

# DYNAMIC SWALLOW STUDIES: MEASUREMENT TECHNIQUES REBECCA LEONARD, SUSAN MCKENZIE pdf

## 1: dysphagia assessment and treatment planning a team approach

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White , Rebecca J. Leonard , and Peter C. Received May 13; Accepted Aug The purpose of this investigation is to critically evaluate the posterior cricoid PC region on fluoroscopy and describe patterns of common findings. This was a case control study. All fluoroscopic swallowing studies performed between June 16, , and February 9, , were reviewed for features seen in the PC region. These findings were categorized into distinct patterns and compared to fluoroscopic studies performed in a cohort of normal volunteers. Two hundred patient studies and healthy volunteer studies were reviewed. Four groups were identified. Both patients referred for swallowing studies and healthy volunteers demonstrated esophageal webs, PC arch impressions, and PC plications. The PC impression and PC plication are likely to represent normal variants that may be identified on fluoroscopic swallow studies. Posterior cricoid region, Fluoroscopic swallowing study, Post-cricoid impression, Posterior cricoid plications, Cricoid arch, Deglutition, Deglutition disorders Fluoroscopic swallowing studies of the upper aerodigestive tract are an invaluable method of assessing form and function of the oral cavity, oropharynx, hypopharynx, and pharyngoesophageal segment. As a dynamic procedure, information may be obtained regarding both anatomy and coordination of relevant segments. Timing measures are readily obtained and may be compared to well-established normative data to give accurate objective information [ 1 , 2 ]. Some regions, however, are more difficult to assess. We define the posterior cricoid PC region as the area immediately adjacent to the posterior rim of the cricoid cartilage on the anterior wall of the esophageal inlet. The PC region is somewhat challenging to evaluate on fluoroscopy because of the rapid transit of contrast, its short length and tonic sphincteric closure, and difficulty in correlating fluoroscopic findings with endoscopic anatomy. Well-documented findings on fluoroscopic swallowing evaluations include hypopharyngeal diverticula, cricopharyngeal bars, and posterior pharyngeal wall abnormalities. Little has been written in regard to PC findings. Since that time, very little has been written about PC findings on fluoroscopy. Modern techniques now give us better definition, clarity, and ability to analyze digital images frame by frame. More than fluoroscopic swallowing evaluations are performed in our institution each year. These are reviewed in detail by experienced clinicians, subjectively and objectively analyzed, and then further reviewed by a multidisciplinary dysphagia panel. The purpose of this investigation was to evaluate critically and categorize fluoroscopic findings of the PC region. Materials and Methods Permission to conduct this study was obtained by the institutional review board of the university. All fluoroscopic swallow studies performed at the Center for Voice and Swallowing between June 16, and February 9, were reviewed. The features apparent in the PC region were documented. Patient demographics and referral indication were also recorded. All other studies were included and analyzed on digital media. One hundred forty-nine dynamic swallowing studies DSSs performed in a group of volunteers without dysphagia, neurologic disease, or previous pharyngolaryngeal surgical intervention were deemed a control group and analyzed for comparison. In accordance with our standard protocol, a metal ring of known diameter was taped to the chin or shoulder of the patient. Specific measurement techniques have been previously described in detail [ 1 ]. An experienced clinician reviewed all studies blind to patient history, treatment, and data analysis. The lateral fluoroscopic view was used to assess the PC region. Results Subjects Two hundred consecutive subjects who presented for dynamic swallow study were evaluated. Fifty-three percent were male. Most common referral indications for DSS were solid-food dysphagia Many subjects reported more than one symptom. Underlying disorders included neurological disease cerebrovascular accident, amyotrophic lateral sclerosis, myasthenia gravis in Fifty-six percent was female. No volunteer reported dysphagia, reflux symptoms, medication to treat reflux, or previous laryngopharyngeal surgery. The remaining PC region

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findings were classified into three types. Webs were the only PC finding identified significantly more frequently in patients than in control subjects. The webs were located on the anterior wall of the esophageal inlet dorsal and caudal to the cricoid arch. Webs were thin, did not change in shape, and were typically located at the level of the fifth cervical vertebrae. Fluoroscopic view of a pharyngoesophageal web is demonstrated in Fig.

