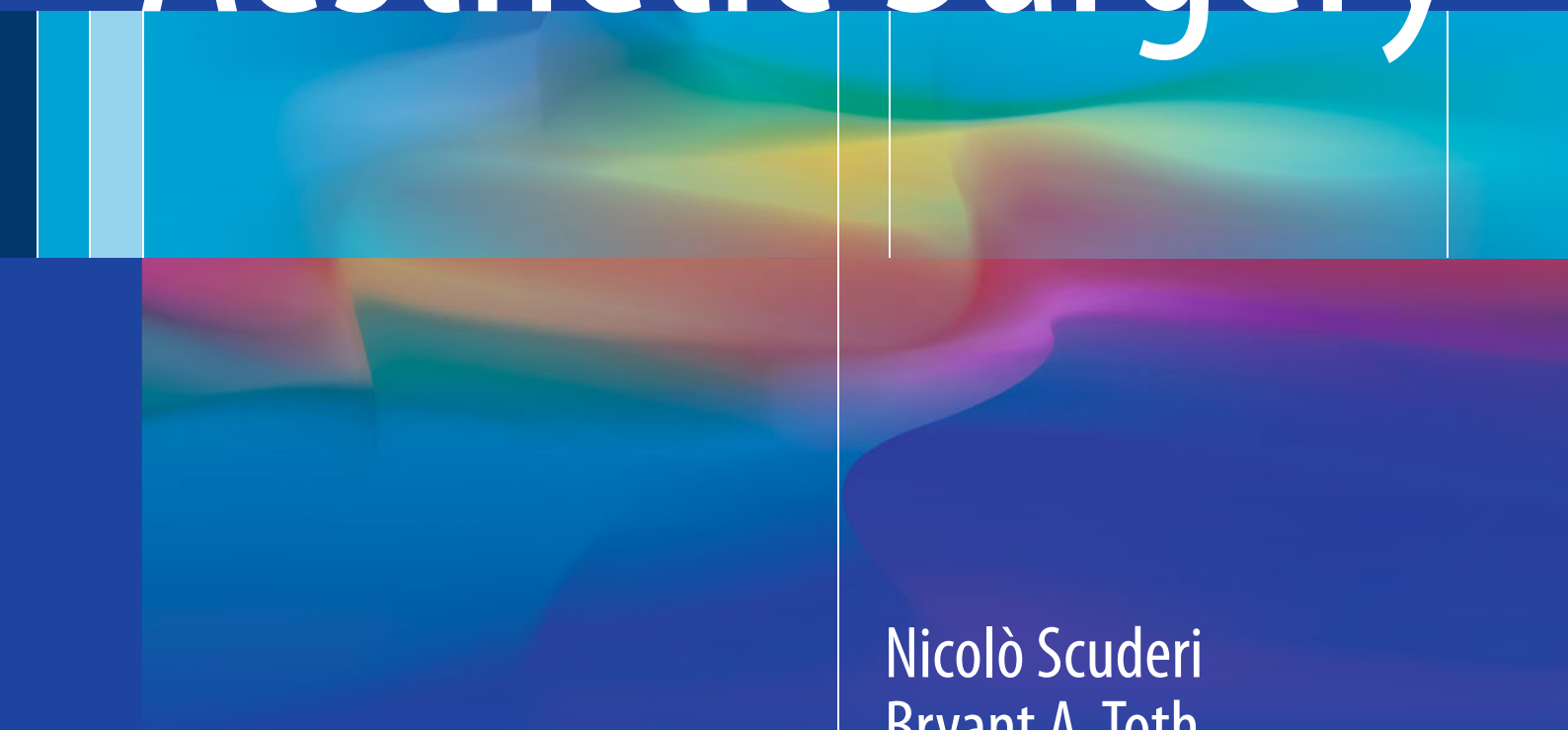
International Textbook of Aesthetic Surgery



Nicolò Scuderi
Bryant A. Toth
Editors

Springer

Nicolò Scuderi • Bryant A. Toth
Editors

International Textbook of Aesthetic Surgery

Springer

Editors
Nicolò Scuderi
Department of Plastic Surgery
University of Rome
Rome
Italy

Bryant A. Toth
Private Practice
Toth Plastic Surgery
San Francisco, CA
USA

Clinical Professor of Surgery
University of California
San Francisco, CA
USA

Illustrators
William Winn, USA
Levent Efe, Australia
Elisa Botton, Italia
Antonia Conti, Italia

ISBN 978-3-662-46598-1 ISBN 978-3-662-46599-8 (eBook)
DOI 10.1007/978-3-662-46599-8

Library of Congress Control Number: 2016939018

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer-Verlag GmbH Berlin Heidelberg

Introduction

This textbook represents the collaboration of two close friends from separate continents who felt there was a need for a true *International Textbook of Aesthetic Surgery*. Such an idea is not a new one. Italian and American plastic surgeons have been meeting on a biannual basis sharing ideas as well as formulating new ones. At our first meeting in 1988, it was a surprise for both of us that although we agreed most of the time, frequently different approaches led to similarly satisfactory results. These meetings became a forum for presenting new ideas as well as novel surgical techniques. Included in this book are many who participated in these collaborations as well as their pupils. We used this as a starting point to transfer this experience into a book form in order to share with others what we think represents aesthetic surgery today.

Surgery has changed dramatically over the past 20 years, and nowhere is that more evident than in cosmetic surgery. Expectation is high and the relationship between plastic surgeons and patients has become almost a commodity with a seller and a buyer. Today's patient is unwilling to accept long hospitalizations, lengthy periods of recovery, or unattractive scarring. The expectation of a "natural look" post surgery is now the cornerstone of modern aesthetic surgery. The role of nonsurgical treatments for the skin, i.e., fillers, Botox®, and the like has complemented what we are able to do surgically.

In this textbook, we present a panorama of surgical techniques and share with you what we consider contemporary aesthetic surgery to be. And it is in this vein that the intent of this book is not to present an encyclopedia of surgical techniques but rather an approach from those who we feel are on the cutting edge, both medically and surgically. As you can note from the index we have invited not only Italian and American authors but trusted friends whose work and approach we admire.

Since the Italian publication of this book, we have lost two shining stars in our world of aesthetic surgery, Dr. Fernando Ortiz-Monasterio and Dr. Daniel Marchac. Their two chapters, the first two of the book, lay the cornerstone for this publication and also represent their last contributions to the literature. We all owe a great debt to them for their innovations, skill, and their willingness to be mentors and teachers to many of us.

We would like to thank all of those who have contributed to this project including our families, office staff, and fellow authors. Most importantly, we would like to thank our patients who have provided the surgical challenges as well as the continual inspiration we have enjoyed as plastic surgeons.

Nicolo Scuderi and Bryant Toth

Contents

Contributors

Siamak Agha-Mohammadi, BSc, MB BChir, PhD, FACS University of Pittsburgh Medical School, Pittsburgh, PA, USA

Giovanni Alei, MD Professore Associato di Urologia, Dipartimento di Chirurgia, Università di Roma "Sapienza", Rome, Italy

Lavinia Alei, MD Dipartimento di Dermatologia, Università di Roma "Sapienza", Rome, Italy

Carmine Alfano, MD Dipartimento di Scienze Chirurgiche, Università di Perugia, Perugia, Italy

Andrea Armenio, MD U.O.C. di Chirurgia Plastica e Ricostruttiva Universitaria, Azienda Ospedaliero-Universitaria Policlinico di Bari, Bari, Italy

Gian Nicola Aru, MD Cattedra di Anestesia, Dipartimento di Scienze Mediche "M. Aresu", Università di Cagliari, Cagliari, Italy

Matteo Atzeni, MD Unità di Chirurgia Plastica, Dipartimento di Chirurgia, Università di Cagliari, Cagliari, Italy

Sérgio F.D. Azevedo, MD Department of the Plastic Surgery, Santa Cecília University, Santos, São Paulo, Brazil

Laura Barberi, MD Chirurgia Plastica e Ricostruttiva, Università di Siena, Siena, Italy

Riccardo Bellucci, MD Dipartimento di Anestesia e Rianimazione, Polo Ospedaliero Rivoli, ASL Torino 3, Turin, Italy

Charles Benelli, MD Plastic Reconstructive & Aesthetic Surgery, Hôpital Privé d'Athis Mons, Athis Mons, France

Louis Benelli, MD Plastic Reconstructive & Aesthetic Surgery, Hôpital Privé d'Athis Mons, Athis Mons, France

Pietro Berrino, MD Private Practice, Chirurgia Plastica Genova S.r.l., Genoa, Italy

Aldo Bertani, MD, PhD Professore Ordinario di Chirurgia Plastica, Dipartimento di Scienze Mediche e Chirurgiche, Università Politecnica delle Marche, Ancona, Italy

Thomas M. Biggs, MD Baylor University College of Medicine, Houston, TX, USA

Kristin A. Boehm, MD Private Practice, Paces Plastic Surgery, Atlanta, GA, USA

Francesco Brunelli, MD Institut de la Main, Paris, France

Claudio Calabrese, MD U.O.S. di Chirurgia Oncologica e Rigenerativa, Breast Unit, Azienda Ospedaliero Universitaria Careggi, Florence, Italy

Massimo Callegari, MD Private Practice, Milan, Italy

Gian Vittorio Campus, MD Professore Ordinario di Chirurgia Plastica, Dipartimento di Dermatologia, Università di Sassari, Sassari, Italy

Calogero Caruso MD Unità di Immunosenescenza, Dipartimento di Patobiologia e Metodologie Biomediche, Università di Palermo, Palermo, Italy

Carlo Cavina, MD Dipartimento di Scienze Chirurgiche Specialistiche, Anestesiologiche, Università di Bologna, Bologna, Italy

David S. Chang, MD, FACS Private Practice, San Francisco, CA, USA

K. Ning Chang, MD Private Practice, California Pacific Medical Center, San Francisco, CA, USA

Stefano Chiummariello, MD, PhD U.O.C. di Chirurgia Plastica, Dipartimento di Scienze Chirurgiche, Università di Perugia, Perugia, Italy

Virginia Ciaravolo Psicologa, Chirurgia Plastica e Ricostruttiva, Università di Roma "Sapienza", Rome, Italy

Mariangela Ciotti, MD U.O.C. di Chirurgia Plastica, Università di Roma "Sapienza", Rome, Italy

Annalisa Cogliandro, MD U.O.C. di Chirurgia Plastica, Università "Campus Bio-Medico", Rome, Italy

Michele R. Colonna, MD Professore Associato di Chirurgia Plastica, Dipartimento di Specialità Chirurgiche, Università di, Messina, Azienda Ospedaliera Universitaria "G. Martino", Messina, Italy

Bruce F. Connell, MD Private Practice Plastic Surgery, Santa Ana, CA, USA

Adriana Cordova, MD Sezione di Chirurgia Plastica e Ricostruttiva, Dipartimento di Discipline Chirurgiche e Oncologiche, Università di Palermo, Palermo, Italy

Ernesto d'Aloja, MD Professore Ordinario di Medicina Legale, Dipartimento di Scienze Giuridiche e Forensi, Università di Cagliari, Cagliari, Italy

Carlo D'Aniello, MD Professore Ordinario di Chirurgia Plastica, Dipartimento di Chirurgia, Università di Siena, Siena, Italy

Stephen P. Daane, MD Private Practice, San Francisco and San Ramon, CA, USA

Drew Davis, MD Department of Plastic and Reconstructive Surgery, Santa Clara Valley Medical Center, San Jose, CA, USA

Domenico De Fazio, MD Divisione di Chiurgia Plastica, Clinica San Pio X, Milan, Italy

Federico De Gado, MD, PhD Private Practice, Rome, Italy

Ciro De Sio, MD U.O.C. di Chirurgia Plastica, Istituto Dermopatico dell'Immacolata (IDI), Rome, Italy

Daniel Del Vecchio, MD MBA Private Practice, Boston Back Bay Plastic Surgery, Boston, MA, USA

Gabriele Delia, MD Ricercatore Universitario di Chirurgia Plastica, Dipartimento di Specialità Chirurgiche, Università, di Messina, Azienda Ospedaliera Universitaria "G. Martino", Messina, Italy

Luca A. Dessy, MD Dipartimento di Chirurgia, Università di Roma "Sapienza", Rome, Italy

Giovanni Di Benedetto, MD, PhD Professore Associato di Chirurgia Plastica, Dipartimento di Scienze Mediche e Chirurgiche, Università Politecnica delle Marche, Ancona, Italy

Salvatore Di Cristo, MD Private Practice, Naples, Italy

Pierangelo Di Marco, MD Dipartimento di Scienze Anestesiologiche, Medicina Critica e Terapia del Dolore, Università di Roma "Sapienza", Rome, Italy

J. Eichhorn-Sens, MD Department of Facial Plastic Surgery, Marienhospital Stuttgart, Stuttgart, Germany

L. Franklyn Elliott, MD Atlanta Plastic Surgery, Emory University Partner, Atlanta, GA, USA

Karen Evind Toth Plastic Surgery, San Francisco, CA, USA

Gabriella Fabbrocini, MD Dipartimento di Patologia Sistematica, Sezione di Dermatologia, Università di Napoli Federico II, Naples, Italy

Francesco Farace, MD Dipartimento di Scienze Chirurgiche, Microchirurgiche e Mediche, Università di Sassari, Sassari, Italy

Gabriele Finco, MD Dipartimento di Scienze Mediche "M. Aresu", Università di Cagliari, Cagliari, Italy

N. Findikli, MD Department of Tissue Engineering, Yildiz Technical University, Istanbul, Turkey

Paolo Fioramonti, MD U.O.C. di Chirurgia Plastica e Ricostruttiva, Università di Roma "Sapienza", Rome, Italy

Peter B. Fodor, MD Private Practice, Santa Monica, CA, USA

A. Roderick Forbes, MBChB, FFARCS Department of Anesthesia, California Pacific Medical Center, San Francisco, CA, USA

Andrea Gallo, MD, Ph.D Dipartimento di Scienze e Biotecnologie Medico-Chirurgiche, Università di Roma "Sapienza", Rome, Italy

Marco Gasparotti, MD Chirurgia Plastica, Università di Camerino, Camerino, Italy

Steven M. Gonzalez, JD Steven M Gonzalez & Associates PC, Attorneys at Law, McAllen, TX, USA

Luca Grassetti, MD Dipartimento di Chirurgia Plastica, Ricostruttiva ed Estetica, Università Politecnica delle Marche, Ancona, Italy

Manfredi Greco, MD Dipartimento di Medicina Sperimentale e Clinica, Università "Magna Graecia" di Catanzaro, Catanzaro, Italia

Antonio Greto Ciriaco, MD U.O.C. di Chirurgia Plastica, Ricostruttiva ed Estetica, Università "Magna Graecia" di Catanzaro, Catanzaro, Italy

Andrea Grisotti, MD Responsabile Unità di Chirurgia Plastica, Divisione di Chiurgia Plastica, Clinica San Pio X, Milan, Italy

James C. Grotting, MD, FACS Private Practice, Grotting Plastic Surgery, Birmingham, AL, USA

Ronald P. Gruber, MD Stanford University, Palo Alto, CA, USA

Wolfgang Gubisch, MD, Department of Facial Plastic Surgery, Marienhospital Stuttgart, Stuttgart, Germany

Michael S. Hanemann, Jr., MD Private Practice, Hanemann Plastic Surgery, Baton Rouge, LA, USA

Hans Holmstrom, MD Sahlgrenska University Hospital, Gothenburg, Sweden

Erik A. Hoy, MD Department of Plastic Surgery, Alpert Medical School of Brown University, Providence, RI, USA

Catherine Huang Begovic, MD, FACS Private Practice, Beverly Hills, CA, USA

Dennis J. Hurwitz, MD, FACS University of Pittsburgh Medical School, Pittsburgh, PA, USA

Paolo Iannitelli, M.D. Chirurgia Generale, Rome, Italy

Elizabeth B. Jelks, MD Private Practice Ophthalmology, New York, NY, USA

Glenn W. Jelks, MS, MD, FACS Ophthalmology and Plastic Surgery, New York University Langone Medical Center, New York, NY, USA

Gerald F. Kaplan, MD, JD Attorney at Law, Philadelphia, PA, USA

Roger Khouri, MD, FACS Private Practice, Miami Breast Center, Miami, FL, USA

Hop Le, MD, FACS Department of Plastic Surgery, Kaiser Foundation Hospital, San Rafael, CA, USA

Malcolm A. Lesavoy, MD, FACS Private Practice, Encino, CA, USA

Piero Letizia, MD Dipartimento di Chirurgia, Università di Roma "Sapienza", Rome, Italy

Richard D. Lisman, MD, FACS Division of Ophthalmic Plastic and Reconstructive Surgery, Department of Ophthalmology, New York University School of Medicine, New York, NY, USA

Flavia Lupo, MD Chirurgia Plastica, Dipartimento di Specialità Chirurgiche, Università di Messina, Azienda Ospedaliera Universitaria "G. Martino", Messina, Italy

Octávio A.L. Luz, MD Department of the Plastic Surgery, Santa Cecília University, Santos, São Paulo, Brazil

Francesco S Madonna Terracina, MD U.O.C. di Chirurgia Plastica, Ospedale "San Filippo" Neri, Rome, Italy

Daniel Marchac, MD Craniofacial Unit, Hopital Necker Enfants Malades, Surgical Office, Paris, France

Salvatore Martellucci, MD U.O.C. di Otorinolaringoiatria, Dipartimento di Scienze e Biotecnologie Medico-Chirurgiche, Università di Roma "Sapienza", Rome, Italy

Doriana Massimino, MD U.O.C. di Clinica Dermatologica, Università di Catania, Catania, Italy

Marco Mazzocchi, MD, PhD Dipartimento di Scienze Chirurgiche, Radiologiche ed Odontostomatologiche, Università di Perugia, Perugia, Italy

Isabella C. Mazzola, M.D. Klinik für Plastische und Ästhetische Chirurgie, Klinikum Landkreis Erding, Erding, Germany

