

Cambridge University Press

978-1-107-03594-2 - Imaging Acute Neurologic Disease: A Symptom-Based Approach

Edited by Massimo Filippi and Jack H. Simon

Frontmatter

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Imaging Acute Neurologic Disease

A Symptom-Based Approach

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Edited by

Massimo Filippi, MD

Editor-in-Chief of *Journal of Neurology*; Professor of Neurology and Director, Neuroimaging Research Unit, Institute of Experimental Neurology, Division of Neuroscience, San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Milan, Italy

Jack H. Simon, MD, PhD

Professor of Radiology and Neurology, Oregon Health and Science University (OHSU); Neuroradiologist, Portland VA Medical Center; Adjunct Scientist, Advanced Imaging Research Center, OHSU, Portland, OR, USA



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Contributors

Federica Agosta, MD, PhD
Neuroimaging Research Unit, Institute of
Experimental Neurology, Division of Neuroscience,
San Raffaele Scientific Institute, Vita-Salute San
Raffaele University, Milan, Italy

Alberto Albanese, MD
Istituto Neurologico Carlo Besta, Università Cattolica
del Sacro Cuore, Milan, Italy

Timothy J. Amrhein, MD
Department of Radiology, Medical University of
South Carolina, Charleston, SC, USA

A. M. Barrett, MD
Kessler Foundation, West Orange, NJ; Department of
Physical Medicine & Rehabilitation, and Department
of Neurology & Neurosciences, Rutgers – New Jersey
Medical School, Newark, NJ, USA

Walter S. Bartynski, MD
Department of Radiology, Medical University of
South Carolina, Charleston, SC, USA

Felix Benninger, MD
Department of Neurology, Rabin Medical Center,
Petach Tikva, Israel

Thomas Brandt, MD, FRCP, FANA
Clinical Neuroscience and German Center
for Vertigo and Balance Disorders – IFB,
Ludwig-Maximilians-University Munich, Germany

Andrew G. Burke, MD
Division of Neuroradiology, Oregon Health and
Science University, Portland, OR, USA

Michelle Cameron, MD, PT
Department of Neurology, Oregon Health and Science
University, Portland, OR, USA

Elisa Canu, MSc
Neuroimaging Research Unit, Institute of
Experimental Neurology, Division of Neuroscience,

San Raffaele Scientific Institute, Vita-Salute San
Raffaele University, Milan, Italy

Louis R. Caplan, MD
Department of Neurology, Beth Israel Deaconess
Medical Center, Boston, MA, USA

Christine M. Carr, MD
Division of Emergency Medicine, Medical University
of South Carolina, Charleston, SC, USA

Daniel J. A. Connolly, MRCP, FRCR
Department of Radiology, Royal Hallamshire
Hospital, Sheffield, UK

Firouz Daneshgari, MD
Department of Urology, Case Western Reserve
University, Cleveland, OH, USA

John DeLuca PhD
Kessler Foundation, West Orange, NJ; Department
of Physical Medicine & Rehabilitation, and
Department of Neurology & Neurosciences, Rutgers –
New Jersey Medical School, Newark, NJ, USA

Marianne de Visser, MD, PhD
Department of Neurology, Academic Medical Center,
University of Amsterdam, Amsterdam, The Netherlands

Marianne Dieterich, MD, FANA
Department of Neurology and German
Center for Vertigo and Balance Disorders – IFB,
Ludwig-Maximilians-University Munich, Germany

Antonio E. Elia, MD
Istituto Neurologico Carlo Besta, Università Cattolica
del Sacro Cuore, Milano, Italy

Joseph H. Feinberg, MD
Hospital for Special Surgery, New York, NY, USA

Massimo Filippi, MD
Neuroimaging Research Unit, Institute of
Experimental Neurology, Division of Neuroscience,

List of contributors

San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Milan, Italy

Lauren C. Frey, MD
Department of Neurology, University of Colorado School of Medicine, Aurora, CO, USA

Gaëtan Garraux, MD, PhD
MOVERE Group, Cyclotron Research Center & Department of Neurology, University of Liège, Belgium

Andrea Ginestroni, MD, PhD
Department of Neuroradiology, Careggi University Hospital, Florence, Italy

Peter J. Goadsby, MD, PhD
Headache Group, Department of Neurology, University of California, San Francisco, San Francisco, CA, USA

