

## **PART 1: BRAIN**

### *Section 1: Pathology-Based Diagnoses*

#### CONGENITAL MALFORMATIONS

##### 4 Approach to Brain Malformations

Luke L. Linscott, MD

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##### 8 Dandy-Walker Continuum

Usha D. Nagaraj, MD

##### 12 Rhombencephalosynapsis

Luke L. Linscott, MD, Blaise V. Jones, MD, and Anne G. Osborn, MD, FACR

##### 16 Unclassified Cerebellar Dysplasias

Usha D. Nagaraj, MD and Blaise V. Jones, MD

##### 18 Molar Tooth Malformations (Joubert)

Luke L. Linscott, MD

##### 22 Cerebellar Hypoplasia

Usha D. Nagaraj, MD

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##### 26 Holoprosencephaly

Luke L. Linscott, MD

##### 30 Syntelencephaly (Middle Interhemispheric Variant)

Luke L. Linscott, MD

##### 34 Septo-Optic Dysplasia

Luke L. Linscott, MD

##### 38 Commissural Abnormalities

Luke L. Linscott, MD

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Kevin R. Moore, MD

##### 46 Congenital Muscular Dystrophy

Usha D. Nagaraj, MD

##### 50 Heterotopic Gray Matter

Luke L. Linscott, MD

##### 52 Polymicrogyria

Luke L. Linscott, MD

##### 56 Focal Cortical Dysplasia

Luke L. Linscott, MD

##### 58 Lissencephaly

Usha D. Nagaraj, MD

##### 60 Schizencephaly

Luke L. Linscott, MD

##### 64 Hemimegalencephaly

Usha D. Nagaraj, MD

#### FAMILIAL TUMOR/NEURO CUTANEOUS SYNDROMES

##### 66 Neurofibromatosis Type 1, Brain

Luke L. Linscott, MD

##### 70 Neurofibromatosis Type 2, Brain

Luke L. Linscott, MD

##### 74 von Hippel-Lindau Syndrome

Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
78 Tuberous Sclerosis Complex  
Luke L. Linscott, MD  
82 Sturge-Weber Syndrome  
Luke L. Linscott, MD  
86 Meningioangiomatosis  
Kevin R. Moore, MD  
88 Basal Cell Nevus Syndrome  
Luke L. Linscott, MD  
92 Neurocutaneous Melanosis  
Luke L. Linscott, MD  
96 Hereditary Hemorrhagic Telangiectasia  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
100 Encephalocraniocutaneous Lipomatosis  
Luke L. Linscott, MD

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104 Neonatal Subpial Hemorrhage  
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108 Epidural Hematoma, Classic  
Kevin R. Moore, MD and Anne G. Osborn, MD, FACR  
112 Acute Subdural Hematoma  
Kevin R. Moore, MD and Bronwyn E. Hamilton, MD  
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Kevin R. Moore, MD  
120 Cerebral Contusion  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
124 Diffuse Axonal Injury  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
128 Subcortical Injury  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
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Luke L. Linscott, MD

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136 Germinal Matrix Hemorrhage  
Luke L. Linscott, MD  
140 Hydranencephaly  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
142 White Matter Injury of Prematurity  
Luke L. Linscott, MD  
146 Hypoxic-Ischemic Encephalopathy  
Luke L. Linscott, MD  
150 Childhood Stroke  
Luke L. Linscott, MD  
154 Sickle Cell Disease, Brain  
Luke L. Linscott, MD  
158 Moyamoya  
Luke L. Linscott, MD

#### VASCULAR MALFORMATIONS

##### *CVMS WITH AV SHUNTING*

162 Arteriovenous Malformation  
Luke L. Linscott, MD  
166 Dural Arteriovenous Fistula

Luke L. Linscott, MD  
170 Vein of Galen Aneurysmal Malformation  
Luke L. Linscott, MD