Ricardo F. Mazzola, M.D. Department of Clinical Sciences and Community Health, Fondazione IRCCS Ca' Granda. Ospedale Maggiore Policlinico, Milano, Italy

J. Nicolas Mclean, MD Private Practice, Conyers, GA, USA

Bryan C. Mendelson, FRCSE, FRACS, FACS The Centre for Facial Plastic Surgery, Melbourne, VIC, Australia

Constantino Mendieta, MD, FACS Private Practice, Miami, FL, USA

Giuseppe Micali, MD Dipartimento di Specialità Medico-Chirurgiche, Università di Catania, Catania, Italy

Francesco Moschella, MD Dipartimento di Discipline Chirurgiche e Oncologiche, Università di Palermo, Palermo, Italy

Pietro Mulas, MD U.O.C. di Chirurgia Plastica, Dipartimento di Scienze Chirurgiche, Microchirurgiche e Mediche, Università di Sassari, Sassari, Italy

Mima Müller MD Dipartimento di Scienze Giuridiche e Forensi, Università di Cagliari, Cagliari, Italy

Mario Musu, MD Dipartimento di Scienze Mediche "M. Aresu", Ricercatore Universitario di Anestesiologia, Università di Cagliari Cagliari, Cagliari, Italy

Egle Muti, MD Professore Associato di Chirurgia Plastica, Dipartimento di Scienze Cliniche e Biologiche, Università di Torino, Turin, Italy

Foad Nahai, MD Paces Plastic Surgery, Atlanta, GA, USA

Isaac M. Neuhaus, MD Department of Dermatology, University of California, San Francisco, CA, USA

Ina A. Nevdakh MD Department of Plastic Surgery, Oregon Health Sciences University, Portland, OR, USA

Giuseppe Nisi, MD Ricercatore Universitario di Chirurgia Plastica, Dipartimento di Chirurgia, Università di Siena, Siena, Italy

Rolf E.A. Nordstrom, MD, PhD Chief, The Nordstrom Hospital of Plastic Surgery, Helsinki, Finland

Justine X. O'Brien, MD Taylor Laboratory, Department of Anatomy and Neuroscience, University of Melbourne, Melbourne, VIC, Australia

Maria Giuseppina Onesti, MD Dipartimento di Chirurgia, Università di Roma "Sapienza", Policlinico Umberto I, Rome, Italy

Fernando Ortiz Monasterio, MD Division Of Plastic Surgery, Emeritus School of Medicine, Hospital General Manuel Gea Gonzalez, Universidad Nacional Autonoma De Mexico, Mexico City, Mexico

Giulio Pagliuca, MD, Ph.D. U.O.C. di Otorinolaringoiatria, Dipartimento di Scienze e Biotecnologie Medico-Chirurgiche, Università di Roma "Sapienza", Rome, Italy

Michele Pascone, MD Dipartimento per le Applicazioni in Chirurgia delle Tecnologie Innovative, Università di Bari, Bari, Italy

Mario Pelle Ceravolo, MD Docente di Chirurgia Estetica Master Università di Padova, Padova, Italy

Franco R. Perego, MD Scuola di Specializzazione in Chirurgia Plastica, Università di Padova, Padova, Italy

Paolo Persichetti, MD Dipartimento Centro Integrato di Ricerca (C.I.R.), Università "Campus Bio-Medico", Rome, Italy

Benjamin Z. Phillips, MD Department of Plastic Surgery, Brown University, Rhode Island Hospital, Providence, RI, USA

Concetta Potenza, MD U.O.C. di Dermatologia "Daniele Innocenzi", Università di Roma "Sapienza", "Polo Pontino", Rome, Italy

Ilaria Proietti, MD U.O.C. di Dermatologia "Daniele Innocenzi", Università di Roma "Sapienza", "Polo Pontino", Rome, Italy

Neal R. Reisman, MD, JD, FACS Chief of Plastic Surgery, Baylor-St. Luke's Episcopal Hospital, Houston, TX, USA

Diego Ribuffo, MD Dipartimento di Scienze Chirurgiche e Odontostomatologiche, Università di Cagliari, Cagliari, Italy

Francesco Ricottilli, MD Dipartimento di Chirurgia, Università di Roma "Sapienza", Rome, Italy

Brunno Ristow, MD, FACS Private Practice, California Pacific Medical Center, San Francisco, CA, USA

Corrado Rubino, MD, FEBOPRAS, Dipartimento di Scienze Chirurgiche, Microchirurgiche e Mediche, Università di Sassari, Sassari, Italy

Antonio Rusciani, MD, PhD Libero Professionista, Chirurgia Plastica e Ricostruttiva, Rome, Italy

Flavio Saccomanno, MD Private Practice, Rome, Italy

Cristianna B. Saldanha, MD Department of Plastic Surgery, Santa Cecília University, Santos, São Paulo, Brazil

Osvaldo R. Saldanha, MD Chairman of Plastic Surgery Department, Santa Cecília University, Santos, São Paulo, Brazil

Osvaldo R. Saldanha Filho, MD Department of Plastic Surgery, Santa Cecília University, Santos, São Paulo, Brazil

Gianni Sampietro, MD Dipartimento di Scienze Anestesiologiche, Medicina Critica e Terapia del Dolore, Università di Roma "Sapienza", Rome, Italy

Giovanni Scapagnini, MD Dipartimento Di Scienze Della Salute, Università del Molise, Campobasso, Italy

Nicolò Scuderi, MD Dipartimento di Chirurgia, Università di Roma "Sapienza", Rome, Italy

Francesco Serratore MD Dipartimento di Chirurgia 'P.Valdoni', U.O.C. di Chirurgia Plastica e Ricostruttiva, Università di Roma "Sapienza", Rome, Italy

Nevena Skroza, MD Dipartimento di Dermatologia "Daniele Innocenzi", Università di Roma "Sapienza", Rome, Italy

Cristina Spalvieri, MD Dipartimento di Dermatologia e Chirurgia Plastica, Università di Roma "Sapienza", Rome, Italy

Giovanni Spera, MD Dipartimento di Fisiopatologia Medica, Università di Roma "Sapienza", Rome, Italy

Francesco Stagno d'Alcontres, MD Professore Ordinario di Chirurgia Plastica, Dipartimento di Specialità Chirurgiche, Università di Messina, Azienda Ospedaliera Universitaria "G. Martino", Messina, Italy

Ithamar Stocchero, MD Head of Plastic Surgery, Centro Médico Viver Melhor, São Paulo, Brazil

Patrick K. Sullivan, MD Department of Plastic Surgery, Brown University, Rhode Island Hospital, Providence, RI, USA

Michael J. Sundine, MD, FACS, FAAP Private Practice, Newport Beach, CA, USA

Lily Talakoub, MD Department of Dermatology, University of California, San Francisco, CA, USA

Davide Talevi, MD Dipartimento di Chirurgia Plastica, Ricostruttiva ed Estetica, Università Politecnica delle Marche, Ancona, Italy

Aurora Tedeschi, MD U.O.C. di Clinica Dermatologica, Università di Catania, Catania, Italy

Stefania Tenna, MD, PhD Dipartimento Centro Integrato di Ricerca (C.I.R.), Università "Campus Bio-Medico", Rome, Italy

Edward O. Terino, MD Plastic Surgery Institute of Southern California, Thousand Oaks, CA, USA

D. Tiryaki, MD Department of Byophysics, Yeniyuzyll University, Istanbul, Turkey

Tulc Tiryaki, MD Cellest Plastic Surgery, Levent, Istanbul, Turkey

Francesca Toia, MD Sezione di Chirurgia Plastica e Ricostruttiva, Dipartimento di Discipline Chirurgiche e Oncologiche, Università di Palermo, Palermo, Italy

Marco Toscani MD Ricercatore Universitario di Chirurgia Plastica, Dipartimento di Chirurgia, Università di Roma "Sapienza", Rome, Italy

Bryant A. Toth, MD, FACS Private Practice, Toth Plastic Surgery, San Francisco, CA, USA

Clinical Professor of Surgery, University of California, San Francisco, CA, USA

Mario A. Trelles, MD Instituto Médico Vilafortuny, Antoni De Gimbernat Foundation, Cambrils, Spain

Martin G. Unger, MD, FRCSC, ABCS, ABHRS Medical Director, the Unger Cosmetic Surgery Center, Cosmetic Surgery Lecturer, University of Toronto, Toronto, ON, Canada

Maurizio Valeriani, MD U.O.C. di Chirurgia Plastica, Ospedale "San Filippo" Neri, Rome, Italy

Tiziana Vitagliano, MD U.O.C. di Chirurgia Plastica Ricostruttiva ed Estetica, Fondazione Oncologica "T. Campanella", Polo Oncologico di Eccellenza "Germaneto", Catanzaro, Italy

Alfred P. Yoon, BS Department Bioengineering, Lawrence Berkeley National Laboratory, Berkeley, CA, USA

Siegrid S. Yu, MD Department of Dermatology, University of California, San Francisco, CA, USA

Kamakshi Zeidler, MD Private Practice, Zeidler Plastic Surgery, Campbell, CA, USA

Richard J. Zienowicz, MD, FACS Department of Plastic Surgery, Alpert Medical School of Brown University, Providence, RI, USA

Christopher I. Zoumalan, MD Division of Ophthalmic Plastic and Reconstructive Surgery, Department of Ophthalmology, New York University School of Medicine, New York, NY, USA

Part I

Introduction to Aesthetic Surgery

The Concept of Beauty in Different Cultures

Fernando Ortiz Monasterio

The discussion of what is beautiful and what is not has occupied the attention of philosophers, mathematicians, artists, architects, anatomists, surgeons, and theologians for the last 2,500 years. In general terms the idea of beauty applies to the human figure, to animals, and other elements of nature as well as to architecture, design, and artistic representations.

Human representations left by early societies emphasize anatomical features related to fertility, like the wide hips of the "Venus" de Lespugue and other examples of primitive art associated with obesity suggesting good reserves of fat necessary for survival in times of famine. These desirable qualities were obviously considered beautiful and precede the ideas of Greek philosophers who associated both concepts: beauty and virtue (Fig. 1).

The representation of feminine figures with wide hips associated with fertility is present in many cultures as can be seen in the Cycladic art of 2000 BC and in the deliciously erotic figures from the preclassic period of Mexico, molded around 500 BC not only representing fertility but also an aesthetic ideal (Fig. 2).

The Greeks had a passion for beauty and explored the rules for the harmonious proportions applicable to all the things in nature and in art. The search for a mathematical formula for beauty was initiated by Pythagoras, who did not write much but influenced his disciples, including Plato. He developed the theory of harmony and conceived the essence of beauty as the order, proportion, and harmony of the subject. He also considered beauty as a quantitative, mathematical quality that could be expressed in numbers.

Similar ideas were proposed by Philolao in the fifth century BC and further developed by Vitruvio in his book "De Architectura" written in the first century AD with detailed discussions on the proportions of the human body [1].

The return to platonic thinking in relation to beauty appears in the works of Bonaventura de Bagnoregio ("Itinerarium mentis in Deum," XII AC) [2], who wrote that beauty was implicit in the original design of God at the time of the creation, and Thomas de Aquino (XII AC), who added that "beauty is what is pleasant to our eyes" [3].

Greek anatomical knowledge based on keen observation of the human body (combined with their passion for beauty) resulted in a magnificent production of sculpture considered to this day as the aesthetic golden standard. These classical proportions were accepted by the Romans who reproduced many of the Greek works preserving the canon of beauty later adopted by the anatomists of the sixteenth century such as Vesalius, Eustachio, Casserius, Mascagni, and many others who followed the Greek models for the illustration of their work [4]. For the validity of this concept we may observe the similarity of the body of the sculpture of the Greek "Discóbolo" with a modern Olympic athlete. The main difference between these two models is conceptual; beauty for the Greeks was the combination of the body and the soul with a developed intellect whereas physical beauty only is considered for the modern athlete (Fig. 3).

In his work "Anatomy for Artists" published in 1723, Genga [5] selected roman copies of classical sculptures of the late Hellenistic period: the young man in a position of attack, a thoroughly trained athlete representing the Greek ideal of harmony of the body and the soul. He also represented Aphrodite as a serene being, alone in her human divinity; she is a mature woman with voluptuous curves; except from the small breasts, she could represent the modern occidental concept of feminine beauty (Fig. 4).

Many authors during the Renascence maintained the concept of the mathematical formula for beauty. The writings of Piero della Francesca, Fra Luca Paccioli, and especially of Dürer contributed to establish an aesthetic canon that had great influence on the work of many artists like Donatello, della Robbia, Verochio, Leonardo, Raphaello, and Michelangelo.

F. Ortiz Monasterio, MD
Division of Plastic Surgery, Emeritus School of Medicine, Hospital General Manuel Gea Gonzalez, Universidad Nacional Autonoma De Mexico, Mexico City, Mexico
e-mail: fortizm@prodigy.net.mx

N. Scuderi, B.A. Toth (eds.), *International Textbook of Aesthetic Surgery*, DOI 10.1007/978-3-662-46599-8_1

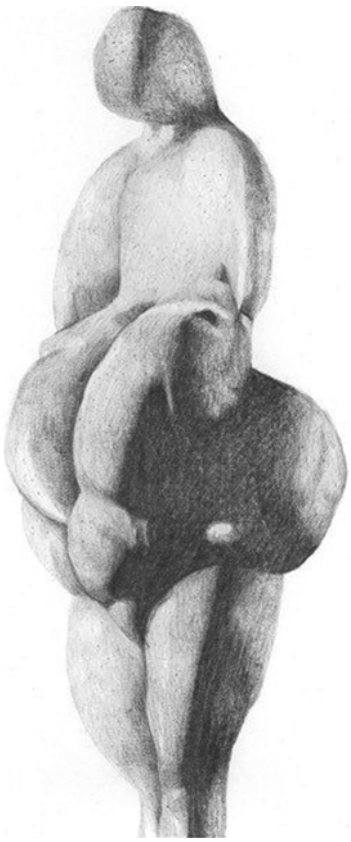


Fig. 1 Venus de Lespugue. Prehistoric. Wide hips and abundant body fat emphasize fertility and nutritional reserves

Fig. 2 Ceramic figure from Tlatilco, Mexico. Preclassic period. Wide hips suggesting fertility. Also notice antimongoloid slanting of the eyes

Fig. 3 Discobolo by Myron. V Century BC

Fig. 4 Aphrodite. A copy of the Greek model by Genga. XVIII Century

To the south side of the Mediterranean, the Egyptians, before the Greeks, produced marvelous sculptures representing the human body according to the ideal standards of their culture. In all of them a slim athletic figure is emphasized for the Pharaohs and their consorts (Fig. 5). To reinforce the concept that Egyptian sculptures were carved representing the ideal of beauty it is convenient to remember the many images of Queen Hatshepsut who ruled Egypt from 1479 to 1458 BC. She is always shown with a slim elegant body but when her mummy was finally identified in 2007 it was demonstrated that she was a fat lady with pendulous breasts [6].

Dürer in 1532, following the platonic tradition, published his work on the mathematical expression of the ideal human body. His book was translated from the original German version into Latin by Joaquim Camerarios the Elder in 1557 and later into many languages [7]. It is a very extensive treaty on physical anthropology in which both the male and the female ideals are analyzed at rest and in motion seen from different angles (Fig. 6).

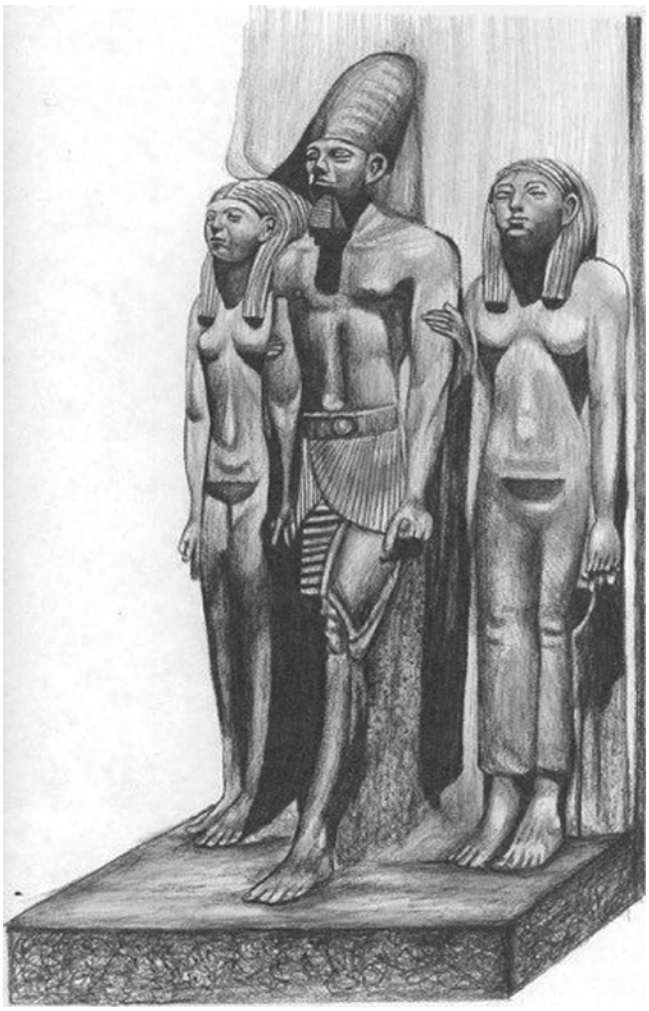


Fig. 5 Egyptian sculpture showing a ruler and his consort with athletic bodies 1500 BC

Dürer, a contemporary of Bellini and Andrea Mantegna, is possibly the most important theoretician in the history of art sharing this honor with Leonardo. His numerous drawings attest also his quality as an artist. His paintings are magnificent representations of the aesthetic concept of the Renaissance. "In Adam and Eve" he depicted his ideal of beauty with lean athletic figures (Fig. 7).

Durer's meticulous measurements of the different parts of the human body established a canon widely adopted by his contemporaries that is still valid today.

