Non-Melanoma Skin Cancer and Cutaneous Melanoma

Othon Papadopoulos Editor-in-Chief

Nikolaos A. Papadopulos Grigorios Champsas Editors

Non-Melanoma Skin Cancer and Cutaneous Melanoma

Surgical Treatment and Reconstruction



Editor-in-Chief
Othon Papadopoulos
Emeritus Professor
Plastic, Reconstructive and
Aesthetic Surgery
National and Kapodistrian
University of Athens
Medical School
Athens
Greece

Editors
Nikolaos A. Papadopulos
Professor and Chairman
Department of Plastic Surgery and
Burns
Alexandroupoli University Hospital
Democritus University of Thrace
Alexandroupoli
Greece

Professor and Scientific Responsible
Research Group for Studies on Quality
of Life after Plastic, Reconstructive,
Aesthetic & Hand Surgery,
Department of Plastic Surgery and
Hand Surgery,
University Hospital rechts der Isar
Munich Technical University
Munich
Germany

Visiting Professor School of Medicine National and Kapodistrian University of Athens Athens Greece

Grigorios Champsas Academic Fellow National and Kapodistrian University of Athens Medical School Athens Greece

Department of Plastic Surgery and Dermatology - Venereology Andreas Sygros Hospital Athens Greece

ISBN 978-3-030-18795-8 ISBN 978-3-030-18797-2 (eBook) https://doi.org/10.1007/978-3-030-18797-2

© Springer Nature Switzerland AG 2020, corrected publication 2020

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use. The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor

this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Foreword

In September 2013, I attended the Fourth International Congress of Plastic and Reconstructive Surgery in Yerevan, Armenia. At that meeting, Professor Othon Papadopoulos told me that he was in the process of editing a new textbook on skin cancers. That project is now completed, and he has been kind enough to let me read this final product before publication.

In the preface to this book, Professor Othon Papadopoulos explains that this project initially began about melanoma of the skin, but he eventually expanded it to cover all of skin cancers. To be inclusive, he called upon numerous experts for a multidisciplinary approach to the treatment of the various disorders.

As I read this book, it is quite apparent that he has succeeded in his vision. This book is so complete and comprehensive with the various common, less common, and even rare diseases that are reviewed and elaborated extensively, that it approaches almost encyclopedic in its scope. It includes lengthy discussions in the diagnosis, differentiation, staging, and selection of treatment options. The voluminous illustrations add great value to the written text.

This book is the product of extensive work and reflects the expertise of numerous experienced authors from European, American, Australian, and Asian institutions and should be a welcome addition to the bookshelves of medical students, trainees, as well as practicing physicians.

Stephan Ariyan Department of Surgery Yale School of Medicine New Haven, CT, USA

Smilow Cancer Hospital Yale Cancer Center New Haven, CT, USA

Preface

Upon considering Springer's proposition to author a book on melanoma of the head and neck, the idea that sprang was "why not a book on cutaneous melanoma in general?" Furthermore, I wondered why not a book on skin cancer and cutaneous melanoma since reconstruction of these distinct cutaneous tumors is almost similar. It was an ideal opportunity to include my knowledge and experience of over five decades in this field.

I asked the cooperation of Professor Nikolaos Papadopulos and Dr. Grigorios Champsas as my co-editors and I thank them.

Professor Nikolaos Papadopulos, was at the time moving back to Greece after his long journey for many years across Europe, and lately at the Munich Technical University in Germany. Thanks to his excellent reputation and his high-level expertise, his contribution has been valuable both by his chapters and by his invitation to several authors.

Dr. Grigorios Champsas was one of my closest assistants in the last 20 years. He is a recognized expert in this field with an excellent clinical and research experience at the Medical School of National and Kapodistrian University of Athens. By choosing him as a co-Editor, I wanted to honor all my colleagues who gave so freely of their time, expertise and their valuable help all these years.

The expertise of some internationally renowned plastic surgeons was sought after so that they could author various chapters of this book. I explicitly stated that the book must be characterized by utter excellence concerning the manuscript. Moreover, I emphasized the importance of quality photography that must be incorporated in each and every chapter in order to make the chapters pleasing and comprehensible to the reader.