*CVMS WITHOUT AV SHUNTING*

174 Developmental Venous Anomaly  
Luke L. Linscott, MD  
180 Cavernous Malformation  
Luke L. Linscott, MD  
184 Capillary Telangiectasia  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
188 Sinus Pericranii  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR

*NEOPLASMS*

192 Pilocytic Astrocytoma  
Luke L. Linscott, MD  
196 Pilomyxoid Astrocytoma  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
200 Subependymal Giant Cell Astrocytoma  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
204 Pleomorphic Xanthoastrocytoma  
Kevin R. Moore, MD and Karen L. Salzman, MD, FACR  
208 Ganglioglioma  
Luke L. Linscott, MD  
212 DNET  
Luke L. Linscott, MD  
216 Desmoplastic Infantile Tumors  
Luke L. Linscott, MD  
220 Dysplastic Cerebellar Gangliocytoma  
Luke L. Linscott, MD  
224 Choroid Plexus Papilloma  
Luke L. Linscott, MD  
228 Choroid Plexus Carcinoma  
Luke L. Linscott, MD  
232 Infratentorial Ependymoma  
Luke L. Linscott, MD  
236 Supratentorial Ependymoma  
Luke L. Linscott, MD  
240 Medulloblastoma  
Luke L. Linscott, MD  
244 Atypical Teratoid/Rhabdoid Tumor  
Luke L. Linscott, MD  
248 Embryonal Tumor With Multilayered Rosettes  
Luke L. Linscott, MD  
252 Pineoblastoma  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
256 Pediatric-Type Diffuse High-Grade Gliomas  
Luke L. Linscott, MD  
260 Diffuse Intrinsic Pontine Glioma  
Luke L. Linscott, MD  
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Luke L. Linscott, MD  
268 Germinoma  
Luke L. Linscott, MD  
272 Teratoma  
Luke L. Linscott, MD

276 Metastatic Neuroblastoma  
Kevin R. Moore, MD and Anne G. Osborn, MD, FACR  
280 Leukemia, Brain  
Luke L. Linscott, MD  
284 Langerhans Cell Histiocytosis, Skull and Brain  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR

#### *NONNEOPLASTIC CYSTS AND TUMOR MIMICS*

288 Arachnoid Cyst  
Luke L. Linscott, MD  
292 Dermoid Cyst, Brain  
Luke L. Linscott, MD  
296 Epidermoid Cyst, Brain  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
300 Neuroglial Cyst  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
302 Enlarged Perivascular Spaces  
Luke L. Linscott, MD  
306 Pineal Cyst  
Luke L. Linscott, MD  
310 Choroid Plexus Cyst  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
314 Ependymal Cyst  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
316 Porencephalic Cyst  
Luke L. Linscott, MD and Anne G. Osborn, MD, FACR  
320 Neurenteric Cyst, Brain  
Kevin R. Moore, MD and Anne G. Osborn, MD, FACR  
322 Lipoma, Brain  
Surjith Vattoth, MD, FRCR and Luke L. Linscott, MD

#### *INFECTIOUS DISEASE*

##### *CONGENITAL/NEONATAL INFECTIONS*

326 Congenital CMV  
Surjith Vattoth, MD, FRCR and Miral D. Jhaveri, MD, MBA  
330 Congenital HIV  
Surjith Vattoth, MD, FRCR  
332 Neonatal Herpes Encephalitis  
Kevin R. Moore, MD and Miral D. Jhaveri, MD, MBA  
334 Parechovirus Encephalitis  
Luke L. Linscott, MD  
336 Group B Streptococcal Meningitis  
Surjith Vattoth, MD, FRCR  
340 Citrobacter Meningitis  
Surjith Vattoth, MD, FRCR