This same lean feminine figure was frequently painted by the most distinguished artists. Examples of that are the "Venus" of Lucas Cranach and the "Venus in front of a mirror" by Velázquez from the beginning and the middle of the seventeenth century, respectively. Simultaneously other extraordinary artists living in more northern latitudes such as Rubens painted overweight females like the "Three Graces." These works did not pretended to be portraits of a specific person so we can assume that his choice of models corresponded to his concept of beauty. Without underestimating the artistic and technical quality of this canvas, the females painted by Rubens would be candidates for dieting and extensive liposuction in the twenty-first century (Figs. 8 and 9).

Sensual feminine representatives of the ideal of beauty can be observed in the work of Ingres in the nineteenth century. The women in his "Great Odalisk" and "Ladies in a Turkish Bath" are not lean; they are slightly overweight by the standard of the twentieth century when a trend to extremely thin female body became fashionable.

We must accept that representations of the human body made by prominent artists probably correspond to their ide-

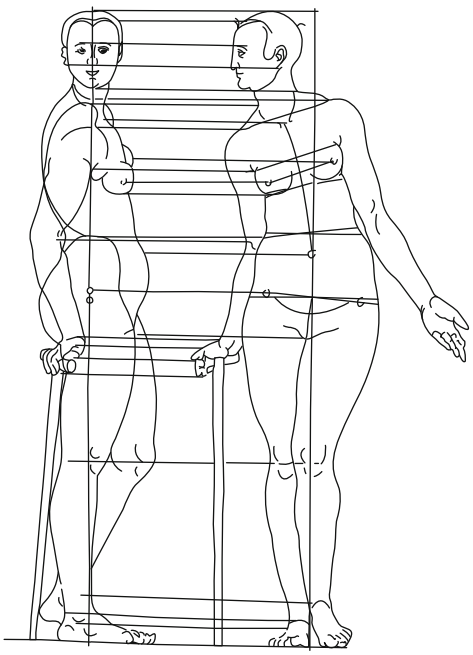


Fig. 6 Drawing by Albert Dürer of ideal female body. XVI Century

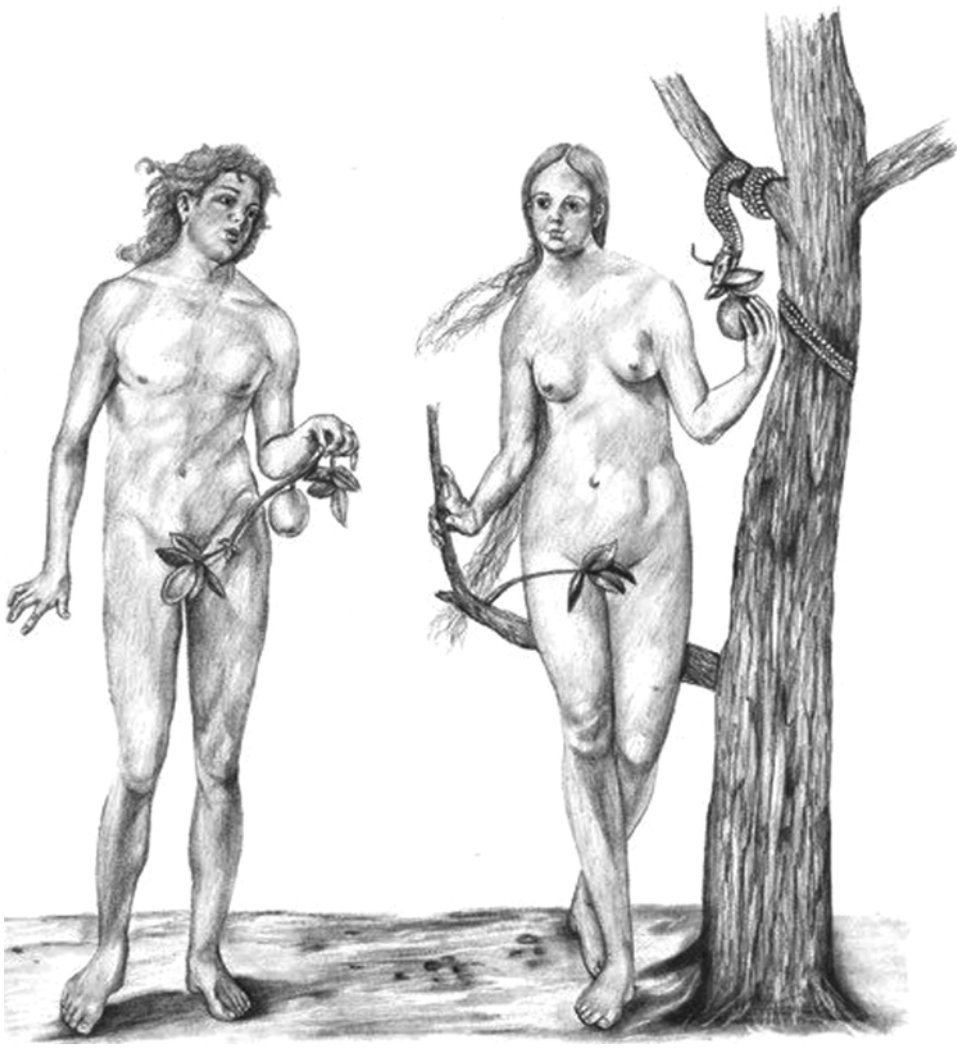


Fig. 7 Adam and Eve by Dürer. XVI Century

als of beauty. We also know some painters modified the features of their models to conform with the canon.

Nude reclining women are a recurrent subject in paintings from different epochs. I have selected a few examples in order to identify the variations of the concept of beauty in the occidental culture at successive centuries: "The Venus of Urbino" by Titian in the sixteenth century, "Venus in front of a mirror" by Diego Velazquez in the seventeenth century, the lovely voluptuous "Maja Desnuda" by Francisco de Goya in the eighteenth century, the magnificent "Olympia" by Manet in the nineteenth century, and the "Seated Nude" by Tamara de Lempicka in the twentieth century. All of them are excellent examples of feminine beauty representing young women not very different from each other and very similar also to the Greek ideals and the Renaissance canon of Dürer and Leonardo. They all are somewhat different than the athletic lean models with androgynous overdeveloped musculature currently emphasized by certain modern publications. There is a current tendency to reject the extremely thin female figure, almost bulimic, replaced by a new trend that considers a heavier even slightly overweight model beautiful. This fuller feminine figure was also repeatedly painted in the splendid nudes of Tamara de Lempicka in the first half of the twentieth century (Figs. 10–14).

Pondering over the representations of the human body over the ages, it is clear that the concept of beauty seems to be universal; its appreciations is probably not related to the cognoscitive part of the brain but located in the limbic area.

In spite of its universal character, there are variations determined by fashion, by race, and by geography. Within certain limits these variations conform to the canons that have been accepted over time. In the middle of the twentieth century, Le Corbusier, the famous French architect, built a habitational complex in Marseille according to his concept of adapting the habitat to the physical dimensions of the people. This idea was extensively discussed in his book "The Modulor" [8]. He also congregated a group of anthropologists, artists, anatomists, and architects to study and to determine the ideal proportions of the Homo sapiens in the twentieth century. The results of that work were carved in a

Fig. 8 Venus by Lucas Cranach idealizing a lean feminine body. 1506

"stele" similar to the stone monuments of ancient Egypt and to stelae of the cultures of Middle America designed to commemorate important events and to preserve them for posterity. This modern stele was placed at the center of the habitational complex (Fig. 15).

The measurements analyzed for that monument are representative of the European population. Their average height does not correspond to the mean of the population in many other parts of the world, where people are smaller. The appreciation of body height has been manifested in many cultures both for males and females. This concern had a direct influence in shoe design. We know Catherine de Medici the wife of the Duke d'Orleans who was a small person commissioned a cobbler to make her a pair of heels to increase her height. Those extensions had been used before resembling the modern platform shoes designed to protect the wearer when walking in the muddy wet streets. These extensions of the shoes, originally called "chapines," became very popular and originated an innovation of the shoe industry that is maintained at this time. The purpose of elevation of the heel and the plantar area was to increase height. Later designs, especially the tremendously high heels used by women now, have also affected the position of the legs and the curvature of the spine forcing the wearer to project the gluteal area in a very attractive manner. The fashion to increase the apparent height has extended to the male sex; many men of short stature wear specially designed shoes or boots to produce that effect.

It is interesting to mention that Albert Einstein attended a presentation of The Modulor made by Le Corbusier at Princeton in 1946. A few days later Einstein wrote him a letter saying: "of course Mr. Le Corbusier, you are perfectly right; everything that is right is easy and everything that is wrong is difficult." In other words, he was convinced that when a thing is harmonious, it is found pleasant by everybody.

The human face is the most important element, at least the most visible of the body and the subject of many of the professional endeavors of the plastic surgeon. All the anatomical structures of the body are supported by the skeleton which determines its shape and proportions. This is particularly true for the face [9].

The craniofacial skeleton is responsible for the shape of the face, for the harmony of its various segments, and it is also the framework where facial muscles are inserted, therefore influencing and contributing to expression which is a very important element of beauty.

The human face is one of the most beautiful structures in existence. The experienced examiner can easily appreciate the balance and the harmony between its different elements. He can also detect the flaws that may alter its balance. It is convenient, however, to remember a few general rules of physical anthropology to study the face in a systematic manner. The first step is to locate the points on the soft tissues corresponding to the skeletal references:

Trichion (TR), nasion (NA), dachrion (DA), subnasal (DA), alar base (A), stomiun (ST), chirion (CH), and mentón (M). These references are complemented laterally by

Supraorbital ridge (SO), lateral canthus (LC), temporal crest (TC), malar (MA), zygoma (Z), and gonion (GO) (Fig. 16).

Following the mathematical concept of the Golden Rule to examine a face, we can trace five imaginary horizontal lines: at the trichion, the nasion, the dachrion, the alar base, the stomium, and the menton (Fig. 16a).

The face is then divided in five segments that maintain a relation with each other, which very closely follows the divine proportion of 1:618 (Fig. 16b).

Analyzing the face as a complete unit the distance TR-DA is 0.618 and DA-M is 1. Approximately the same ratio is found when we measure the middle and the lower thirds of the face.

Fig. 9 The Three Graces by Rubens. The choice of models for this canvas illustrates his concept of feminine beauty

In the ideal face, the diameter between the temporal crests should be approximately the same as the distance between the two malar points and to the bigonial diameter.

Facial convexity is an important element of beauty. The harmonious relationship between the forehead, the nose, the mouth, and the chin results in a beautiful face. Facial convexity should be evaluated on the profile view tracing an imaginary line following the Frankfurt horizontal plane from the center of the external auditory channel to the inferior orbital border. Another vertical line is traced from the supraorbital notch to the most prominent point of the lower lip. The two lines should cross each other forming a 90° angle.

The nose should be examined on the full face and the base views and from the two profiles. On the frontal view the nasal bridge is seen as two parallel straight or slightly concave lines extending from the brows to the tip of the nose. The width of the bridge should be similar to the distance between the two tip highlights. A slight difference in height will be visible as shading should be present at the tip and the dorsum corresponding to the supratip break.

The nasal tip resembles the silhouette of a gull wing, the lateral portions corresponding to the alar notches. A small portion of the columella should be visible at the center. The