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## 2: Dysphagia Assessment and Treatment Planning : Katherine Kendall :

*Get this from a library! Dysphagia assessment and treatment planning: a team approach. [Rebecca Leonard; Katherine Kendall, (Staff physician);] -- "This textbook, now in its third edition, is ideal for graduate dysphagia courses in speech-language pathology programs.*

Leonard has been a vocal proponent at state and national levels for the development of standards of practice and training pertinent to this emerging specialty area. Research interests include normal and disordered swallowing, changes in swallowing across the life span, aversive effects on the larynx and voice associated with environmental stimuli and the effects of ablative procedures on voice, speech and swallowing. Speech Pathology A. Leonard has authored or co-authored 2 books, 2 manuals and numerous chapters in professional texts. She is a reviewer for a number of professional journals. Relationship between fluoroscopic and manometric measures of pharyngeal constriction: Transcutaneous electrical stimulation versus traditional dysphagia therapy: A nonconcurrent cohort study. Can a fluoroscopic estimation of pharyngeal constriction predict aspiration? Impact of vocal fold medialization on pharyngeal transit time and incidence of aspiration. Cricopharyngeal myotomy normalizes the opening size of the upper esophageal sphincter in cricopharyngeal dysfunction. Effects of voice therapy on vocal process granuloma " A Phonoscopic Approach. Classification manual for voice disorders. Dysphagia, 19 2: Common medical conditions in the elderly: Structural displacements affecting pharyngeal constriction in nondysphagic elderly and nonelderly adults. UES opening and cricopharyngeal bar in nondysphagic elderly and nonelderly adults. Dysphagia, 19 3: Videofluoroscopic upper esophageal sphincter function in elderly dysphagic patients. Journal of Medical Speech-Language Pathology. Head and Neck Cancer: Management of the Difficult Case. Recent advances in assessment and treatment. Organ Preservation, Function, and Rehabilitation. Singular Publishing Group, Inc. A computerized tool for voice therapy. Dysphagia Assessment and Treatment Planning: Also author or co-author of the following chapters: Introduction; Dynamic swallow study: Objective measures and normative data. Instrumentation and measurement techniques. Chapter 9, ; Swallow evaluation with flexible videoendoscopy, Chapter 10,; The treatment plan; Chapter 11, ; Appendix: Its value in therapeutic assessment. Characteristics, Assessments, and Intervention with Special Populations. Thieme Medical Publishers, New York. Soundscape " Manual of Clinical Applications. Diagnosis, treatment and speech rehabilitation. Chapter in Hudson W, Reinhard M: Manual of Preventative Services. Speech and Hearing Disorders.

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16 *Dynamic Swallow Study: Objective Measures and Normative Data in Adults* Rebecca Leonard Katherine A. Kendall Susan McKenzie 17 *Dynamic Swallow Study: Measurement Techniques* Rebecca Leonard 18 *The Treatment Plan* Rebecca Leonard Katherine A. Kendall Susan McKenzie Susan J. Goodrich

Leonard has been a vocal proponent at state and national levels for the development of standards of practice and training pertinent to this emerging specialty area. Research interests include normal and disordered swallowing, changes in swallowing across the life span, aversive effects on the larynx and voice associated with environmental stimuli and the effects of ablative procedures on voice, speech and swallowing. Leonard has authored or co-authored 2 books, 2 manuals and numerous chapters in professional texts. She is a reviewer for a number of professional journals. Pharyngeal wall thickness in young and elderly normal subjects. Otolaryngology - Head and Neck Surgery, Ann Otol Rhinol Laryngol, Relationship between fluoroscopic and manometric measures of pharyngeal constriction: Transcutaneous electrical stimulation versus traditional dysphagia therapy: A nonconcurrent cohort study. Cricopharyngeal myotomy normalizes the opening size of the upper esophageal sphincter in cricopharyngeal dysfunction. Effects of voice therapy on vocal process granuloma - A Phonoscopic Approach. Classification manual for voice disorders. Impact of vocal fold medialization on pharyngeal transit time and incidence of aspiration. Dysphagia, 19 2: Common medical conditions in the elderly: Structural displacements affecting pharyngeal constriction in nondysphagic elderly and nonelderly adults. UES opening and cricopharyngeal bar in nondysphagic elderly and nonelderly adults. Dysphagia, 19 3: Effects of voice therapy on vocal process granuloma - A Phonoscopic Approach. Videofluoroscopic upper esophageal sphincter function in elderly dysphagic patients. Journal of Medical Speech-Language Pathology. Head and Neck Cancer: Management of the Difficult Case. Recent advances in assessment and treatment. Organ Preservation, Function, and Rehabilitation. Singular Publishing Group, Inc. A computerized tool for voice therapy. Dysphagia Assessment and Treatment Planning: Also author or co-author of the following chapters: Objective measures and normative data. Instrumentation and measurement techniques. Chapter 9, ; Swallow evaluation with flexible videoendoscopy, Chapter 10,; The treatment plan; Chapter 11, ; Appendix: Its value in therapeutic assessment. Characteristics, Assessments, and Intervention with Special Populations. Thieme Medical Publishers, New York. Soundscope - Manual of Clinical Applications. Diagnosis, treatment and speech rehabilitation. Chapter in Hudson W, Reinhard M: Manual of Preventative Services. Speech and Hearing Disorders. Clinical utility of selected objective measures, Short course presented for Medical Speech Pathology Council of California. UES opening and CP bar in healthy non-elderly and elderly adults. Pharyngeal dimensions in healthy non-elderly adults, Lecture presented at the Dysphagia Research Society annual meeting, Miami, Florida.. Quantitative dynamic swallow studies: Abstract appears in convention summary. Abstract appears in convention summary.. Swallowing parameters after single modality treatment of head and neck carcinomas with radiation therapy, Poster. Physiologic basis for choosing between pre-and post operative voice therapy, Presented at 1st World Voice Congress, Oporto, Portugal.. When and why instrumentation makes a difference in differential diagnosis of psychogenic vs neurogenic dysphonias, Paper presented at the Pacific Voice Conference, San Francisco, California.. Effects of vocal fold paralysis on phonatory function and voice, Paper presented at the Pacific Voice Conference, San Francisco, California.. Ozone effects on neural and epithelial components of vocal fold mucosa, Paper presented at symposium on Care of the Professional Voice, Philadelphia, Pennsylvania.. Differentiation of glossectomies by perceptual and acoustic measures, Paper presented at the Second International Conference of Head and Neck Cancer. Differentiation of glossectomized speakers by acoustic and perceptual measures, Paper presented at the Annual Convention of the American Speech, Language and Hearing Association, Washington, D. Effects of stripping vs. Vowel formants in a glossectomy speaker with and without a prosthetic tongue, Paper presented at the Annual Convention of the American Speech, Language

