Clinical Management of Swallowing Disorders

FIFTH EDITION

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Preface

Clinical Management of Swallowing Disorders, Fifth Edition, has been a core swallowing textbook for the past 19 years. This fifth edition comes to the student and clinician with current information divided into pediatric, adult, and now with a special chapter on swallowing in the aging population. This text addresses the needs of students who will treat swallowing disorders as well as those clinicians who currently treat swallowing disorders in hospitals, rehabilitation centers, nursing homes, and private outpatient clinics. *Clinical Management of Swallowing Disorders, Fifth Edition,* examines the diagnosis and treatment of swallowing disorders in children and adults. The text emphasizes team management, evidence-based practice, swallowing safety, nutrition, behavioral treatments, and surgical options when appropriate. A significant number of changes have been added to bring the reader up to date in all aspects of the diagnosis and management of swallowing disorders. The fifth edition is updated with full color images, video examples of normal swallowing, and selected examples of patients with swallowing disorders. Tables have been added to coincide with anatomical images. The new and updated features of this edition are explained in more detail below.

The essential aspects of dysphagia diagnosis and treatment are presented in a format that both beginners and clinicians needing a practical update on dysphagia will find useful. Because of our daily clinical involvement treating swallowing disorders in major teaching institutions and teaching this information to students, we saw a need to revise and update a text that continues to be well accepted by clinicians, students, and teachers. This book addresses clinical issues at the current level of clinical understanding. The material contained in the *Clinical Management of Swallowing Disorders, Fifth Edition,* derives from a vast storehouse of recent knowledge and academic pursuits, along with our daily experiences from our multispecialty swallowing disorder clinics and research activities. Since the fourth edition was published, new evidence has demonstrated the importance of early intervention and aggressive treatment of dysphagia. Outcome data are now available to show the importance of proper assessments and treatments to deter and prevent aspiration and improve patients' quality of life. This fifth edition addresses clinical issues through clinical evidence and case studies. We have distilled the complexity of the pathophysiology of dysphagia to a practical level that can be absorbed by students and clinicians. Practical treatment options for a wide variety of swallowing problems with medical, surgical, and behavioral treatment models are concisely presented.

Throughout the book, certain terms are highlighted. These terms, which are germinal to the understanding of swallowing, are briefly explained in the text, and many of the terms are further expanded in the Glossary. However, the reader may want to pursue these in greater depth, thus the reason for highlighting them. We have tried to maintain the focus on treatment of swallowing disorders and have purposely avoided long discussions on the causes and complications of many neuromuscular diseases and neurologic conditions that result in dysphagia. Rather, we have focused on the essentials of assessments and treatment of swallowing in those patients.

We now work in 3 separate universities, but we continue to share a philosophy that focuses on a multispecialty treatment approach based on sound research where available, consistent clinical methods, and the review of the outcomes of treatment to enhance our future clinical care. In most chapters, video examinations of case examples are provided.

Chapter 1 presents the clinical scope of dysphagia—who has dysphagia, the indications for intervention, the importance of treating dysphagia, and the relationship of dysphagia to associated medical conditions. A review of the extent of swallowing disorders in hospitals, nursing homes, and otherwise healthy individuals is provided. Video examples of normal swallowing are part of this chapter. There are almost no medical conditions or diseases in which swallowing disorders do not occur. While many swallowing disorders may be temporary, the need to intervene early and address them must be considered in light of the primary disease or disorder.

Chapter 2 has been extensively revised with color illustrations to allow the student an in-depth review of the basic organs of swallowing. This chapter reviews the essential anatomy and function of the swallowing mechanism. We have chosen to present a summary of normal swallowing anatomy along with the contributions of the cranial nerves to add to the anatomical and neuroanatomical description of swallowing in keeping with the clinical focus of this text. The contributions of the cranial nerves are presented in color illustrations and tables that the clinician can easily access for later use. In the fifth edition, the current understanding of the interaction of the phases of swallowing is discussed. In this edition, we have added a review of the sensory information that, in the past, has been given little or no attention in much of the swallowing literature.