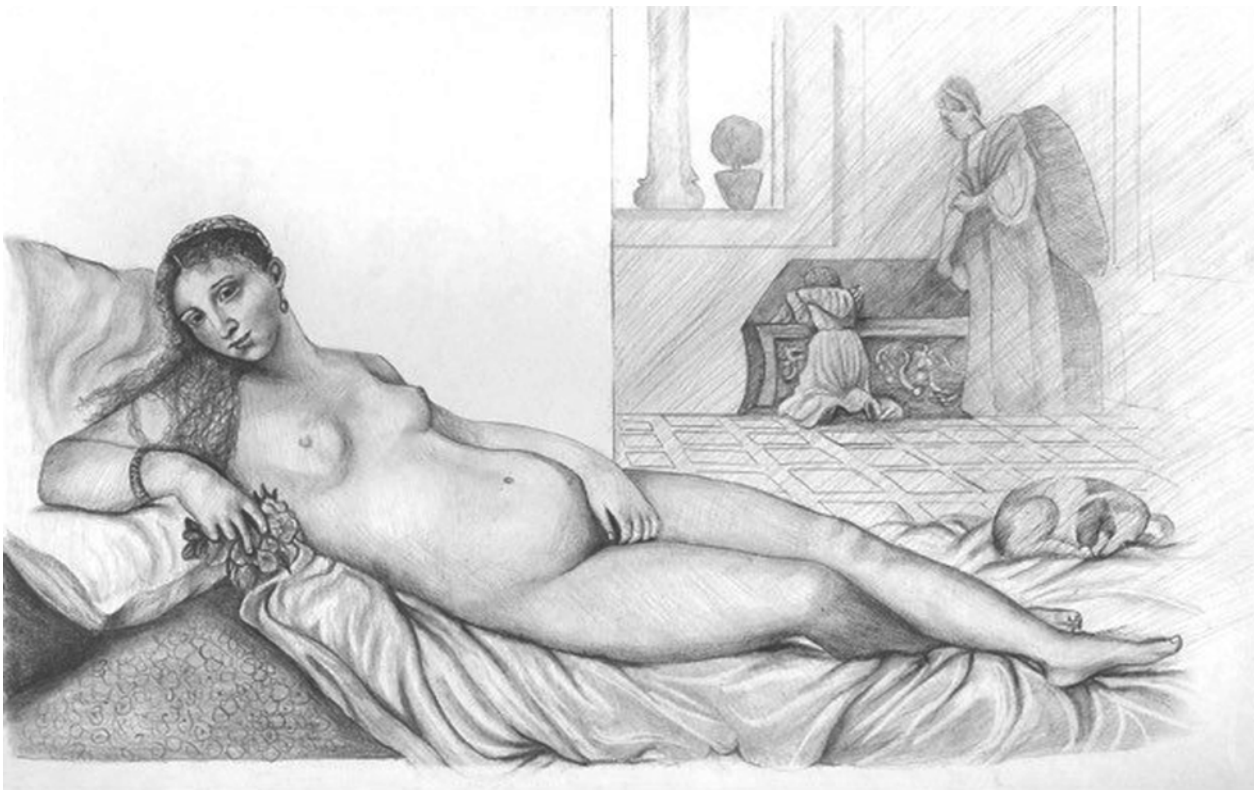


Fig. 10 Venus d'Urbino by Titian 1558

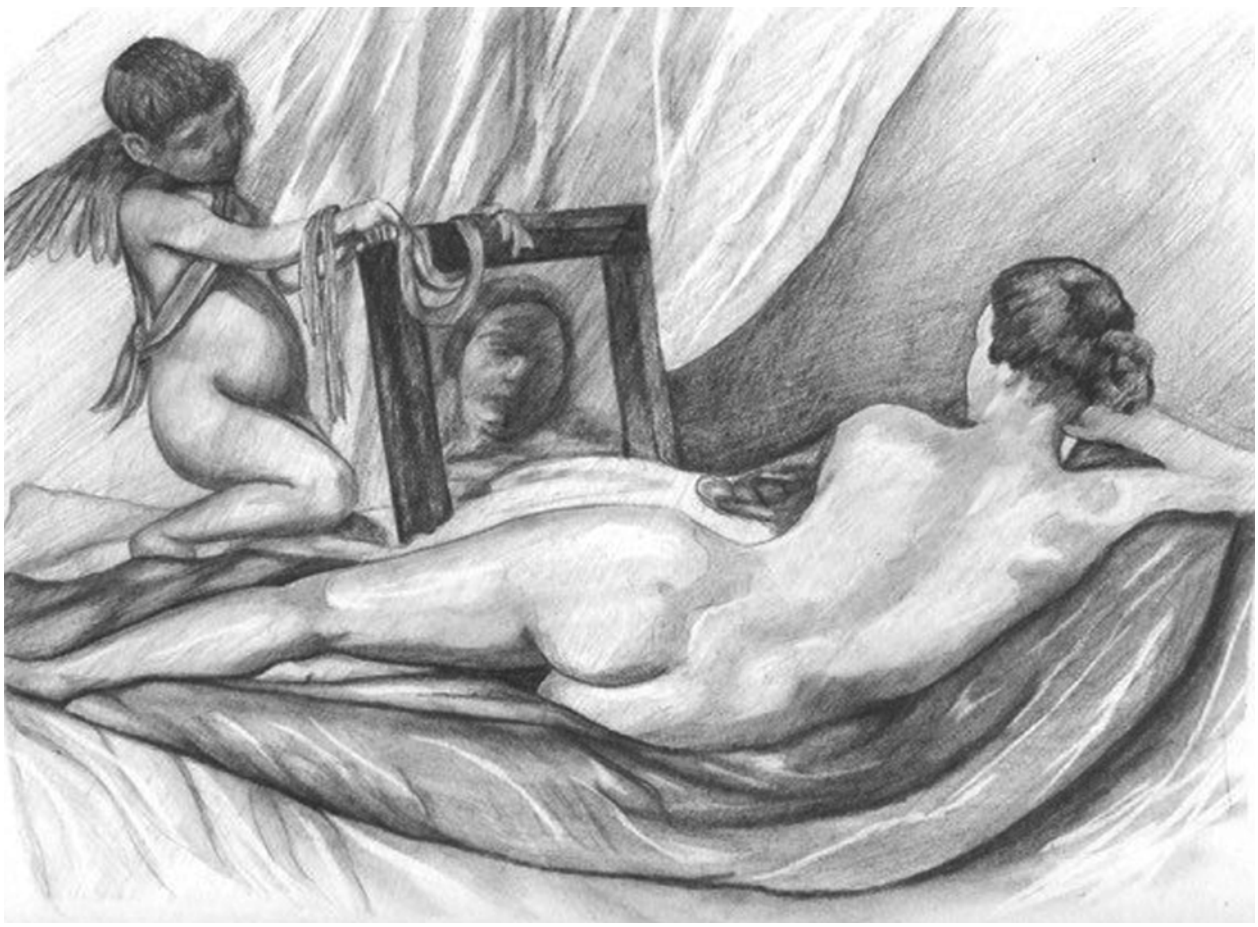


Fig. 11 Venus looking at a mirror by Diego Velazquez, 1650

Fig. 12 La Maja Desnuda by Francisco de Goya, 1797

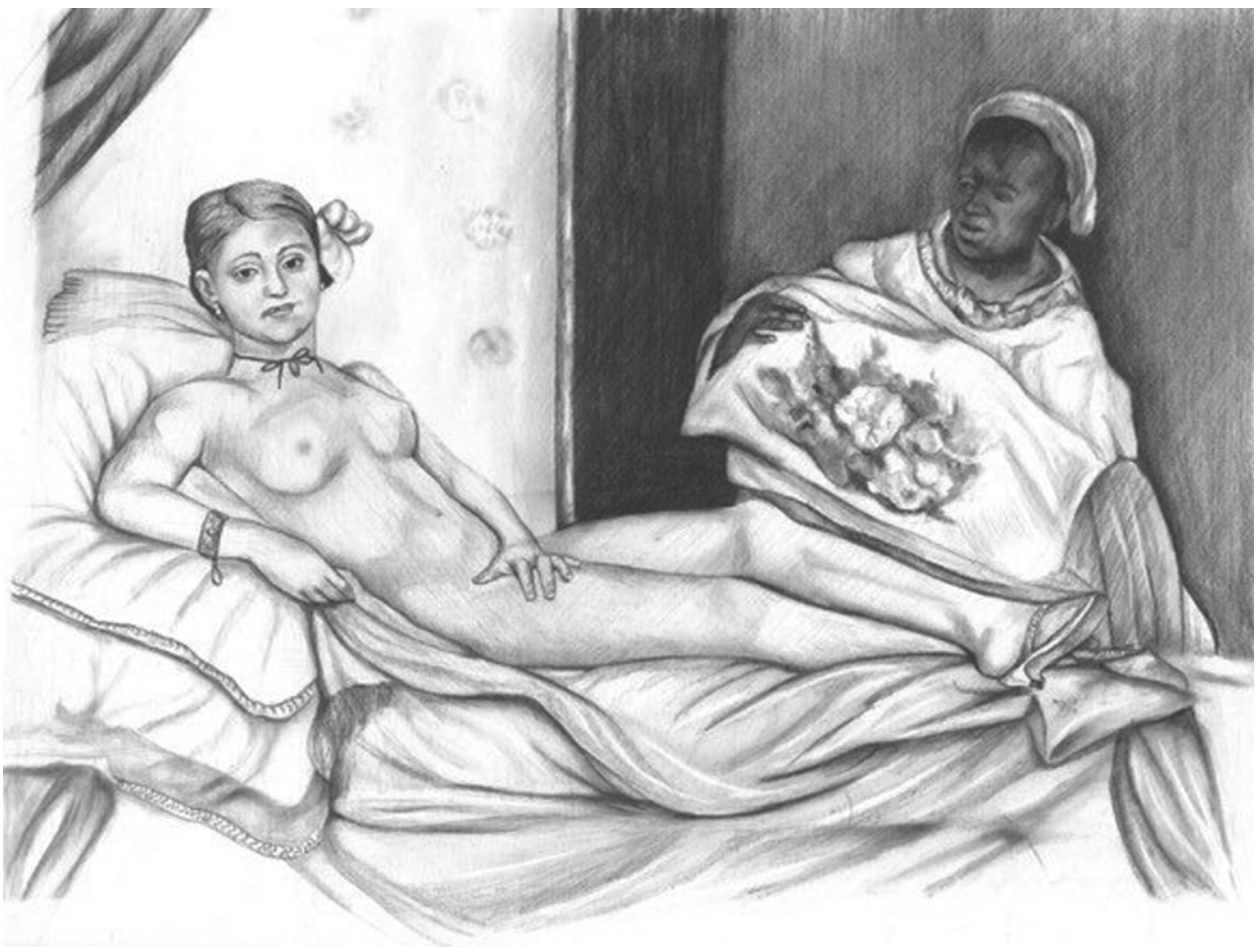


Fig. 13 Olympia by Manet, 1863

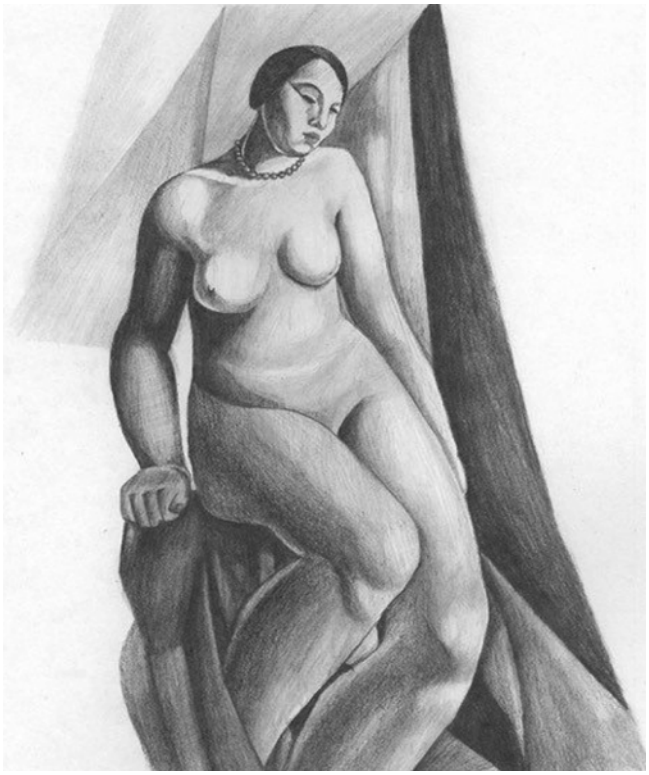


Fig. 14 Seated Woman by Tamara Lempicka, 1929

width of the nasal base should correspond to the distance between the medial canthus of the palpebral fissures.

On the profile view the nasal projection is assessed by drawing an imaginary line from the alar cheek junction to the lip. The center of this line should be crossed by the vertical facial tracing. The columella should be about 4 mm lower than the alar margin exposing the nostrils as narrow ovals. The accepted ideal nasolabial angle should be 90–105° in females and 90° in males.

The forehead should be slightly convex with an average height of 50–60 mm [10].

Sophisticated hairstyles cover the scalp of women and also of many men. For this reason the shape of the skull in not usually considered an important factor for beauty. Obvious deformations resulting from trauma or from birth defects alter the proportions of the cranium affecting its aesthetic quality, but, in general, a round smooth forehead is taken for granted and little attention is paid to the aesthetics of the skull.

Early cultures in many parts of the world practiced artificial cranial deformations. Pressure was applied with tablets to the heads of infants to alter the shape of the head for cosmetic reasons. Those early shamans had a good understanding of the growth capacity of the cranium. They knew that applying pressure on certain areas of the head the intracranial expansion produced by the rapid growth of the brain in an early age would direct the forces to other areas of the cranial cavity altering the shape of the head.

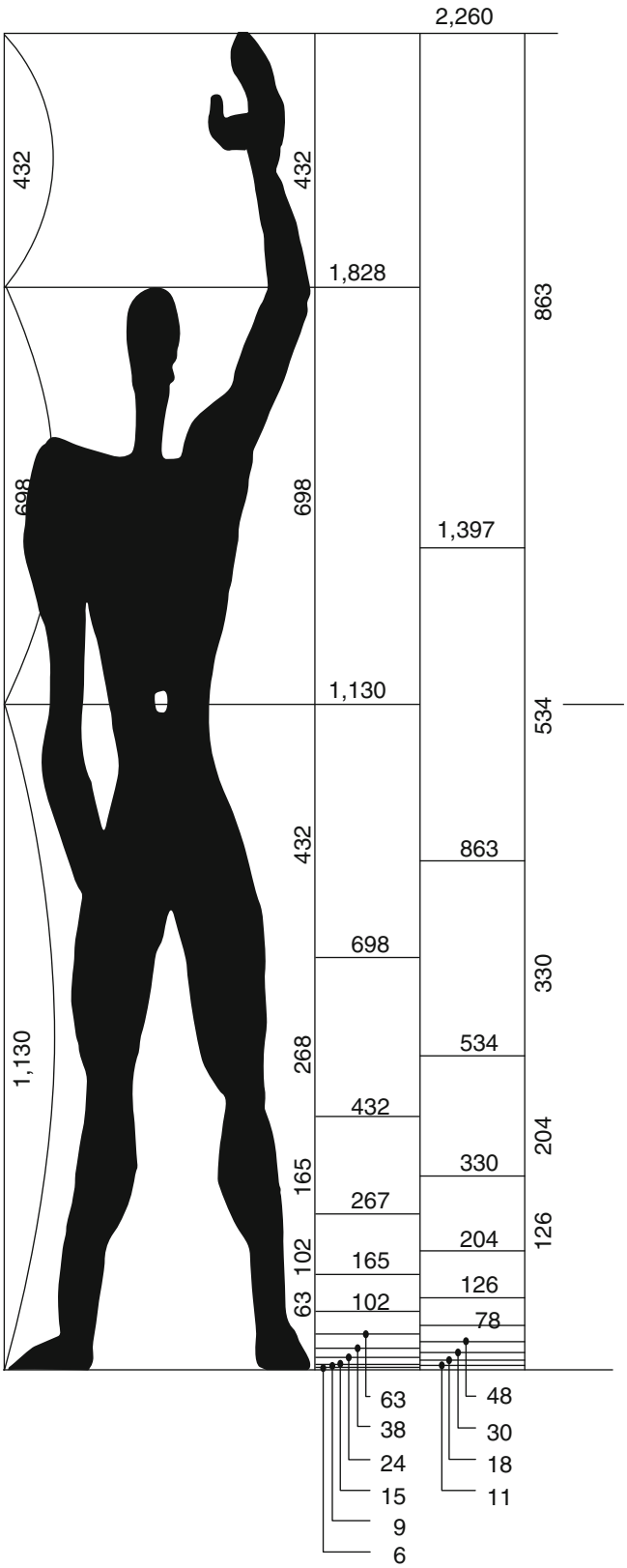


Fig. 15 Le Modulor. Study on human proportions. Le Corbusier, 1947

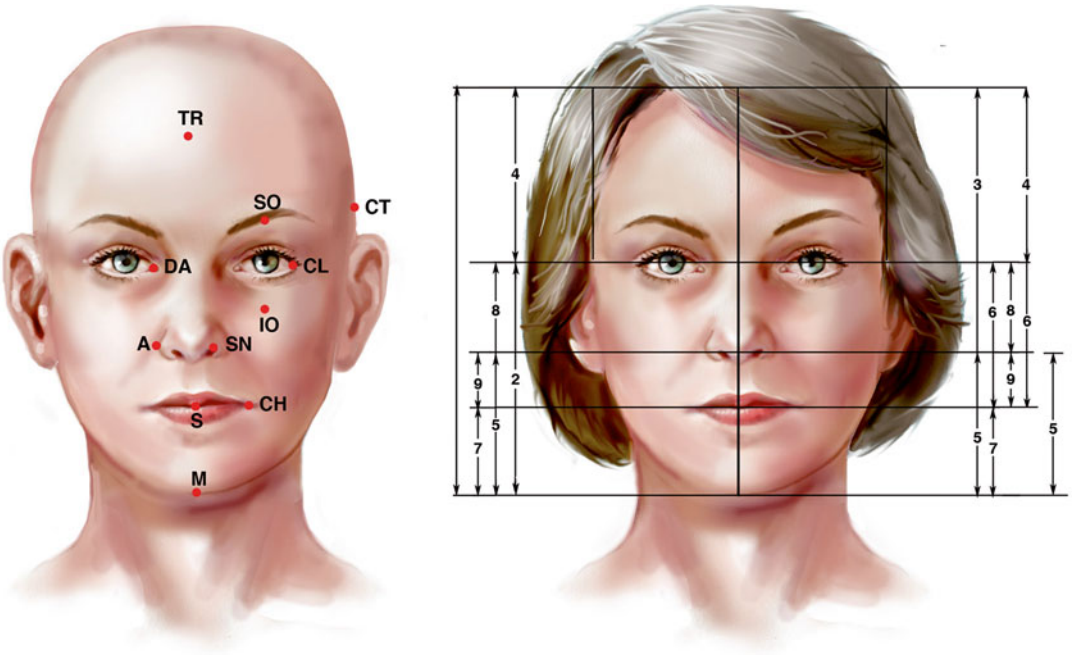


Fig. 16 (**a**) Anthropometric points on the face corresponding to skeletal references. (**b**) Ideal facial proportions within the Golden Rule 1:618

Among the Mayas of Mexico and Central America cranial deformation was a common practice. The techniques they used are well documented and there are numerous skulls showing the various trends.

The most popular style was the exaggerated slanting of the forehead which was achieved applying pressure to the frontal areas. Two more tablets were simultaneously pressing the temporal areas to produce a pointed prominent cranial roof. Another option without the temporal pressure produced brachicephaly. Frontal pressure modified the facial convexity affecting the supraorbital area and the frontonasal groove. The distance between the supraorbital ridge to the anterior surface of the cornea was also altered giving the effect of a moderate exorbitism. There are many examples of Maya sculptures representing rulers and other important people with these features, so we know that this was considered an aesthetic ideal. There are examples of various cranial shapes produced by indigenous people in the American continent. It appears that the preferred fashion varied in each group. It is interesting to mention that the practice of head modeling of children is still practiced by some rural groups in the South American Andes [11, 12].

Also important is the position of the medial and the lateral canthi. In general, it is considered attractive when the lateral canthus is 5 mm higher than the medial. There is a tendency to emphasize this inclination with cosmetics. This so-called mongoloid slant of the lid aperture is considered normal in many cultures and attractive in the world of cosmetics. It should be mentioned that when the lateral canthus is lower than the medial, as found is some artistic representations, it is seldom considered beautiful.

The prominence of the eye globe from the orbital cavity is also related to beauty.

The anterior aspect of the cornea should be about 16 mm in front of the lateral orbital rim. An exaggerated prominence is not considered attractive.

We know that some of the most outstanding artists introduced subtle changes to the face of their models. In an effort to please the prominent people who paid high fees for their portraits they adapted the proportions of the face to the ideal standards mentioned above. Raphaello himself mentioned that he had made some alterations to the face of the "Mute Lady" who was the wife of a prominent merchant of Florence. If we insert a diagram of the facial skeleton into a photograph of that painting using the soft tissue references, it is evident that the skeletal framework fits exactly within the golden proportion (Fig. 17).

The artistic representation of ideal feminine beauty is traditionally represented as proportioned harmonious faces with soft round curves. This is in contrast with the taste for angularity in our present culture. In the modern face three prominent areas are emphasized: the supraorbital ridges, the malar midfacial complex, and the mandibular border. In the malar midface complex, three zones are important for beauty: paranasal, the malar prominence, and the projection of the zygomatic arch.

The prominent areas limit four zones located on a more posterior plane: temporal hollow above the supraorbital arch and lateral to the temporal crest, orbital limited by the supraorbital ridge and the midmalar complex, the central depression of the cheek caudal to the malar prominence, and the neck limited inferiorly by the mandibular edge. In our pres-

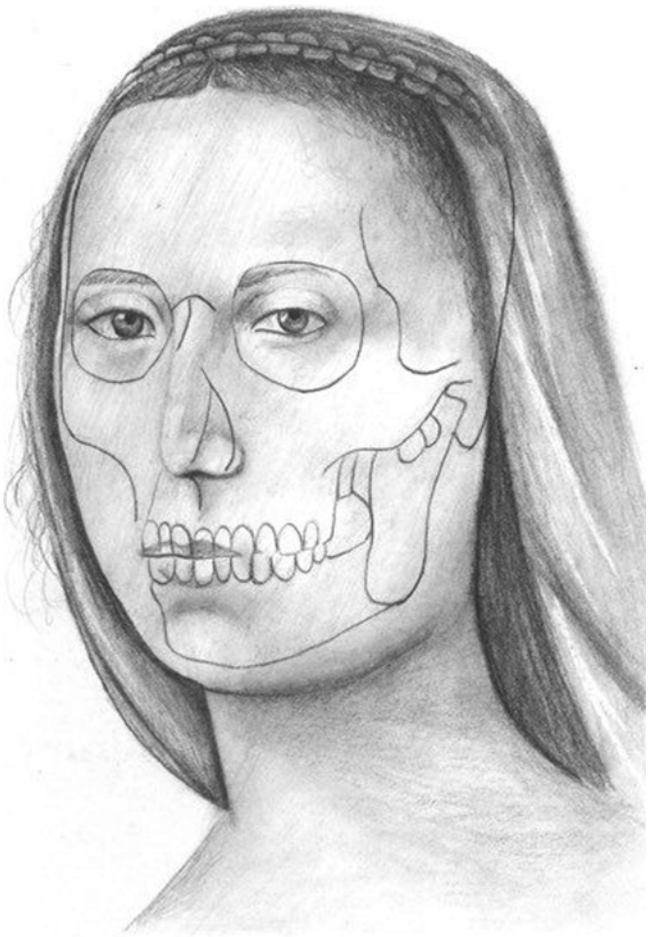


Fig. 17 The Mute Lady by Raphaello with super imposed skeletal tracing showing golden proportions

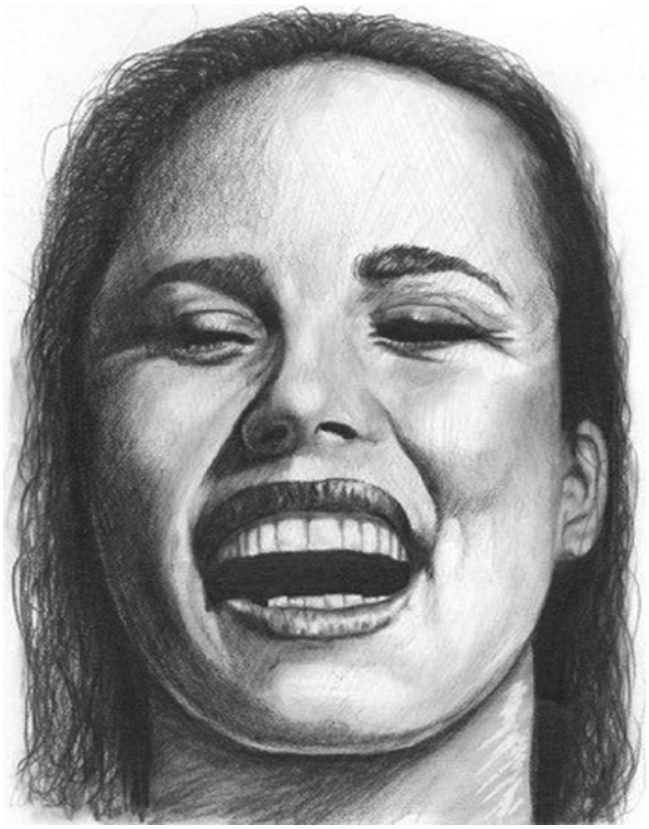


Fig. 18 Margot Hemmingway showing a perfect smile

ent culture a clear contrast between the prominent and the depressed areas is considered beautiful. Evidently angular faces were also considered attractive in other cultures. The most famous is the head of Nefertiti: one beautiful example of a feminine angular face.

