

Contents

I Introduction

1	Surgical Anatomy	3
1.1	Structure of the Breast	4
1.2	Arterial Supply	4
1.3	Venous Supply	7
1.4	Lymph	7
1.5	Sensitivity	7
	Bibliography	8
2	General	9
2.1	Breast Footprint	10
2.1.1	Upper Breast Border	10
2.1.2	Inframammary Fold (IMF).....	10
2.1.3	Medial Breast Border.....	11
2.1.4	Lateral Breast Border.....	11
2.1.5	Midline of the Breast.....	11
2.2	Breast Shape	11
2.2.1	Nipple Ptosis	12
2.2.2	Ptosis of the Gland.....	12
2.2.3	Ptosis of Gland and Nipple	12
2.2.4	Pseudoptosis.....	12
2.3	Breast Size and Symmetry	12
2.4	Dimensions and Planning	12
2.5	Markings	13
2.6	Incisions and Drains	13
2.6.1	Classic Incisions.....	13
2.6.2	BCT, Oncoplastic Surgery, and Mastectomy.....	14
2.6.3	Axilla.....	14
2.6.4	Drains.....	14
2.7	Positioning on the Operating Table	14
2.8	Suturing Techniques	15
2.9	Photographs	15

II Breast Cancer

3	General	19
3.1	Breast Center	20
3.2	Breast Cancer	20
3.3	Timeline	21
3.3.1	Operation	21
3.3.2	Chemotherapy and Anti-hormonal Therapy.....	21
3.3.3	Irradiation.....	21
3.4	Family History and Genetic Testing	21
3.4.1	Intensified Screening	21
3.4.2	Risk-Reducing Mastectomy	22
	Bibliography	22
4	Tumor Removal and Breast-Conserving Therapy (BCT)	23
4.1	Diagnostics	24
4.2	Indications	24

4.3	Operative Removal According to Palpation Findings	24
4.4	Operative Removal After Wire Marking and Specimen Radiography	24
4.5	Histopathological Examination and Margins	26
4.6	Informed Consent	26
4.7	Operation	26
4.7.1	Preoperative Markings and Incisions	26
4.7.2	Positioning on the Operating Table.....	27
4.7.3	Tumor Removal	27
4.7.4	Post-resection	27
4.7.5	Aftercare	27
4.7.6	Complications.....	27
5	Oncoplastic Surgery	29
5.1	Indications for Oncoplastic Techniques	30
5.2	Resection	30
5.3	Incisions and Local Tissue Transposition	30
5.3.1	Local Tissue Transposition in Ptotic or Large Breasts	32
5.4	Local Pedicled and Microsurgical Distant Flaps	35
	Bibliography	38
6	Sentinel Lymph Node and Axillary Lymphadenectomy	39
6.1	Anatomy	40
6.2	Indications	40
6.3	Technique of Sentinel Marking and Removal	40
6.4	Informed Consent	41
6.5	Operation	41
6.5.1	Preoperative Markings	41
6.5.2	Positioning on the Operating Table.....	41
6.5.3	Sentinel Operation.....	41
6.5.4	Axillary Lymphadenectomy	42
6.5.5	Isolated Metastases	42
6.5.6	Aftercare	42
6.5.7	Complications.....	42
6.5.8	Re-Sentinel Removal	43
	Bibliography	43
7	Mastectomy	45
7.1	Indication	46
7.2	Informed Consent	46
7.3	General Information on Mastectomy Surgery	47
7.3.1	Preoperative Markings	47
7.3.2	Positioning on the Operating Table.....	47
7.3.3	Operation	47
7.3.4	Aftercare	48
7.3.5	Complications.....	48
7.4	Skin-Sparing Mastectomy, SSM	48
7.5	Nipple-Sparing and Risk-Reducing Mastectomy	49
7.6	Mastectomy and Autoderm	50
7.7	Complete Mastectomy Without Immediate reconstruction	54
	Bibliography	54
8	Reconstruction with Foreign Material	55
8.1	Expander Reconstruction	56
8.1.1	Indication	56
8.1.2	Contraindication.....	56

