

Contents

Preface xi

SECTION I

BASIC PRINCIPLES 1

1. Fundamentals of the Nervous System 1

- General Plan of the Nervous System 1
- Peripheral Nervous System 5
- Planes and Terms 5

2. Development and Cellular Constituents of the Nervous System 7

- Cellular Aspects of Neural Development 7
- Neurons 7
- Neuronal Groupings and Connections 11
- Neuroglia 11
- Degeneration and Regeneration 14
- Neurogenesis 17

3. Signaling in the Nervous System 19

- Membrane Potential 19
- Generator Potentials 20
- Action Potentials 20
- The Nerve Cell Membrane Contains
 - Ion Channels 21
- The Effects of Myelination 21
- Conduction of Action Potentials 23
- Synapses 23
- Synaptic Transmission 25
- Excitatory and Inhibitory Synaptic Actions 26
- Synaptic Plasticity and Long-Term Potentiation 27
- Presynaptic Inhibition 27
- The Neuromuscular Junction and the End-Plate Potential 28
- Neurotransmitters 29

SECTION II

INTRODUCTION TO CLINICAL THINKING 33

4. The Relationship Between Neuroanatomy and Neurology 33

- Symptoms and Signs of Neurologic Diseases 33

- Where Is the Lesion? 36
- What Is the Lesion? 38
- The Role of Neuroimaging and Laboratory Investigations 39
- The Treatment of Patients with Neurologic Disease 40

SECTION III

SPINAL CORD AND SPINE 43

5. The Spinal Cord 43

- Development 43
- External Anatomy of the Spinal Cord 43
- Spinal Roots and Nerves 44
- Internal Divisions of the Spinal Cord 48
- Pathways in White Matter 50
- Reflexes 54
- Lesions in the Motor Pathways 59
- Examples of Specific Spinal Cord Disorders 62

6. The Vertebral Column and Other Structures Surrounding the Spinal Cord 65

- Investing Membranes 65
- Spinal Cord Circulation 66
- The Vertebral Column 67
- Lumbar Puncture 69
- Imaging of the Spine and Spinal Cord 71

SECTION IV

ANATOMY OF THE BRAIN 77

7. The Brain Stem and Cerebellum 77

- Development of the Brain Stem and Cranial Nerves 77
- Brain Stem Organization 77
- Cranial Nerve Nuclei in the Brain Stem 80
- Medulla 80
- Pons 85
- Midbrain 86
- Vascularization 87
- Cerebellum 89

- 8. Cranial Nerves and Pathways 99**
 Origin of Cranial Nerve Fibers 99
 Functional Components of the
 Cranial Nerves 99
 Anatomic Relationships of the Cranial Nerves 102
- 9. Diencephalon 119**
 Thalamus 119
 Hypothalamus 121
 Subthalamus 126
 Epithalamus 127
 Circumventricular Organs 128
- 10. Cerebral Hemispheres/Telencephalon 131**
 Development 131
 Anatomy of the Cerebral Hemispheres 131
 Microscopic Structure of the Cortex 136
 Physiology of Specialized Cortical Regions 142
 Basal Ganglia 143
 Internal Capsule 144
- 11. Ventricles and Coverings of the Brain 149**
 Ventricular System 149
 Meninges and Submeningeal Spaces 150
 CSF 152
 Barriers in the Nervous System 154
 Skull 156
- 12. Vascular Supply of the Brain 163**
 Arterial Supply of the Brain 163
 Venous Drainage 165
 Cerebrovascular Disorders 167

SECTION V FUNCTIONAL SYSTEMS 179

- 13. Control of Movement 179**
 Control of Movement 179
 Major Motor Systems 179
 Motor Disturbances 184
- 14. Somatosensory Systems 191**
 Receptors 191
 Connections 191
 Sensory Pathways 191
 Cortical Areas 192
 Pain 192
- 15. The Visual System 197**
 The Eye 197
 Visual Pathways 201
 The Visual Cortex 205
- 16. The Auditory System 211**
 Anatomy and Function 211
 Auditory Pathways 211
- 17. The Vestibular System 217**
 Anatomy 217
 Vestibular Pathways 217
 Functions 217

- 18. The Reticular Formation 221**
 Anatomy 221
 Functions 221
- 19. The Limbic System 225**
 The Limbic Lobe and Limbic System 225
 Olfactory System 225
 Hippocampal Formation 226
 Functions and Disorders 232
 Septal Area 232
- 20. The Autonomic Nervous System 237**
 Autonomic Outflow 237
 Autonomic Innervation of the Head 243
 Visceral Afferent Pathways 244
 Hierarchical Organization of the
 Autonomic Nervous System 245
 Transmitter Substances 247
- 21. Higher Cortical Functions 251**
 Frontal Lobe Functions 251
 Language and Speech 251
 Cerebral Dominance 256
 Memory and Learning 256
 Epilepsy 256

