

Contents

1	<i>Echoanatomy</i>	1
1.1	The Kidney Itself	1
	Shape	1
	Size	1
	Pyelovascular Central Area.	4
	Renal Parenchyma	5
1.2	The Kidney as a Part of the Retroperitoneal Compartment	7
	Perirenal Compartment	7
	Bone and Muscle	9
	Vessels	10
	Adrenal Gland	13
	Retrocaval Kidney	13
	Pancreas	14
1.3	Less Direct Renal Relationships	15
	Right Side	15
	Left Side.	16
1.4	Basic Tissue Echopatterns	16
2	<i>Examination Techniques</i>	18
2.1	Technical Data	19
2.2	Real Time and Contact Scanning – General Considerations	19
	Contact Scanning	19
	Real Time	20
	Associated Use of Real Time and Contact Scanning . . .	21
2.2	Technological Prospects	22
2.3	Technical Factors of Image Quality	23
	Suppression of Kinetic Blurring.	23
	Axial and Lateral Spatial Resolution	23
	Total Gain and Time Gain Compensation Settings . . .	23
2.4	Positioning and Scanning Directions.	24

	Real Time	24
	Contact Scanning	29
2.5	Particular Problems	29
	Critically Ill Patients; Patients Recently Operated on;	
	Traumatologic Patients	29
	The Newborn and Infant	29
	Puncture Techniques	29
2.6	General Management of Ultrasonic Examinations	31
3	<i>Hydronephrosis</i>	33
3.1	Beginning Hydronephrosis	33
3.2	Frank Hydronephrosis.	34
3.3	Major Hydronephrosis.	36
3.4	Differential Diagnosis	37
3.5	Ureteral Dilatation	39
3.6	Complementary Pelvic Examination	39
3.7	Renal Lithiasis	41
4	<i>Renal Cysts</i>	42
	The Renal Cystic Pattern	42
4.1	Simple Cysts	42
	Diagnostic Circumstances	42
	Ultrasonic Pattern	42
4.2	Atypical Cysts	44
4.3	Differential Diagnosis of Simple Cysts	46
	Diagnosis of Small Cysts	46
	Diagnosis of Medium-Sized Cysts	46
	Diagnosis of Large Cysts	47
	Diagnosis of Atypical Cysts	47
4.4	Clinical and Radiological Management of Simple Cysts	49
	Multiple Cysts	49
	Puncture.	49
4.5	Unilateral Multicystic Disease	50
4.6	Polycystic Disease of the Adult	51
	Typical Patterns	51
	Asymptomatic Polycystic Disease	52

	Atypical Polycystic Disease	52
	Associated Extrarenal Cysts	53
	Differential Diagnosis	53
4.7	Infantile and Juvenile Polycystic Disease	55
4.8	Echinococcal Cysts	55
4.9	Differential Diagnosis of Multiple Cysts	55
	Extrarenal Processes.	55
	Intrarenal Processes	56
5	<i>Renal Tumors</i>	58
5.1	Renal Cell Carcinoma	58
	Changes in Size.	58
	Changes in Shape	58
	Relative Proportions of Parenchyma and Central Area . .	59
	Tumor Contours	60
	Echopatterns of Tumors	61
5.2	Particular Kinds of Carcinoma	62
	Necrotized Tumors	62
	Intracystic Carcinomas	64
	Cystic Tumors	64
	Pedunculate Tumors	64
	Bilateral Tumors	64
5.3	Urothelia Carcinomas	64
	Pelvic	64
	Caliceal	65
5.4	Wilms' Tumors	65
5.5	Renal Sarcomas	66
5.6	Renal Metastases	66
5.7	Renal Lymphomas	66
5.8	Diagnosis	67
	Histology	67
	Nonfunctioning Kidney	67
	Relations with Neighboring Tissues	67
5.9	Benign Tumors	68
5.10	Differential Diagnosis	69
	Large Tumors (over 10 cm in diameter)	69
	Medium-Sized Tumors (4–10 cm in diameter)	70
	Small Tumors (under 4 cm in diameter)	70
	Reliability	72

6	<i>Evaluation of Tumoral Extension – The Retroperitoneal Space</i>	73
6.1	Direct Spread	73
6.2	Lymphatic Spread	73
6.3	Intracaval Extension	77
6.4	Metastatic Spread.	78
6.5	Clinical and Radiological Policy	79
6.6	Particular Cases	79
	Urothelial Tumors	79
	Tumors in Children	79
	Local Recurrences After Nephrectomy	79
	Other Retroperitoneal Abnormalities	80
7	<i>Infections and Inflammatory Processes</i>	81
7.1	Abscesses	81
	Bacterial.	81
	Tuberculous	82
	Differential Diagnosis	83
7.2	Pyonephrosis	83
	Recently Infected Hydronephrosis	83
	Older Pyonephrosis	84
7.3	Tuberculosis	84
7.4	Differential Diagnosis of Chronic Inflammatory Processes	84
7.5	Chronic Pyelonephritis.	85
7.6	Diffuse Abnormalities	85
7.7	Postnephrectomy Abscesses	85
7.8	Ultrasound and IVU in Chronic Inflammatory Processes .	86
8	<i>Hunchbacks, Dwarfs, and Giants</i>	87
8.1	Horseshoe Kidneys	87
8.2	Miscellaneous Anomalies	87
8.3	Absence of Kidney	88
8.4	Renal Hypoplasia.	89
8.5	Nephromegaly	90
	Nephromegaly with Normal Echotexture.	90
	Nephromegaly with Loss of Parenchymal-Central Differentiation	91

	Heterogeneous Nephromegaly	92
	Multinodular Nephromegaly	92
8.6	Abnormalities of Vascular Origin	93
	Renal Vein Thrombosis	93
	Renal Artery Occlusion	93
	Renal Infarcts	93
8.7	The Transplanted Kidney	94
	Rejection	94
	Arterial Thrombosis.	94
	Renal Vein Thrombosis	94
	Rupture	94
	Hydronephrosis.	95
	Liquid Collections	95
8.8	Ultrasound in Renal Failure	95
9	<i>Ultrasonic Differential Diagnosis and Diagnosis Policies:</i> <i>Synopsis</i>	97
10	<i>Renal Trauma</i>	102
10.1	Renal Lesions	102
	Contusion	102
	Fractures and Subcapsular Hematomas	102
10.2	Juxtarenal Abnormalities.	102
	Hematomas	102
	Urinomas	103
	Trauma and Preexisting Lesions	104
10.3	Associated Lesions	105
10.4	Radiologic Policy	107
11	<i>Adrenals</i>	108
11.1	The Normal Adrenal	108
11.2	The Pathologic Adrenal	109
11.3	Tumors	109
11.4	Hematomas	110
11.5	Differential Diagnosis	112
11.6	Reliability and Diagnostic Policy	112

12 *Lower Urinary Tract* 114

12.1 *Bladder* 114

True and False Diverticula 114

Tumors 116

12.2 *Prostate* 117

Scanning Technique 117

The Normal Prostate 117

Tumors 117

Prostatitis 119

Diagnostic Policy 120

References 121

Subject Index. 133