The beauty of the mouth should be judged in three different positions. When the lips are closed there should be no visible muscle strain. In repose a small section of the free edge of the central incisors should be visible. One to three millimeters of the superior gingival edge should be exposed during the smile showing even, white, well-aligned teeth. Incomplete exposure of the upper incisors or exaggerated gingival show when smiling is the result of disharmony between the skeleton of the middle and the lower thirds of the face.

The smile is an extremely important element of beauty in our contemporary culture. This is enhanced by the modern emphasis on good dental care. Good dentition is a sign of good health; perfect dental alignment and normal dental occlusion, very often achieved by sophisticated orthodontic work, are essential for a beautiful smile (Fig. 18). This was not always true, artificial dental deformation was practiced in some early societies. Upper incisors were filed to produce what was then considered a beautiful smile as in the charming "smiling faces" of Veracruz, Mexico, from the classic period (Fig. 19). Dental implants of jade and other semiprecious stones have also been found in many cultures associated with dental deformations. This still is practiced today as a show of wealth by some people all over the world. In a more modest scale, gold and other metals are used to cover incisors not only to replace missing teeth but also as an element of beauty and probably as a manifestation of social status [13].

Mysterious enigmatic smiles can be observed in the sculpture of deities in oriental art but are extremely rare in western art, except in children or very young persons. We can assume that poor dental hygiene, caries, and loss of teeth occurring at an early age were prevalent even in persons of high social status interfering with the aesthetics of the smile. On the other hand monstrous or ugly persons were often represented with open edentulous mouths as in the works of Bruegel and Hieronymus Bosch or in the classical drawings of Leonardo and others representing older people where the facial features, mainly the short midface and over rotated mandibles, indicate edentulous dental arches.

The facial skeleton forms the basic structure for a harmonious face, the musculature is responsible for its animation,

Fig. 19 Smiling face showing aesthetic dental mutilation from Veracruz, Mexico. Classic period

Fig. 20 The Lady of the Mink by Leonardo. Perfect facial proportions and immaculate skin of the face and hands

and the skin is the delicate cover wrapping this magnificent part of the human anatomy. Because of its exposure the skin has an important participation in the beauty of the body and especially of the face. Everybody appreciates the marvelous quality of the skin of children and young people; its tension, elasticity, and smoothness is maintained for some years, maybe even decades, before the deteriorating effects of sun exposure, contact with soap and other chemicals, and age destroy its original qualities. The passing of time and the decay of collagen fibers change the original terse surface into a leathery, spotted draping.

The skin has sebaceous glands that lubricate and protect its surface. The importance of this oily protection has been recognized for many centuries. Clothes designed to isolate the skin from the sun rays and the cold were eventually considered an element of elegance and beauty. Gloves are used to protect the hands and lovely elaborated hats shade the face maintaining the skin quality and beauty. This was emphasized in many artistic representations as "The lady of the mink" by Leonardo, who also has perfect harmonious proportions. The beauty of the skin of ladies like "Saint Margaret" painted by Zurbarán can be admired at the Prado Museum in Madrid and the texture of the hands and face of the Countess of Newcastle painted by William Larkin exhibited at the Tate Gallery in London (Figs. 20 and 21).

Skin color is also an element of beauty. The presence of melamine acts as a filter to protect it against the ultraviolet rays, but continued sun exposure results in pigmentation that has been considered attractive by several generations of sun worshipers during the twentieth century, associating skin pigmentation with health and, eventually, paying the price with premature aging and skin cancer.

The immaculate nonpigmented white skin was considered essential for beauty for many centuries. This concept, related to a cultural xenophobic attitude, has changed. Darker skin common to many ethnic groups and its many variations are now considered attractive as evidenced by the photos of beautiful models in the fashion literature (Fig. 22).

Other glands complement the complex function of the skin. Sudoriparous secretion maintains humidity and surface temperature; eccrine glands produce pheromones related to sexual stimulations. Its odor is characteristic and considered unpleasant in modern society specially when combined with

Fig. 21 Saint Margaret by Zurbarán emphasizing skin perfection, 1634

Fig. 22 The human skin used as a canvas

the acrid smell of retained sebaceous material and its bacterial complement in persons not addicted to water and soap. Modern humans are not only sun worshipers, we are also soap worshipers who consider skin odors unpleasant. Modern hygienic habits deprive the skin of its protection.

This custom of a frequent bath has been accepted and rejected in different epochs. The Romans considered their baths as an enjoyable experience and an opportunity for social intercourse. In other cultures this practice was not accepted and even considered dangerous.

With regards to beauty, hygiene and body odors, it is amusing to remember the opinion of Bartolome Angelico in his "De propiertatibus serum" published in 1601 who wrote: Beauty consist on the elegant disposition of the body and its perfume. Also the anecdote of Gabrielle d'Estreés, the king's mistress, whom he found irresistible. In fact Henry IV wrote her a passionate letter saying: "please madam don't take a bath, I will arrive in three weeks." We may not coincide with the king's taste for body effluvious but certainly will agree with him about her beauty as seen in her portrait by the school of Fontainebleau in 1595 (Fig. 23). Considering that the appreciation of beauty is also a sensual experience, visual, tactile, and olfactory, I believe that the smell of a person, enhanced by the use of perfumes prevalent in our society, should also be considered an element of beauty.

Skin ornamentation has always been used to enhance beauty; to celebrate festivities; to mark rites of passage; to identify a person with a certain group, clan, or sex; to frighten enemies; to give protection against evil spirits; and many other reasons.

Tattooing, painting, piercing, and scarifying the skin for purposes of beauty have been practiced since time immemorial. Tattoos were found on the skin of the 5,600-year-old mummy found on the Italian Alps in 1991 as well as in many African cultures and on the skin of many people in the twenty-first century. Piercing of the ears has been a common aesthetic practice for many generations, and jewels inserted in piercing of the lips, the tongue, the brows, and the navel considered attractive in many cultures are again a relatively common practice among young people.

Fig. 23 Beatriz d'Estrées portrait of the School of Fontainebleau, 1595

The artistic application of pigment to the skin may follow geometrical patterns representing abstract concepts or as imitations of the skin of animals, usually totemic gods, or to alter certain anatomical features like skin and hair color, to suggest youth, or to conform to aesthetic preferences like the white paint used by geishas in Japan. The human skin has also been used as a canvas by artists following the tradition of the ancient shamans who decorated the skin of the members of the tribe. A relatively common practice is to paint garments on a naked person, usually women, and to represent abstract designs interacting the pigments with the contours of the body such as the interesting project of the "Painted Bodies" produced by Edwards in Chile with the participation of many artists.

The body ornaments are a part of the concept of beauty in every culture in all parts of the world from the most primitive to the most sophisticated modern people. The skin is the window case of beauty. But it is much more than that; the skin is a site of beauty, the playground for the perpetration of our species, the soft cover passionately attractive to surgeons, photographers, lovers, and poets.

Acknowledgement This chapter was edited by Dr. Fernando Molina following the death of Dr. Ortiz-Monasterio. Dr. Molina commissioned the artist, Eduardo Talledos, to make renderings of the original works of art that are referred to in the text.

References

1. Vitruvio P (1995) Los diez libros de la arquitectura. Alianza Editorial, Madrid
2. Itinerarium mentis in Deum (1989) Bonaventura de Bagnoregio XII Century. In: Tatarkiewicz W (ed) Historia de la Estética. Ediciones Akal, Madrid
3. d'Aquino T (1995) Summa Theologica. In: Tatarkiewicz W (ed) Historia de la Estética. Ediciones Akal, Madrid
4. Vesalius A (1543) De Humani coporis Fabrica. School of Medicine, Padua, Italy
5. Genga B. Anatomy improved for artists 1672. Reingraved in London 1773 by Senex, John
6. Brown C (2009) The woman who would be king. Nat Geosci 216:4
7. Duero A (1987) Los cuatro libros de la simetría de las partes del cuerpo humano. México Biblioteca Nacional, Instituto de Investigaciones Bibliográfias, Universidad Nacional Autonóma de México, Coyoacan, México
8. Le Corbusier, Pierre Margada (eds) (1987) Galerie des Princes, Le Corbusier Foundation, Brussels, Belgium
9. Livio M (2002) The golden ratio. Broadway Books, New York
10. Ortiz Monasterio F, Molina F (2005) Cirugía Estética del Esqueleto Facial. Editorial Panamericana, México
11. Vera T (2008) El modelado del cráneo en Mesoamérica. Arqueología Mex 16:94
12. Tierser Blos V (1977) El aspecto físico de las mayas. Arqueología Mex 5:28
13. Verut D (1973) Precolombian dermatology and cosmetology in Mexico. Chantieleer Press, New York

Is There a Frontier Between Aesthetic and Reconstructive Surgery?

Daniel Marchac†

Plastic surgery is facing a major problem: the risk of a splitting, a divorce between the aesthetic and reconstructive parts of our speciality – the public hospitals dealing with the reconstructive cases, the private hospitals and private offices dealing with the lucrative aesthetic surgery.

For the public and the medical world, plastic surgeons are viewed more and more like aesthetic surgeons, and this image is negative: no more really doctors but moneymaking beauticians!

It is fundamental for our survival that we realize that and react. We must explain and demonstrate that our speciality has two aspects which are complementary and, in fact, so close, the reconstructive and aesthetic parts.

We must explain that the techniques utilized for the aesthetic operations and for the reconstructive operations are the same and have to be learnt during the plastic surgery training: handling of the skin, flaps, facial bones surgery, etc.

We have to remind that complications can happen after any aesthetic operation: a skin necrosis, an infected haematoma and a scar retraction. They require a good knowledge of plastic surgery basic principles to be treated, and that it is not a basic formation of the "five main aesthetic operations" that can provide security to the patients.

Training in aesthetic surgery is a key issue for the future of our speciality. Many other specialities are attracted by aesthetic surgery and want a part of the cake. The facial specialists want to do the face lifts, rhinoplasties and eyelids, the gynaecologists want to do the breast correction and the general surgeons the breasts and abdominoplasties.

Of course we are trying to spread the message that aesthetic surgery should be done by certified plastic surgeons. Many national societies and qualification diplomas have the word "aesthetic" mentioned besides plastic surgery, but we must realize that the public does see much differences between us and the "facial plastic surgery" specialists, or even "certified cosmetic surgeons", with beautiful framed diplomas!

Therefore, besides the message that the real good training to do aesthetic surgery is plastic surgery, we must effectively train our residents to be the best in aesthetic surgery.

At the present time, the training is focused on basic principles and reconstructive surgery, and little is done in most teaching programmes in the aesthetic field. Many residents also consider that aesthetic surgery is simple, and that they will easily perform these few operations when they will need to.

In the competitive world they are entering they must realize that they must be the best, and that aesthetic surgery is full of difficulties when one is willing to achieve an excellent result.

Of course, many teaching hospitals are very busy with reconstructive cases and do not have time, and operative space, for aesthetic surgery. The utilization of plastic surgeons working privately could be a solution, since many would be happy to give some of their time, especially at the end of their carrier, to teach residents. They could give some lectures in the public hospitals and accept residents to observe their surgery in private practice. A different solution has to be found for each country and local situation, but the basic point is that our plastic surgery residents must have an excellent training in aesthetic surgery, to be the best surgeons when they confront with the competition, and it is not the case now for most programmes.

Coming back to the title of this chapter, I want to demonstrate that the boundaries between aesthetic and reconstructive surgery are difficult to determine. On a practical point one can say that what is covered by health insurance is reconstructive and what is not covered is aesthetic. Not so simple: why bat ears are covered by social security in France, while a big hump on the nose is not? The administration

† Daniel Marchac passed away in October 2012. Correspondance should be addressed to his son Alexandre Marchac.

D. Marchac, MD
Craniofacial Unit, Hopital Necker Enfants Malades,
Paris, France
e-mail: alexandremarchac@gmail.com

N. Scuderi, B.A. Toth (eds.), *International Textbook of Aesthetic Surgery*, DOI 10.1007/978-3-662-46599-8_2

explains that bat ears create a psychological trauma to the child. What about a big nose or small breasts which are not covered? The tendency of the various health insurances is of course to classify all the morphological corrections as "aesthetic surgery" and to refuse to cover them. Coverage for congenital anomalies or traumatic sequelae without functional problems is more and more difficult to be accepted in several countries.

So we must fight the way our American colleagues of the ASPS have done, going to the Congress to obtain that the insurance companies will be obliged to provide coverage for the congenital malformations with morphological anomalies but without functional problems.

We must understand that most of the political personnel, like the general public, have a negative image of plastic surgery, and we must explain them the immense benefits we bring with our reconstructive skills applied to morphological problems and that aesthetic surgery, well performed, with good indications, is beneficial to many patients.

In order to obtain insurance authorization for the cases that we think should be covered, like macromastia or excision of major excess skin following weight loss, we must not attempt coverage for cases which are borderline. Too many rhinoplasties are listed as deviated septums and blepharoplasties as blepharochalazis. There is also a tendency to utilize a minor procedure (ie: small tumour removal) to obtain hospital coverage for, as an expample, a face lift. This can be very detrimental by casting suspicion on all our procedures and should be strictly avoided.

I would like to show a few clinical cases to illustrate the difficulties of drawing boundaries between reconstructive and aesthetic surgery.

Case 1: Cervical Tumour Operated via a Face Lift Approach This 54-year-old patient was sent to me for removal of a big lipoma on the right side of the neck, below the parotid region. The MRI showed that it was located under the SMAS level. The patient was concerned about a visible scar and was aware of the sagging of her lower face. It was decided to perform a facelift that gave an easy access to the lipoma after SMAS elevation and allowed to obtain an aesthetic improvement of her appearance. The insurance company covers the hospitalization and part of the fees, the patient paying for the additional time linked to the face lift operation (Fig. 1).

Case 2: Baso Cell Carcinoma Permitting a Refinement of the Nose This patient, aged 70, was referred to me for removal of a small baso cell carcinoma of the nose, located above the tip, on the midline. She was of course very concerned about scarring or distortion and complained of a bulbous tip. The midline removal of the skin, the remodelling of the underlying cartilages to narrow the tip and increase projection, associated with lateral skin undermining, allowed for a suture with limited tension. The insurance company pays for the tumour removal and repair. My fees were slightly increased because of the additional work compared to a simple closure of the defect (Fig. 2).

In these two cases, the benefit for the patient is obvious: coming for a tumour removal, they are not only cured, but also embellished. The double expertise in both reconstructive and aesthetic fields is mandatory to obtain the best outcome in such cases.

In the field of craniofacial surgery, there are also cases which are borderline.

Case 3: Minor Midface Retrusion, Facial Advancement This 15-year-old young girl had a mild form of Crouzon disease, with a cranial release in infancy and a perfectly normal development. She had an acceptable occlusion, but was concerned by the flatness of the mid face with recessed malar bones and mild exorbitism. A classical Le Fort III facial advancement improved greatly her facial balance. Since the patient had Crouzon disease, the insurance covered without discussion the osteotomy operation. This was an aesthetic operation but doesn't the patient with a congentital malformation have the right to have insurance cover even borderline procedures? (Fig. 3).

Case 4: Facial Asymmetry due to Moderate Orbital Dystopia, Orbital Shift This 31-year-old good-looking girl complained of a facial asymmetry. In fact, everything else being strictly normal, she had a difference of level between the two orbits of about 6 mm. The aesthetically pleasant solution was to elevate the right orbit. To be sure not to deteriorate the satisfactory shape of the eyelids and canthal attachments, the only solution was a four walls orbital en bloc upper displacement. This involved an intracranial approach to remove part of the frontal bone and get access to the orbital roof. This significant operation seemed at first out of proportion with the moderate asymmetry. The patient insisted to have it done, signed all the information and consent forms and accepted also to cover the expenses since I considered that social security had not to pay for this aesthetic craniofacial operation. The operation turned out well, and she was very pleased with the result. There were no early or late complications (Fig. 4).