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and Hearing Association, Toronto, Canada. The team approach to craniofacial problems, Panel presentation, Pediatric surgery of the Head and Neck: Prosthetic tongue design to facilitate speech and swallowing in a patient with total glossectomy, Paper presented at the Annual Academy of Maxillofacial prosthetics, San Antonio, Texas.. An abstract appears in the Convention Program Summary.. An abstract appears in the Convention Program Summary.

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## 4: Dysphagia assessment and treatment planning : a team approach - ECU Libraries Catalog

*ECU Libraries Catalog. Tools and Susan McKenzie -- Dynamic swallow studies: measurement techniques / Rebecca Leonard -- The treatment plan / Rebecca Leonard.*

This textbook, now in its third edition, is ideal for graduate dysphagia courses in speech-language pathology programs. The unique value of this book is the multidisciplinary approach it presents. Too often, speech-language pathologists function clinically with insufficient interaction with, or understanding of, the roles of other professionals involved with their patients. This text incorporates information pertinent to the roles, tools, and views of a multidisciplinary dysphagia team, including physicians, speech pathologists, nurse specialists, and dietitians, that works together on a daily basis. For the third edition, the authors have added a companion workbook that includes practical exercises accompanying each chapter - for example, a step-by-step tutorial for making objective measures of timing and displacement from fluoroscopic swallow studies. The exercises are designed to clarify and expand on information presented in the text and should be of interest not only to students but to practicing clinicians hoping to add new skills to their repertoires. Previous chapters have also been thoroughly revised and updated, including new information on the following topics: In addition, it includes both normal and patient fluoroscopy studies for review and measurement. The patient studies selected are representative of impairments typically observed in clinical practice inpatient and outpatient. Other media clips illustrate each instrumental assessment technique introduced in the book e. As noted, a separate workbook is also available to reinforce student learning of the concepts presented in the textbook and DVD. With its updated and expanded content, *Dysphagia Assessment and Treatment Planning, Third Edition* highlights the most current evidence-based research as it applies to a team-based approach to clinical practice. Anatomy and Physiology of Deglutition Katherine Kendall 2. Neurogenic Dysphagia Jacqui Allen 5. Esophageal Phase Dysphagia Peter C. Belafsky and Catherine J. Laryngopharyngeal Reflux Catherine J. Rees and Peter C. Clinical Swallow Evaluation Susan J. Goodrich and Alice I. DSS Analysis and Interpretation: Measurement Techniques Rebecca Leonard

## 5: UC Davis Health | Department of Otolaryngology | Dr. Rebecca Leonard

*Table of Contents for Dysphagia assessment and treatment planning: a team approach / [edited by] Rebecca Leonard and Katherine Kendall, available from the Library of Congress.*

## 6: Sequence variability during hypopharyngeal bolus transit | Read by QxMD

*Dynamic Swallow Study: Objective Measures and Normative Data in Adults Rebecca Leonard, Katherine Kendall, and Susan McKenzie Dynamic Swallow Studies: Measurement Techniques Rebecca Leonard*

## 7: Rebecca J. Leonard, PhD | Pacific Voice & Speech Foundation

1. Author(s): Leonard, Rebecca; Kendall, Katherine, (Staff physician), Title(s): *Dysphagia assessment and treatment planning: a team approach/ [edited by] Rebecca.*

## 8: Table of contents for Dysphagia assessment and treatment planning

*Dynamic Swallow Study: Swallowing Evaluation with Videofluoroscopy Susan McKenzie and Rebecca Leonard DSS Analysis and Interpretation: A Systematic Approach for the Clinician Susan McKenzie Dynamic Swallow Study: Objective Measures and Normative Data in Adults Rebecca Leonard, Katherine Kendall, and Susan McKenzie*

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