

INTERNATIONAL EDITION

Not authorised for sale in United States, Canada, Australia and New Zealand

9th Edition

Duane E. Haines

NEUROANATOMY IN CLINICAL CONTEXT

An Atlas of Structures, Sections,
Systems, and Syndromes



Wolters Kluwer



10044078

ห้องสมุด วทบ. สุรินทร์

 Wolters Kluwer

Table of Contents

Preface to the Ninth Edition	v
---	---

Acknowledgments	vii
------------------------------	-----

1

Introduction and User's Guide	1
--	---

2

External Morphology of the Central Nervous System	7
The Spinal Cord: Gross Views and Vasculature	8
The Brain: Lobes, Principle Brodmann Areas, Sensory–Motor Somatotopy	11
The Brain: Gross Views, Vasculature, and MRI	14
The Cerebellum: Gross Views and MRI	34
The Insula: Gross View, Vasculature, and MRI	36
Vascular Variations of Clinical Relevance	38

3

Cranial Nerves	43
Synopsis of Cranial Nerves	44
Cranial Nerves in MRI	46
Deficits of Eye Movements in the Horizontal Plane	53
Cranial Nerve Deficits in Representative Brainstem Lesions	54
Cranial Nerve Cross Reference	55

4

Meninges, Cisterns, Ventricles, and Related Hemorrhages	57
The Meninges and Meningeal and Brain Hemorrhages	58
Meningitis	60
Epidural and Subdural Hemorrhage	62
Cisterns and Subarachnoid Hemorrhage	64
Meningioma	66
Ventricles and Hemorrhage into the Ventricles	68
The Choroid Plexus: Locations, Blood Supply, Tumors	72
Hemorrhage into the Brain: Intracerebral Hemorrhage	74

5

Internal Morphology of the Brain in Unstained Slices and MRI..... 75

Part I: Brain Slices in the Coronal Plane Correlated with MRI..... 75

Part II: Brain Slices in the Axial Plane Correlated with MRI..... 85

6

**Internal Morphology of the Spinal Cord and Brain:
Functional Components, MRI, Stained Sections..... 95**

Functional Components of the Spinal Cord and Brainstem..... 96

The Spinal Cord with CT and MRI..... 98

Arterial Patterns within the Spinal Cord with Vascular Syndromes..... 108

The Degenerated Corticospinal Tract..... 110

The Medulla Oblongata with MRI and CT..... 112

Arterial Patterns within the Medulla Oblongata with Vascular Syndromes..... 124

The Cerebellar Nuclei..... 126

The Pons with MRI and CT..... 130

Arterial Patterns within the Pons with Vascular Syndromes..... 138

The Midbrain with MRI and CT..... 140

Arterial Patterns within the Midbrain with Vascular Syndromes..... 152

The Diencephalon and Basal Nuclei with MRI..... 154

Arterial Patterns within the Forebrain with Vascular Syndromes..... 174

7

**Internal Morphology of the Brain in Stained Sections:
Axial–Sagittal Correlations with MRI..... 177**

Axial–Sagittal Correlations with MRI..... 178

8

**Tracts, Pathways, and Systems in Anatomical
and Clinical Orientation..... 189**

Orientation..... 190

Sensory Pathways..... 192

Motor Pathways..... 210

Cranial Nerves..... 226

Spinal and Cranial Nerve Reflexes..... 234

Cerebellum and Basal Nuclei..... 242

Optic, Auditory, and Vestibular Systems..... 262

Internal Capsule and Thalamocortical Connections..... 276

Limbic System: Hippocampus and Amygdala..... 280

Hypothalamus and Pituitary..... 288

9

Herniation Syndromes: Brain and Spinal Discs	297
Introduction and Compartments	297
Subfalcine Herniation	298
Diencephalic Stage of Central Herniation	299
Transtentorial Herniation	300
Uncal Herniation	301
Upward Cerebellar Herniation	302
Tonsillar Herniation	303
Central Cord Syndrome	304
Anterior Cord Syndrome	305
Exiting Roots at Cervical Levels	306
Exiting and Traversing Roots at Lumbosacral Levels	307
Cauda Equina Syndrome	308

10

Anatomical–Clinical Correlations: Cerebral Angiogram, MRA, and MRV	309
Cerebral Angiogram, MRA, and MRV	310
Overview of Vertebral and Carotid Arteries	321

11

Q&As: A Sampling of Study and Review Questions, Many in the USMLE Style, All With Explained Answers	323
Sources and Suggested Readings	See online Interactive Atlas
Index	335