

CONTENTS

VOLUME 1

PART I

INTRODUCTION TO UROLOGICAL IMAGING

HOWARD M. POLLACK, Editor

- CHAPTER 1 Uroradiology: An Overview 1
MILTON ELKIN • JOSHUA A. BECKER
- CHAPTER 2 Medicolegal Issues in Uroradiology 5
STEWART R. REUTER
- CHAPTER 3 Radiation Management in Uroradiology 13
RICHARD A. GEISE • RICHARD L. MORIN

PART II

TECHNIQUES AND APPLICATIONS OF UROLOGICAL IMAGING

HOWARD M. POLLACK, Editor

- CHAPTER 4 Iodinated Contrast Media ... 19
Iodinated Contrast Media for Urological Imaging, 19
RICHARD W. KATZBERG
Adverse Reactions to Intravascular Iodinated Contrast Material, 43
WILLIAM H. BUSH, JR. • ELLIOTT C. LASSER
- CHAPTER 5 Abdominal Plain Radiography 67
ZORAN L. BARBARIC • HOWARD M. POLLACK
- CHAPTER 6 Excretory Urography 147
Excretory Urography in the Adult, 147
RICHARD M. FRIEDENBERG • RONALD D. HARRIS
Excretory Urography in Infants and Children, 257
SANDRA K. FERNBACH • KATE A. FEINSTEIN
- CHAPTER 7 Retrograde Pyelography 282
THOMAS J. IMRAY • ROBERT P. LIEBERMAN
HOWARD M. POLLACK
- CHAPTER 8 Cystourethrography 303
ROBERT A. OLDER • MARJORIE HERTZ

- CHAPTER 9 Radiology of Vesical and Supravesical Urinary Diversions and Orthotopic Bladder Replacements 357
DAVID B. SPRING • GEORGE E. DESHON, JR.
- CHAPTER 10 Seminal Vesiculography and Vasography 378
JOEL L. MARMAR • EVAN S. SIEGELMAN
- CHAPTER 11 Ultrasound Evaluation of the Urinary Tract 388
LESLIE M. SCOUTT • PETER BURNS
JANIS L. BROWN • LYNWOOD HAMMERS
ARTHUR T. ROSENFELD

COLOR FIGURES 1 TO 36 Following p. 416

- CHAPTER 12 Computed Tomography of the Urinary Tract 473
Computed Tomography of the Upper Urinary Tract, 473
JAMES A. BRINK • CARY L. SIEGEL
Computed Tomography of the Lower Urinary Tract and Pelvis, 504
ROBERT E. BECHTOLD • NEIL T. WOLFMAN
- CHAPTER 13 Magnetic Resonance Imaging 525
HERBERT Y. KRESSEL • QUN CHEN
POTTUMARTHI V. PRASAD • HIROTO HATABU
- CHAPTER 14 Angiography of the Genitourinary Tract: Techniques and Applications 555
KEVIN W. DICKEY • MORTON G. GLICKMAN
JOSEPH J. BOOKSTEIN
- CHAPTER 15 Lymphography 602
RONALD A. CASTELLINO
- CHAPTER 16 Urological Applications of Radionuclides 621
EUGENE J. FINE • M. DONALD BLAUFOX
MONICA A. ROSSLEIGH

PART III

SPECIFIC DISORDERS OF THE URINARY TRACT

- SECTION 1 • Developmental and Congenital Disorders 661
GERALD W. FRIEDLAND, Editor