##### *ACQUIRED INFECTIONS*

344 Abscess, Brain  
Kevin R. Moore, MD, Miral D. Jhaveri, MD, MBA, and Karen L. Salzman, MD, FACR  
348 Ventriculitis  
Luke L. Linscott, MD, Miral D. Jhaveri, MD, MBA, and Karen L. Salzman, MD, FACR  
350 Empyema  
Kevin R. Moore, MD, Miral D. Jhaveri, MD, MBA, and Karen L. Salzman, MD, FACR  
354 Herpes Encephalitis Type 1  
Surjith Vattoth, MD, FRCR

358 Miscellaneous Encephalitis  
Surjith Vattoth, MD, FRCR and Miral D. Jhaveri, MD, MBA  
362 Rasmussen Encephalitis  
Surjith Vattoth, MD, FRCR  
366 Subacute Sclerosing Panencephalitis  
Kevin R. Moore, MD  
368 Tuberculosis  
Surjith Vattoth, MD, FRCR  
372 Neurocysticercosis  
Surjith Vattoth, MD, FRCR  
376 Miscellaneous Parasites  
Surjith Vattoth, MD, FRCR

#### *INFLAMMATORY AND DEMYELINATING DISEASE*

380 Approach to Pediatric Inflammatory and Demyelinating Diseases  
Kevin R. Moore, MD  
384 Pediatric Multiple Sclerosis, Brain  
Kevin R. Moore, MD  
388 ADEM, Brain  
Kevin R. Moore, MD  
392 Myelin Oligodendrocyte Glycoprotein Antibody-Associated Disease, Brain  
Kevin R. Moore, MD

#### *INHERITED METABOLIC/DEGENERATIVE DISORDERS*

396 Approach to Normal Brain Development and Metabolic Disorders  
Kevin R. Moore, MD

#### **Normal Variants**

402 Hypomyelination  
Blaise V. Jones, MD  
Mitochondrial Disorders  
406 MELAS  
Kevin R. Moore, MD and Susan I. Blaser, MD, FRCPC  
410 Mitochondrial Encephalopathies  
Blaise V. Jones, MD

#### *LYSOSOMAL DISORDERS*

414 Mucopolysaccharidoses, Brain  
Kevin R. Moore, MD  
418 Gangliosidosis (GM2)  
Kevin R. Moore, MD  
422 Metachromatic Leukodystrophy  
Kevin R. Moore, MD  
426 Globoid Cell Leukodystrophy  
Blaise V. Jones, MD

#### *PEROXISOMAL DISORDERS*

430 Zellweger Syndrome and Peroxisomal Biogenesis Disorders  
Blaise V. Jones, MD  
432 X-Linked Adrenoleukodystrophy  
Kevin R. Moore, MD, Susan I. Blaser, MD, FRCPC, and Anne G. Osborn, MD, FACR

#### *ORGANIC AND AMINOACIDOPATHIES*

436 Maple Syrup Urine Disease  
Kevin R. Moore, MD and Susan I. Blaser, MD, FRCPC  
440 Urea Cycle Disorders  
Kevin R. Moore, MD  
442 Glutaric Acidemia Type 1  
Kevin R. Moore, MD and Susan I. Blaser, MD, FRCPC  
446 Canavan Disease  
Surjith Vattoth, MD, FRCR  
448 Alexander Disease  
Surjith Vattoth, MD, FRCR

#### *MISCELLANEOUS*

452 Megalencephaly With Leukoencephalopathy and Cysts  
Kevin R. Moore, MD and Susan I. Blaser, MD, FRCPC  
456 Vanishing White Matter  
Kevin R. Moore, MD  
460 X-Linked Charcot-Marie-Tooth  
Kevin R. Moore, MD  
462 PKAN  
Kevin R. Moore, MD  
466 Huntington Disease  
Surjith Vattoth, MD, FRCR  
470 Wilson Disease  
Surjith Vattoth, MD, FRCR