8.1.3	Expander	56
8.1.4	Positioning.....	57
8.1.5	Expansion and Duration	57
8.1.6	Informed Consent.....	57
8.1.7	Preoperative Markings	57
8.1.8	Surgical Technique.....	58
8.1.9	Aftercare	58
8.1.10	Complications.....	59
8.2	Implant Reconstruction	59
8.2.1	Indication	59
8.2.2	Contraindication.....	59
8.2.3	Implants.....	59
8.2.4	Location	60
8.2.5	Informed Consent	60
8.2.6	Preoperative Markings	60
8.2.7	Surgical Technique.....	60
8.2.8	Aftercare	65
8.2.9	Complications.....	66
	Bibliography.....	73
9	Acellular Dermal Matrices (ADM) and Meshes.....	75
9.1	Which Matrix?	76
9.2	Operation	76
9.3	Complications	76
9.4	Special Features	78
10	Reconstruction with Autologous Tissue: Free Flaps	79
10.1	Timing	80
10.2	Perioperative Features	81
10.2.1	Medical History and Coagulation.....	81
10.2.2	Intraoperative Management.....	81
10.2.3	Flaps.....	81
10.2.4	Blood Pressure, Blood Flow	82
10.3	Anastomoses	82
10.3.1	Pedicle	82
10.3.2	Venous Anastomoses.....	83
10.3.3	Arterial Anastomosis.....	83
10.4	Postoperative Management	84
10.5	Vascular Complications and Management	84
10.6	Aesthetic Limitations and Irradiation	86
	Bibliography.....	88
11	Preparation of the Recipient Vessels	89
11.1	Internal Mammary Artery (IMA)	90
11.2	Internal Mammary Artery Perforators (IMAPs)	93
11.3	Subscapular Vascular Tree	95
11.4	Other Recipient Vessels	96
	Bibliography.....	96
12	Free Flaps	97
12.1	DIEP, ms-TRAM, and SIEA Flaps	99
12.1.1	Indication	99
12.1.2	Contraindication.....	100
12.1.3	Characteristics	100
12.1.4	Informed Consent	101

12.1.5	Planning and Preoperative Markings.....	102
12.1.6	Surgical Technique.....	106
12.1.7	Monitoring.....	114
12.1.8	Aftercare	114
12.1.9	Complications.....	115
12.1.10	Corrective and Complementary Interventions	116
12.1.11	Pregnancy	116
12.1.12	Results After Different Flap Surgeries	116
12.2	Inner Thigh Flap	132
12.2.1	Indication	132
12.2.2	Contraindications.....	132
12.2.3	Characteristics	132
12.2.4	Informed Consent.....	133
12.2.5	Planning and Preoperative Markings.....	133
12.2.6	Surgical Technique for the Classic Transverse Skin Island	134
12.2.7	Monitoring.....	139
12.2.8	Aftercare	139
12.2.9	Corrective and Complementary Interventions	140
12.2.10	Results After Inner Thigh Flap Surgery	140
12.3	Fasciocutaneous Infragluteal Flap Reconstruction (FCI)	147
12.3.1	Indication	147
12.3.2	Contraindications.....	147
12.3.3	Characteristics	148
12.3.4	Informed Consent.....	148
12.3.5	Planning and Preoperative Markings.....	148
12.3.6	Surgical Technique.....	148
12.3.7	Monitoring.....	150
12.3.8	Aftercare	150
12.3.9	Corrective and Complementary Interventions	150
12.3.10	Results After Fasciocutaneous Infragluteal Flap Surgery	151
12.4	Lymph Node Transplantation	153
12.4.1	Therapy of Lymphedema	153
12.4.2	Breast Reconstruction and Lymph Node Transplantation in One Flap Reconstruction	153
12.5	Special Indications	155
12.5.1	Bilateral Interventions	155
12.5.2	Extended Defect Coverage and Palliative Interventions	155
12.5.3	Results According to Special Indications.....	156
	Bibliography.....	161
13	Reconstruction with Autologous Tissue: Pedicled Flaps	163
13.1	Latissimus Dorsi Muscle Flap	164
13.1.1	Indication	164
13.1.2	Contraindications.....	164
13.1.3	Characteristics	164
13.1.4	Informed Consent.....	165
13.1.5	Planning and Preoperative Markings.....	165
13.1.6	Surgical Technique.....	166
13.1.7	Monitoring.....	169
13.1.8	Aftercare	169
13.1.9	Corrective and Complementary Interventions	169
13.1.10	Results After Latissimus Dorsi Muscle Flap Surgery	169
13.2	Pedicled Transverse and Vertical Rectus Abdominis Muscle Flap (TRAM/VRAM Flap)	174
13.2.1	Indication	174
13.2.2	Contraindication.....	175
13.2.3	Characteristics	175

