The authors of this volume are a world-class group of clinical neuroscientists from one of the world’s greatest medical centers. They have done a masterful job of integrating basic anatomy and neurologic diagnosis based on the patient’s signs and symptoms. This is the best book I have seen on the correlation between neuroanatomy and clinical findings during my more than 40 years of clinical practice. In 23 chapters, beginning with neuroembryology and ending with cerebrospinal fluid, they have covered the full spectrum of regional and system-based neuroanatomy, related syndromes, and differential diagnosis. The presentation of each topic is concise, but it is comprehensive in its overall coverage of neurologic diagnosis. The text in each chapter is supplemented with color illustrations showing the anatomic basis of the patient’s signs and symptoms. Students and trainees will benefit from studying this book from cover to cover, and clinicians with advanced knowledge and experience will use it frequently for quick reference.

Albert L. Rhoton Jr., MD
R.D. Keene Family Professor
Professor and Chairman Emeritus
Department of Neurosurgery
University of Florida
Preface

This book is intended for medical students, residents, and practicing clinicians who wish to understand or review the basic anatomic concepts that underlie neurologic diagnosis. The book explains the fundamentals of neuroanatomy and illustrates their clinical application. In keeping with this philosophy, this book emphasizes principles and clinically relevant facts: anatomic details with little or no clinical import are discussed briefly or omitted so as to concentrate on the essentials of neurologic diagnosis.

This fund of knowledge is organized as the clinical neurologist would organize it: by regions and functional systems. Thus, after an introductory chapter on neuroembryology (Part I), Part II of the book comprises a series of chapters on the anatomy of regional parts of the nervous system, including peripheral nerves, plexuses, nerve roots and spinal nerves, spinal cord, brainstem, cranial nerves, cerebellum, thalamus, hypothalamus, basal ganglia, limbic system, and cerebral cortex. These chapters are divided into two sections: the first section describes the basic anatomy of the region, the second section discusses the region’s cardinal manifestations in disease.

Part III comprises a series of chapters on functional systems. These include the somatosensory system, visual system, auditory system, vestibular system, ocular motor system, motor system, autonomic system, and consciousness. These chapters are divided into two sections: the first section describes the basic anatomy of the system, the second section describes a practical approach to the patient with a system disorder. Part IV comprises a chapter on the vascular system and a chapter on the cerebrospinal fluid.

To complement and amplify the text we have illustrated the book lavishly with original drawings that convey anatomic and clinical concepts. These unique drawings are rendered so as to illustrate structure, function, and dysfunction in a single view. Thus each drawing illustrates the clinical deficit associated with a described structure, or, conversely, a structure that produces a described clinical deficit.

In introducing clinical material we have eschewed the fashionable “clinical notes” and “clinical correlates” frequently found in neuroanatomy textbooks. The inclusion of such corollaries, which primarily comprise descriptions of randomly selected syndromes, diseases, and diagnostic tests, in our view fails to meet the needs of those who actually require a logical, patient-oriented approach. Discussions of the pathology and clinical presentation of specific disease states are also assiduously avoided so as to put the proper emphasis where it belongs: on patients and their neurologic symptoms.

To that end, this book offers the following features:

- The cardinal manifestations of regional nervous system disturbances facilitate rapid anatomic localization.
- Approaches to common neurologic complaints demonstrate the systematic method of neurologic diagnosis.
- Abundant original drawings summarize key anatomic and clinical concepts.
- Ample tables summarize key points.

In this era of advanced diagnostic technology, the relevance of clinical diagnosis in neurology has not diminished. Indeed, despite recent technological advances made in our approach to the nervous system, particularly in neuroimaging, the signs and symptoms elicited by the clinician at bedside remain paramount in the process of neurologic diagnosis. With no working hypothesis—formulated by history taking and tested by physical examination—to guide ancillary studies, no rational decision can be made regarding which studies to undertake.

In whatever field of medicine or surgery one eventually practices, patients will present with nervous disorders. These patients deserve caring and knowledgeable physicians to accurately diagnose their complaints. The present book provides a rational and practical approach to this humbling task.

Acknowledgments

We wish to thank Christine Moore for her outstanding organizational contributions and Joseph Kanasz and Michael Norviel for their creativity and artistic skills.

Cary D. Alberstone
Edward C. Benzel
Imad M. Najm
Michael P. Steinmetz