



Operative Procedures in
Plastic, Aesthetic and
Reconstructive Surgery

EDITED BY

ARI S. HOSCHANDER • CHRISTOPHER J. SALGADO
WROOD KASSIRA • SETH R. THALLER

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Taylor & Francis Group

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Dedications

Shira, your support, motivation, and love have made this possible. You inspire me daily. No words can express my gratitude for all you do.

Jacob, Ezra, and Levi, the greatest kids in the world. Thank you for giving up some of our time together so that I could pursue this endeavor.

Mordechai and Rebecca Hoschander, my parents who have given me everything, I thank you.

Mentors and Colleagues, the only way to repay you for the knowledge and experience that you have given to me is to pass that education on to the next generation of plastic and reconstructive surgeons. I hope this book will repay part of that debt.

Ari S. Hoschander

I would first like to thank my family, who I love more than anything in this world. It is with their support that time was allowed to invest in this book, which I feel is a significant addition to any plastic surgeon's library. Second, my mentors in plastic surgery, Professors Hung-Chi Chen,

Fu-Chan Wei, Steve Evans, Chris Attinger, and Samir Mardini, have made the most impact on my academic surgical career; it is their influence on my career that has given me the encouragement to accomplish the editorial work for this magnificent book. Lastly, my mother, Margarita Salgado, and father, Juan Salgado, have instilled in me the importance of dedication, hard work, and education; without this early teaching, this editorial process would not have been possible.

Christopher J. Salgado

For my mentors, who have taught me, and residents, who inspire me every day.

Wrood Kassira

To the center of my life: wife, Pat; and kids, Steven Cody and Alexandra Lee. They make it all worthwhile.

Seth R. Thaller

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Foreword

How does a surgeon learn to operate? I hope the old adage of “see one, do one, teach one” is in the past. Substitutes for training always fall short when measured against excellent teaching, reading, introspective analysis, and subsequent experience.

Plastic surgery, unlike other surgical specialties, is more about problem solving than seeking a specific operation. For me, applying fundamental conceptual principles similar to those championed early by Gillies and Millard¹ usually pointed toward a pleasing resolution. *Operative Procedures in Plastic, Aesthetic, and Reconstructive Surgery* provides detailed descriptions of the most commonly used plastic surgical procedures.

All operations follow an orderly set of moves. Experience allows seamless deviations as unexpected events arise. A lesson from my mentor, Paul L. Tessier, illustrates the merit of following a defined path. The organizers of the 1975 International Society of Plastic Surgery meeting in Paris asked Tessier to perform a LeFort III operation for live transmission. He was allotted 75 minutes to operate on half of the face to complete the operation. Tacked on an operating room wall was a list of approximately 275 steps needed to complete the procedure. He completed a flawless operation with time to spare. Recalling this story, I posted a list of steps to help separate craniopagus twins at the University of California at Los Angeles in 2002.

This text leads the reader through detailed, step-by-step depictions of operations. Applicable illustrations complement the text. In addition, a list of the essential equipment required for the operations is provided. Thus, the efficiency of the entire operating staff increases, and patient safety is enhanced. To complete the management of the patient, postoperative instructions as well as measures to diminish complications are provided. Finally, unfortunately demanded by today’s health industry and not taught in any curriculum, there are handy lists of the most commonly accepted CPT codes associated with the described procedures.

Ari Hoschander and his collaborators are to be congratulated for crafting a refreshing, concise guide for all levels of students of plastic surgery.

REFERENCE

1. Gillies HD, Millard DR Jr. *The Principles and Art of Plastic Surgery*. 2 vols. Boston, MA: Little, Brown; 1957.

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Preface

We set out to compile this book because we felt there was a need for its content in the plastic surgery literature. The goal was to create a list of the most commonly performed plastic and reconstructive procedures and then dedicate an entire chapter to teaching the reader how to perform the operation. We focus on the technical aspects of the operation and deemphasize the disease process and pathophysiology, which are covered extensively in various other texts. We sought authors from around the world who are considered experts in specific aspects of plastic and reconstructive surgery to write the chapters on topics in their specialty. We are thankful that we were successful. Notice that the list of authors includes editors of major plastic surgery journals as well as chairs, professors, and educators in plastic surgery departments and divisions, all of whom dedicated their time to contribute to this project to further the education of the readers.

This volume provides a comprehensive, step-by-step description of how to perform the most common plastic, aesthetic, and reconstructive surgical procedures. The focus is on preoperative markings, intraoperative details, avoidance of complications, and postoperative instructions. Authors take the reader through the operation with multiple photographs, drawings, and detailed descriptions. Each chapter centers on a well-documented technique for a specific clinical diagnosis.

Exactly how to perform each of the most commonly encountered operations is presented. Every plastic surgeon has a handful of procedures that

he or she performs regularly and a host of other procedures that are performed only occasionally. This list differs from surgeon to surgeon and locale to locale. Our goal is to provide a guide for the performance of all of these operations to level the playing field. This will inevitably improve patient safety and outcomes.