The treatment of cutaneous melanoma and skin cancer is a multidisciplinary complex matter and does not entail solely the involvement of plastic surgery; thus I invited colleagues who are proficient in several medical specialties in order to portray the complex diagnostic and therapeutic modalities concerning cutaneous melanoma and skin cancer.

I specifically strived to edit a book that is simple and clinically oriented in order for readers to apply the vast experience of multiple authors in their everyday clinical practice. The scope of the book is to provide knowledge on

The original version of this book was revised. The correction to this book can be found at https://doi.org/10.1007/978-3-030-18797-2_33

viii Preface

the diagnosis and treatment of cutaneous melanoma and non-melanoma skin cancer. I hope this book will be helpful for students, trainees, plastic surgeons, and all medical experts involved in this field. In several chapters, overlap of knowledge was unavoidable. Nevertheless, I feel that this overlap is a catalyst to master the diagnosis and treatment of these cutaneous tumors.

The book has 32 chapters and is divided into four parts: Multidisciplinary Approach, Reconstruction of Localized Non-Melanoma Skin Cancer and Cutaneous Melanoma, Surgical Treatment and Reconstruction of Lymph Node Metastases, and Surgical Treatment of Lymphedema.

This book would never be complete without the invaluable dedication of numerous colleagues, the priceless support of my associates, fellows, our patients, and of course the contribution of Springer.

I thank them.

Athens, Greece

Othon Papadopoulos

Acknowledgments

Surgery among medical specialties was the one that moved me in my early academic years. Therefore, I started my practice in general surgery under the supervision of Professor Gregory Skalkeas, who taught me the basic principles. Moreover, Professor Skalkeas engraved in my mind what the surgeon's responsibility means both to the patients and to my colleagues. I thank him and always mention him for his kind support and trust in me.

In a short time, I realized that I needed to specialize in the field of general surgery. My desire to achieve immediate therapeutic results for patients is what led me to surgery, but innovation and creativity are what finally instilled my passion for plastic surgery under the guidance of Dr. George Kotsianos. I thank him for his support and assistance in preparing my thesis and in continuing my training in Paris.

Professors Claude Dufourmentel and Roger Mouly at Saint Louis Hospital in Paris were the ones who taught me modern plastic surgery, both reconstructive and aesthetic, assisted by Dr. Daniel Marchac and Professor Pierre Banzet. I thank them all for the important role they played in my career.

Furthermore, critical stepping stones in my clinical and academic evolution were training in Pitier-Salpetriere Hospital next to Professor Jean-Marie Vaillant in oral and maxillofacial surgery and in Saint Vincent de Paul Hospital next to Dr. Bernard Pavy in pediatric plastic surgery. I thank them both

At the time, microsurgery was a discipline at its infancy being practiced in individual training centers, one of which was Saint Vincent Hospital in Melbourne, with the world-renowned research center under Professors Bernard Mc O'Brien and Wayne Morrison. My training there, both clinically and in research, helped me complete my fellowship. I also thank them.

However, the most important advance in my career, after my return to Athens, was offered to me by Professors John Stratigos and Gregory Skalkeas at the Andreas Sygros Hospital and Laiko Hospital, respectively.

Professor of Dermatology John Stratigos founded and supported the Department of Plastic Surgery in Andreas Sygros Hospital which I had the honor of leading for 34 years.

Professor of Surgery Gregory Skalkeas introduced me to the National and Kapodistrian University of Athens, Medical School, where I evolved as an academic through the entire hierarchy. Moreover, I became the first Full Professor and Chairman of the first University Clinic of Plastic Surgery which

x Acknowledgments

I founded at Thriasio Hospital—Latsio Burn Center. My gratitude for these two teachers is immense.

This book is a life's work from the two aforementioned hospitals and marks the fruitful end of my career cycle in the exciting specialty of plastic surgery.

The honor bestowed on me by Professor Stephan Ariyan to foreword this book is proof of the quality of our work and I thank him warmly.

I would like to thank the two hard workers Co-editors Professor Nikolaos Papadopulos and Dr. Grigorios Champsas, the authors of the various chapters, as well as my collaborators:

Dr. Karantonis Fotios – Filippos

Professor Konofaos Petros

Dr. Frangoulis Marios

Dr. Champsas Grigorios

Dr. Kostopoulos Epaminondas

Dr. Karypidis Dimitrios

Dr. Vakis Georgios

Mrs. Champsa Helene

who contributed significantly to the proper functioning of the Department of Plastic Surgery at Andreas Sygros Hospital and to the writing of this book.