Chapter 3 has been extensively revised to provide current reviews and descriptions of swallowing disorders that arise from various neurologic and head and neck disorders and diseases. Definitions of aspiration and aspiration pneumonia are given. An updated list of diseases with their major associated swallowing problems along with video examples is found in this chapter. An array of tables accompanies this chapter, which provides quick access to diseases and disorders and the swallowing problems associated with these disorders. In addition, the effects of medication on swallowing are discussed.

In **Chapter 4**, we present an updated overview of swallowing disorders arising from surgical interventions. With the increasing number of in-office and operating room surgical procedures, there is a greater need to understand those procedures and how they will affect swallowing in the short and long terms. The effects of surgery to the head, neck, and upper airway are likely to produce a swallowing disorder. While many of these problems are temporary, the swallowing team must acutely manage them. A new feature of this chapter includes sections of what the role of the speech-language pathologist (SLP) is once the surgery has been completed. Treatment tips are also included following the surgical procedures. The authors relate their daily experiences in the team management of these disorders. Long-term swallowing disorders arising from oral cancer or skull base surgical procedures require extensive management with both the otolaryngologist and the SLP working together to offer the patient the best pathway to improved swallowing. Indications for aggressive and conservative rehabilitation treatments and follow-up management are presented in this chapter.

Chapter 5 has been extensively revised to focus on the clinical swallow evaluation (CSE), the starting point for swallowing management. We begin this chapter with an extensive review of commonly used clinician-based screening protocols and patient self-assessment tools. This then becomes the basis for subsequent testing and management. The dif-

ferent components of a full CSE are then described in the sequence of how they may appear in a typical evaluation session. The oral examination has been presented in greater detail in the typical order of administration. A sample CSE recording form is included in Appendix 8. Students will want to use this chapter in their daily swallow assessments. While the CSE is rarely the only evaluation of swallowing, it is an essential first step in the management process. Moreover, our experience with the CSE has led us to identify appropriate instrumental tests to be done subsequently to identify additional tests and consultations early in the treatment process.

Chapter 6 focuses on the current instrumental evaluations of swallowing. Importance is placed on the indications for instrumental tests and criteria for test selection. We updated the procedures and recommendations for different instrumental tests based on recent evidence. Video examples of the modified barium swallow (MBS) examination and flexible endoscopic evaluation of swallowing (FEES) are included to illustrate the use of these instruments. Additional instrumental examinations added include high-resolution manometry, tongue pressure testing, electromyography, and ultrasound testing. Testing for gastroesophageal reflux and upper esophageal reflux are described, and new tests for these are reviewed.

Chapter 7 presents the nonsurgical treatment approaches to swallowing. This chapter starts with a revised introduction to evidence-based practice and a multidisciplinary approach to swallowing therapy. The revisions are based on the most current information that has been developed since the fourth edition was published. Techniques are divided into compensatory swallowing therapy and rehabilitative swallowing therapy. *Note*: these terms are specifically defined in the fifth edition. Since the majority of treatments for swallowing disorders are nonsurgical, this important chapter outlines exercises for improving oral motor strength, bolus propulsion, and swallowing safety. Extensive references to evidence for various procedures are provided. Recent developments in the use of electrical stimulation and cortical neuromodulating methods are reviewed and discussed in light of new evidence for their use.

Chapter 8 addresses nutrition and the collaboration with nutrition specialists. The importance of working with a registered dietitian is now becoming more important in light of the various food options and food consistencies for patients. A unique aspect of this chapter is the explanation of the properties of liquids and foods that clinicians can understand. The introduction to rheology as a characteristic of foods and liquids is presented. Although the terms are new to SLPs, they are part of the everyday activities in a swallowing clinic. The latest framework for foods and drinks developed by the International Dysphagia Diet Standardization Initiative (IDDSI) is fully described with current evidence. Nonoral feeding methods are also presented with current evidence. Malnutrition and dehydration, 2 factors that affect recovery from dysphagia, are discussed in relation to specific populations.