The focus here is intraoperative detail. Authors assume readers already have an understanding of specific indications to perform the procedure and of the underlying pathophysiology of the disease. The chapters provide detailed explanations and descriptions of the techniques involved in the successful performance of the operations. Individual chapters provide a table delineating the equipment necessary to complete the procedure. The book may be used as a preoperative guide for operating room staff, improving their ability and efficiency to have the patient and room ready in a timely fashion. Also, the most commonly accepted CPT (Current Procedural Terminology) codes are available for the operations described.

This book will be an asset to any practicing plastic surgeon, fellow or resident in plastic surgery, as well as residents from surgical subspecialties who rotate through plastic surgery services. My coeditors and I thoroughly enjoyed compiling and contributing to it, and we hope this will be an educational source of material for the future of plastic, aesthetic, and reconstructive surgery.

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Skin grafting and dermal substitute placement

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AND DENNIS P. ORGILL

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INDICATIONS

1. Partial-thickness skin graft: loss of skin coverage without tendon, nerve, bone, or synthetic material (i.e., silicone, titanium, polytetrafluoroethylene) exposure
2. Full-thickness skin graft: loss of skin coverage without tendon, nerve, bone, or synthetic material (i.e., silicone, titanium, polytetrafluoroethylene) exposure in aesthetic or functional areas (i.e., face, hand)
3. Partial-thickness skin graft plus dermal substitute graft: loss of skin coverage eventually with limited tendon, nerve, or bone exposure; loss of extensive skin area; loss of full-thickness skin in aesthetic or functionally important areas

Table 1.1 Special equipment

Powered dermatome (e.g., Wagner [electric], Zimmer [compressed air] dermatome [standard], Weck dermatome [for small grafts, i.e., <5 cm ²])
Skin mesher (with or without a plastic carrier template)
Lubricating material (mineral oil or water-soluble gel)
Adrenaline (1 mg/mL, dilution in 1000 mL NaCl 0.9%)
Skin stapler or sutures
Donor site dressing material (petroleum-impregnated interface, gauze, bandages)
Recipient site dressing material (petroleum-impregnated interface, gauze, bandages, or non-adherent dressing)

Table 1.2 Optional equipment

Fibrin glue
Integra™
MatriDerm®
Sub-atmospheric pressure device
Non-adherent dressing

INTRODUCTION

Skin grafting is one of the most frequently performed interventions in plastic surgery. This review is based on previous reviews but with more emphasis on surgical technique.^{1,2} Tables 1.1 and 1.2 provide lists of the specialized and optional equipment, respectively. As a relatively simple procedure, skin grafting provides rapid and reliable skin coverage. *Skin grafting* is defined as skin transfer from a healthy donor site to cover skin loss at the recipient site. As the avascularized tissue is freely transferred, the skin graft take (successful union) largely depends on rapid revascularization. The recipient site should be clear of necrotic, infective, or avascular elements to maximize skin graft take. When materials such as blood, serum, or purulent discharge exist at the interface, revascularization of the graft is inhibited. High levels of bacteria in the wound result in infection and loss of the graft. The thickness of dermis in the graft influences the quality of the grafted skin. Thicker dermis results in higher primary contraction (contraction of the detached graft), takes longer to engraft, and counters secondary wound contraction. Full-thickness skin grafts result in an excellent aesthetic and functional result; split-thickness skin grafts often result in a less aesthetic and less functional outcome. In contrast, thin skin grafts rapidly revascularize but often provide unstable coverage and can undergo significant secondary contraction.

PREOPERATIVE MARKINGS

The skin graft donor site should be marked to best match the size of the recipient site.

INTRAOPERATIVE DETAILS

Disinfect donor and recipient sites with antiseptic skin preparation (e.g. povidone-iodine).

Partial-thickness skin donor site

1. Infiltration of the designated area with adrenaline solution to reduce bleeding (Figure 1.1).
2. A lubricating material (water-soluble gel or mineral oil) is applied on the donor site and on the dermatome to improve gliding.
3. The surgeon passes the dermatome (usually set at 0.2 mm or 0.0012 to 0.0014 in.) with a 45° angle and constant pressure and speed with a fixed pressure (Figure 1.2a; a manual dermatome is shown).
4. Small slits can be made in the graft using a meshing machine (Figure 1.2b). This allows for expansion of the size of the graft as well as holes for egress of blood and serum (Figure 1.2c). The expansion size can be varied