Bronwyn E. Hamilton, MD
Division of Neuroradiology, Oregon Health and Science University, Portland, OR, USA

Simon J. Hickman, PhD, FRCP
Department of Neurology, Royal Hallamshire Hospital, Sheffield, UK

Holly E. Hinson, MD
Department of Neurology, Oregon Health and Science University, Portland, OR, USA

Jon P. Jennings, MD
Division of Emergency Medicine, Medical University of South Carolina, Charleston, SC, USA

Jan Kassubek, MD
Department of Neurology, University of Ulm, Ulm, Germany

Horacio Kaufmann, MD
Departments of Neurology, Medicine, and Pediatrics, New York University Langone Medical Center, New York, NY, USA

David M. Kaylie, MD, FACS
Division of Otolaryngology, Duke University Medical Center, Durham, NC, USA

Joanna Kitley, MBBS
Nuffield Department of Clinical Neurosciences, University of Oxford, John Radcliffe Hospital, Oxford, UK

Vladimir S. Kostic, MD, PhD
Clinic of Neurology, Faculty of Medicine, University of Belgrade, Belgrade, Serbia

C. T. Paul Krediet, MD, PhD
Department of Internal Medicine, Academic Medical Center at the University of Amsterdam, The Netherlands

Megan C. Leary, MD
Department of Neurology, Beth Israel Deaconess Medical Center, Boston, MA, USA

Farooq H. Maniyar, MD, MRCP
The Royal London Hospital, London & Basildon and Thurrock University Hospitals NHS Foundation Trust, Basildon, UK

Ken R. Maravilla, MD
Department of Radiology, University of Washington, Seattle, WA, USA

Mario Mascalchi, MD, PhD
Quantitative & Functional Neuroradiology Research Unit, Department of Experimental & Clinical Biomedical Sciences, University of Florence, Italy

Rajarshi Mazumder, MD
Oregon Health Sciences University, Portland, OR, USA

Priyesh Mehta, DO
Department of Rehabilitation Medicine, New York Presbyterian Hospital, New York, NY, USA

Jacqueline A. Palace, DM, FRCP
Nuffield Department of Clinical Neurosciences, University of Oxford, John Radcliffe Hospital, Oxford, UK

Raj M. Paspulati, MD
Department of Radiology, Case Western Reserve University, University Hospitals Case Medical Center, Cleveland, OH, USA

Christopher A. Potter, MD
Department of Radiology, University of Washington, Seattle, WA, USA

Angelo Quattrini, MD
Experimental Neuropathology Unit, Institute of Experimental Neurology, Division of Neuroscience, San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Milan, Italy

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List of contributors

- Louis P. Riccelli MD**
Department of Radiology, Oregon Health and Science University, Portland, OR, USA

Nilo Riva, MD, PhD
Experimental Neuropathology Unit, Division of Neuroscience, San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Milan, Italy

Maria A. Rocca, MD
Neuroimaging Research Unit, Department of Neurology, San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Milan, Italy

Mirabelle B. Sajisevi, MD
Division of Otolaryngology, Duke University Medical Center, Durham, NC, USA

Richard Salazar-Montero, MD
Department of Neurology, University of Maryland School of Medicine, Baltimore, MD, USA

Nicholas D. Schiff, MD, PhD
Department of Neurology, Weill Cornell Medical College, New York, NY, USA

Jack H. Simon, MD, PhD
Department of Radiology, Oregon Health and Science University; Neuroradiologist, Portland VAMC, Portland, OR, USA

Israel Steiner, MD
Department of Neurology, Rabin Medical Center, Petach Tikva, Israel
- Carl D. Stevens, MD, MPH**
Department of Emergency Medicine, Harbor-UCLA Medical Center, Torrance, CA, USA

Bart P. van de Warrenburg, MD, PhD
Department of Neurology, Radboud University Nijmegen Medical Centre, Donders Institute for Brain, Cognition & Behaviour, Nijmegen, The Netherlands

Judith van Gaalen, MD
Department of Neurology, Radboud University Nijmegen Medical Centre, Donders Institute for Brain, Cognition & Behaviour, Nijmegen, The Netherlands

William J. Weiner, MD (deceased)
Formerly Department of Neurology, University of Maryland School of Medicine, Baltimore, MD, USA