CHAPTER 17	Congenital Anomalies of the Urinary Tract	661	CHAPTER 22	Inflammation of the Urinary Bladder	1019
	<i>Overview, 661</i>			SANJAY SALUJA • KATHLEEN M. LAZZARINI ROBERT C. SMITH	
	RICHARD BARTH • MATILDE NINO-MURCIA PIETER A. DEVRIES • GERALD W. FRIEDLAND		CHAPTER 23	Inflammatory Conditions of the Urethra	1041
	<i>Congenital Anomalies of the Kidney, 690</i>			DAVID J. DISANTIS	
	MATILDE NINO-MURCIA • PIETER A. DEVRIES GERALD W. FRIEDLAND		CHAPTER 24	Inflammation of the Lower Genitourinary Tract: The Prostate, Seminal Vesicles, and Scrotum	1058
	<i>Congenital Anomalies of the Papillae, Calyces, Renal Pelvis, Ureter, and Ureteral Orifice, 764</i>			MATTHEW D. RIFKIN	
	MATILDE NINO-MURCIA • GERALD W. FRIEDLAND PIETER A. DEVRIES		COLOR FIGURES 39 TO 55	Following p. 1064	
	<i>Congenital Anomalies of the Urachus and Bladder, 826</i>		CHAPTER 25	Reflux Nephropathy	1088
	GERALD W. FRIEDLAND • PIETER A. DEVRIES MATILDE NINO-MURCIA			J. MICHAEL ZERIN	
	<i>Congenital Anomalies of the Urethra, 852</i>		CHAPTER 26	Pediatric Urinary Tract Infection	1103
	GERALD W. FRIEDLAND • MATILDE NINO-MURCIA PIETER A. DEVRIES			MARILYN J. SIEGEL	
	<i>Congenital Anomalies of the Male Genitalia, 868</i>		CHAPTER 27	Gastrointestinal Diseases Affecting the Genitourinary System	1122
	MATILDE NINO-MURCIA • GERALD W. FRIEDLAND PIETER A. DEVRIES			JAMES G. BOVA • WILLIAM F. BENNETT	
	<i>Miscellaneous Congenital Anomalies of the Genitourinary Tract, 892</i>		CHAPTER 28	Gynecological Inflammatory Disease	1139
	KATHERINE L. HOPKINS • MATILDE NINO-MURCIA GERALD W. FRIEDLAND • PIETER A. DEVRIES			LESLIE M. SCOUTT • JOSEPH G. GARNER ARTHUR T. ROSENFELD	
COLOR FIGURES 37 AND 38	Following p. 896		CHAPTER 29	Fungal Diseases of the Urinary Tract	1155
SECTION 2 • Inflammatory Disease	913			DAVID B. SPRING	
	BRUCE L. McCLENNAN, Editor		CHAPTER 30	Parasitic Diseases Involving the Urinary Tract	1167
CHAPTER 18	Urinary Tract Inflammation: An Overview	913		PHILIP E. S. PALMER • MAURICE M. REEDER	
	LINDA M. DAIRIKI SHORTLIFFE • WILLIAM R. FAIR		CHAPTER 31	Urogenital Tuberculosis	1193
CHAPTER 19	Renal Inflammation	923		SEUNG HYUP KIM	
	<i>Acute Infections of the Renal Parenchyma, 923</i>		CHAPTER 32	Brucellosis	1229
	RICHARD PALMER GOLD • BRUCE L. McCLENNAN			ANDREW J. LEROY	
	<i>Chronic Inflammation, 947</i>		CHAPTER 33	Genitourinary Involvement in AIDS	1233
	PHILIP J. KENNEY			MARCO A. AMENDOLA • LISA J. ABRAMS	
CHAPTER 20	Perinephric Inflammation	977	INDEX	i	
	JOSEPH K. T. LEE • DAVID D. CASALINO				
CHAPTER 21	Inflammatory Conditions of the Renal Pelvis and Ureter	999			
	ROBERT F. SPATARO				

