

Contents

1	Introduction: From a Surgeon's Point of View	1
1.1	Therapeutic Options	1
1.2	Local Excision of a Rectal Carcinoma	1
1.3	Primary Transabdominal Resection	2
1.4	Multimodal Therapy of Rectal Carcinoma	2
1.5	Importance of the Circumferential Resection Margin	2
1.6	Lymph Node Metastasis Outside the Mesorectum	3
1.7	Surgical Consequences of a Stage T4 Rectal Carcinoma	3
1.8	Ultralow Sphincter Preserving Anterior Resection vs. Abdominoperineal Resection	3
1.9	Summary	3
	References	4
2	Anorectal Anatomy	5
2.1	Introduction	5
2.2	Anatomy and Embryology of the Rectum and the Perirectal Tissues	5
2.2.1	Blood Supply	6
2.2.2	Lymphatic Drainage	7
2.2.3	Mesorectum and Fascial Structures	7
2.2.4	Anal Canal	8
2.2.5	Pararectal and Para-Anal Spaces	9
2.3	MRI of Rectal Anatomy: Important Landmarks	9
2.3.1	Parietal Fascia	9
2.3.2	Retrorectal Space	9
2.3.3	Rectosacral Fascia	10
2.3.4	Peritoneal Reflection	10
2.3.5	Denonvillier's Fascia	10
2.3.6	Mesorectal Fascia and Mesorectum	12
2.3.7	Rectal Wall	13
	References	13
3	Pathology of Rectal Cancer	15
3.1	Introduction	15
3.2	Preoperative Biopsy	15

3.2.1	Histologic Classification	15
3.2.2	Grading	17
3.2.3	Tumor Spread	17
3.3	Intraoperative Diagnostics	17
3.3.1	Macroscopy of the Fresh Specimen	17
3.3.2	Mesorectum	18
3.3.3	Resection Margins	18
3.4	Postoperative Diagnostics	18
3.4.1	Macroscopy of the Fixed Specimen	18
3.4.2	Histopathology	19
3.5	Tumor Regression	21
3.6	Molecular Pathology	22
3.7	Conclusion	23
	References	23
4	Magnetic Resonance Imaging of Rectal Cancer	25
4.1	Introduction	25
4.2	Technical Aspects	25
4.2.1	The Basics of Rectal MRI for Local Staging Purposes	25
4.2.2	Future Developments	26
4.3	MRI for Primary Staging of Rectal Cancer	30
4.3.1	Introduction	30
4.3.2	T Staging	30
4.3.3	N Staging	32
4.3.4	Circumferential Resection Margin	34
4.3.5	Negative Prognostic Factors in Rectal Cancer	35
4.4	MRI After Neoadjuvant Chemoradiation Therapy	39
4.5	MRI for the Detection of Recurrent Rectal Cancer	40
4.5.1	Introduction	40
4.5.2	Risk-Adapted Surveillance	41
4.5.3	Imaging for Recurrent Colorectal Cancer	41
4.6	Integrative Decisions in Rectal Cancer	43
4.7	Selected Differential Diagnoses Mimicking Rectal Cancer	44
4.7.1	Anal Cancer	44
4.7.2	Cancer Arising from Anorectal Fistula	45
4.7.3	Gastrointestinal Stromal Tumor of the Rectum	45
4.7.4	Tumors of the Retrorectal Space	46
4.7.5	Anorectal Giant Condyloma Acuminatum: Buschke-Loewenstein Tumor	47
	References	47
5	Clinical Atlas	55
5.1	Introduction	55
5.2	Stage T1 Rectal Cancer	56
5.3	Stage T2 Rectal Cancer	63
5.4	Stage T3 Rectal Cancer	80
5.5	Stage T4 Rectal Cancer	111
5.6	Negative Prognostic Factors	122

5.7	Recurrent Rectal Cancer	143
5.8	Unusual Metastatic Spread of Colorectal Cancer	171
5.9	Differential Diagnosis of Rectal Cancer	177
5.10	Postsurgical Anatomy	208