#### *ACQUIRED TOXIC/METABOLIC/DEGENERATIVE DISORDERS*

474 Hypoglycemia  
Kevin R. Moore, MD and Miral D. Jhaveri, MD, MBA  
478 Kernicterus  
Kevin R. Moore, MD and Miral D. Jhaveri, MD, MBA  
480 Acute Hypertensive Encephalopathy, PRES  
Luke L. Linscott, MD  
484 Mesial Temporal Sclerosis  
Kevin R. Moore, MD and Miral D. Jhaveri, MD, MBA  
488 Cerebellitis  
Luke L. Linscott, MD and Miral D. Jhaveri, MD, MBA

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492 Approach to Ventricular Anatomy and Imaging Issues  
Kevin R. Moore, MD  
496 Cavum Septi Pellucidi  
Kevin R. Moore, MD, Miral D. Jhaveri, MD, MBA, and Anne G. Osborn, MD, FACR  
497 Cavum Velum Interpositum  
Kevin R. Moore, MD, Miral D. Jhaveri, MD, MBA, and Anne G. Osborn, MD, FACR  
498 Benign Enlarged Subarachnoid Spaces  
Luke L. Linscott, MD  
502 Hydrocephalus  
Blaise V. Jones, MD  
506 Aqueductal Stenosis  
Usha D. Nagaraj, MD  
510 CSF Shunts and Complications  
Kevin R. Moore, MD and Miral D. Jhaveri, MD, MBA

#### SELLA AND PITUITARY

514 Approach to Pituitary Development

Luke L. Linscott, MD

520 Pituitary Anomalies

Luke L. Linscott, MD, Karen L. Salzman, MD, FACR, and Kevin R. Moore, MD

524 Craniopharyngioma

Luke L. Linscott, MD

528 Hypothalamic Hamartoma

Luke L. Linscott, MD

## SKULL, SCALP, AND MENINGES

### *CONGENITAL*

532 Congenital Calvarial Defects

Kevin R. Moore, MD

536 Craniosynostoses

Kevin R. Moore, MD

540 Cephalocele

Usha D. Nagaraj, MD

542 Atretic Cephalocele

Kevin R. Moore, MD and Anne G. Osborn, MD, FACR

### *TRAUMA*

546 Calvarial Fracture

Kevin R. Moore, MD

550 Intracranial Hypotension

Kevin R. Moore, MD and Anne G. Osborn, MD, FACR

### *NONNEOPLASTIC AND TUMOR-LIKE DISORDERS*

554 Fibrous Dysplasia

Kevin R. Moore, MD, Anne G. Osborn, MD, FACR, and Miral D. Jhaveri, MD, MBA

558 Extramedullary Hematopoiesis

Kevin R. Moore, MD and Anne G. Osborn, MD, FACR

562 Thick Skull

Kevin R. Moore, MD, Anne G. Osborn, MD, FACR, and Miral D. Jhaveri, MD, MBA

## **Part II: Head and Neck**

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566 Classification of Inner Ear Malformations