My gratitude to the nursing staff of the Plastic Surgery Department of Andreas Sygros Hospital and to the patients is more than appropriate.

Springer Publishing has done a remarkable job, and I thank all those who contributed to the completion of this book.

Last, but not least, I would like to thank my wife Katia and my sons Nikola and Stathis who have encouraged me throughout this endeavor.

Athens, Greece

Othon Papadopoulos

Acknowledgments

During my career, I have had the good fortune to be inspired and mentored by master surgeons who have helped to shape our specialty. When I was a medical student at Perugia University in Italy, I was introduced to the fascinating world of plastic surgery by Professor Cristiano Domenici. Prof. Domenici's skill and innovation inspired me to become a plastic surgeon. Three years later, I entered the excellent residence program at Klinikum rechts der Isar of Munich Technical University in Germany. There I learned the essentials of plastic, reconstructive, and aesthetic surgery under the tutelage of four outstanding gifted plastic surgeons: Axel-Mario Feller, Peter Graf, and Juergen Schaff, under the wise leadership of Edgar Biemer, who guided me and helped me to increase my self-confidence when performing plastic and reconstructive surgery. After my board certification, I have worked almost for ten years extensively with *Professor Edgar Biemer*, who as a true gentleman, outstanding teacher, and extraordinary pioneer guided me and helped me to the exploration of the amazing potential of reconstructive surgery, but also of plastic and aesthetic surgery. Furthermore, on my way back home, I have met another wonderful teacher, excellent researcher, and a true academician, Professor Panayotis N. Soucacos, who made me love science even deeper! Ultimately, I relocated to Athens and work together with a great educator, an innovative surgeon, and a charismatic academic leader, Professor George K. Zografos, exploring the amazing potential of breast reconstruction and lymphedema treatment. Finally, my brother *Professor* A. Papadopoulos, who followed me during all my career, in all its up and downs, as an amazing companion, an astonishing adviser, and a brilliant academician. All these mentors and friends have shaped my destiny, and I am sincerely grateful to them!

Many people have contributed to the production of this book. It represents the culmination of ideas and concepts from all over the world. I would like to acknowledge all of the experts and friends who helped to make it possible.

This book started while I was moving back to Greece, after my long journey for many years across Europe, as the Editor-in-Chief, *Professor Othon N. Papadopoulos*, to whom I'd like to express my thanks, asked me to serve as Co-Editor.

A special word of thanks is also due to the contributing authors. Each of the individuals was chosen for his or her special expertise. Indeed, efforts were made to invite plastic surgeons across the world who are experts in each specific subject to contribute chapters to this book. From the very beginning xii Acknowledgments

as I contacted the first authors, most of them being also good friends as well, I received such a positive feedback and plenty of suggestions that we decided to expand our invitation also to other colleagues from all over the world, from South America to Japan and from North America to Australia. Almost all the authors have either developed or introduced sophisticated approaches or have been actively involved in their clinical and research practice. I am grateful for their willingness to share their wisdom and to invest their time in this great effort! To my knowledge, no other book in the international literature deals with the surgical treatment and reconstruction after skin cancer and cutaneous melanoma from the plastic surgeon's point of view!

The book is divided into four parts: "Multidisciplinary Approach," "Reconstruction of Localized Non-Melanoma Skin Cancer and Cutaneous Melanoma," "Surgical Treatment and Reconstruction of Lymph Node Metastases," and "Surgical Treatment of Lymphedema." In the last part, the Surgical Management of Lymphedema has been described, with the contributions from three pioneers in this field to whom my special thanks are addressed.

Finally, I would like to thank our families, staff, and fellows, and of course our patients who have provided the surgical challenges.

Dedicated to my son, Apostolos

Alexandroupoli & Athens, Greece, and Munich, Germany

Nikolaos A. Papadopulos

Acknowledgments

The specialty of plastic surgery has fascinated me since I was a student, which made my career choice easy. During my studies and my specialty, I was privileged to have excellent and dedicated teachers of high scientific level and an inspiring disposition to transmit knowledge.

