

Contents

Foreword	xi
Preface	xii
Contributors	xiii
1 Introduction	1
2 Minor and Major Complications	3
2.1 Definition and Reporting System of Complications	3
2.2 Avoiding Complications	4
2.2.1 Patient Safety	4
2.2.2 Patient Safety Checklist	4
2.2.3 Periprocedural Documentation....	5
2.3 General Complications Related to Non-vascular and Oncologic Procedures	6
2.3.1 Impaired Renal Function	6
2.4 Known Allergic Reactions to Contrast Material	6
2.5 Radiation Exposure	6
2.6 Infection	8
2.7 Management of Complications ..	8
2.7.1 Arterial Hemorrhage	8
2.7.2 Preventing Arterial Hemorrhage. .	9
2.7.3 Device Malfunction	9
2.7.4 Preventing Device Malfunction....	9
3 Case-Based Procedure-Related Complications	10
3.1 Bleeding	10
3.1.1 Bleeding after Percutaneous Biopsy of Liver Tumor	10
3.1.2 Hemothorax during Electroporation for Hepatocellular Carcinoma Treatment	13
3.1.3 Cervical Hematoma after Thyroid Fine Needle Aspiration Biopsy....	16
3.1.4 Hepatic Intraparenchymal Hemorrhage after CT-Guided Liver Biopsy	18
3.1.5 Hemodynamic Instability, Presumed to be Related to Worsening Retroperitoneal Hemorrhage during and after Cryoablation for Renal Tumor Treatment	20
3.1.6 Mediastinal Hemorrhage and Hemothorax after Anterior Mediastinal Puncture	23
3.1.7 Hemoptysis after Percutaneous Lung Biopsy	26
3.1.8 Delayed Bleeding after Biliary Drainage	28
3.1.9 Bleeding during Diagnostic CT-Guided Liver Puncture	31
3.1.10 Bleeding after Radiofrequency Ablation for Hepatocellular Carcinoma Treatment	33
3.1.11 Massive Pleural Hemorrhage after Lung Radiofrequency Ablation	35
3.1.12 Delayed Bleeding after Microwave Ablation for a Recurrent Colorectal Liver Metastasis	38
3.2 Cement Extravasation	41
3.2.1 Pulmonary Cement Embolization after Vertebroplasty for Lumbar Fracture Treatment	41

3.2.2	Endplate Cement Extravasation after Balloon Kyphoplasty for Treatment of Osteoporotic Fracture	43	3.5.5	Insufficiency Fracture Following Bone Cryoablation	82
3.2.3	Intra-articular Cement Leakage after Bone Augmentation in the Peripheral Skeleton	46	3.5.6	Postablation Biloma with Further Sequelae after Percutaneous Microwave Ablation for Treatment of Recurrent Metastasis	85
3.3	Device Failure	49	3.5.7	Hip Joint Destruction following Radiofrequency Ablation and Cementoplasty of an Adjacent Bone Metastasis	88
3.3.1	Two Cases of Short Antenna during Microwave Ablation for Treatment of Lung Nodules	49	3.5.8	Calyceal Leakage after Renal Biopsy	91
3.3.2	Antenna Fracture during Microwave Ablation for Treatment of Non-Small-Cell Lung Cancer. . . .	53	3.5.9	Hemopericardium Following Malplacement of a Radiofrequency Ablation Electrode during Thermal Ablation of the Liver—A Potentially Fatal Complication	94
3.3.3	Thermal Ablation: Cutting Off the Leg of a Radiofrequency Ablation Device during a Simultaneous Biopsy.	57	3.5.10	Infection of the Ablation Cave after Electrochemotherapy of a Colorectal Liver Metastasis	98
3.4	Infection	59	3.6	Vascular Miscellaneous Cases. . .	99
3.4.1	Hepatic Abscess after Transarterial Chemoembolization for Hepatocellular Carcinoma Treatment	59	3.6.1	Arterioportal Fistula Following Microwave Ablation of Subcentimeter Liver Metastasis from Sigmoid Adenocarcinoma . . .	99
3.4.2	Liver Abscess after Transarterial Chemoembolization for Hepatocellular Carcinoma Treatment	64	3.6.2	Arteriovenous Fistula after Diagnostic Renal Puncture	103
3.4.3	Injury of the Liver and Biliary System after Drug Eluting Beads Transcatheter Intra-arterial Chemoembolization.	67	3.6.3	Laceration of the Left Hepatic Artery during Biliary Drainage . . .	105
3.5	Non-vascular Miscellaneous Cases	71	3.6.4	Renal Artery Pseudoaneurysm Post Percutaneous Kidney Biopsy.	108
3.5.1	Renal Defect after Cryoablation of Renal Tumor	71	3.7	Neurologic Event	110
3.5.2	A Bronchial Fistula Following Percutaneous Lung Microwave Ablation	74	3.7.1	Complete Motor Deficit of the Lower Limbs during Celiac Plexus Neurolysis	110
3.5.3	Lethal Hepatocellular Tumor Rupture after Incomplete Chemoembolization: What Went Wrong?.	77	3.7.2	Nontarget Embolization during Transarterial Chemoembolization for Hepatocellular Carcinoma Treatment: Be Aware of the Arteria Radicularis Magna	113
3.5.4	Interstitial Pneumonitis after Microwave Ablation for Metastatic Lesion Treatment	80	3.8	Pneumothorax	115
			3.8.1	Delayed Pneumothorax after Lung Biopsy.	115
			3.8.2	Pneumothorax during Microwave Ablation for Treatment of a Single Pulmonary Metastasis	117

3.8.3	Pneumothorax during Diagnostic CT-Guided Lung Puncture	120	3.9.1	Skin Burn after Radiofrequency Ablation of Lung Nodule.....	127
3.8.4	Intraprocedural Pneumothorax after Biopsy before Microwave Ablation	122	3.9.2	Burned Skin after Radiofrequency Ablation for Osteoid Osteoma Treatment.....	129
3.8.5	Pneumothorax after Percutaneous Lung Interstitial Brachytherapy in Solitary Colorectal Adenocarcinoma Metastasis	124	3.9.3	Skin Burn after Dislocation of a Microwave Ablation Electrode during Ablation of Liver Metastases in Coaxial Technique.....	132
3.9	Skin Burn.....	127			
	Index	135			