Chapter 9 is a completely new chapter that focuses on the aging population. The chapter describes the physical, cognitive, and swallowing changes that occur during healthy aging. The latest evidence and clinical guidelines on how to manage nutrition for individuals with dementia are described. Specifically, careful hand feeding and feeding assistance strategies are presented in detail. Chapter 9 ends with a section on ethical considerations and how ethics principles may help clinicians to make difficult clinical decisions.

Chapter 10 has been revised and expanded to include the various assessments of pediatric swallowing disorders. In this chapter, the focus is on a thorough assessment of the infant and the swallowing disorders that occur from birth to early childhood. The case history takes on a special importance as it includes the parents and others who may be involved with the birth, growth, and development of the child. The anatomy and physiology of the child are discussed with attention to developmental milestones of feeding and eating. The importance of the child's ever-changing behavior as it relates to eating is outlined. A survey of the most common disorders that have an effect on eating and swallowing are discussed.

Chapter 11 has been revised and expanded in the fifth edition. A recent survey found that over 95% of SLPs recommended a full course or unit focusing on pediatric dysphagia (Wilson, JJ Simmons, McCarthy, JH. Pediatric dysphagia: Survey results describing speech-language pathologists'

education and experience. *Perspectives ASHA SIG 13*. 2020;5:1–10). This revised chapter provides the most up-to-date information that SLPs and other caregivers will find essential to understand current treatment techniques. The feeding and swallowing treatments from infancy to growing children are addressed with the overriding focus on swallowing safety for all children. Children with birth disorders, genetic disorders, and developmental disorders require special attention in order to facilitate proper growth and nutrition needs. Various neonate and child syndromes and disorders are presented with the focus on specific needs for these individuals to survive and thrive as they grow.

Chapter 12 provides a description of the most common surgical procedures for treating swallowing disorders that are not amenable to direct or indirect nonsurgical treatment. New surgical techniques that focus on preventing aspiration and improving vocal fold closure are discussed, and the roles of the SLP are highlighted. This chapter offers the clinician an understanding of the surgical procedures used to manage aspiration from conservative vocal fold medialization techniques to extensive procedures such as laryngotracheal separation. Although the surgical procedures are briefly described, the importance of decision-making by the dysphagia team in planning surgery is emphasized.

This chapter combines the surgical procedures with the prosthetic management of swallowing disorders. Following removal of essential swallowing organs, the need for a multispecialty team to manage structural rehabilitation has become increasingly important. Dysphagia clinicians are now routinely recruited to work with an oral prosthodontist to ensure maximum swallowing and communication functions are restored. This includes the understanding of oral prosthodontics as well as other biomechanical and adaptive devices to aid the patient to swallow safely.

Chapter 13 presents our philosophical approach to the organization of a multidisciplinary swallowing center. Case examples of patients with dysphagia show how a multidiscipline team addresses the patient complaints in a comprehensive swallowing center. The diagnosis and treatment may involve overlapping treatments of swallowing and voice disorders concurrently. The center combines clinicians with various training and interests who come together to manage swallowing and voice disorders in one center. Cases are presented to show the value of a comprehensive swallowing center. The contributions of the SLP and otolaryngologist in the diagnosis and treatment phases are described. The concept of a unified center implies efficiency, comprehensiveness, and timeliness in the clinical management process of patients who will benefit from a combined management approach.

A **Glossary** is included in the fifth edition of *Clinical Management of Swallowing Disorders* to help the beginning swallowing therapist quickly find important terms. The glossary in the fifth edition has been completely revised and includes expanded explanations, in many definitions, of the terms as they relate to swallowing and other diseases.

