, GORD can also result in the dysplastic process of Barrett's oesophagus due to chronic irritation.²⁰ This histological change is a precursor to the development of oesophageal adenocarcinoma, which might result in progressive dysphagia, typically a sign of advanced disease.

Oesophageal motility disorders can be divided into primary oesophageal disorders or systemic diseases with a secondary effect on oesophageal motility. Achalasia is the most common motility disorder and is characterised by incomplete relaxation of the lower oesophageal sphincter, resulting in oesophageal aperistalsis.²¹ Less common primary motility diseases include diffuse oesophageal spasm and nutcracker oesophageal motility disorders are scleroderma and diabetic autonomic neuropathy, with both affecting the

Table 2. Key considerations for history-taking in the work-up of dysphagia

General history considera	tions		
Presenting complaint	Oropharyngeal likely	Oesophageal likely	
	 Delayed swallow initiation^A 	 Reflux or heartburn^A 	
	Coughing, choking or nasal	 Bolus regurgitation^{A,B} 	
	regurgitation ^{a,B}	Catching sensation in the	
	 Dysphonia,^{A,B} otalgia^B 	throat or chest	
	Xerostomia ^A	 Difficulty localising the level of obstruction²² 	
	 Final Hold Stress Exposure to HPV or high-risk 	 Haematemesis^B 	
	sexual behaviours ^B		
	 Recent intubation 		
	Recurrent pneumonia		
	 Odynophagia^B 		
	 New neck lumps or swelling^B 		
	 Neurological deficits^A 		
	Food consistency: solid intolera	ance, ^{A,B} liquid intolerance ^A	
Constitutional symptoms	 Unexplained weight loss (>10% over a 6-month period)^B 		
	Generalised malaise and lethargy		
	• Anorexia		
	 Night sweats^B 		
Past medical history	Central neuropathies:		
	 Stroke or transient ischaemic attacks^A 		
	 Alzheimer's disease^A 		
	 Peripheral neuropathy^A 		
	 Neurodegenerative diseases^A 		
	Gastroesophageal disease and peptic ulcer disease		
	Diabetes mellitus ^A		
	Thyroid disorders		
	Asthma ^A		
Medications: refer to Table 3	3		
Allergies	Drug and food hypersensitivitie	es	
Vaccinations	• Up-to-date and recommended	travel vaccinations	
	COVID-19 vaccination status		
Family history	History of head and neck cance	ers	
	• History of autoimmune disorde	ers	

contractility of the oesophagus and resulting in aperistalsis. $^{\rm 23}$

History-taking

A thorough history and examination is required for all patients with suspected dysphagia. Refer to Table 2 for a focused summary. For appropriate escalation and management, it is important to address two broad questions. First, whether the dysphagia involves the oropharyngeal or oesophageal region; and second, whether it is caused by a mechanical obstruction or a motility disorder.

Differentiating between locations

Oropharyngeal pathology will typically result in a delay in swallow initiation, coughing, choking or nasal regurgitation with food. Patients with oesophageal obstructions often have difficulty self-localising the level of obstruction; however, they might present with symptoms such as a catching sensation in the throat or the chest.²⁴ Important red flag symptoms associated with malignancy include odynophagia, otalgia, neck masses, unintentional weight loss and bloody expectoration.

Differentiating between mechanisms

The primary way to differentiate between an obstructive or a dysmotility disorder is by assessing for foods that trigger dysphagia. Motility disorders affect solid and liquid foods, whereas obstructive disorders are typically initially associated with solid foods and patients might report substituting their usual diet with pureed textured food. Many of the medications found in Table 3 can lead to and contribute to dysphagia.^{25,26}

Clinical examination

The examination begins with assessing the symmetry of the face, neck and oral cavity, followed by palpation of the neck and supraclavicular region. The oral examination is performed with a tongue depressor and a light source with careful attention to the tonsils, tongue and the floor of the mouth. The clinician should also perform a cranial nerve examination and identify global or focal neurological pathologies. A focused examination can be found in Table 4.

^ADysmotility/physiological pathology.

^BObstructive pathology.

Social

ECOG, Eastern Cooperative Oncology Group; HPV, human papillomavirus.