Case 5: Cranial Remodelling in Adults This 26-year-old man complained of an abnormal shape of the head, with a high and bulging forehead. It was an obvious sequalae of an unoperated scaphocephaly type of craniosynostosis. The diagnosis was not made when he was an infant, he had no functional impairment and was an engineer; his problem was the abnormal shape. The only way to correct was a fronto-cranial remodelling, elevating the affected parts and reconstructing a

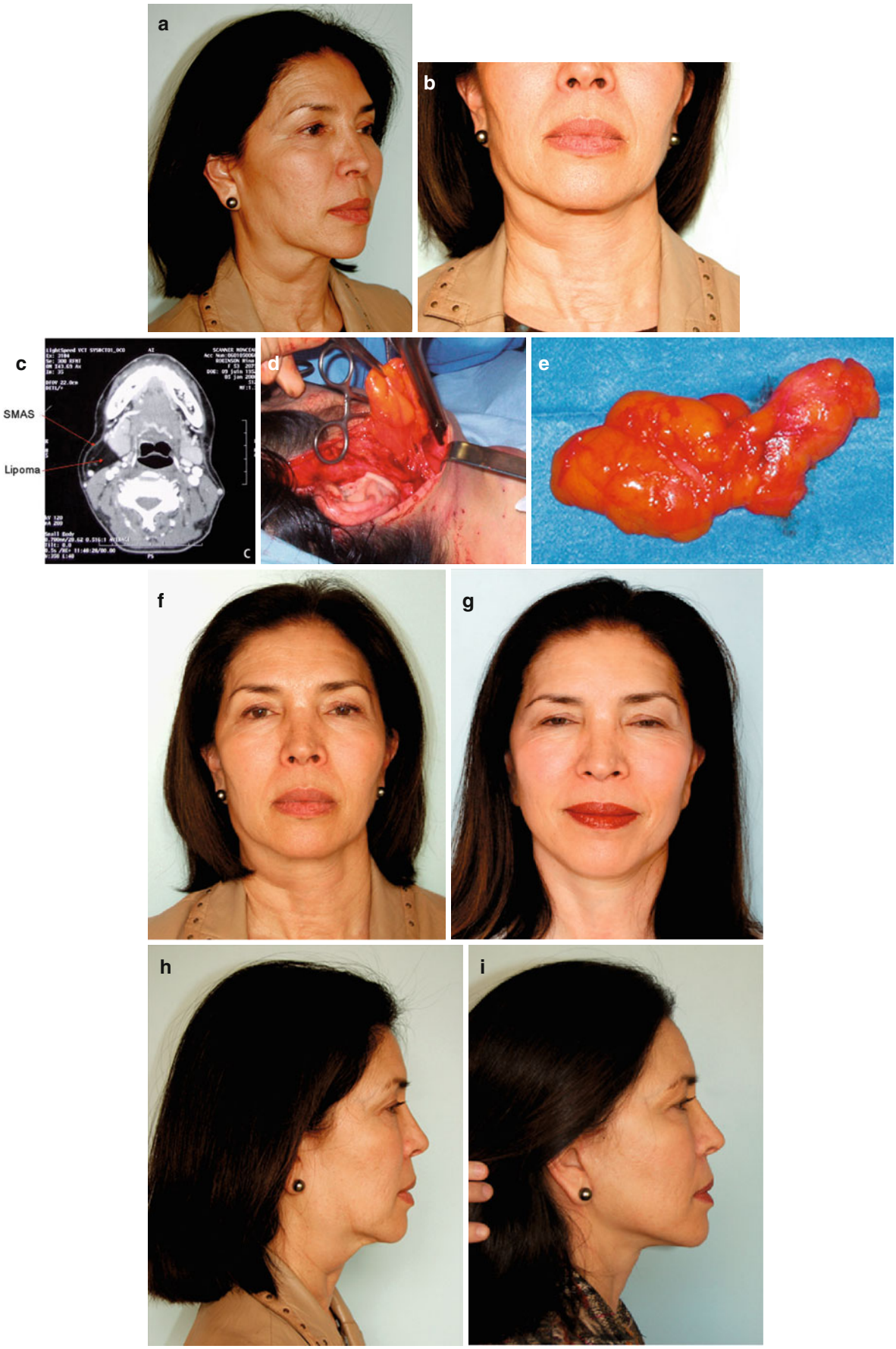


Fig. 1 (**a**, **b**) A 54-year-old woman presenting with a lipoma of the neck. (**c**) The lipoma is well visible, under the SMAS. (**d**, **e**) The lipoma is easily dissected with this wide approach. (**f**, **g**) Before and 3 months after surgery. (**h**, **i**) Before and 3 months after surgery

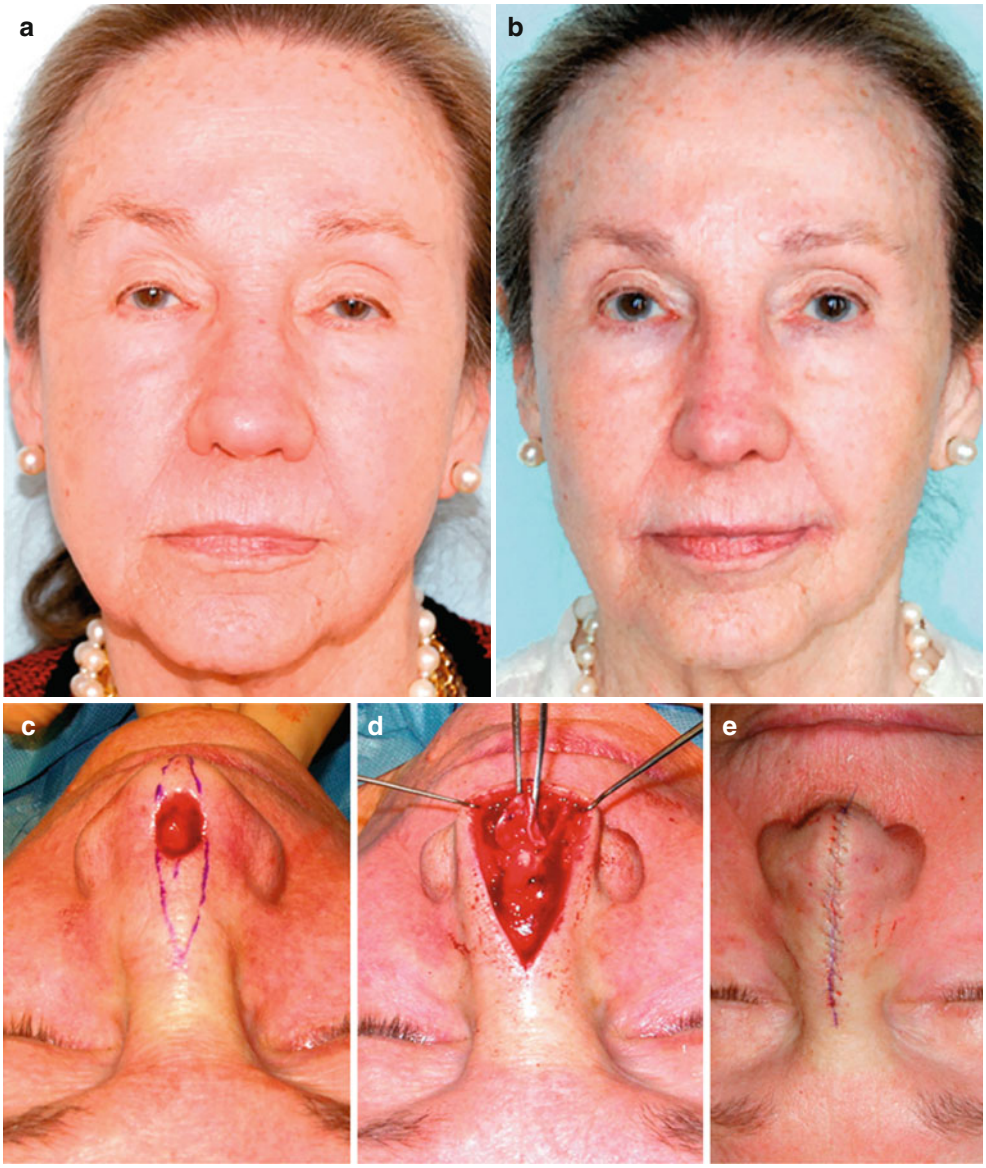


Fig. 2 (**a**) A 70-year-old patient, baso cell above the tip of the nose. (**b**) Three months after midline resection with cartilage remodelling. (**c**) After frozen section control, the extent of the resection. A vertical excision will be made for this midline lesion. (**d**) The exposed cartilages have been narrowed and brought together to increase projection. (**e**) Careful suturing in two layers

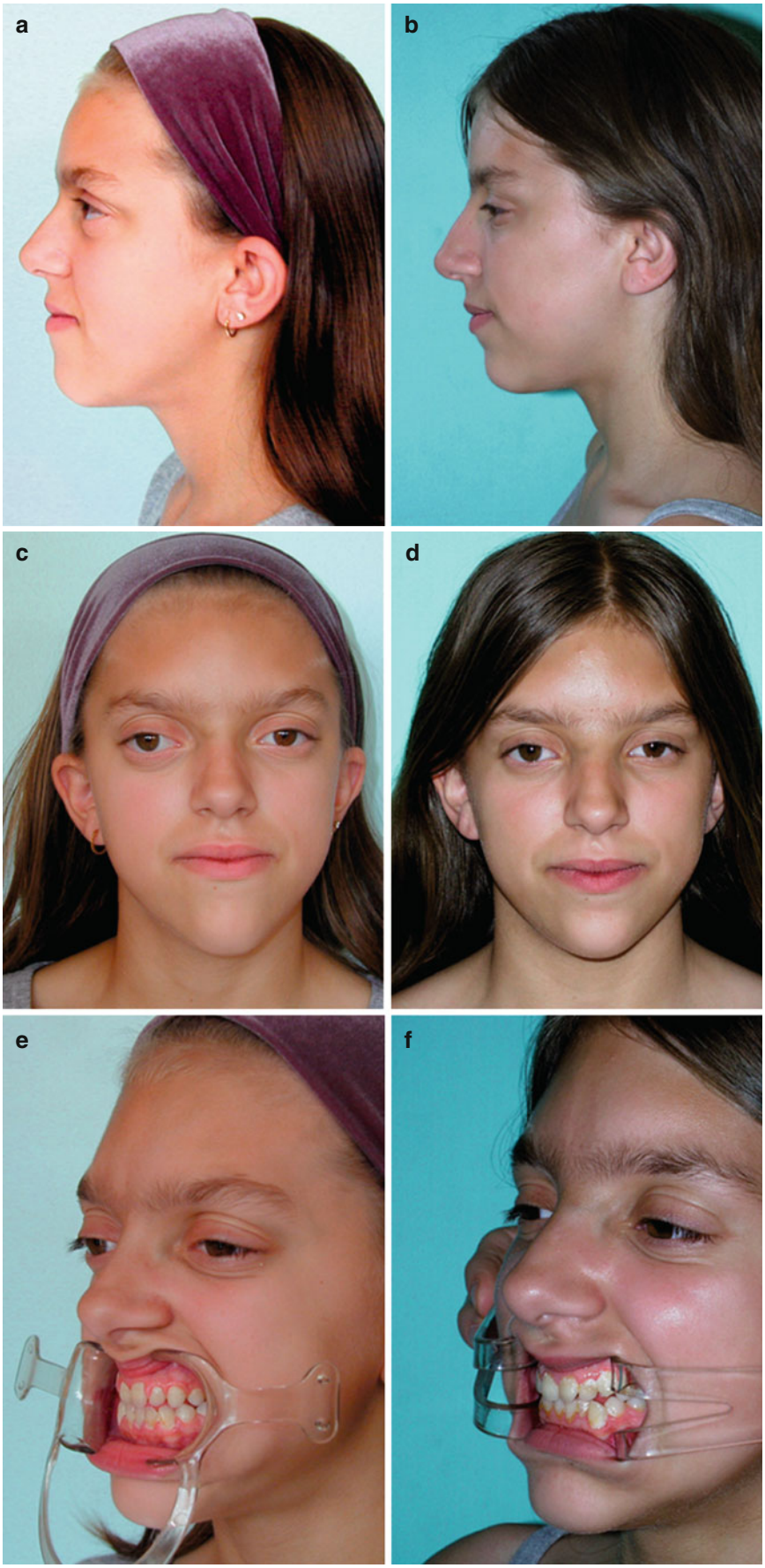


Fig. 3 (**a**–**c**) A 15-year-old Crouzon patient with malar flattening. (**b**–**d**) Six months after Le Fort III facial advancement. (**e**, **f**) Before and after the facial advancement. The occlusion was acceptable before surgery. The indication was purely aesthetic

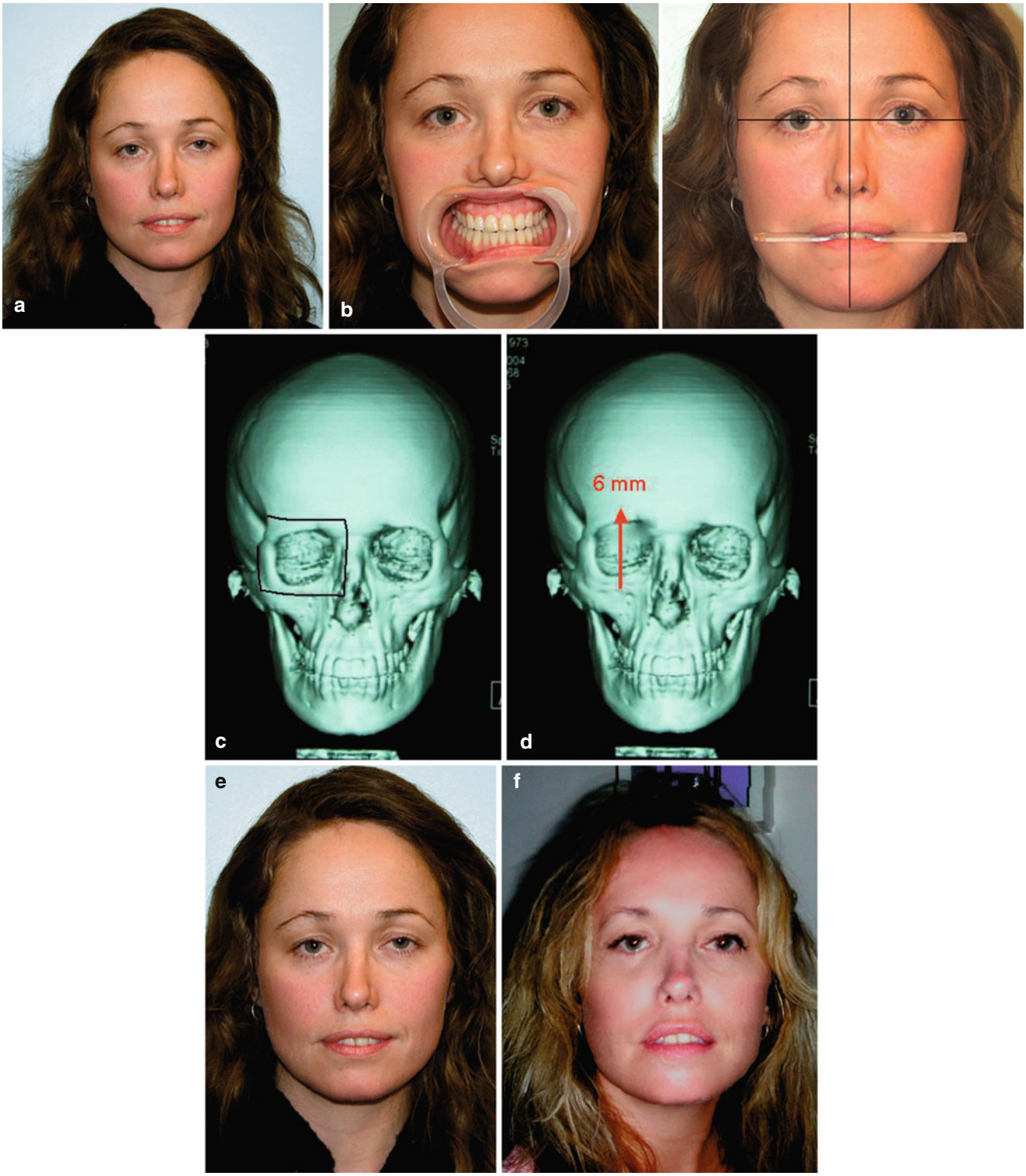


Fig. 4 (**a**) A 31-year-old woman presenting an asymmetry of the face. (**b**) The right orbit is lower, all other skeletal elements being symmetrical. (**c**) The right orbit will be mobilized as a '"box". (**d**) On the computer, a project of the 6 mm elevation of the right orbit. (**e**, **f**) Before and 3 months after correction of dystopia

skull of a better shape after displacement and remodelling of the bony pieces. The supraorbital part was of a normal shape, so there was no opening of the frontal sinus, diminishing the infection risk. The bone is hard to cut and to mould in an adult, but the intracranial risk is very little in trained hands. A preoperative project, to both plan the repair and obtain the agreement of the patient, is very helpful (Fig. 5).

The operation went without problem; the patient stayed 3 days in the hospital and had a very fast recovery.

Since it is the sequalea of a craniosynostosis, the social security covered the cost of the surgery, even if it could be argued that this is only an aesthetic demand, and in many countries the demand of coverage would be refused for such cases.

Case 6: Aesthetic Operations at Completion of Craniofacial Corrections This typical Crouzon patient had all the usual treatments: early frontal advancement, Le Fort III at 6 and again at 14 years of age. When the skeletal base is corrected and stabilized, aesthetic surgery techniques are utilized to get the best possible appearance: rhinoplasty, genioplasty and fat injection in irregular areas (Fig. 6).

To get this "best" possible result, it is fundamental that the craniofacial surgeon has the practice of aesthetic surgery, firstly to evaluate the face and to see what can be done to improve it, and secondly to be able to do it! The knowledge of what has been done before, and of the possible modifications, bone plates and so on, is also helpful.

For these purely aesthetic procedures after craniofacial procedures, in our countries, insurance companies will pay without much discussion since it is linked to the congenital anomaly. It can be discussed, and if the family could pay the expenses, I would rather think that they must do it.

With theses few cases, I have tried to demonstrate the difficulties of making a "frontier" between the two parts of our speciality, and that expertise in both aesthetic and reconstructive surgery is fundamental to our speciality, to get the best possible treatment for our patients.

This is again my plea for "walking on two feet", but it is interesting to realize that the attitude of plastic surgeons towards the two aspects of our speciality has varied considerably. Since the beginning of the twentieth century, aesthetic operations were done, but not put forward by the pioneers, Sir Harold Gillies, Mac Indoe, etc. Madame Noel was a french surgeon who practiced aesthetic surgery under local anesthesia in her apartment. Her book "La Chirurgie Esthetique, son role social" (Aesthetic Surgery: It's social role) was published in 1926. She writes that aesthetic surgery helped patients to improve or keep their jobs, prevented divorces by reversing aging, etc.