VOLUME 2

SECTION 3 • Cystic Disease	1245	CHAPTER 48	Bladder Cancer	1642
DAVID S. HARTMAN, Editor			JELLE BARENTSZ	
CHAPTER 34	Overview of Renal Cystic Disease		COLOR FIGURES 56 TO 70	Following p. 1660
	DAVID S. HARTMAN		CHAPTER 49	Neoplasms of the Prostate Gland
CHAPTER 35	The Simple Renal Cyst			1669
	AKIRA KAWASHIMA • STANFORD M. GOLDMAN			KYLE K. YU • HEDVIG HRICAK
CHAPTER 36	Autosomal Dominant Polycystic Kidney Disease		CHAPTER 50	Urethral Neoplasms
	ERROL LEVINE			1699
CHAPTER 37	Autosomal Recessive Polycystic Kidney Disease			NEIL F. WASSERMAN
	KATHLEEN DUNNE EGGLI		CHAPTER 51	Tumors of the Testis and Testicular Adnexa
CHAPTER 38	von Hippel-Lindau Disease ..			1716
	PETER L. CHOYKE			JAY P. HEIKEN
CHAPTER 39	Acquired Cystic Kidney Disease		CHAPTER 52	Pediatric Urological Neoplasms
	ERROL LEVINE			1743
CHAPTER 40	Renal Cystic Disease Associated with Tuberous Sclerosis			HARRIET J. PALTIEL • DONALD R. KIRKS
	JAMES G. SMIRNIOTOPOULOS DAVID S. HARTMAN		SECTION 5 • Trauma	1767
CHAPTER 41	Multicystic Dysplastic Kidney ..			N. REED DUNNICK, Editor
	JON W. MEILSTRUP • DAVID S. HARTMAN		CHAPTER 53	Adrenal Trauma
CHAPTER 42	Medullary Sponge Kidney ...			1767
	AKIRA KAWASHIMA • STANFORD M. GOLDMAN		CHAPTER 54	Renal Trauma
CHAPTER 43	Medullary Cystic Disease of the Kidney			1772
	SCOTT W. WISE • DAVID S. HARTMAN		CHAPTER 55	Ureteral Injuries
CHAPTER 44	Cysts of the Renal Sinus			1785
	E. STEPHEN AMIS, JR.		CHAPTER 56	Bladder Trauma
SECTION 4 • Neoplastic Disease	1413			1799
ROBERT R. HATTERY, Editor			CHAPTER 57	Urethral Trauma
CHAPTER 45	Benign Neoplasms of the Renal Parenchyma			1819
	BYRN WILLIAMSON, JR. • BERNARD F. KING, JR.		CHAPTER 58	Trauma to the Scrotum and Scrotal Contents
CHAPTER 46	Adult Malignant Renal Parenchymal Neoplasms			1839
	ERROL LEVINE • BERNARD F. KING, JR.		SECTION 6 • Obstructive Uropathy	1846
CHAPTER 47	Neoplasms of the Renal Collecting System, Pelvis, and Ureters			LEE B. TALNER, Editor
	AKIRA KAWASHIMA • STANFORD M. GOLDMAN		CHAPTER 59	Urinary Obstruction
				1846
				LEE B. TALNER • PATRICK H. O'REILLY CATHERINE ROY
			COLOR FIGURES 71 TO 75	Following p. 1852
			CHAPTER 60	Specific Causes of Obstruction
				1967
				LEE B. TALNER • PATRICK H. O'REILLY NEIL F. WASSERMAN
			SECTION 7 • Calculous Disease	2137
				PARVATI RAMCHANDANI, Editor

<p>CHAPTER 61 Calculous Disease of the Urinary Tract 2137</p> <p><i>Introduction to Upper Tract Stone Disease, 2137</i> SCOTT D. RUTCHIK • J. PATRICK SPIRNAK MARTIN I. RESNICK • PARVATI RAMCHANDANI</p> <p><i>Radiological Evaluation of Renal Calculous Disease, 2147</i> PARVATI RAMCHANDANI</p>	<p><i>Radiological Evaluation of Ureteral Calculi and Acute Ureteral Obstruction, 2200</i> RAY DYER • RONALD J. ZAGORIA</p> <p><i>Lower Urinary Tract Calculi and Calcifications, 2238</i> JUDITH A. W. WEBB</p>
	<p>INDEX i</p>