•

Smoking history^B

Alcohol consumption^{A,B}

Dietary modifications

- ECOG grading

· Assessment of activities of daily living

· Level of home assistance and food preparation independence

Table 5. Medication-induced dyspinagia			
Category	Mechanism	Examples	
Sedative drugs	 These drugs result in cognitive inhibition, resulting in oropharyngeal swallow dyscoordination Elderly patients are more vulnerable to its effects 	 Benzodiazepines: lorazepam, alprazolam, diazepam Opiates: codeine, hydromorphone, fentanyl, oxycodone 	
Antipsychotics	 These drugs create an antagonistic effect on central nigrostriatal dopamine D2 receptors, which suppress all phases of deglutition 	 Clozapine, haloperidol, lithium, olanzapine, quetiapine, risperidone 	
Xerostomia-related medications	These medications have an inhibitory effect on the parasympathetic system, reducing salivary production, leading to xerostomia	 Angiotensin-converting enzyme: perindopril Antiemetics: metoclopramide, ondansetron, promethazine, prochlorperazine Decongestants: diphenhydramine, pseudoephedrine Selective serotonin reuptake inhibitors: citalopram, fluoxetine, venlafaxine, paroxetine, sertraline, amitriptyline 	
Anticholinergics and antimuscarinics	• These medications have an inhibitory effect on the parasympathetic system that can result in the impairment of oesophageal peristalsis. These medications can also result in xerostomia	Atropine, benztropine, hyoscine, ipratropium, oxybutynin	
Medications that cause oesophageal mucosal injury	 Some medications might cause caustic irritation of the oesophageal mucosa and with overexposure, might lead to stricture formation 	 Antibiotics: clindamycin, doxycycline, erythromycin Bisphosphonates: alendronate, risedronate, zoledronic acid Non-steroidal anti-inflammatory drugs: aspirin, ibuprofen, naproxen, indomethacin Supplementary medications: iron-containing tablets, potassium chloride, vitamin C tablets 	

Table 3. Medication-induced dysphagia

Investigations and management

The history and examination can reliably identify the location and mechanism of dysphagia, which then allows for targeted investigations and the appropriate referral pathway to be actioned. When obstructive oropharyngeal dysphagia is suspected, a referral to an ear-nose-throat (ENT) specialist should be made for a nasoendoscopy and biopsies, as required. Patients suspected of oropharyngeal malignancy also benefit from computed tomographic imaging of the neck and chest to assess for primary lesions and associated lymphadenopathy. Isolated enlarged lymph nodes require an ultrasound-guided biopsy for further histological assessment.

Any patient suspected of having oesophageal dysphagia must be referred to a gastroenterologist for an upper gastrointestinal endoscopy (UGIE) to exclude an oesophageal malignancy, with biopsies taken as required.²⁷ An UGIE will also assess for other benign obstructive pathologies.

Specialised investigation for motility disorders can be undertaken when mechanical obstructions are broadly excluded. A non-invasive study such as a barium swallow study is a helpful primary investigation that can be organised by the GP, which might demonstrate patterns of barium stasis within the oropharynx and oesophagus. Following this, more specialised testing can be considered. A speech pathologist can assist with further assessments of oropharyngeal motility disorders. They can organise specialised testing in the form of a video fluoroscope swallow study, which is a dynamic radiological assessment of swallow, assessed in a multidisciplinary fashion by both radiologists and speech pathologists.28,29 Magnetic resonance imaging of the brain can help diagnose neurological diseases that might be contributing to oropharyngeal dysfunction. Certain gastroenterologists and general surgeons might arrange manometric

testing to delineate between different oesophageal motility disorders. Table 5 describes the various investigations in detail.

Community management

Most presentations of dysphagia are secondary to reflux.³⁰ First-line treatments can be instituted with an empiric prescription of proton pump inhibitors and liquid antacids for at least eight weeks.^{31,32} GPs should counsel the patient on lifestyle modifications such as head elevation during sleep, avoidance of late-night meals, and avoiding exacerbating foods.³³ Not only does tobacco smoking cause laryngopharyngeal irritation, it leads to many aetiologies of dysphagia and therefore cessation counselling should be provided. In patients without any red flags, a referral to a specialist should be made when the dysphagia persists.

There is a significant burden of disability related to chronic dysphagia and the

General inspection	• Sarcopenia
	 Tobacco-stained fingers or Raynaud's phenomenon (indicating scleroderma)
	• Jaundice
	• Vital signs
	Surgical scars and neck masses
	Gait abnormality
	Facial tone and symmetry
	 Ptyliasim/drooling/inability to tolerate secretions
	Quality of voice (eg wet, hoarse, hot potato)
Oral cavity	 Assessment of trismus, dental occlusion, temporomandibular joint and trismus
	• Tongue
	 Deviation, fasciculations, thrush, tongue and base of tongue palpation
	 Soft and hard palate, gingiva, buccal surfaces and floor of mouth
	 Symmetry, ulcers, lesions, bleeding sites, dental hygiene and thrush
	Tonsils and tonsillar fossa
	- Comment on size (Brodsky grading scale) and symmetry
Neck	Range of neck motion and assessment of torticollis
	 Palpation of cervical and supraclavicular lymph nodes (Virchow's node)
	Palpation of thyroid gland
Abdomen	Palpate for abdominal masses
	Gastrostomy tube
	Hepatosplenomegaly
Neurological examination	Cranial nerves
	 Specifically V, VII, IX, X, XI and XII
	Unilateral or focal weakness
Swallow assessment	 Water sip test and assessing for oral spillage, choking or coughing