This book originally evolved from our clinical and research interests to improve the treatment of swallowing disorders and from our daily involvement in treating those disorders emanating from a variety of medical conditions, diseases, and disorders. We translated our clinical experiences into each of the chapters containing information that we continue to draw upon daily. The *Clinical Management of Swallowing Disorders, Fifth Edition,* offers the student and the practicing clinician a textbook of the current procedures for the diagnosis and treatment of pediatric, adult, and aging disorders of swallowing.

A FINAL NOTE

Clinical Management of Swallowing Disorders, Fifth Edition, was in revision during the COVID-19 pandemic. We extend our sincere thanks to those who have been working on the front lines of the pandemic for their efforts to improve swallowing and communication among patients, medical personnel, and other caregivers. Although management of COVID-19 is changing rapidly, we offer the following websites to our readers and colleagues that they may keep abreast of those changes over time. These websites have produced timely updates regarding

testing and treatment of swallowing and communication problems:

https://community.asha.org

https://www.asha.org/About/Coronavirus-Updates/

https://www.dysphagiaresearch.org/page/COVID-19Resources

https://www.asha.org/about

https://entnet.org/content/coronavirus-disease-2019-resources

https://Jamanetwork.com

https://www.medbridgeeducation.com/covid-19-resource-center/

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Chapter 2

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Video 13–2. Patient with Parkinson disease who is being treated with breathing exercises using a breath trainer.

Video 13–3. Exam with the lesion on the right vocal fold.

Video 13–4. Patient following radiation therapy for an oral pharyngeal cancer.

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Chapter

1

Introduction to and Epidemiology of Swallowing Disorders

CHAPTER OUTLINE

A Look at the Chapter

In this chapter, normal and disordered swallowing are defined using figures, tables, and video examples. Terminology is reviewed as it relates to normal and abnormal swallowing. The direct and indirect impacts of a swallowing disorder on quality of life are presented, and tools for assessing quality of life are introduced. Those tools are more specifically reviewed in Chapter 5. We also introduce the importance of patient self-assessment as a tool for better understanding the patient's perspective of dysphagia. This is followed by the epidemiology of swallowing disorders. Epidemiology refers to both the prevalence and cause of a disorder. In this chapter, we focus on the prevalence. Specific causes of dysphagia are taken up in later chapters.

INTRODUCTION

Normal Swallowing

The normal swallow is a rapid and overlapping sequence of neurologically controlled movements involving the muscles of the oral cavity, pharynx, larynx, esophagus, and stomach. Although most individuals take normal swallowing for granted, everyone experiences an abnormal swallow at some time in life, most likely resulting in an episode of a sudden choking sensation. However, in a normal, healthy person, this is usually resolved quickly by a cough or throat clearing.

When the muscles of the swallowing organs or the nerves that govern these organs are disordered, disrupted, damaged, or destroyed, swallowing can no longer be normal. However, because of the neuroplasticity of the swallowing organs and their ability to develop compensatory strategies, individuals with neurologic or muscular damage to the swallowing organs can still swallow certain types of foods and liquids safely. Video 1–1 is an example of a normal flexible endoscopic evaluation of swallowing (FEES). Video 1–2 is an example of a normal **modified barium swallow (MBS)** examination. (MBS is also known as **videofluoroscopic swallow study [VFSS]**.) Note the fluid movement and the speed of the bolus as it travels to the esophagus.

A video description of the normal and abnormal swallowing processes can be found at https://swallow.edu.hku.hk

Abnormal Swallowing

Abnormal swallowing includes difficulty with swallowing or the total inability to swallow, referred to as dysphagia and aphagia, respectively.

*The global definition of **dysphagia** is simply "difficulty in swallowing."*

When someone cannot swallow at all, the term **aphagia**, or "inability to swallow anything," is used. The terms *dysphagia* and *aphagia* refer to swallowing saliva, liquids, foods, and medications of all consistencies. Dysphagia may also include such problems as foods or liquids "sticking" in the throat or regurgitation of swallowed liquids or foods. Swallowing difficulties may arise from mechanical problems of the swallowing mechanism, neurologic disorders, gastrointestinal disorders, or loss of organs due to surgery or traumatic injury. Dysphagia and aphagia may also involve the disruption of the timing of the events needed to swallow normally.