I came in contact with the highly demanding and challenging field of surgical resection of skin tumors and their functional and aesthetic reconstruction, at the Department of Plastic Surgery of "Andreas Sygros" Hospital, a reference hospital for skin diseases, under the direction of Professor Othon Papadopoulos.

I would like to express my sincere appreciation and my gratitude to the following individuals:

Professor Othon Papadopoulos for the honor of inviting me to participate in the writing of this book as one of his Co-Editors and, especially, for what he has taught me during these two decades of our edifying collaboration

My teachers and consummate clinicians George Papadakis and Ioannis Paraskevopoulos, General Surgeons, Andreas Lochaitis, Achilleas Kepenekidis, Stelios Kotzampasakis and Christos Striglis, Plastic Surgeons at Hospital "KAT" of Athens

Professor Fabio Santanelli di Pompeo, a charismatic surgeon and academician, for the valuable knowledge he has given me in breast reconstruction with autologous tissue (DIEP flap) and other reconstructive methods, during the Master on Breast Reconstruction in Rome

Professors Andreas Katsambas, Christina Antoniou, Dimitrios Rigopoulos, and Alexandros Stratigos, for their kind help and our impeccable collaboration

All the medical, nursing, and administrative staff of "Andreas Sygros" Hospital, for their commitment and their valuable help in treating our patients

My patients who made me a better doctor and a better person

My godfather Spyridon Moulopoulos, Emeritus Professor, National and Kapodistrian University of Athens, Medical School, for the timeless inspiration that was for me through his great career and his contribution to medical science

My family for their emotional support and, especially, my beloved parents, George and Rodanthi, whose precious memory always accompanies me

Dr. Grigorios Champsas

Contents

Part I Multidicsiplinary Approach

| 1 | Non-melanoma Skin Cancer and Cutaneous Melanoma from Dermatological Point of View |
|-----|--|
| | Maria Kostaki, Christina Antoniou, Irene Stefanaki, and Alexander Stratigos |
| 2 | Non-melanoma Skin Cancer and Cutaneous Melanoma from the Oncological Point of View |
| 3 | Pathology of Primary Nonlymphoid and Non-mesenchymal Skin Cancer 69 Konstantina Frangia-Tsivou and Martin C. Mihm Jr |
| 4 | Non-melanoma Skin Cancer and Cutaneous Melanoma from Radiotherapeutic Point of View |
| 5 | Nonmelanoma Skin Cancer and Cutaneous Melanoma from Nuclear Medicine Point of View |
| 6 | Non-melanoma Skin Cancer and Cutaneous Melanoma for the Plastic and Reconstructive Surgeon |
| Par | t II Reconstruction of Localized Non Melanoma Skin Cancer and Cutaneous Melanoma |
| 7 | Reconstruction Principles of Localized Non-melanoma Skin Cancer and Cutaneous Melanoma |

xvi Contents

| 8 | Reconstruction of the Scalp and Forehead |
|----|--|
| 9 | Nose and Ear Reconstruction Following Tumor Extirpation 295 Petros Konofaos, Charles A. Pierce, Xi Lin Jing, and Robert D. Wallace |
| 10 | Eyelid Reconstruction Following Cutaneous Neoplasm Resection 335 Othon Papadopoulos and Fotios-Filippos Karantonis |
| 11 | Reconstruction of Mandible and Maxilla After Resection for Non-melanoma Skin Cancer or Cutaneous Melanoma 397 Frédéric Kolb |
| 12 | Cheek and Neck Reconstruction Following Cutaneous Neoplasm Resection |
| 13 | Reconstruction of the Perioral Region |
| 14 | Skin Cancer and Melanoma: Surgical Treatment and Reconstruction of the Chest |
| 15 | Skin Cancer and Melanoma: Surgical Treatment and Reconstruction of the Abdomen |
| 16 | Posterior Trunk Reconstruction |
| 17 | Soft Tissue Reconstruction of the Perineum: Perforator Flaps for Perineal Reconstructions |
| 18 | Nonmelanoma Skin Cancer and Cutaneous Melanoma of the Hand and the Upper Extremity |
| 19 | Reconstruction of Lower Extremities |
| 20 | Nonmelanoma Skin Cancer and Cutaneous Melanoma in the Pediatric Population |