Surjith Vattoth, MD, FRCR

568 Labyrinthine Aplasia

Surjith Vattoth, MD, FRCR

570 Oval Window Atresia

Surjith Vattoth, MD, FRCR and H. Ric Harnsberger, MD

572 Cochlear Aplasia

Surjith Vattoth, MD, FRCR

574 Cochlear Hypoplasia

Surjith Vattoth, MD, FRCR

576 Cochlear Nerve and Cochlear Nerve Canal Aplasia-Hypoplasia

Surjith Vattoth, MD, FRCR

578 X-Linked Stapes Gusher (DFNX2)

Surjith Vattoth, MD, FRCR

580 Common Cavity Malformation

Surjith Vattoth, MD, FRCR

582 Cystic Cochleovestibular Malformation  
Surjith Vattoth, MD, FRCR  
584 Large Vestibular Aqueduct  
Surjith Vattoth, MD, FRCR  
588 Semicircular Canal Hypoplasia-Aplasia  
Surjith Vattoth, MD, FRCR  
592 Endolymphatic Sac Tumor  
Surjith Vattoth, MD, FRCR  
594 Dermoid and Epidermo  
Bernadette L. Koch, MD  
598 CPA-IAC Arachnoid Cyst  
Surjith Vattoth, MD, FRCR and H. Ric Harnsberger, MD  
602 Congenital Cholesteatoma  
Bernadette L. Koch, MD  
604 Acquired Cholesteatoma  
Bernadette L. Koch, MD  
606 Skull Base Chondrosarcoma  
Surjith Vattoth, MD, FRCR and Philip R. Chapman, MD

## **SECTION 2: ORBIT, NOSE, AND SINUSES**

612 Nasal Glioma  
Surjith Vattoth, MD, FRCR and Bernadette L. Koch, MD  
616 Frontoethmoidal Cephalocele  
Surjith Vattoth, MD, FRCR and Bernadette L. Koch, MD  
620 Nasal Dermal Sinus  
Surjith Vattoth, MD, FRCR and Bernadette L. Koch, MD  
624 Choanal Atresia  
Surjith Vattoth, MD, FRCR and Bernadette L. Koch, MD  
626 Congenital Nasal Pyriform Aperture Stenosis  
Bernadette L. Koch, MD  
628 Juvenile Angiofibroma  
Bernadette L. Koch, MD and Surjith Vattoth, MD, FRCR  
632 Anophthalmia/Microphthalmia  
Bernadette L. Koch, MD  
636 Macrophthalmia  
Bernadette L. Koch, MD  
638 Coloboma  
Surjith Vattoth, MD, FRCR  
642 Nasolacrimal Duct Mucocele  
Surjith Vattoth, MD, FRCR and Bernadette L. Koch, MD  
644 Orbital Dermoid and Epidermoid  
Surjith Vattoth, MD, FRCR  
648 Orbital Cellulitis  
Bernadette L. Koch, MD  
652 Orbital Vascular Malformations  
Surjith Vattoth, MD, FRCR  
656 Orbital Infantile Hemangioma  
Surjith Vattoth, MD, FRCR and Daniel E. Meltzer, MD  
660 Retinoblastoma  
Bernadette L. Koch, MD and Daniel E. Meltzer, MD

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666 Approach to Congenital Cystic Neck Masses  
Bernadette L. Koch, MD  
670 Lingual Thyroid  
Surjith Vattoth, MD, FRCR and Daniel E. Meltzer, MD  
672 Oral Cavity Dermoid and Epidermoid

Surjith Vattoth, MD, FRCR and Daniel E. Meltzer, MD  
676 Reactive Lymph Nodes  
Surjith Vattoth, MD, FRCR and Nicholas A. Koontz, MD  
680 Suppurative Adenitis  
Bernadette L. Koch, MD and Nicholas A. Koontz, MD

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686 1st Branchial Cleft Cyst  
Bernadette L. Koch, MD  
690 2nd Branchial Cleft Cyst  
Bernadette L. Koch, MD  
694 3rd Branchial Cleft Cyst  
Bernadette L. Koch, MD  
698 4th Branchial Cleft Cyst  
Bernadette L. Koch, MD  
702 Thyroglossal Duct Cyst  
Bernadette L. Koch, MD  
706 Cervical Thymic Cyst  
Bernadette L. Koch, MD  
710 Venous Malformation  
Bernadette L. Koch, MD  
714 Lymphatic Malformation  
Bernadette L. Koch, MD  
718 Infantile Hemangioma  
Bernadette L. Koch, MD  
722 Neurofibromatosis Type 1, Head and Neck  
Bernadette L. Koch, MD  
726 Brachial Plexus Schwannoma in Perivertebral Space  
Surjith Vattoth, MD, FRCR  
728 Fibromatosis Colli  
Bernadette L. Koch, MD  
732 Rhabdomyosarcoma  
Bernadette L. Koch, MD  
736 Melanotic Neuroectodermal Tumors  
Surjith Vattoth, MD, FRCR  
738 Orbital Neurofibromatosis Type 1  
Surjith Vattoth, MD, FRCR

