

## Preface

It is a great privilege to introduce the book *The Know-How of Face Transplantation* to those who are interested in innovations in plastic and reconstructive surgery as well as innovation in the transplantation field.

The idea to write *The Know-How of Face Transplantation* came early on, even before we had performed the first face transplant in the USA. The preparation process for face transplantation involved experimental studies, cadaver dissections, much legislative work and approval from different organizations including the Institutional Review Board (IRB), organ procurement organizations, coroner's office approvals, as well as approvals from different states' organ procurement organizations.

My intention was to share, with those interested in development of new programs for composite tissue allograft transplantation, our own experience and the experience of others in order to facilitate establishment of reconstructive transplantation programs in other US institutions, as well as in other countries worldwide.

Face transplantation has generated a lot of attention over the last six years, and it started in 2004 with the announcement of Cleveland Clinic granting the world's first IRB approval to proceed with human face transplantation. A lot of ethical, societal, as well as medical debate ensued after this approval was granted. The interest of the media nationally and internationally, as well as patient advocate and other groups, supported this breakthrough concept and procedure; however, many questions were raised regarding ethical issues, medical issues such as the need for lifelong immunosuppression, as well as issues of financial support for this novel procedure.

When I thought about the concept of creating a know-how manual for face transplantation, I did not want the reader to get the impression that this is a recipe which, when followed, will guarantee a 100% success rate. Based on the years of work and preparation and experience in developing the program of face transplantation at Cleveland Clinic, I realized that there are not only surgical and technical issues which need to be shared, but also issues related to experimental studies, anatomical cadaver dissections, ethics, legal approval and legislative issues, as well as societal, financial, and public relations concerns. This was a tremendous undertaking, and I have taken this work very personally due to the fact that a book on a breakthrough procedure which has been performed, for the first time, on only a few patients, brings a great responsibility to the Editor. In order to include the experience of all world experts who have performed face transplantation, I invited all surgeons who had participated, at the time of book production, in face transplantation programs, in their respective countries and institutions. These included Dr. Dubernard and Dr. Devauchelle, from Lyon, France, Dr. Lengele, from Belgium, Dr. Shuzhong, from China, Dr. Lantieri, from Paris, France, Dr. Cavadas, from Valencia, Spain, Dr. Pomahac and Dr. Pribaz, from Boston, as well

as Dr. Butler, from London. I was hoping that all would contribute with a chapter sharing their experience. I also invited experts in transplantation ethics, infectious disease, rehabilitation, transplant immunology, media relation representatives, as well as organ procurement organization experts. I received overwhelming support from most of the centers; however, a few of the institutions' leaders decided to not participate in our educational journey. Therefore, we have included their experience in the review chapters summarizing the world experience with face transplantation.

The book has 72 contributing authors and 44 chapters which are divided into eight major sub-categories of topics outlined in the following order:

#### Part I Preclinical Aspects of Face Transplantation

There are 7 chapters in this part which discuss the issues of the face as a functional organ, the face as a sensory organ, and immunological aspects related to face transplantation. In addition, experimental studies in rodents, as well as large animal models including swine and primates, are discussed. Finally, the timeline and preparation for face transplantation in the cadaver model is presented.

#### Part II Clinical Aspects in Preparation for Face Transplantation

This part includes 8 chapters describing guidelines for technical aspects of face transplantation, anesthesia-related issues in face transplantation, as well as alternative approaches to face transplantation. In addition, ethical concerns, as well as psychological aspects of face transplantation, are thoroughly discussed, and physical therapy and rehabilitation, as well as prosthetic support relevant to face transplantation, are presented.

#### Part III Monitoring Aspects of Face Transplantation

This part includes 7 chapters and describes the important issues of how to monitor patients after facial transplantation, emphasizing details of immunological monitoring, pathological monitoring, and classification of facial graft rejection. In addition, the issues of brain plasticity, functional EEG, as well as sensory recovery and methods of assessment of cortical plasticity after face transplantation, are discussed.

#### Part IV Approval Process of Face Transplantation

Here, in 5 chapters, we outline the process of IRB approval, the ethical presentation of patients' informed consent, the legal and regulatory aspects of face donation and transplantation, the issue of death and end of life, as well as organ procurement organizations' approval process.

#### Part V Societal, Financial, and Public Relations Issues in Face Transplantation

This part summarizes, in 3 chapters, cultural, religious, and philosophical views on face transplantation, a comparative cost analysis of conventional reconstruction versus face transplantation, and finally, media-related aspects, viewed from a public relations perspective, on face transplantation.

## Part VI World Experience with Face Transplantation

This part summarizes, in 7 chapters, the global experience with face transplantation: the facial allotransplantation experience in China, Cleveland Clinic's experience, the Spanish team's experience, as well as microsurgical aspects and sensory recovery following face transplantation. In addition, infectious issues related to face transplantation are outlined.

## Part VII Future Directions in Face Transplantation

The 6 chapters in this part of the book discuss the military cases relevant to face transplantation, regenerative medicine approaches, the international registry of face transplantation, the aspects of concomitant face and upper extremity transplantation, immunosuppressive protocols for composite tissue transplantation, new cellular therapies, as well as novel aspects of tissue engineering in face transplantation.

## Part VIII Current Status of Face Transplantation

This final part of the book summarizes, in one chapter, the technical and functional outcomes of the 13 face transplants performed thus far, between 2005 and 2010, by all institutions worldwide.

I hope that this book will help those who are planning to establish composite tissue allograft programs in their institutions and countries to understand that the approach to a novel procedure requires the cooperative effort of a team of multidisciplinary experts from different fields which are, quite often, far removed from the daily surgical activities of reconstructive surgeons. This book summarizes many of the issues which, as a surgeon, I had not considered when preparing for facial transplantation and which developed during the lengthy process of creating the face transplant program at Cleveland Clinic. I understand, from my interactions with contributing authors, that they have enjoyed the process of writing about a topic as new and undiscovered as face transplantation, a topic on which we do not yet have long-term patient outcomes to report and share.

It has been a privilege to work with so many of the field's experts in putting this book together. I hope that a careful process of preparation for face transplantation, as outlined in this book, will not be underestimated and justifies this procedure as a medical, ethical, and societal breakthrough. The final message which I want to convey is that the technical aspect of face transplantation is only one of many challenges, and the beginning of a fascinating journey of helping patients who have lost their faces, since "You need a face to face the world."



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