The Second World War of course put forward the reconstructive side of our speciality. In France plastic surgery had nearly disappeared in the 1930s after a dramatic amputation had to be made to a young woman after fat removal by a famous surgeon. It was followed by a trial and a judgement disapproving radically all aesthetic operations!

There was no more plastic surgery training in the public hospitals in France after the early death of Hippolyte Morestin from the Spanish flue in 1919, only some aesthetic surgeries were done in private hospitals, with discretion. After the Second World War, the young French plastic surgeons interested in the field went to learn the basic principles of plastic surgery in England, like Tessier and Morel-Fatio, or in the United States like Claude Dufourmentel.

Their aim, like in most countries, was to have the speciality recognized and to create departments of plastic surgery. They knew that the aesthetic side was ill considered in the medical world and they were carefully hiding it. In Morel-Fatio unit (it was in fact a general surgery unit with an orientation on plastic surgery) it was forbidden to pronounce the word "aesthetic", only plastic was allowed! In 1957, Dufourmentel wrote a paper about plastic surgery and made a distinction between the reconstructive aspect "the most interesting" and the corrective aspect, which included the aesthetic operations, without mentioning the word aesthetic! [1]

So, like them, most plastic surgeons were doing both reconstructive and aesthetic surgery, but were nearly hiding the aesthetic side.

In 1966, Mario Gonzalez Ulloa published a "Manifesto" on the field of aesthetic surgery that he believed should be the concern of plastic surgery. He claimed that the aesthetic operations should be studied, taught and analyzed like any other surgical field. He writes: I *protest against* the academic lack of appreciation of aesthetic values in Plastic Surgery, I *protest against* the absence in our teaching programs of the study and appreciation of beauty… [2].

Another plastic surgeon, Ivo Pitanguy, who did much to promote the image of plastic surgeons being the beauty specialists had a different approach when he wrote in 1983 "Since a long time, I wanted that the acclaimed reconstructive surgery, and the ignored and often despised aesthetic surgery, unite into plastic surgery. This has been the main goal of my life!" [3].

Very carefully he always mentioned his reconstructive cases besides the aesthetic propaganda. It is interesting to realize that for the lay public and other doctors, he has this image of a plastic surgeon treating the disfigured as well as a famous aesthetic surgeon. We know that his activity was mostly aesthetic, but he was successful in projecting this positive image.

We should, as he did, always mention reconstructive aspects when we talk about aesthetic surgery, and the oppo-

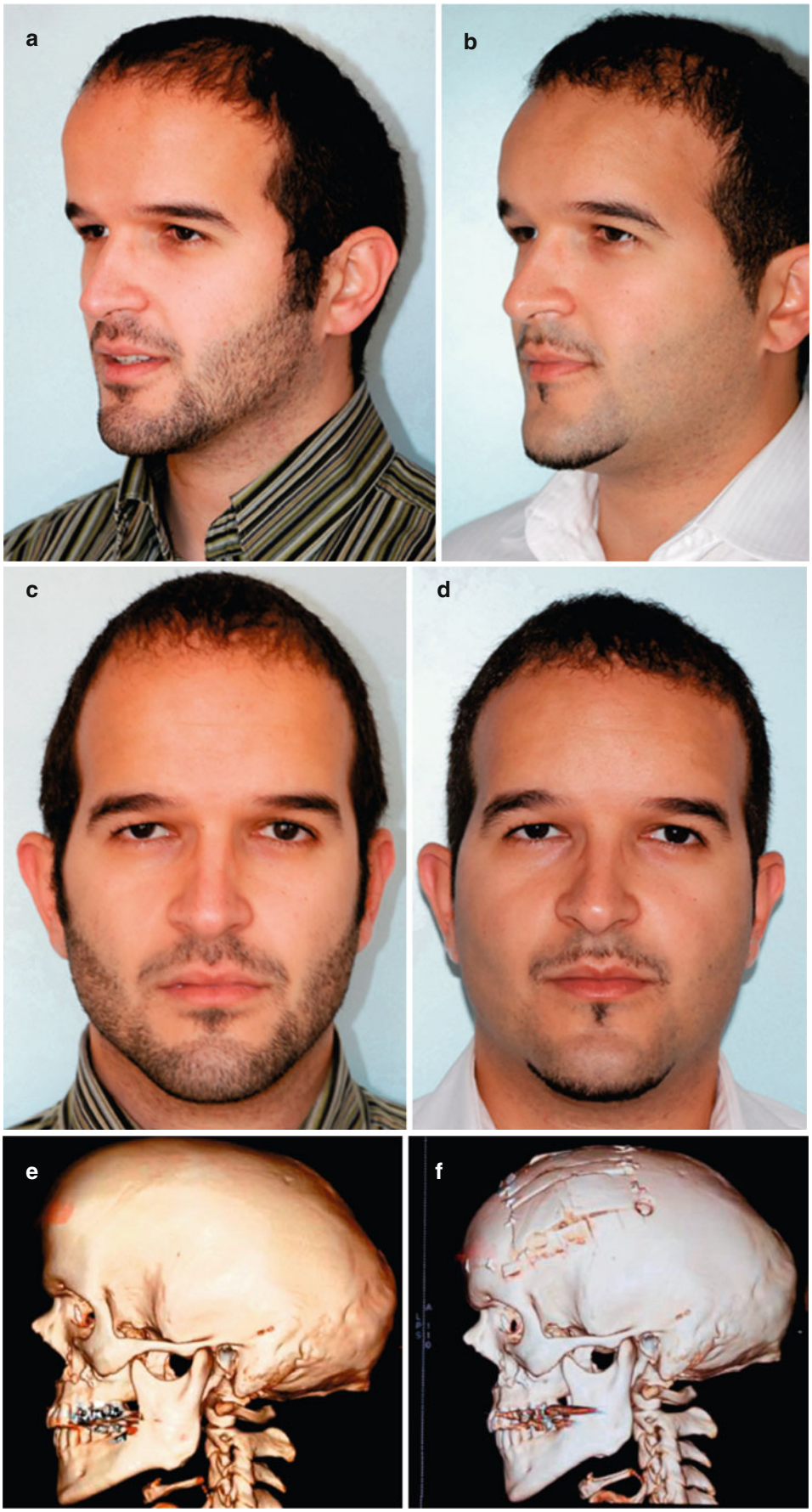


Fig. 5 (**a**, **b**) Bulging and exaggerated height of the forehead in a 26-year-old man with sequalae of unoperated scaphocephaly type of craniosynostosis. (**c**, **d**) Six months after fronto-cranial remodelling for aesthetic reasons. (**e**, **f**) 3D reformation before and after remodelling. The upward projection has been diminished and the skull widened

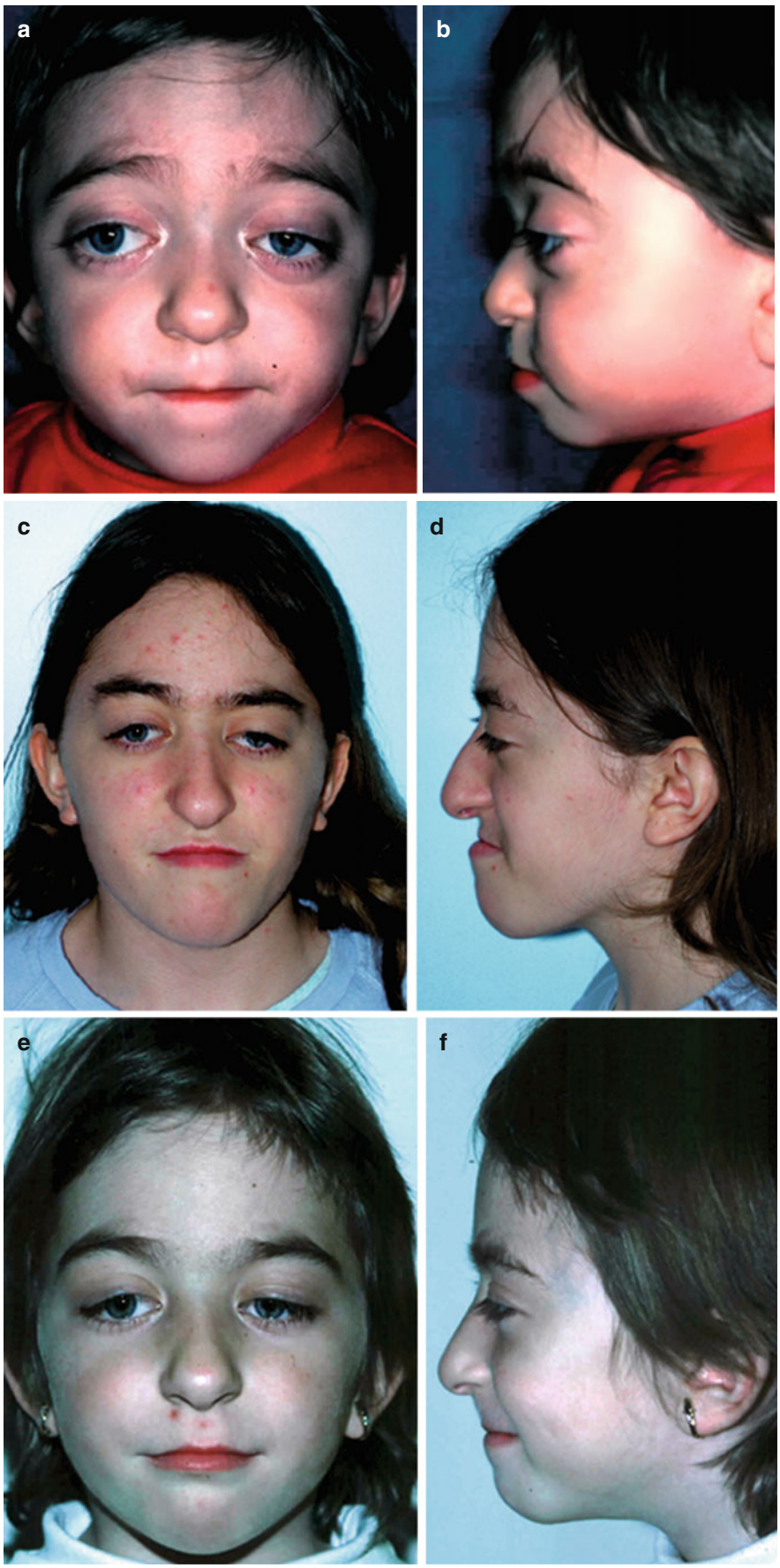
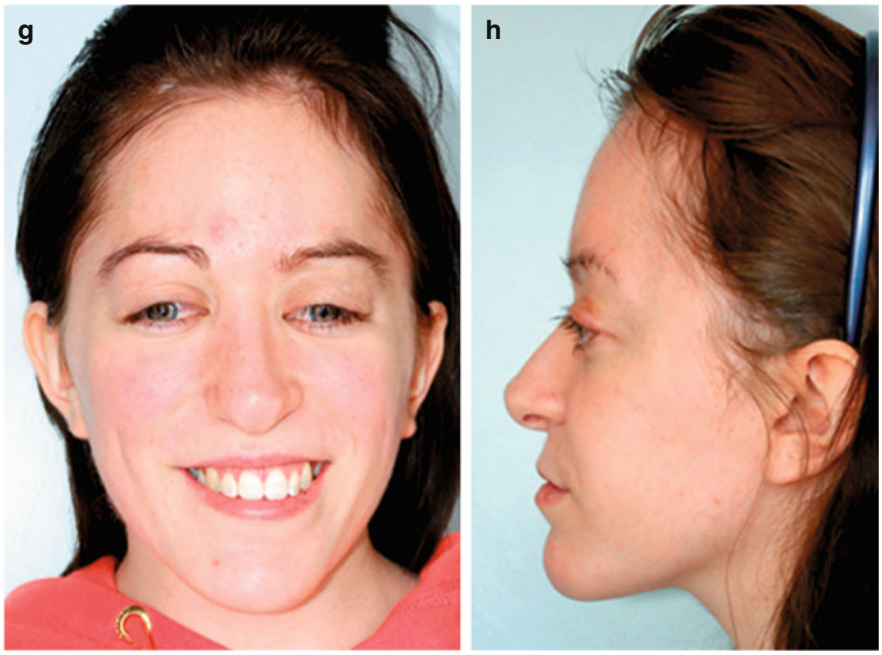


Fig. 6 (**a**, **b**) A 2-year-old Crouzon girl, before frontal advancement. (**c**, **d**) At 6 years of age, after Le Fort III facial advancement. (**e**, **f**) At 14 years of age, before Le Fort I and genioplasty. (**g**, **h**) At 20 years, after rhinoplasty and fat injections

Fig. 6 (continued)



site, mention aesthetic problems when reconstructing. I recently realized during a meeting with medical journalists that many of them did not understand that we, plastic surgeons, are doing reconstructive and aesthetic operations. Being approached often by aggressive aesthetic surgeons, they did not realized that the vast majority of us is practicing every day, without publicity or media coverage, these two aspects of our wonderful speciality!

References

1. Dufourmentel Cl (1957) Etat actuel et évolution contemporaine de la chirurgie plastique. Problémes. Revue de l'association générale des étudiants en médecine de Paris 47:14–41
2. Hage J, Gonzalez-Ulloa J (2002) Manifesto in aesthetic surgery. Plast Reconstr Surg 110:1171
3. Pitanguy I (1983) Les Chemins del la beaute. Un maitre de la chirurgie plastique temoigne. J.C. Lattes, Paris

Indications, Psychological Issues and Selection of Patients in Aesthetic Surgery

Nicolò Scuderi, Bryant A. Toth, Stephen P. Daane, and Diego Ribuffo

1 Introduction

Personal identity is the definition of an individual in relation to himself and others. The body represents one of the fundamental aspects of personal identity, as for each individual it is unique; it is the manner of communicating with the world and can be considered either in an objective or in a subjective way. "I am my body" or "I see and feel my body as tall, short, thin etc."

It is important to distinguish body from body image, which can be defined as the tridimensional image that each of us has of himself in his mind, or the ideal representation of our body in our mind. Obviously, this body image is conditioned by socio-cultural factors, by interpersonal experiences, by physical features and personality traits and, last but not least, by the age of the individual. Actually, age and maturity enhance body image definition. During the life span, body image is in a continuous process of change and requires an everlasting resetting of one's identity: thus, any time that body image is modified, one's identity is somehow altered as well. Plastic surgery modifies the body and changes body image, requiring an adaptation of one's identity; this process proves easier in younger individuals but more complex either in mature persons or in subjects of advanced age. Thus, plastic surgery procedures have considerable implications on the psychology of operated patients. Not considering plastic reconstructive surgical procedures, in which an anatomic and/or functional fault is present, requiring corrective measures, in aesthetic surgery the indication to the procedure is exclusively a subjective one and stems from the patient's will to modify his own body image and, at least in part, his own identity. The absence of an objective indication to surgery makes the aesthetic side of surgery and medicine different from both traditional surgery and medicine, as in these situations a pathologic condition pointing towards a therapeutic measure is invariably present. Thus, it is necessary to reach an in-depth understanding of this problem – while at the same time looking for the correct indication to surgery – as well as selecting patients according to criteria which are both sound and safe. It is also important to avoid any involvement with subjects prone to therapeutic failures, which in these cases may not be due to a surgical pitfall but may simply be the result of a misunderstanding between the surgeon and his patient. According to these statements, a background in basic psychological principles is essential for the plastic surgeon wishing to provide optimal care for aesthetic patients. An understanding of these principles will help to identify cases in which the intervention of a psychologist is essential, and can assist in relieving patients' of feelings such as anger or depression that may occur in the postoperative period. Understanding the psychology of aesthetic surgical patients can make the management of frustrated subjects much easier.

In this chapter the psychological evaluation and the description of personalities have been referred by the authors to an analytic dynamic model.

N. Scuderi, MD
Dipartimento di Chirurgia, Università di Roma "Sapienza", Rome, Italy

B.A. Toth, MD, FACS
Private Practice, Toth Plastic Surgery, San Francisco, CA, USA

Clinical Professor of Surgery, University of California, San Francisco, CA, USA
e-mail: tothbryant@gmail.com

S.P. Daane, MD
Private Practice, San Francisco and San Ramon, CA, USA

D. Ribuffo, MD
Dipartimento di Scienze Chirurgiche e Odontostomatologiche, Università di Cagliari, Cagliari, Italy

2 Traditional Beliefs Regarding Aesthetic Surgery and Psychological Stress

We have already stated that the knowledge of basic psychological principles is essential for the plastic surgeon wishing to provide optimal care for aesthetic patients. Understanding the psychology of patients can effectively simplify the clinical course of difficult cases.

N. Scuderi, B.A. Toth (eds.), *International Textbook of Aesthetic Surgery*, DOI 10.1007/978-3-662-46599-8_3

The level of dissatisfaction towards a part of one's body or towards the aspect of a part of one's body seems to be significantly related to the patient's personality. Following the stress of a surgical procedure, a patient can lose his psychological equilibrium and, according to his personality, can present symptoms of variable evidence and seriousness.

The first papers in literature dealing with the psychological aspects of plastic surgery revealed the importance of investigating familiar issues in problematic patients, to foresee and prevent any eventual psychological mishaps to surgeons. Different procedures in aesthetic surgery such as rhinoplasty, additive and reductive mammoplasty, orthoplasty, etc., can induce psychological modifications, as they are responsible for major alterations of body image.

According to scientific literature, the main organs leading to important changes in body image after a surgical procedure are the nose, breast and face.

Nose: more has been written about the psychological aspects of rhinoplasty than about any other aesthetic operation. Early psychological studies of rhinoplasty patients suggested that they were more unstable than the general population, and that among them there was an overwhelming number of neurotic subjects. Recent investigations performed using psychological tests such as the MMPI (Minnesota Multiphasic Personality Inventory) showed that operated patients were within normal limits; no differences were found between rhinoplasty patients and the normal population. If a good surgical result induces discomfort, then it is probable that the underlying problem was not merely an aesthetic one.

Breast: the psychological impact of a breast operation cannot be dissociated from the patient's acceptance of or conflicts about her own sexuality and femininity. Most breast augmentation patients have felt inadequate since adolescence; they are sexually inhibited and experience feelings of inferiority in relation to friends and other adolescents.