#### **Part III: Spine**

#### **SECTION 1: CONGENITAL AND GENETIC DISORDERS**

##### CONGENITAL

##### *NORMAL ANATOMICAL VARIATIONS*

744 Filum Terminale Fibrolipoma  
Kevin R. Moore, MD  
746 Ventriculus Terminalis  
Kevin R. Moore, MD

##### *CHIARI DISORDERS*

750 Chiari 1  
Usha D. Nagaraj, MD  
752 Chiari 2  
Usha D. Nagaraj, MD  
754 Chiari 3

Kevin R. Moore, MD and Jeffrey S. Ross, MD  
756 Complex Chiari  
Kevin R. Moore, MD and Jeffrey S. Ross, MD

*ABNORMALITIES OF NEURULATION*

758 Approach to Spine and Spinal Cord Development  
Kevin R. Moore, MD  
766 Myelomeningocele  
Usha D. Nagaraj, MD  
768 Lipomyelomeningocele  
Usha D. Nagaraj, MD  
772 Terminal Myelocystocele  
Kevin R. Moore, MD and Jeffrey S. Ross, MD  
776 Dorsal Dermal Sinus  
Usha D. Nagaraj, MD  
778 Dermoid Cyst, Spine  
Kevin R. Moore, MD and Jeffrey S. Ross, MD  
782 Epidermoid Cyst, Spine  
Kevin R. Moore, MD

*ANOMALIES OF CAUDAL CELL MESS*

786 Tethered Spinal Cord  
Kevin R. Moore, MD  
790 Segmental Spinal Dysgenesis  
Kevin R. Moore, MD and Jeffrey S. Ross, MD  
794 Caudal Regression Syndrome  
Kevin R. Moore, MD and Jeffrey S. Ross, MD  
798 Myelocystocele  
Usha D. Nagaraj, MD  
802 Anterior Sacral Meningocele  
Kevin R. Moore, MD  
806 Sacral Extradural Arachnoid Cyst  
Kevin R. Moore, MD  
810 Sacrococcygeal Teratoma  
Kevin R. Moore, MD

*ANOMALIES OF NOTOCHORD AND VERTEBRAL FORMATION*

814 Craniovertebral Junction Variants  
Kevin R. Moore, MD  
820 Klippel-Feil Spectrum  
Kevin R. Moore, MD  
824 Failure of Vertebral Formation  
Kevin R. Moore, MD  
828 Vertebral Segmentation Failure  
Kevin R. Moore, MD  
832 Partial Vertebral Duplication  
Kevin R. Moore, MD  
834 Diastematomyelia  
Kevin R. Moore, MD  
838 Incomplete Fusion, Posterior Element  
Kevin R. Moore, MD  
840 Neurenteric Cyst, Spine  
Usha D. Nagaraj, MD

*DEVELOPMENTAL ABNORMALITIES*

844 Lateral Meningocele  
Kevin R. Moore, MD  
848 Dorsal Spinal Meningocele  
Kevin R. Moore, MD  
852 Dural Dysplasia  
Kevin R. Moore, MD

#### *GENETIC DISORDERS*

856 Neurofibromatosis Type 1, Spine  
Kevin R. Moore, MD  
860 Neurofibromatosis Type 2, Spine  
Kevin R. Moore, MD  
864 Achondroplasia  
Kevin R. Moore, MD and Jeffrey S. Ross, MD  
868 Mucopolysaccharidoses, Spine  
Kevin R. Moore, MD  
872 Sickle Cell Disease, Spine  
Kevin R. Moore, MD  
876 Osteogenesis Imperfecta  
Kevin R. Moore, MD and Jeffrey S. Ross, MD