Contents xvii

Part III Surgical Treatment and Reconstruction of

| | Lymph Node Metastases | |
|--|--|--|
| 21 | Principles of the Lymph Node Dissection in Non-melanoma Skin Cancer and Cutaneous Melanoma | |
| 22 | The Role of the Sentinel Lymph Node Biopsy in the Treatment of Nonmelanoma Skin Cancer and Cutaneous Melanoma | |
| 23 | Parotidectomies and Neck Dissections | |
| 24 | Surgical Management of Axillary Lymph Node Metastasis in Cutaneous Melanoma and Non-melanoma Skin Cancer 737 Jamie Green Rand and Charlotte Ariyan | |
| 25 | Epitrochlear Lymph Node Dissection | |
| 26 | Inguinofemoral Dissection | |
| 27 | Deep Groin (Iliac/Obturator Node) Dissection | |
| 28 | Popliteal Lymph Node Dissection | |
| Part IV Surgical Treatment of Lymphedema | | |
| 29 | Therapy Principles of Lymphoedema | |
| 30 | Lymph Vascular Reconstruction by Lymphatic Vessels 801 Ruediger G. H. Baumeister | |
| 31 | Lymphaticovenular Anastomosis (LVA) 807 Kensuke Tashiro and Isao Koshima | |

xviii Contents

| 32 | Free Microsurgical Autologous Lymph Node Transplantation |
|-----------|--|
| | to Treat Lymphoedema After Melanoma Treatment 815 |
| | Corinne Becker, Lionel Arrive, and Nikolaos A. Papadopulos |
| Coı | rection to: Non-Melanoma Skin Cancer and Cutaneous |
| Me | lanoma C1 |
| Ind | ex |

Contributors

Christina Antoniou, MD, PhD 1st Department of Dermatology and Venereology, Andreas Sygros Hospital, National and Kapodistrian University of Athens, Medical School, Athens, Greece

Charlotte Ariyan, MD, PhD Memorial Sloan Kettering Cancer Center, New York, NY, USA

Lionel Arrive, MD Department of Radiology, Saint-Antoine Hospital, Assistance Publique-Hôpitaux de Paris, Paris, France

Faculté de Médecine Pierre et Marie Curie, Sorbonne Universités, UPMC Université Paris, Paris, France

Ruediger G. H. Baumeister, MD, PhD Ludwig Maximilians University, Muenchen, Germany

Consultant in Lymphology and Microsurgery, Chirurgische Klinik Muenchen Bogenhausen and Urologische Klinike Muenchen Planegg, Planegg, Germany

Corinne Becker, MD, PhD American Hospital of Paris, Neuilly sur Seine, France

Department of Thoracic Surgery, HEGP, Paris, France

Grant Bond, MD Department of Surgery, University of Tennessee Health Science Center (UTHSC), Memphis, TN, USA

Vincent Casoli, MD, PhD Plastic Surgery and Burns Unit, FX Michelet Center, University Hospital of Bordeaux, Bordeaux, France

Grigorios Champsas, MD, MSc, PhD National and Kapodistrian University of Athens, Medical School, Athens, Greece

Department of Plastic Surgery and Dermatology - Venereology, Andreas Sygros Hospital, Athens, Greece

Sofia N. Chatziioannou, MD, PhD 2nd Department of Radiology, National and Kapodistrian University of Athens, Medical School, Athens, Greece

PET/CT, Centre for Clinical Research, Biomedical Research Foundation, Academy of Athens, Athens, Greece

xx Contributors

Pedro Soler Coltro, MD, PhD Hospital das Clínicas, Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, SP, Brazil

Fábio de Freitas Busnardo, MD, PhD Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo, Cerqueira César, SP, Brazil

Panagiotis Diamantopoulos, MD, PhD 1st Department of Medicine, Laiko Hospital, National and Kapodistrian University of Athens, Medical School, Athens, Greece

Ulf Dornseifer, MD, PhD Department of Plastic, Reconstructive, Hand and Burn Surgery, Bogenhausen Academic Hospital, Technische Universität München, Munich, Germany

Marcus Castro Ferreira, MD, PhD Hospital das Clínicas, Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, SP, Brazil

Konstantina Frangia-Tsivou, MD, PhD HistoBio Diagnosis S.A. Pathology Laboratory, Athens, Greece