VOLUME 3

<p>SECTION 8 • Neuromuscular Disorders (Neurourology) 2271 ALAN J. WEIN, Editor</p>	<p><i>Myelomeningocele and Related Conditions, 2394</i> MICHAEL A. KEATING • MARK A. RICH</p>
<p>CHAPTER 62 Overview of Voiding Function and Dysfunction: Relevant Anatomy, Physiology, Pharmacology, Classification, and Definitions 2271 ALAN J. WEIN</p>	<p>CHAPTER 67 Urinary Incontinence 2409</p> <p><i>Urethral Sphincter Mechanisms and the Evaluation of Incontinence, 2409</i> EDWARD J. MCGUIRE</p> <p><i>Radiology of Urinary Incontinence, 2420</i> ERIC S. ROYNER • DAVID A. GINSBERG SHLOMO RAZ</p>
<p>CHAPTER 63 Evaluation of the Effects of Neuromuscular Disease of the Urinary Tract 2283</p> <p><i>The Neurourological Evaluation: Urodynamic and Videourodynamic Examination, 2283</i> DAVID C. CHAIKIN • JERRY G. BLAIVAS</p> <p><i>Basic Urographic and Cystourethrographic Patterns, 2303</i> JØRGEN NORDLING • KNUD P. OLESEN</p> <p><i>Ultrasonographic Evaluation in Neurourology, 2322</i> GERALD W. FRIEDLAND • INDER PERKASH</p> <p><i>Isotopic Evaluation, 2326</i> L. KEITH LLOYD</p>	<p>CHAPTER 68 Radiology of Prostheses for Urinary Incontinence 2454 CHRISTOPHER B. DECHET • BERNARD F. KING DAVID M. BARRETT</p>
<p>CHAPTER 64 Radiology of Urinary Tract Complications in Neuromuscular Disorders 2335 LEONID CALENOFF • JONATHAN BERLIN</p>	<p>SECTION 9 • Vascular Diseases 2461 JOHN J. CRONAN, Editor</p>
<p>CHAPTER 65 Radiological Appearances Following Surgery for Neuromuscular Diseases Affecting the Urinary Tract ... 2356 WADE BUSHMAN • JOHN B. NANNINGA</p>	<p>CHAPTER 69 The Normal Vasculature of the Genitourinary Tract: Embryology, Anatomy, and Hemodynamics 2461 RICHARD L. CLARK • JOHN T. CUTTINO, JR.</p>
<p>CHAPTER 66 Radiology of Specific Neuromuscular Diseases Affecting the Urinary Tract ... 2367</p> <p><i>Diseases of the Brain, Spinal Cord, and Peripheral Nervous System, 2367</i> DAVID A. RIVAS • MICHAEL B. CHANCELLOR</p>	<p>CHAPTER 70 Renal Arteries and Veins: Normal Variants 2476 KYUNG J. CHO • JOHN R. THORNBURY MARTIN R. PRINCE</p>
	<p>CHAPTER 71 Disorders of the Renal Arterial Circulation 2491 JOHN F. ANGLE • BRUCE J. HILLMAN</p>
	<p>CHAPTER 72 Renovascular Hypertension 2545 JOHN J. CRONAN • RICHARD B. NOTO</p>
	<p>CHAPTER 73 Vascular Abnormalities of the Lower Urinary Tract 2563 PATRICIA E. COLE • SANJAY SALUJA</p>
	<p>CHAPTER 74 Venous Disorders of the Urogenital Tract 2581 HARRY Z. MELLINS</p>

CHAPTER 75 Diagnostic Imaging of Male Sexual Dysfunction 2615
BERNARD F. KING, JR. • MICHAEL A. MCKUSICK
AJAY NEHRA

CHAPTER 76 Renal Hemorrhage and Renal Complications of Hemorrhagic Hypotension ... 2630
FRED T. LEE, JR. • JOHN R. THORNBURY
ROBERT F. SPATARO

SECTION 10 • Parenchymal Disease 2652
BRUCE L. McCLENNAN, Editor

CHAPTER 77 Renal Parenchymal Disease 2652
SEUNG HYUP KIM • BOHYUN KIM

COLOR FIGURES 76 TO 82 Following p. 2654

**PART IV
THE ADRENAL GLANDS 2689**
MORTON A. BOSNIAK, Editor

CHAPTER 78 Introduction 2689
MORTON A. BOSNIAK

CHAPTER 79 Adrenal Embryology, Anatomy, and Imaging Techniques 2691
HAROLD MITTY • ROSALEEN B. PARSONS

CHAPTER 80 Physiology of the Adrenal Gland 2707
FRANCIS A. NEELON

CHAPTER 81 Hyperfunctioning Lesions of the Adrenal Cortex 2714
N. REED DUNNICK

CHAPTER 82 Non-hyperfunctioning Lesions of the Adrenal Cortex 2733
N. REED DUNNICK

CHAPTER 83 Radiology of Acute and Chronic Adrenal Insufficiency 2742
JOHN L. DOPPMAN