Video 1–3 is a FEES examination of a patient with a history of dysphagia. Note that the food col-

ored green remains in the area above the vocal folds and is not swallowed. It may ultimately be aspirated (fall below the vocal folds) if the patient does not cough it out. Video 1–4 is an example of an MBS showing a trace of the barium flowing down into the airway after the majority of the bolus is swallowed. In a patient with a weak cough or pulmonary disease, this can lead to aspiration pneumonia.

Impact of Swallowing Disorders on Quality of Life

It is estimated that in the United States alone, 300,000 to 600,000 people with clinically significant dysphagia are diagnosed annually.[1,2] Nearly 70% of these patients are older than 60 years of age.[2] The true incidence of dysphagia may not be known, as it is often a condition following a primary diagnosis. Since dysphagia is a *symptom*, it is often not listed as the principal diagnosis if the physician has only documented the underlying cause. However, according to the *International Statistical Classification of Diseases, Tenth Revision* (*ICD-10*), the appropriate code for dysphagia can be listed as a secondary diagnosis following a stroke, esophagitis, and other diseases of the neurologic system or gastroesophageal pathway.[3] Swallowing disorders, even when subtle, eventually take a toll on the quality of life. Because eating is a natural part of social interactions, daily nutrition, and general health, the importance of normal swallowing cannot be overstated. Swallowing affects quality of life in a number of ways, regardless of the severity of the problem. Table 1–1 summarizes common effects that dysphagia has on the quality of life.

TABLE 1–1. Effects of Dysphagia on Quality of Life

A. Functional Limitations
1. There may be limitations on the types of food that a patient can swallow safely.
2. Patients may be limited to a specific diet of foods that they do not like.
3. Time required to swallow and finish a meal may take longer.
4. Oral structures may limit the types of food to swallow.
5. Some foods may cause the patient to choke.
6. Awareness due to either visual or conscious limitations restrict eating.
7. Gastric structures or functions may limit the amount or type of foods.
B. Activities and Participation
1. Patients on a nonoral diet may be reluctant to attend events where food is served.
2. Foods related to culture or religion may not be available to the patient.
3. The ability to hold and use a straw or utensils may limit eating/drinking.
4. The ability to eat in a group setting may limit activities.
5. The ability to prepare meals may reduce food intake.
C. Environmental Factors
1. Changes in room lighting or sound may limit eating.
2. Proper eating arrangements may be limited due to room spaces.
3. Eating in public may present unwanted attention.
4. Use of personal care providers may be needed during mealtimes.
5. The ability to prepare food may be limited.

Aspiration

Aspiration is a condition in which foods, liquids, pills, or oropharyngeal secretions pass into the airway below the level of the true vocal folds. This happens occasionally to most people; but in the absence of injuries to the muscles or nerves of swallowing, most people have the ability to sense the food or liquid in the airway and cough it out. When there is an injury or damage to the swallowing mechanism and aspiration is frequent or extensive, there is a higher risk of lung infections, dehydration, and malnutrition, and the enjoyment of eating diminishes; thus, quality of life also diminishes.[4,5]

Dehydration

Dehydration is the state when there is not enough water in the body to maintain a healthy level of fluids in the body's tissues. Even in an otherwise healthy person, the lack of adequate water intake can lead to dehydration. Water is an essential element for all individuals as it replaces fluid losses from bowel movements, from urination, and also from general physical exercise. A general rule of thumb is to replace body fluids with 3 quarts of water per day. For patients with neurologic impairments who may be at risk for aspiration when swallowing liquids, fluid intake may require constant monitoring. Other factors such as medications that have dehydrating side effects, as discussed in Chapter 3, may impact one's ability to swallow. For example, when there is not enough natural saliva in the mouth, chewing becomes more difficult, food does not easily form a bolus, and particles may break apart and require multiple swallows. Payne et al reported that patients with dysphagia are at high risk for dehydration, which represents a common cause of morbidity and rehospitalization in this group.[6] Patients with dysphagia should be evaluated frequently for signs of dehydration, and if present, further evaluation of other nutritional deficiencies may be warranted.