13.2.4	Informed Consent.....	175
13.2.5	Planning and Preoperative Markings.....	176
13.2.6	Surgical Technique.....	176
13.2.7	Monitoring.....	179
13.2.8	Posttreatment and Corrective and Complementary Interventions.....	179
	Bibliography.....	179
14	Secondary Reconstruction for Partial Defects	181
14.1	Do Nothing	182
14.2	Mastopexy and Reduction Contralateral or Bilateral	182
14.3	Volume Through Lipofilling, Scar Correction	182
14.4	Implants for Partial Reconstruction	182
14.5	Local Flap for Partial Reconstruction	182
14.5.1	Latissimus Dorsi Muscle Flap	182
14.5.2	Parascapular Flap	182
14.5.3	Intercostal Perforator and Thoracoepigastric Flap Reconstruction	183
14.6	Microsurgical Flaps for Partial Reconstruction	183
14.7	Complete Reconstruction	184
	Bibliography.....	184
15	Reconstruction by Lipofilling	185
15.1	Indications	186
15.2	Safety	186
15.3	Contraindications	186
15.4	Take or Healing and Frequency of Interventions	186
15.5	Physiology	187
15.6	Informed Consent	187
15.7	Technique	187
15.7.1	Tumescent Solution	187
15.7.2	Aspiration and Preparation.....	188
15.7.3	Filling and Grafting	188
15.8	Follow-Up Treatment	189
15.9	Complications	189
15.10	Results After Lipofilling	189
	Bibliography.....	192
16	Reconstruction of the Nipple-Areola Complex (NAC)	195
16.1	Position	196
16.2	Nipple Reconstruction	197
16.2.1	Pigmentation	197
16.2.2	Nipple Sharing.....	197
16.2.3	Nipple Reconstruction by Local Flaps	197
16.3	Areola	199
16.3.1	Pigmentation	199
16.3.2	Skin Grafting	199
16.4	Combinations of Nipple and Areola Reconstructions	199
	Bibliography.....	200

III **Aesthetic Surgery**

17	Breast Reduction and Mastopexy	203
17.1	Pedicles and Incisions	204
17.1.1	Which Incision for Which Patient?	204
17.1.2	Which Pedicle for Which Patient?	205

17.2	Surgical Planning, Preoperative Markings, and Hazards.....	207
17.2.1	Planning the Operation with an Inverted T Incision and Determining the New Upper Edge of the NAC.....	207
17.2.2	Planning of the Operation with a Vertical Incision and Definition of the New Upper Edge of the NAC.....	208
17.2.3	Informed Consent	208
17.3	Operation.....	209
17.3.1	Positioning on the Operating Table, Special Measures	209
17.3.2	Superomedial/Central Pedicle and T Incision	209
17.3.3	Superomedial Pedicle, Inferior Flap According to Ribeiro and T Incision.....	210
17.3.4	Superomedial Pedicle and Vertical Incision.....	210
17.3.5	Aftercare	211
17.4	Complications.....	211
17.5	Special Cases.....	212
17.6	Results After Breast Reduction and Mastopexy	212
	Bibliography	220
18	Augmentation	221
18.1	Augmentation by Implants.....	222
18.1.1	Implants.....	223
18.1.2	Incisions and Implant Position	225
18.1.3	Surgical Planning, Preoperative Markings, and Hazards.....	226
18.1.4	Informed Consent	228
18.1.5	Operation	229
18.1.6	Aftercare	230
18.1.7	Complications.....	232
18.1.8	Special Cases.....	240
18.1.9	Secondary Procedures and Implant Changes.....	242
18.2	Augmentation with Autologous Fat	243
18.2.1	Which Patients Are Suitable?	243
18.2.2	Surgical Technique.....	243
18.2.3	Informed Consent	243
	Bibliography	244
19	Augmentation Mastopexy	245
19.1	Special Features of Implant and Mastopexy.....	246
19.1.1	Shape and Size	246
19.1.2	Location.....	246
19.1.3	Incisions and Pedicles of the Mastopexy.....	247
19.2	Operation.....	247
19.2.1	Operation Planning	247
19.2.2	Preoperative Markings	248
19.2.3	Informed Consent	249
19.2.4	Positioning on the Operating Table and Special Measures	249
19.2.5	Surgical Technique.....	250
19.2.6	Aftercare	253
19.3	Complications.....	253
19.3.1	Special Cases.....	254
19.3.2	Secondary Interventions and Implant Changes	254
19.3.3	Results After Augmentation Mastopexy.....	255
	Bibliography	260

IV Malformation

20	Aplasia of the Breast.....	263
20.1	Therapy.....	264
20.2	Timing	264
20.3	Techniques.....	264
20.3.1	Expander	264
20.3.2	Reconstruction.....	265
20.3.3	Lipofilling	265
20.3.4	NAC.....	265
	Bibliography.....	269
21	Tuberous Breast	271
21.1	Symptoms of TB.....	272
21.2	Anatomy	273
21.3	Classifications	273
21.4	Objectives of the Correction.....	273
21.5	Timing of Correction, Expectation, and Number of Interventions.....	273
21.6	Operative Techniques	273
21.6.1	Periareolar Approach, Gland Incision, and Implant Placement.....	274
21.6.2	Unfurling and Glandular Flaps	275
21.6.3	Expander	276
21.6.4	Mastopexy Figures.....	276
21.6.5	Lipofilling	276
21.6.6	Autologous Tissue.....	276
21.6.7	Timing	276
21.7	Results for TB Interventions.....	277
	Bibliography.....	282
	Supplementary Information	
	Index	285