CHAPTER 84 Neoplasms of the Adrenal Medulla 2748
MORTON A. BOSNIAK

CHAPTER 85 Pheochromocytoma 2753
ISAAC R. FRANCIS • MELVYN KOROBKIN

CHAPTER 86 Diseases of the Adrenal in Infancy and Childhood 2765
WALTER E. BERDON

CHAPTER 87 Scintigraphic Localization of Adrenal Disease 2779
DAVID S. ROSE • PAUL SHREVE
MILTON D. GROSS • BRAHIM SHAPIRO

CHAPTER 88 Metastatic Neoplasms to the Adrenal Glands and Adrenal Lymphoma 2795
NEIL M. ROFSKY • GLENN A. KRINSKY
MORTON A. BOSNIAK

CHAPTER 89 Miscellaneous Conditions of the Adrenals and Adrenal Pseudotumors 2807
GLENN A. KRINSKY • NEIL M. ROFSKY
MORTON A. BOSNIAK

**PART V
OTHER RETROPERITONEAL DISEASES 2823**
DAVID M. WITTEN, Editor

CHAPTER 90 Retroperitoneal Tumors and Cysts 2823
SURESH K. PATEL

CHAPTER 91 Pelvic Lipomatosis 2866
HUGH M. SAXTON

CHAPTER 92 Retroperitoneal Fibrosis 2878
DAVID M. WITTEN

**PART VI
MISCELLANEOUS DISORDERS OF THE URINARY TRACT 2895**
RAY DYER • RONALD J. ZAGORIA, Editors

CHAPTER 93 Endometriosis of the Genitourinary Tract 2895
EVERETT M. LAUTIN • SCOTT MATTOX
ROBERT A. OLDER

CHAPTER 94 Amyloidosis of the Urinary Tract 2909
MARCO A. AMENDOLA

CHAPTER 95 Foreign Bodies in the Urinary Tract 2921
HELEN T. MOREHOUSE

CHAPTER 96 Postoperative Uroradiological Appearances 2928
Postoperative Uroradiological Appearances in the Adult, 2928
DEBORAH A. BAUMGARTEN
BRUCE R. BAUMGARTNER
Postoperative Uroradiological Appearances in the Child, 2942
STEPHEN C. O'CONNOR • ROBERT L. LEBOWITZ

CHAPTER 97 Hernias of the Urinary Tract .. 2981
NANCY S. CURRY

CHAPTER 98 Fistulas of the Genitourinary Tract 2992
S. ZAFAR H. JAFRI • JOHN L. ROBERTS
BRIAN D. BERGER

CHAPTER 99	Pathophysiology, Treatment, and Imaging of Male Infertility	3013
	EVAN S. SIEGELMAN • JOEL L. MARMAR	

COLOR FIGURE 83	Following p.	3020
-----------------------	--------------	------

PART VII

RENAL FAILURE, DIALYSIS, AND TRANSPLANTATION	3029
PETER L. CHOYKE, Editor	

SECTION 1 • Renal Failure 3029

CHAPTER 100	Imaging of Renal Failure	3029
	PETER L. CHOYKE • HARVEY A. ZIESSMAN	

CHAPTER 101	Percutaneous Renal Biopsy ..	3053
	JOHN J. CRONAN	

CHAPTER 102	Skeletal Systemic Manifestations of Renal Failure: Renal Osteodystrophy	3059
	ANNE C. BROWER	

CHAPTER 103	Nonosseous Systemic Manifestations of Renal Failure	3066
	MARK GLASS-ROYAL	

SECTION 2 • Dialysis 3070

CHAPTER 104	Dialysis and Its Complications	3070
	JOSHUA A. BECKER • PETER L. CHOYKE MICHELLE L. ROBBIN	

COLOR FIGURES 84 TO 87	Following p.	3070
------------------------------	--------------	------

SECTION 3 • Renal Transplantation 3085

CHAPTER 105	Renal Transplantation: Clinical Considerations	3085
	BADRINATH R. KONETY • MARK L. JORDAN	

CHAPTER 106	Imaging the Transplanted Kidney	3091
	PETER L. CHOYKE • JOSHUA A. BECKER HARVEY A. ZIESSMAN	

COLOR FIGURES 88 TO 90	Following p.	3102
------------------------------	--------------	------