Marios Frangoulis, MD, PhD Department of General Surgery, Laiko Hospital, National and Kapodistrian University of Athens, Medical School, Athens, Greece

John Georgakopoulos, MD, PhD 2nd Department of Radiology Radiotherapy Unit, Attikon University Hospital, National and Kapodistrian University of Athens, Medical School, Athens, Greece

Helen Gogas, MD, PhD First Department of Medicine, Laiko Hospital, National and Kapodistrian University of Athens, Medical School, Athens, Greece

Ramin Ipaktchi, MD, PhD Department of Plastic, Aesthetic, Hand and Reconstructive Surgery, Burn Center, Hannover Medical School, Hannover, Germany

Alireza Hamidian Jahromi, MD, MRCS Department of Plastic Surgery, University of Tennessee Health Science Center (UTHSC), Memphis, TN, USA

Xi Lin Jing, MD Department of Plastic Surgery, University of Tennessee Health Science Center (UTHSC), Memphis, TN, USA

Constantine P. Karakousis, MD, PhD State University of New York at Buffalo, Buffalo, NY, USA

Giorgos C. Karakousis, MD Division of Endocrine and Oncologic Surgery, Hospital of the University of Pennsylvania, Philadelphia, PA, USA

Hasan Karanlık, MD, PhD Division of Surgical Oncology, Institute of Oncology, Istanbul University, Istanbul, Turkey

Fotios-Filippos Karantonis, MD, MSc, PhD Private Practice, Metropolitan General Hospital, Athens, Greece

Dimitrios Karypidis, MD, MSc, PhD, FAACS Queen Mary University of London, London, UK

Cardiff University, Cardiff, UK

Bong-Sung Kim, MD, PhD, FEBOPRAS Department of Plastic Surgery, Hand Surgery, Burn Center, University Hospital Aachen, Aachen, Germany

Michael Kimelman, MD Department of Plastic, Reconstructive, Hand and Burn Surgery, Bogenhausen Academic Hospital, Technische Universität München, Munich, Germany

Frédéric Kolb, MD Service de Chirurgie Plastique et Reconstructrice, Gustave-Roussy, Villejuif, France

Petros Konofaos, MD, PhD, FEBOPRAS Department of Plastic Surgery, University of Tennessee Health Science Center, Memphis, TN, USA

Isao Koshima, MD, PhD Department of Plastic and Reconstructive Surgery, The University of Tokyo Hospital, Bunkyo-ku, Tokyo, Japan

Maria Kostaki, MD, PhD 1st Department of Dermatology and Venereology, Andreas Sygros Hospital, National and Kapodistrian University of Athens, Medical School, Athens, Greece

Epaminondas Kostopoulos, MD, PhD Department of Dermatology and Venereology, Andreas Sygros Hospital, Athens, Greece

Metaxa Cancer Hospital of Piraeus, Piraeus, Greece

Vassilis Kouloulias, MSc, MD, PhD 2nd Department of Radiology Radiotherapy Unit, Attikon University Hospital, National and Kapodistrian University of Athens, Medical School, Athens, Greece

John Kouvaris, MD, PhD 1st Department of Radiology Radiotherapy Unit, Aretaieion University Hospital, National and Kapodistrian University of Athens, Medical School, Athens, Greece

Steven D. Kozusko, MD Department of Plastic Surgery, University of Tennessee Health Science Center (UTHSC), Memphis, TN, USA

Nicco Krezdorn, MD, PhD Department of Plastic, Aesthetic, Hand and Reconstructive Surgery, Burn Center, Hannover Medical School, Hannover, Germany

Sidika Kurul, MD, PhD Reconstructive and Aesthetic Surgery, Division of Surgical Oncology, Institute of Oncology, İstanbul University, İstanbul, Turkey

Min-Seok Kwak, MD, PhD Department of Plastic Surgery and Hand Surgery, University Hospital Rechts der Isar, Munich Technical University, Munich, Germany

Edward A. Luce, MD University of Tennessee Health Science Center, Memphis, TN, USA

xxii Contributors

Alpin D. Malkan, MD Department of Surgery, St. Jude Children's Research Hospital, Memphis, TN, USA