Malnutrition

Malnutrition is the condition that occurs when your body does not get enough nutrients due to the inability to ingest food safely, the reluctance to eat or fear of eating/drinking due to past swallowing problems, or the inability to digest or absorb ingested nutrients. Once a person is unable to ingest food safely, his or her ability to maintain health decreases. This is especially important for patients who are recovering from extensive surgeries, strokes, or other debilitating diseases and will require extensive rehabilitation. Once malnutrition develops, its treatment may be as important as any other part of the rehabilitation process. Recovery from malnutrition has been shown to help in the rehabilitation process, including in the treatment of dysphagia, leading to improvement in the patient's quality of life. The specifics of nutrition are reviewed in Chapters 8 and 9.

Weight Loss

Weight loss can be tragic: Randy Schmidt's biography of Karen Carpenter, famous pop singer died due to weight loss. His book: Little Girl Blue: The Life of Karen Carpenter*, tells of the tragedy of weight loss and the causes that bring it about.*

There is a great preoccupation with weight loss in our society. Extensive weight loss either induced or without reason requires attention from the dysphagia team. Significant weight loss is associated with the loss of muscle mass, which may produce weakness severe enough to change the daily activities of an individual. Moreover, weight loss may affect coordination of muscles especially in repeated activities such as swallowing. Weight loss associated with starvation, whether intentional or not, may lead to damage of other vital organs, namely, the heart. When unplanned weight loss develops, a swallowing disorder should be suspected. Weight loss should not be so extensive that it affects quality of life, nor should it continue beyond normal weight ranges.

The impact of weight loss on various medical conditions or postsurgical recovery has been shown to slow or delay recovery.

A recent survey of studies related to weight loss suggests the importance of monitoring food and liquid intake.[7] The factors most consistently associated with weight loss were depression, poor oral intake, swallowing issues, and eating/chewing dependency. Staffing factors such as inadequate staffing and lack of professional supervision were associated with weight loss in most studies.

The factors most consistently associated with a low body mass index (BMI) included immobility, poor oral intake, chewing problems, dysphagia, female gender, and older age. The factors most consistently associated with poor nutrition included impaired function, dementia, swallowing/chewing difficulties, poor oral intake, and older age.

Temporary nonoral feeding arrangements are now more commonly used to stabilize weight during recovery from severe diseases and disorders and to speed up such recovery.[8–10]

Types of Pneumonia

Not all types of pneumonia are the result of dysphagia or aphagia. Infections, poor health, and lack of proper posthospital care may lead to other types of pneumonia. Clinicians who treat swallowing disorders must be aware of these, as aspiration may play a part in their cause.

Aspiration Pneumonia. When pulmonary infection results from acute or chronic aspiration of fluids, foods, or oral secretions from the mouth or from fluids arising in the stomach and flowing into the airway, **aspiration pneumonia** develops. This is a potentially life-threatening condition that requires significant medical attention. Aspiration pneumonia can occur in adults or children with medical problems that disrupt a normal swallow. However, not all aspiration leads to pneumonia. Studies report that 28% to 36% of asymptomatic healthy older adults demonstrate trace aspiration on a FEES, and up to 45% of normal adults demonstrate aspiration of oropharyngeal secretions during sleep.[4] In most healthy children and adults, trace aspiration is responded to with awareness and a strong cough to clear the food or liquid. Nonetheless, aspiration pneumonia creates significant morbidity and may account for up to 70% of community-acquired pneumonia in elderly patients.[11]

Nosocomial Pneumonia. **Nosocomial pneumonia**, also called hospital-acquired pneumonia, is usually the result of bacterial infections acquired during the first 48 to 72 hours following admission to a hospital. Nosocomial pneumonia is often the cause of death following admission to an intensive care unit. Factors such as old age, aspiration of saliva, fever, gastric contents rising and falling into the airway (gastric reflux), and other medical conditions requiring intensive care are common causes of nosocomial pneumonia.