SECTION VI DIAGNOSTIC AIDS 261

- 22. Imaging of the Brain 261**
 Skull X-Ray Films 261
 Angiography 261
 Computed Tomography 262
 Magnetic Resonance Imaging 264
 Magnetic Resonance Spectroscopy 268
 Diffusion-Weighted Imaging 268
 Functional MRI 268
 Positron Emission Tomography 268
 Single Photon Emission CT 270
- 23. Electrodiagnostic Tests 271**
 Electroencephalography 271
 Evoked Potentials 272
 Transcranial Motor Cortical Stimulation 274
 Electromyography 274
 Nerve Conduction Studies 277
- 24. Cerebrospinal Fluid Examination 279**
 Indications 279
 Contraindications 279
 Analysis of the CSF 279

SECTION **VII**
DISCUSSION OF CASES 281

- 25. Discussion of Cases 281**
 The Location of Lesions 281
 The Nature of Lesions 282
 Cases 283

Appendix A: The Neurologic Examination 297

Appendix B: Testing Muscle Function 305

Appendix C: Spinal Nerves and Plexuses 321

Appendix D: Questions and Answers 339

Index 347

No other organ system presents as fascinating an array of structures and mechanisms as the human brain and spinal cord. It is hard to think of any clinical field that does not encompass at least some aspect of the neurosciences, from molecular and cellular neurobiology through motor systems and clinical neuroscience to human behavior. The brain is the seat of life. It is the brain, after all, that makes us uniquely human. No surprise, then, that neuroscience has emerged as one of the most exciting fields of research and now occupies a central role as a substrate for clinical medicine.

The nervous system is unique in its exquisite nature. The nervous system contains more cell types than any other organ or organ system, and its constituent nerve cells—more than 100,000,000,000 of them—and an even larger number of supportive glial cells are arranged in a complex but orderly, and functionally crucial, way. Many disease processes exert, in a direct or indirect way, the nervous system. Thus, every clinician, and every basic scientist with an interest in clinical disease, needs an understanding of neuroanatomy. Stroke is the most frequent cause of death in most industrialized societies; mood disorders such as depression affect more than 1 person in 10; and clinical dysfunction of the nervous system occurs in 25% of patients in most general hospital settings at some time during their hospital stay. An understanding of neuroanatomy is crucial not only for neurologists, neurosurgeons, and psychiatrists but also for clinicians in all subspecialties, since patients of every stripe are in clinical situations that require an understanding of the nervous system, its structure, and its function.

This new 28th edition has been designed to provide an accessible, easy-to-remember overview of neuroanatomy and its functional and clinical implications. A new section summarizes the most essential take-away messages from each chapter. Since many of us learn and remember best when material is presented visually, this book is richly illustrated not only with clinical material such as brain scans and pathological

specimens but also with a host of diagrams and tables that are designed to be clear and memorable. The diagrams, which have been updated for the 28th edition, are uniquely colorful and easy to read. The appendices provide unique learning opportunities, such as a reference to implant the gross anatomy of the brain, and a review of gross and neuroanatomy. Every chapter, it has been my goal, provides a manageable and concise overview for busy medical students and residents, as well as trainees in health-related fields such as physical therapy; graduate students and postdoctoral fellows with an interest in neuroanatomy and its functional underpinnings; and clinicians in practice, for whom manuals are precious.

This book is unique in containing a section entitled "Introduction to Clinical Thinking," which introduces the reader, early in the text, to the logical processes involved in using neuroanatomy as a basis for thinking about patients. Since some trainees remember patients better than isolated facts, I have included discussions of clinical correlates and clinical illustrations that synthesize the most important characteristics of patients selected from an extensive clinical experience. Also included are illustrative clinical images including computer tomography (CT) and magnetic resonance imaging (MRI), both of normal brain and spinal cord, and of common clinical entities that trainees will likely encounter.

As with past editions, I owe a debt of gratitude to many colleagues and friends within the Department of Neurology at Yale Medical School and elsewhere. These colleagues and friends have helped to create an environment where learning is fun, a motif that I have woven into this book. I hope that readers will join me in finding that neuroanatomy, which provides much of the foundation for both neuroscience and clinical medicine, can be enjoyable, memorable, and easily learned.

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