Diego Marre, MD O'Brien Institute of Regenerative Surgery, St. Vincent's Institute, Melbourne, VIC, Australia

Martin C. Mihm Jr, MD, FACP Department of Dermatology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

Wayne A. Morrison, MD, PhD Department of Plastic and Reconstructive Surgery, O'Brien Institute of Regenerative Surgery, St. Vincent's Institute, Melbourne, VIC, Australia

Milomir Ninkovic, MD, PhD Department of Plastic, Reconstructive, Hand and Burn Surgery, Bogenhausen Academic Hospital, Technische Universität München, Munich, Germany

Niri S. Niranjan, MS, FRCS (Plast) Department of Plastic and Reconstructive Surgery, St Andrews Centre, Broomfield Hospital, Chelmsford, Essex, UK

Marcelo Vitoriano Olivan, MD, PhD Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo, Cerqueira César, SP, Brazil

Norbert Pallua, MD, PhD, FEBOPRAS Department of Plastic Surgery, Hand Surgery, Burn Center, University Hospital Aachen, Aachen, Germany

Othon Papadopoulos, MD, PhD Department of Plastic, Reconstructive and Aesthetic Surgery, National and Kapodistrian University of Athens, Medical School, Athens, Greece

Nikolaos A. Papadopulos, MD, PhD Department of Plastic Surgery and Burns, Alexandroupoli University Hospital, Democritus University of Thrace, Alexandroupoli, Greece

Research Group for Studies on Quality of Life after Plastic, Reconstructive, Aesthetic & Hand Surgery, Department of Plastic Surgery and Hand Surgery, University Hospital rechts der Isar, Munich Technical University, Munich, Germany

School of Medicine, National and Kapodistrian University of Athens, Athens, Greece

Anna N. Paschali, MD, PhD Theagenion Cancer Hospital, Thessaloniki, Greece

Charles A. Pierce, DO, MPH Department of Plastic Surgery, University of Tennessee Health Science Center (UTHSC), Memphis, TN, USA

Aristidis Polyzos, MD, PhD 1st Department of Medicine, National and Kapodistrian University of Athens, Medical School, Athens, Greece

Julian J. Pribaz, MD Division of Plastic Surgery, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

Tyler D. Ragsdale, MD Department of Plastic Surgery, University of Tennessee Health Science Center (UTHSC), Memphis, TN, USA

Jamie Green Rand, MD Weill Cornell Hospital, City of Hope, New York, NY, USA

John A. Sandoval, MD Department of Surgery, St. Jude Children's Research Hospital, Memphis, TN, USA

Indranil Sinha, MD, PhD Division of Plastic Surgery, Brigham and Women's Hospital Trauma and Burn Center, Harvard Medical School, Boston, MA, USA

Irene Stefanaki, MD, PhD 1st Department of Dermatology and Venereology, Andreas Sygros Hospital, National and Kapodistrian University of Athens, Medical School, Athens, Greece

Alexander Stratigos, MD, PhD 1st Department of Dermatology and Venereology, Andreas Sygros Hospital, National and Kapodistrian University of Athens, Medical School, Athens, Greece

Antonia Stührenberg, MD Department of Plastic Surgery and Hand Surgery, University Hospital rechts der Isar, Munich Technical University, Munich, Germany

Kensuke Tashiro, MD, PhD The University of Tokyo, Bunkyo-ku, Tokyo, Japan

National Cancer Center, Chuo-ku, Tokyo, Japan

Serdar Tuncer, MD Department of Plastic, Reconstructive and Aesthetic Surgery, Bilim Foundation University, İstanbul, Turkey

Adnan Uzunismail, MD Department of Plastic, Reconstructive and Aesthetic Surgery, Başkent University, Medical School, Istanbul, Turkey

Georgios Vakis, MD, MSc, PhD Department of Plastic Surgery, Evagelismos Hospital, Athens, Greece

Peter M. Vogt, MD, PhD Department of Plastic Surgery, Evagelismos Hospital, Hannover Medical School, Hannover, Germany

Robert D. Wallace, MD, PhD Department of Plastic Surgery, University of Tennessee Health Science Center, Memphis, TN, USA

Anna Zygogianni, MD, PhD Aretaieion Hospital, National and Kapodistrian University of Athens, Medical School, Athina, Greece