#### *SCOLIOSIS AND KYPHOSIS*

880 Developmental Spinal Stenosis  
Kevin R. Moore, MD  
884 Neuromuscular Scoliosis  
Kevin R. Moore, MD  
886 Idiopathic Scoliosis  
Kevin R. Moore, MD  
888 Idiopathic Kyphosis  
Kevin R. Moore, MD

#### **SECTION 2: TRAUMA**

892 Apophyseal Ring Fracture  
Kevin R. Moore, MD

#### **SECTION 3: DEVELOPMENTAL AND DEGENERATIVE DISEASES**

898 Schmorl Node  
Kevin R. Moore, MD  
902 Scheuermann Kyphosis  
Kevin R. Moore, MD  
906 Congenital Scoliosis and Kyphosis  
Kevin R. Moore, MD  
910 Spondylolysis and Spondylolisthesis  
Kevin R. Moore, MD

#### **SECTION 4: INFECTION AND INFLAMMATORY DISORDERS**

##### INFECTIONS

914 Pyogenic Osteomyelitis  
Kevin R. Moore, MD  
918 Tuberculous Osteomyelitis  
Kevin R. Moore, MD

##### INFLAMMATORY AND AUTOIMMUNE DISORDERS

924 Idiopathic Acute Transverse Myelitis  
Kevin R. Moore, MD  
928 Neuromyelitis Optica  
Kevin R. Moore, MD and Jeffrey S. Ross, MD  
932 Pediatric Multiple Sclerosis, Spine  
Kevin R. Moore, MD  
934 ADEM, Spine  
Kevin R. Moore, MD  
936 Myelin Oligodendrocyte Glycoprotein Antibody-Associated Disease, Spine  
Kevin R. Moore, MD  
938 Guillain-Barré Syndrome  
Kevin R. Moore, MD and Blaise V. Jones, MD  
942 Acute Flaccid Myelitis  
Kevin R. Moore, MD

## **SECTION 5: NEOPLASMS, CYSTS, AND OTHER MASSES**

### NEOPLASMS

#### *EXTRADURAL SPACE*

948 Osteoid Osteoma  
Kevin R. Moore, MD  
952 Osteoblastoma  
Kevin R. Moore, MD  
956 Aneurysmal Bone Cyst  
Kevin R. Moore, MD  
960 Osteochondroma  
Kevin R. Moore, MD  
964 Osteogenic Sarcoma  
Kevin R. Moore, MD  
968 Chordoma  
Kevin R. Moore, MD  
972 Ewing Sarcoma  
Kevin R. Moore, MD  
976 Leukemia, Spine  
Kevin R. Moore, MD  
980 Neuroblastic Tumors  
Kevin R. Moore, MD  
984 Langerhans Cell Histiocytosis  
Kevin R. Moore, MD  
988 Angiolipoma  
Kevin R. Moore, MD

#### *INTRADURAL EXTRAMEDULLARY SPACE*

992 CSF Disseminated Metastases  
Kevin R. Moore, MD  
998 Myxopapillary Ependymoma  
Kevin R. Moore, MD

#### *INTRAMEDULLARY SPACE*

1002 Astrocytoma, Spine  
Kevin R. Moore, MD and Jeffrey S. Ross, MD  
1006 Spinal Ependymoma  
Kevin R. Moore, MD

*NONNEOPLASTIC CYSTS AND TUMOR MIMICS*

1010 Syringomyelia

Kevin R. Moore, MD and Blaise V. Jones, MD

1012 Lipoma, Spine

Kevin R. Moore, MD and Jeffrey S. Ross, MD

1016 Epidural Lipomatosis

Kevin R. Moore, MD

1018 Extramedullary Hematopoiesis

Kevin R. Moore, MD

*SECTION 6: SPINE POSTPROCEDURAL IMAGING*

1024 Hardware Failure

Kevin R. Moore, MD