Jane L. Weissman, MD, FACR
Department of Radiology, Oregon Health and Science University, Portland, OR, USA

Jay Yao, MD
Department of Neurology, Oregon Health and Science University, Portland, OR, USA

G. Bryan Young, MD, FRCPC
University Hospital, London, Ontario, Canada

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Preface

Acute neurologic diseases encompass a wide spectrum of medical illnesses with neurological manifestations which require rapid clinical, paraclinical, and laboratory evaluation as patients are assessed in the emergency department or acute care clinics. In the last decade, imaging has assumed far greater importance in the initial assessment of these patients, and is responsible for much of the cost and resources in the early, critical evaluation. However, the optimal approach to utilization of imaging for thorough, yet efficient and cost-responsible, care remains poorly defined for many acute neurologic presentations.

Many radiologic texts provide an invaluable overview of the many important details of the pathology of neurologic disease. But patients present to the emergency room or clinic with symptoms which typically are thoughtfully considered and guide the clinician through a decision-making process that ultimately determines the type, order, and priorities for further testing, including imaging when indicated. We have therefore prioritized a symptom-based approach to imaging in acute neurologic disease, based on the practice parameters developed by experts in the field, combining expert clinicians and imagers for each chapter. The task of developing symptom-based imaging algorithms is not always straightforward, and it is recognized that there are many potential variations in approach that are equally valid. The reader will observe that each team of authors has developed a personalized approach to the question based on their practice pattern and expertise. The approaches described in each chapter should provide a framework that we hope can be utilized by the reader to refine their approach, suggest alternative pathways, or encourage and stimulate discussion in the clinical and imaging circles that can ultimately result in more optimal clinical care. While the imaging details and differential considerations are not meant to be comprehensive, we hope that imagers will also benefit from this symptom-centric approach to disease; in the reading room evaluation always starts with

consideration of history, symptoms, and signs, and imaging is an interactive process that benefits from repeated clinical input, especially in complex and unusual neurological presentations.

Currently, conventional computerized tomography (CT), magnetic resonance imaging (MRI), and nuclear medicine techniques are used to facilitate diagnosis, therapeutic decisions, to provide information regarding prognosis, and to monitor therapy response. Furthermore, the advent of quantitative CT and MRI techniques, notably diffusion and perfusion imaging, have introduced new opportunities for diagnosis of neurological diseases on the basis of objective findings. The improved and more advanced techniques offer unique anatomical as well as pathophysiological information that provides insight into neurological diseases. However, the practical value of various neuroimaging techniques in routine clinical practice in an individual patient is not as yet well defined.

The scope of this book is designed to provide a comprehensive survey of best practice for experienced clinicians and imagers as well as resident housestaff in fields such as emergency medicine, neurology, radiology and neuroradiology, neurosurgery, and critical care. The symptom-based imaging aims to guide the emergency physician in the choice of imaging tools for a correct and cost-efficient diagnosis of the common and complex neurological disorders. The integrated approach to examination algorithms includes the most common symptoms likely to be encountered in the emergency or acute care setting, ranging from global symptoms such as headache and syncope through focal neurologic symptoms such as hearing loss and paralysis. It should be emphasized that this volume is designed to provide practical algorithms and guidelines for the emergency setting. The work is not intended to discuss all possible differential diagnoses, their pathogenesis, and immediate management or treatment. For many neurologic conditions, final diagnosis is in fact not achieved in the initial or emergency department evaluation.

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The organization of the book is such that the first three chapters consider evaluation of patients with altered states of consciousness: delirium, agitation, and intellectual dysfunction. The subsequent two chapters are concerned with assessment of patients with pain, a common presenting complaint for patients in an emergency department. The remaining chapters examine the frequent acute neurological complaints which are secondary to brain damage and manifest as either focal or multifocal neurological presentations. Approaches to symptoms suggestive of involvement of the spinal cord and peripheral nervous system are also considered.

Our hope is that this volume is appreciated as a comprehensive source of information and also provides an educational framework for trainees and a reference for practicing neurologists and radiologists seeking direct and authoritative answers to questions. We have encouraged authors to introduce illustrative and tabular material, including flow charts. We hope that readers will find this issue of practical relevance and a stimulus to more in-depth reading and investigation in this field.

Massimo Filippi and Jack Simon
Milan, Italy
Portland, Oregon, USA