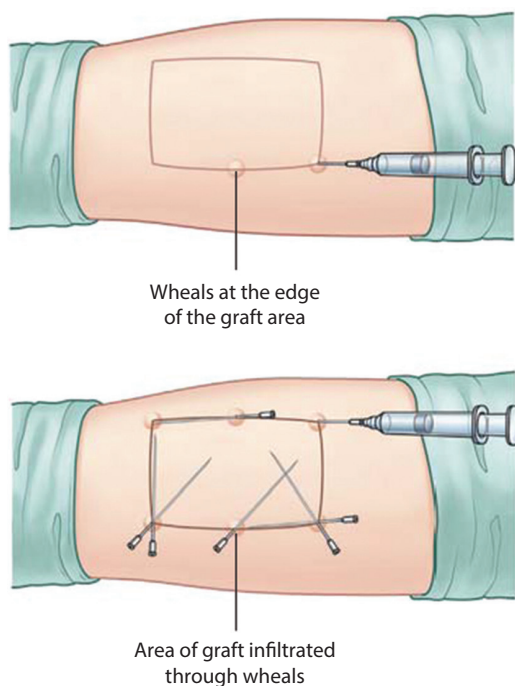


Figure 1.1 Donor site preparation. Bleeding is one of the complications most currently encountered at the donor site. Subcutaneous infiltration with diluted epinephrine (tumescent technique) significantly reduces blood loss. (From Scherer SS, Pietramaggiore GP, Orgill DP. Skin graft. In Gurthner GC, Neligan PC, eds. *Principles*. New York, NY: Elsevier; 2012:319–338. *Plastic Surgery*, Vol. 1. With permission.)

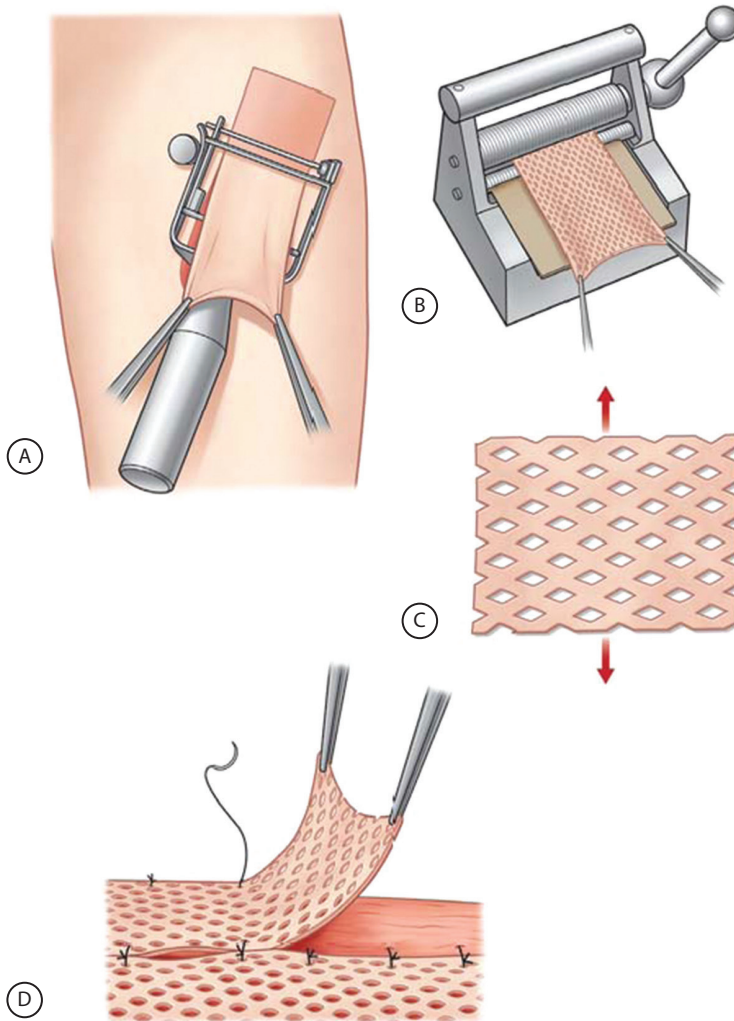


Figure 1.2 Split-thickness skin graft harvesting and grafting. **(a)** Split-thickness skin graft harvested with manual or electrically driven dermatome. **(b)** The skin graft is positioned flat on the mesh template with the dermal site facing upward. **(c)** The skin graft can be expanded up to six times the original size with a skin mesher or with a sharp knife. **(d)** The split-thickness skin graft is fixed on the recipient wound bed by sutures, surgical staples, or fibrin glue. (From Scherer SS, Pietramaggiore GP, Orgill DP. Skin graft. In Gurthner GC, Neligan PC, eds. *Principles*. New York, NY: Elsevier; 2012:319–338. *Plastic Surgery*, Vol. 1. With permission.)

from 1:1 to 6:1 (1.5:1 is commonly used).

The graft is kept moist using normal saline.

5. The donor site can be covered with a variety of dressing materials depending on the surgeon's preference.
6. The skin graft is affixed with sutures, staples, or fibrin glue (Figure 1.2d). A compressive dressing is applied to prevent shear between the graft and recipient site.

Full-thickness skin donor site

The full-thickness skin donor site is usually elliptical and in the inguinal, lower abdominal fold; elbow fold; or retro-auricular, superior eyelid, or upper eyebrow region:

1. Infiltration with local anesthetic with dilute epinephrine solution