Community-Acquired Pneumonia. **Community-acquired pneumonia (CAP)** is an infection of the lungs in people who have not been hospitalized. It is a disease that can affect people of all ages and is often the leading cause of death in countries where vaccination against diseases has not been established. Figure 1–1 shows an x-ray of the lungs. In that figure, evidence of pneumonia can be seen on the right lower lobe of the lung.

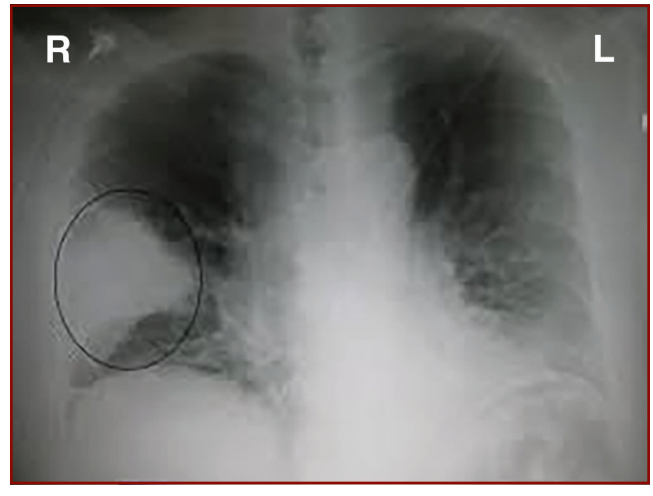

FIGURE 1–1. Standard x-ray shows area of infiltrate in the lower right lobe of the lung. In the figure, evidence of pneumonia can be seen on the right lower lobe of the lung.

In CAP, the patient may appear to be swallowing normally, but due to fever or breathing difficulty, the lungs slowly absorb fluids, resulting in an infection.

CAP is treated with antibiotics and may require rehospitalization. In underdeveloped countries, CAP can occur in patients who have recently been hospitalized and discharged without proper follow-up.[11]

Related Impacts of Swallowing Disorders on Quality of Life

General Health

The inability to swallow correctly may lead to a decline in general health. This may be slow or rapid and is usually, but not always, associated with other diseases. For individuals with systemic diseases such as **Parkinson disease**, diabetes mellitus, or high blood pressure, swallowing may decline slowly. For disorders such as gastroesophageal reflux and autoimmune disorders, dysphagia may initially be sporadic and will increase as the severity of the primary problem increases.[12] With the onset of dysphagia, the body is not able to cope as well with the primary disease. Moreover, the primary disease may be exacerbated by the dysphagia.

Psychological Well-Being

Florence K. had a stroke about 3 months ago. She was recovering nicely but still had trouble with drinking coffee and other liquids. She coughed after each sip. Prior to the stroke, she enjoyed coffee with her friends every Tuesday and Friday morning. Since the stroke, she refused to join them due to the inability to drink coffee without coughing. Therefore, her SLP had her practice dipping a cookie in the coffee but avoiding drinking the coffee. They practiced it in the session. During the following session, Florence reported an enjoyable visit with her friends, and no one noticed her dipping the cookie in the coffee and not drinking the coffee.