CHAPTER 107	Angiography and Interventional Techniques in Renal Transplants	3119
	PETER L. CHOYKE • SIDNEY GLANZ	

CHAPTER 108	Systemic Complications of Renal Transplantation	3129
	IRWIN M. FEUERSTEIN	

PART VIII

INTERVENTIONAL UROLOGICAL	3137
HAROLD MITTY • NICHOLAS PAPANICOLAOU, Editors	

CHAPTER 109	Antegrade Pyelography and Percutaneous Pyeloureterodynamics (Whitaker Test)	3137
	NICHOLAS PAPANICOLAOU	

CHAPTER 110	Percutaneous Nephrostomy: Techniques and Instrumentation	3155
	WON J. LEE	

CHAPTER 111	Complications of Percutaneous Nephrostomy	3167
	MICHAEL D. DARCY	

CHAPTER 112	Exchanging Nephrostomy Tubes	3177
	CONSTANTIN COPE	

CHAPTER 113	Stenting of the Ureter	3186
	HAROLD A. MITTY	

CHAPTER 114	Therapeutic Occlusion of the Ureter	3206
	ROLF W. GÜNTHER • ARNO BÜCKER	

CHAPTER 115	Interventional Radiology in the Lower Urinary and Genital Tract	3213
	DAVID RICKARDS	

CHAPTER 116	Fetal Obstructive Uropathy ..	3226
	HAROLD N. LOVVORN III • N. SCOTT ADZICK	

CHAPTER 117	Drainage of Abdominal and Pelvic Fluid Collections	3233
	ZORAN L. BARBARIC	

CHAPTER 118	Needle Biopsy of Adrenal Glands, Retroperitoneal Lymph Nodes, and Adjacent Tissues	3245
	JAMES H. ELLIS • RICHARD H. COHAN	

CHAPTER 119	Fine-Needle Aspiration of Renal Masses	3266
	MICHAEL J. KELLET	

CHAPTER 120	Percutaneous Sclerotherapy of Symptomatic Renal Cysts and Lymphoceles	3274
	NICHOLAS PAPANICOLAOU	

CHAPTER 121	Extracorporeal Shock Wave Lithotripsy for the Treatment of Urinary Calculi	3283
	JOHN W. DUSHINSKI • JAMES E. LINGEMAN	

<p>CHAPTER 122 Retrograde Ureteropyeloscopy 3293 DAVID EILEY • ARTHUR D. SMITH</p> <p>CHAPTER 123 Percutaneous Management of Upper Urinary Tract Calculi .. 3309 ANDREW J. LEROY</p> <p>CHAPTER 124 Percutaneous Ultrasonic Lithotripsy 3320 JOSEPH W. SEGURA • MICHAEL J. WEHLE</p> <p>CHAPTER 125 Nephroscopy and Intrarenal Surgery: Percutaneous Approaches 3330 RALPH V. CLAYMAN • ELSPETH M. McDOUGALL R. SHERBURNE FIGENSHAU</p> <p>CHAPTER 126 Interventional Procedures for Management of Impotence and Priapism 3355 MAX P. ROSEN • HERIBERTO R. PAGAN-MARIN ALAN J. GREENFIELD • IRWIN GOLDSTEIN</p> <p>CHAPTER 127 Embolization for Nonmalignant Conditions of the Urinary Tract 3364 ROY L. GORDON</p>	<p>CHAPTER 128 Varicocele Management by Transcatheter Embolotherapy 3375 ROBERT I. WHITE, JR.</p> <p>CHAPTER 129 Intra-arterial Interventional Therapy for Malignant Genitourinary Neoplasms 3380 SIDNEY WALLACE • CHUSILP CHARNSANGAVEJ C. HUMBERTO CARRASCO</p> <p>CHAPTER 130 Percutaneous Transluminal Angioplasty and Stenting for Renal Artery Stenosis and Renal Artery Thrombolysis 3396 DAVID W. TROST • THOMAS A. SOS THOMAS G. PICKERING</p> <p>CHAPTER 131 Prostate Interventions 3421 BRIAN F. STAINKEN • GIOVANNA CASOLA</p> <p>CHAPTER 132 Complications in Urological Laparoscopy 3429 KEVIN R. ANDERSON</p> <p>INDEX </p>
---	---