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With a Foreword by Kurt A. Jellinger

With 264 Figures and 69 Tables

 Springer



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Basic Translation by  
James Heywood  
142 W. 2nd St.  
Mesa/AZ 85201  
USA

ISBN-10 3-540-23500-0  
ISBN-13 978-3-540-23500-2

Library of Congress Control Number: 2005924215

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Printed in Germany

**Springer-Verlag**  
Berlin Heidelberg New York

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Editor: Gabriele Schröder, Heidelberg  
Desk Editor: Stephanie Benko, Heidelberg  
Typesetting: Satz-Druck-Service, Leimen  
Production: Pro Edit GmbH, Heidelberg  
Cover-Design: Frido Steinen-Broo, EStudio Calamar, Spain  
Printing and Binding: Stürtz, Würzburg

Printed on acid-free paper 24/3151Re 5 4 3 2 1 0

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# Foreword

Partly as a result of major recent advances in neurobiology and molecular sciences, but also as a consequence of improving methods in clinical neurosciences, general and forensic pathology, forensic neuropathology has become a highly specialized field of modern medicine, which deals with disorders of the nervous system under non-natural, traumatic, exogenous or criminal conditions. Although forensic neuropathology has a long tradition, leading from C.B. Courville (1964) via Leestma (1988), and Unterharnscheidt (1992–94) to Manfred Oehmichen, and is of eminent importance within the field of forensic sciences, this particular and complicated subject has received only little attention within the scientific community. With greater and more precise understanding of the pathological, physical, biochemical, and molecular genetic processes involved in disorders of the nervous system and their relations with causes of death under natural and non-natural circumstances, the prospects of new forms of investigation into fatal processes are becoming more practicable. Based on lifelong experience in the field of general forensic medicine and, in particular, forensic pathology and neuropathology, *Forensic Neuropathology and Associated Neurology*, written by Manfred Oehmichen, Roland N. Auer, and Hans Günter König presents a timely overview of the state-of-the-art of examination and clarification of diseases of the nervous system under general and forensic circumstances. Like general pathology and neuropathology, its forensic part serves not only to clarify the causes of death due to nervous system disorders, but it is an important method for quality control excluding natural causes of death. Thus, forensic neuropathology, based on recent results, guidelines and standards of modern pathology and neurosciences, has become an integral part of forensic medicine and practice.

The concept and the structure of the book is based on the principles of forensic neuropathology, modern cytology, cell and tissue reactions, modern biophysics, and molecular biology of the nervous system. It is an important and difficult task for the

forensic neuropathologist to differentiate naturally occurring disorders from non-natural and exogenous ones, and he needs extensive experience in order to avoid misinterpretation of cerebral lesions, which becomes more and more difficult with our increasing knowledge of the pathology and pathogenesis of nervous system disorders, the etiology of which remains to be elucidated. On the other hand, basic and clinical neuropathologists not experienced in forensic problems often may not be able to differentiate naturally developing disorders from forensic ones, while many forensic pathologists are not acquainted with the current neuropathological literature. The present book, the first one on forensic neuropathology after almost two decades, and the first written by German scientists after Unterharnscheidt's handbooks of traumatic lesions of the brain and spinal cord, closes a broad gap between clinical and forensic neuropathology. The coverage of the topics listed in the table of contents is comprehensive and complete. After dealing with general aspects and basic mechanisms of molecular neuroscience, it reviews the major disorders of the central and peripheral nervous system with impact on lesions most frequently observed in forensic medicine, i.e., physical, ischemic/hypoxic, and toxic damage to the nervous system of adults, and especially of infants and children, but also naturally occurring disorders of the nervous system, including vascular, metabolic, toxic, degenerative, and age-related diseases, all handled in a well-written, concise, and didactic way. The book is based on the senior author's vast experience in his particular profession, and will provide the reader with a state-of-the-art overview of forensic neuropathology. The illustrations, as one would expect in a Springer book, are outstanding, and the reference lists added to each chapter are informative.

Speaking as one who has spent much of his lifetime in neuropathology and applied neurosciences and as a close friend to the senior author of this seminal book, I am glad to note that it covers practically the whole field of neuropathology with impact on

forensic problems. I am happy to recommend this outstanding volume as a first-rate reference book to a wide audience of forensic scientists, general pathologists, clinical neuropathologists as well as to neurologists, neuropediatricists, and psychiatrists, and other health professionals interested and engaged in forensic problems of disorders of the nervous system. Indeed, many physicians and health

professionals will find much information within its pages. I am confident that this outstanding and distinguished textbook is assured of full success.

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Senior Editor-in-chief of Acta Neuropathologica



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# Preface

The present textbook was written with the same intentions as Leestma introduced his excellent monograph (Forensic Neuropathology. Raven, New York, 1988), “to deal with those areas which have the most importance in forensic settings, are typical problem areas, or seem to be poorly understood by most forensic pathologists...” The authors have attempted not only to describe the pathomorphology of insults of the human nervous system, but also the underlying pathophysiological, molecular, and biomechanical principles that can help forensic pathologists to understand the pathological changes induced by a traumatic event and enable the expert witness to reconstruct the criminal act; they have tried to integrate the forensic and criminalistic problems and questions as well as – to a certain degree – the clinical features and sequelae. The aim of this volume is to bridge the gap between the ways of thinking of the basic neuroscientist, the researcher, the practicing medicolegal neuropathologist, and the clinical phy-

sician. We hope the reader will find this approach unique and useful, as well as intriguingly broadening the horizons of what is usually discussed under medicolegal headings and topics.

The clinical aspects are discussed since forensic pathologists are increasingly asked to aid in medicolegal questions in connection with medical lawsuits. On the other hand we have lost sight of the needs of clinical neurologists, neurosurgeons, neuropediatricians, neurotraumatologists, and neuroradiologists, who may also be called to serve as expert witnesses in court. Thus we offer essential information on the pathological processes encountered in survivors of different brain injuries. The present book may therefore be a useful tool for both pathologists and clinicians confronted with forensically relevant injuries and disorders of the human nervous system.

**M. Oehmichen, R.N. Auer, H.G. König**