Eating is a social function as well as a nutritional necessity. When an illness or disease is further compounded by dysphagia, the natural social functions in which food plays a role are limited.[13] The person with a swallowing disorder can no longer participate seamlessly in the social interactions that surround meals. He or she is no longer able to eat in his or her normal environment (home, for example) or with the same individuals that he or she has dined with in the past. The meal is now in a clinical setting or in a setting with a caregiver following a prescribed diet that may include foods that are new to the individual and not part of his or her lifelong diet. In controlled settings such as a hospital or nursing home, the diet to adhere to is one that will allow the patient to regain health rather than a diet that has a primary purpose of enjoyment.

Enjoying a good meal is often taken for granted, but this is not so for anyone with a swallowing disorder. Clinicians should not underestimate the importance of the social aspects of dysphagia.

Financial Well-Being

The financial impact caused by dysphagia can be significant if there is a need for special foods, supplemental feeding, primary **enteral** or **parenteral nutrition**, dysphagia therapy, special gadgets and appliances to aid in the preparation of meals, or the need for others to assist with feeding. Some or all of these expenses may be paid for by insurance; however, the costs of all dysphagia-related management issues may be substantial and may continue for extended periods of time, straining the financial condition of the patient, his or her family, and the economic welfare of the patient. Limitations brought by insurance capitation or personal financial abilities often compromise ideal rehabilitation strategies.

The true financial impact of dysphagia remains unknown, as research has not yet determined the total cost of major events such as aspiration pneumonia and hospital readmissions or the cost-benefit ratio for the early identification and management of swallowing disorders. Conventional wisdom suggests that early intervention may prevent extensive comorbidities that result from the interaction of

swallowing disorders with other diseases or disorders; clinical research ultimately will lead to confirming the efficacy of dysphagia rehabilitation methods.

In 2018, the hospitalized costs are approximately 30% higher for geriatric patients with dysphagia than for those without dysphagia.[14]

Voice Disorders

Recent evidence suggests that patients with swallowing disorders also have voice changes that impact their quality of life. In a report of patients by Hess et al. seen at a voice and swallowing center,[15] 18% of patients reported dysphagia as their main complaint, suggesting the need for interdisciplinary management of patients with voice disorders. The discipline of a referring provider alone was not a strong enough indicator to reliably predict the type of evaluation needed for the patient. While patients are often seen in a voice and swallowing center for a complaint of hoarseness, weak voice, or a feeling of the need to clear the phlegm in the throat and diagnosed with dysphonia, treatment for the dysphonia alone may not improve their ability to swallow liquids and solids normally. Amin and Belafsky also noted that patients with long-term cough often have voice changes related to glottic insufficiency and thus also experience swallowing disorders due to the lack of vocal fold closure. They note that the afferent and efferent pathways of swallowing and cough are the same.[16] In addition, other factors that signal a dysphagia condition such as laryngopharyngeal reflux, excess mucous, and/or laryngitis may also contribute to dysphagia. In all of these conditions, the effects on the voice may be significant.

NEED FOR EARLY INTERVENTION

"Not everything that counts can be counted."

Dennis Burket, as quoted in Kitchen Table Wisdom *by R.N. Remen*[17]

Quality of Life

There is only limited, albeit strong and intuitively correct, evidence that the diagnosis and treatment of dysphagia are efficacious from the standpoint of significantly reducing aspiration pneumonia. Figure 1–2 shows an example of penetration. The food remains just above the vocal folds; if not cleared with a cough, it may fall into the trachea. This example offers ample evidence for the need to provide early intervention to prevent continued penetration of fluids and foods from entering the trachea, leading to aspiration pneumonia.

Most of the evidence that exists is based on studies of stroke patients, although, as pointed out in Chapters 6, 7, and 8, there also is evidence derived from research on patients undergoing treatment for cancers of the head and neck that dysphagia treatment improves recovery. The limited evidence suggests that, in the acute care setting, dysphagia management is accompanied by reduced pneumonia rates. Furthermore, the use of a complete **clinical swallow evaluation (CSE)** appears to be cost

FIGURE 1–2. An example of penetration. The food remains just above the vocal folds; if not cleared with a cough, it may fall into the trachea.