Table 4. Key elements in the physical examination for dysphagia

associated risks of aspiration, malnutrition and dehydration. Speech pathologists can provide education on postural techniques and dynamic manoeuvres to protect the airway during ingestion, while also altering food consistencies appropriate to the degree of dysfunction.³⁴ Oral hygiene maintenance reduces the colonisation of gastric microbes in the oropharynx and can reduce the risk of aspiration pneumonia in vulnerable patients.^{1,35} This can be ensured by educating patients on the importance of routine dental hygiene and review. Referral to a dietitian can help with maintaining appropriate caloric and fluid requirements, which need to be tailored around dietary restrictions. In addition to these risks, chronic dysphagia can also have significant social and psychological ramifications due to the inability to enjoy eating, as well as the lack of participation in social dining, and attention should be directed towards these emotions.² Overall, given the holistic implications of the disability, it is important that any counselling and management also involve families and carers.^{36,37}

In severe cases of chronic dysphagia, enteral feeding may be considered. Families should be counselled about the harms and limited benefits of long-term enteral feeding with a nasogastric or percutaneous gastrostomy tube, especially in those with advanced dementia.³⁸

Conclusion

Dysphagia is a challenging complaint to manage. The aetiologies are broad and complex and as such, patients need a multifaceted approach. These patients would benefit from the integration of speech pathologists, dietitians and primary and tertiary care specialists. This article provides primary physicians with a guided template of pathologies and investigations that might help narrow the diagnosis.

Key points

- The prevalence of adult-onset dysphagia in Australia will continue to rise with a rapidly growing ageing population.
- Chronic dysphagia is common in the geriatric population and is a serious risk factor for the development of aspiration pneumonia.
- A thorough work-up allows the GP to delineate between oropharyngeal and oesophageal dysphagia and proceed with the relevant referral to either a gastroenterologist or an ENT specialist.
- Red flags for urgent specialist referrals include history of head and neck malignancy, history of heavy alcohol or tobacco use, new onset of persistent hoarseness, unexplained weight loss, haemoptysis and haematemesis, otalgia, unrelenting pain and obstructive dysphagia.
- Incorporating allied health professionals such as speech pathologists, dietitians, nurses and carers into dysphagia treatment is vital to setting up safe-feeding measures.

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Table 5. Imaging and investigative modalities

Investigation	Indication
Barium swallow	 This type of imaging can inform the clinician of the level of pathology and assist in assessing for dysmotility and obstructive and diverticular pathologies
Modified barium swallow study/ VFSS	 This study is performed by a speech pathologist and radiologist and focuses on the swallowing of foods and fluids of varying consistencies up to the level of the upper oesophageal sphincter
FEES	 A FEES is performed by a speech pathologist with a flexible nasoendoscopy to directly visualise the larynx during the swallowing of foods/fluids of various textures
MRI	 An MRI assists in staging and characterising H&N lesions by providing information such as depth of invasion, associated structural invasion and lymphadenopathy
CT of the head, neck and chest	 A CT scan is a useful initial imaging tool to assess for any H&N or oesophageal mass and identify any lymphadenopathy
Ultrasound	 An ultrasound might assist in identifying neck lymphadenopathy and glandular pathologies and characterising thyroid masses
	 A radiologist will often provide recommendations for further fine needle aspiration
Flexible nasoendoscopy	 This is performed by an ENT specialist under topical local anaesthesia to assess the pharynx and larynx and to perform an in-clinic biopsy
Upper endoscopy	 An upper endoscopy allows the proceduralist to perform a biopsy, dilatation of a stricture, steroid infiltration or a foreign body retrieval
Manometry	 A manometry assessment assesses the contractility of the oesophageal sphincter
	 Contraction pressures with a catheter probe can map the type and location of dysmotility

CT, computed tomography; ENT, ear-nose-throat; FEES, flexible endoscopic evaluation of swallow; H&N, head and neck; MRI, magnetic resonance imaging; VFSS, video fluoroscopic swallow study.

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