Face: facelifts are performed to recreate a previously existing condition. It has been hypothesized that body image does not age as rapidly as the physical body itself and, thus, whether or not this is so, the facelift seems to have no dramatic requirement of body image readjustment. Bringing the face image back into the past, the procedure re-establishes a condition of normality in the subject and, thus, variations of personality are less dramatic compared to what happens while operating on the breast or nose. In the series by Goin & Goin [1], the motivations for operation were related to feelings about aging in different ways. All of these patients expressed satisfaction with the results of the operation, although in separate surveys on facelift patients one in eight expressed general dissatisfaction with the operation. Younger facelift patients showed a greater improvement in their interpersonal relationships than older subjects.

3 Personality Types in Aesthetic Surgery Procedures

Many forces act in combination to produce a personality pattern; among the most important of these is the stress associated with childhood separation and individuation. Classic psychoanalytic theory shows that a personality type is distinguished by a particular set of mechanisms for coping with the fear of separation and the psychic pain associated with loss. Defence mechanisms operate automatically outside of an individual's awareness without harmful effects and make it possible for unpleasant experiences to be forgotten, anxiety-producing anger to be denied and forbidden desires avoided.

Psychological and clinical theories, substantiated by evidence from neuroscience and by recent discoveries in brain research, underline the possibility of changing, adapting and exerting a continuous, positive search for personal harmony.

There are different personality types that we are not going to fully examine here; we will briefly underline the following four variants that can more easily be related to postoperative problems: (1) the passive-dependent personality, (2) the obsessive-compulsive, (3) the narcissistic and (4) the paranoid. It is also necessary to pay attention to phobic and depressed patients and to subjects showing disturbed nutritional behaviour [2].

3.1 Passive-Dependent Personality

Passive-dependent persons are compliant; they push their own wishes and aggressive tendencies into the background because it is more comfortable for them to depend on other people. They have dealt with separation- individuation anxieties by finding substitute parents whom they can lean on. If the stress of an operation stirs up childlike fears, the passive-dependent may regress into a clinging, dependent type patient. When a coping mechanism works well, it helps an individual to get what he or she wants; the unfortunate thing about an imbalanced or exaggerated defence mechanism is that it can drive people away. Those caring for passive-dependent patients need to see beyond the exaggerated complaints of the terrified "child" who is expressing them.

3.2 Obsessive-Compulsive Personality

People with the obsessive-compulsive personality type cope with life's stress by keeping things in order. They deal with emotions by pushing them aside, denying that uncomfortable feelings exist or giving intellectual explanations for them. When working well, this personality structure can help its owners both lead productive lives and achieve high goals.

When the obsessive-compulsive order-imposing mechanisms are overloaded with emotions which are too strong, imbalance occurs. It may be impossible to reason with these patients; rather, it may be necessary to prescribe a complex postoperative regimen for the OCD patient, so they can "remain in control".

3.3 Narcissistic Personality

Narcissistic individuals are people with very low self-esteem, who place great importance on their physical appearance because fundamentally they believe that they possess nothing else which is of value. Narcissistic women frequently use seductive behaviour to get what they want; narcissistic men may project hyper-masculinity. For these patients, any surgical operation is a potential source of great anxiety, since it affects their all-important body. The surgeon must demonstrate patience and forbearance. Fortunately, after weeks of worry, the usual result is exaggerated enthusiasm about the outcome.

3.4 Paranoid Personality

Paranoid people manage unacceptable thoughts and feelings by projecting them outward and attributing them to others. It is always the other person who is thoughtless, not to be trusted or potentially hostile. This mechanism works well as long as such people feel in control, but it backfires when they have to depend on someone who is seen as potentially dangerous. Under the normal circumstances of everyday life, such individuals can function effectively, but the paranoid trait may be intensified by the stress of surgery. If the paranoid protective mechanism backfires, it can provoke rage. The surgeon must answer all questions in a firm manner so that the patient feels the surgeon is both competent and authoritative, even if the patient's anger gets out of control.

4 Preoperative Evaluation

Tests exist for a psychological evaluation as well as for a preoperative psychological examination for aesthetic surgical patients, even if often surgeons rely on instinct and on their attitude to evaluate patients. Some patients such as paranoid subjects who hope to catch the surgeon off guard in order to gain control over the "dangerous" adversary can be easily identified. Obsessive-compulsive subjects are determined in that they ask questions intensively, for the mere reason of relieving the anxiety that results from a sense of being out of control; in other situations, personal and familiar features can identify a subject who will probably not be satisfied with the results of aesthetic surgery. Misjudgements can be kept to a minimum if the surgeon shows both the ability to listen and common sense. A few key questions can be useful, as these will illustrate the psychological portrait of the patient by means of the relative answers. These questions are as follows: (1) The reason why the patient requires surgery; a realistic motive is a good starting point. Otherwise, if it proves fancy or indefinite, such as to please someone else, or change one's life or work, this is an inadequate answer. (2) Another topic is anxiety related to the surgical procedure; the surgeon has to check whether the patient is extremely anxious or depressed in relation to his aesthetic imperfection; in this case, it is best to verify the situation before going ahead with surgical planning. (3) Another critical point is the perspective the patient has developed of his own defect. Ill-defined answers such as "I cannot see myself this way anymore" or "I reject my image" or "I want a nice, provocative breast" and so on. All of these are less than acceptable answers. It is important to obtain answers providing evidence of comprehension and realistic expectations of the surgical procedure from the patient. (4) It is important to evaluate the social motivation for surgery, whether the procedure is linked to an individual desire or to interpersonal relations, as conditioning by other subjects proves less positive in determining the surgical choice. (5) The patient's status also has to be considered, together with professional aspects and personal ambitions, as subjects requiring surgery in relation to their work or expecting advantages in the work environment must be carefully evaluated before surgery.

The aesthetic plastic surgeon should make every effort to find out what patients expect from surgery. Accurate patient selection is crucial for avoiding postoperative problems in aesthetic surgery. Anatomical suitability and adequate surgical technique represent the traditional criteria of the surgical indication, to which patient's motivation has to be added. Lack of motivation precludes progression towards surgery. Furthermore, a strongly motivated patient will experience less pain, a better postoperative course and significantly higher index of satisfaction. Cultural beliefs, such as those related to Puritanism, can evoke stigma associated with cosmetic surgery and the same can occur due to the legacy of an excessively strict education, leading to a sense of shame; these conditions can affect the patient's perioperative experience and satisfaction.

5 How to Avoid Medical-Legal Problems

Differences exist regarding this topic between the United States and Europe. In the United States, for a guilty verdict, four components must be present simultaneously: (1) the duty to treat must exist for the surgeon, (2) an injury must be present,

(3) an adverse deviation from the standard of care must be proved and (4) a connection between the deviation and the injury must be proved. To the contrary, in Europe and in Italy in particular, medical malpractice is related to inexperience, imprudence and lack of observance of laws and rules.

Generally speaking, plastic surgery procedures need to be updated or altered in one way or another. This does not mean that surgeons commit malpractice or behave in an imprudent or an inexperienced way. In the field of plastic surgery not all the procedures are strictly codified, but individual adjustments are expected. Yet, a deviation from the standard of medical care is often at the heart of a malpractice action. There must be a clear connection between the deviation and the injury and the surgeon must be proven guilty. Sometimes an injury exists, but there is no causal connection with the surgical procedure. It is also possible that evidence of a detrimental deviation or lack of observance of rules is utilized by the attorneys to push the court towards a guilty verdict. This is the case of a patient requiring bariatric surgery in whom the surgeon elects not to have blood cross-matched; medical malpractice is eventually foreseen, even if the injury has no relation to hypovolemia: evidence of a detrimental variation can be used to prove that the physician was inadequate in preparing the patient for the procedure.

In aesthetic surgery a discrepancy between the surgeon and the patient may be more often observed in relation to the duty to treat and to the indications to operate. In traditional surgery the indication stems from the pathologic condition requiring treatment. In aesthetic surgery the duty to treat is bound only to a request from the patient who is willing to alter his body image. This is the reason why informed consent proves to be crucial; surgeons try in every way to improve it and to include it in the text statements from the patient.

Informed consent is specifically dealt with in the chapter dedicated to medical-legal aspects; it is necessary to underline here that in relation to the informed consent, the important point is not represented by its length or the kind of information given, but rather by the certainty that the subject has fully understood the message. It often happens that a patient criticizes an otherwise perfectly good result because he did not realize the pain, the time and the expenses involved in the surgical procedure in advance or, similarly, had no idea regarding the appearance of the scars or of the limitations connected with surgery. Occasionally, the patient has no knowledge of the surgical plans simply because the surgeon himself has no clear idea of what he is going to perform. Surgical improvisation in the operating room can result in being extremely harmful. The surgeon has to discuss the terms of the procedure meticulously before starting.

Among the worst cases are those in which, even after a properly executed procedure and a good result, the patient is still unsatisfied because he does not accept his new body image. It can happen that the malpractice claim is started for purely economic purposes and looking for damage indemnity, but otherwise the problem is most probably a psychological one and originates from the lack of comprehension of the true motives that force the subject towards surgery on the part of the surgeon. From a theoretical point of view, we can say that a mistake was made in such a case, with the surgeon imprudently rushing the patient into the operating room, omitting the proper evaluation of the psychological aspects of the problem in connection with the procedure. Anatomical indication and surgical expertise are major components of the selection, but they are not enough in performing aesthetic surgery. The surgical indication is mainly linked to motivation, in the absence of which the surgeon can be faced with a failure; it is as if a thoracic surgeon decides to operate on a lung to remove a neoplasm that at surgery, or even worse after the pneumonectomy, actually does not exist.

5.1 Patients at Risk

There is a group of patients who need to be evaluated with particular care before proceeding with surgery. We have tried to explain a few typical situations in order to help identify these subjects, without taking the psychological features of their personalities into account.

The following list is based on everyday clinical experience and collects a few situations likely to expose the surgeon to higher risks of being sued for medical malpractice. A few surgical errors are elucidated, all of them capable of bringing about medical-legal problems.

5.2 Minimal Deformity

When a patient has disproportionate concern for or cannot accurately and concisely state what “the thing is that is bothering him” then the surgeon should ask himself if the alleged deformity is actually the real problem. Seven to fifteen per cent of patients who seek cosmetic surgery suffer from body dysmorphic disorder (BDD) and will experience no improvement in symptoms following surgery, even if the operation has been performed well and the result is excellent. It is important to ascertain the degree of improvement imagined by the patient. The surgeon has a much more realistic image in mind and the two may not coincide.

5.3 Depression

Patients with depressive illness are easy to recognize. Signs and symptoms of depressive illness include sleeplessness, weight loss, lack of concentration, anxiety and psychomotor

retardation (slowed down activity); but it is important to learn more. Is the patient's way of life a reaction to a recent event or is it a chronic condition? Whether to operate or not on patients with situational depression is not clear; if the proposed intervention is one of the ways in which the patient is attempting to rebuild a damaged life, it may prove a suitable solution. Be wary of patients who believe that an operation will cure their depression. These subjects should be referred to a psychologist.

5.4 Life Crises

Patients in the middle of a life crisis such as the loss of a job, loss of a loved one, divorce or termination of psychotherapy should be told frankly that the psychological and physical burdens of an operation will prove too much for them, and that the operation will not resolve the cause of their emotional turmoil. Such patients have to be visited at intervals, until is evident that they are emotionally stable.

5.5 Patients in Psychotherapy

A large proportion of patients in psychotherapy request aesthetic surgery without having discussed the matter with their therapist. Obtaining the approval of the therapist before embarking on surgery is mandatory. Active substance abusers, patients with major depression and schizophrenic patients should never be considered for aesthetic surgery.

5.6 Hostile Patients

It is always useful to draw patients out about their previous medical and surgical experiences. If tales of evil or incompetent doctors are elicited, it is unlikely that the surgeon will satisfy the patient's surgical and psychological needs. A patient's hostility will be amplified due to perioperative psychological stress, and the surgical experience will be an unpleasant one for both the patient and the surgeon. Conversely, if a demanding patient provokes hostility in the surgeon or other personnel, it may be difficult to form a relationship without becoming aggressive towards the patient.

5.7 Communication Difficulties

There is a group of patients who are on an entirely different wavelength from any surgeon; risks simply cannot be explained, nor can any idea of the outcome be conveyed to them. Such patients complain that if they had known there would be a scar, they would never have undergone surgery. Since the common denominator of litigation is not poor results but poor communication, even with properly motivated patients, the physician-patient relationship can be destroyed by the perception that the doctor did not care. Patients have selective hearing. Explanations should be formulated with diagrams, and in clearly understandable terms and using metaphors whenever possible.

5.8 Male Patients

All male patients, particularly men requesting rhinoplasty who are immature or those with a recent concern regarding their nose, should be evaluated with care. Men make up less than 10 % of those seeking aesthetic surgery and many men have serious psychological problems, including sexual identification issues. The surgeon should be aware that recalcitrant dissatisfaction may follow an operation on a male patient. On the other hand, male facelift patients seem more stable and have a much smoother postoperative course than female patients have. Beware of the older patient with a new concern in the appearance of his nose or of the younger patient who fits the acronym SIMON (Single, Male, Immature and Overly Narcissistic). The latter will almost uniformly be unhappy and angry postoperatively.

5.9 Perfectionists

The individual who is perfectionistic about a surgical result will usually be disappointed, since wound healing is not always completely predictable. The individual who comes in with pictures, drawings and exact specifications of what he or she wants has little or no insight regarding the realities of cosmetic surgery. As a rule of thumb, fussy patients should be rejected; they may have body dysmorphic disorder and they may never be satisfied even with the results of an excellent operation (Fig. 1).

5.10 Secretive or Immature Patients

Patients who show a suspicious degree of guilt over a surgical procedure by insisting on the need for secrecy are troublesome. Although age does not have a relationship to maturity in all cases, young patients may have unrealistic expectations regarding surgical results. Studies have shown that undergoing surgery for a romantic partner is associated with a poor outcome. Refuse to perform the surgery if the immediate family is not in agreement or if communication with family members fails. Carefully evaluate the level of maturity in young cosmetic surgery candidates.

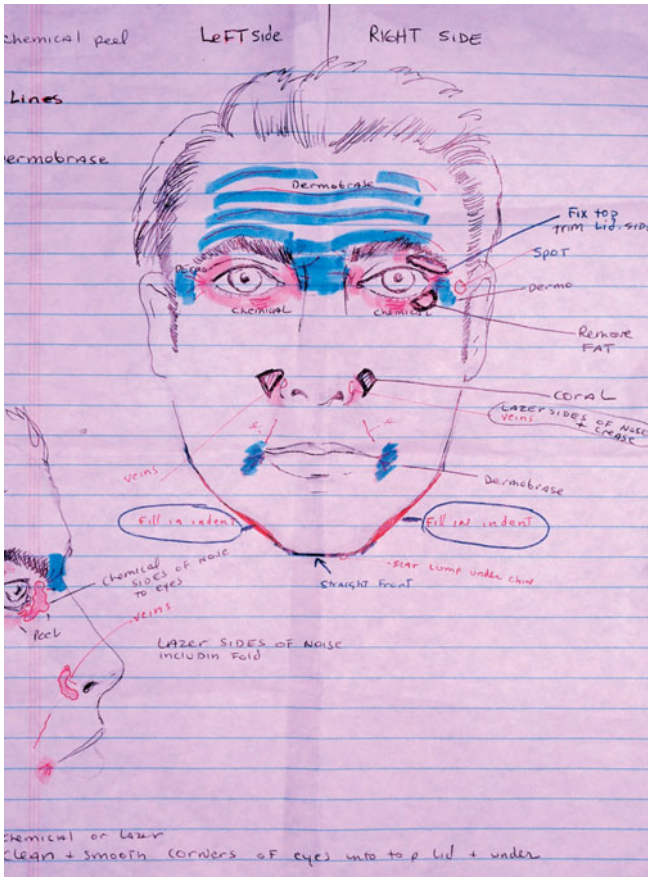


Fig. 1 Drawing by male patient outlining the changes he wanted to his face and what procedures should be done

5.11 Indecisive Patients

The patient who cancels operating dates or who is in obvious conflict about having a surgical procedure should be allowed to bow out. The patient may not even realize that he or she is ambivalent about the proposed operation; they may always return a year or two later. The importance of motivation in relation to the postoperative result is well established. A patient who asks the doctor whether they should have the procedure done should be encouraged to think about it further or not have it done at all.

5.12 "Special" Patients

Patients do better if treated according to the physician's routine that is known and has proven successful. Exceptions for "special" patients may lead to trouble. By complying with a patient's request for a different management routine, the physician can reinforce the patient's misconception of reality. When complications occur, they may be more difficult to accept because the surgical relationship has been distorted. Individuals who make a constant effort to impress the surgeon with their stature or who suggest that a good result will bring many referrals are difficult to satisfy.

5.13 Hidden Desires

There may be a critical discrepancy between what the patient asks for and what he or she really wants. The surgeon may be dealing with high hopes and elevated expectations that even a careful preoperative discussion may fail to detect. Conversely, surgeons are not beyond scrutiny; the decision to operate should be made purely for medical reasons and not for financial considerations or ego. If a procedure requires a skill that the surgeon does not possess, the surgeon should refer the patient elsewhere. Many cases which end in litigation are due to inadequately trained or improperly motivated physicians.

5.14 Improper Planning

Although it is true that poor preoperative or postoperative management can ruin a good operation, a bad operation can only infrequently be transformed into a good one through postoperative attention. When the surgeon carries out the procedure in the operating room, it should not be for the first time, and the operation should have been performed in the mind's eye ahead of time. Without careful thought and technique, it is easy for the minor case to become a major one. Sutures may be revised until the desired result is achieved, because an operation which looks only fair in the O.R. may look worse in the office.

5.15 Payment in Advance

Experience has shown that full payment in advance for cosmetic surgical procedures will make final results look better. Caution should be exercised regarding acceptation of patients and their money for surgery at the first visit. Only after the patient has gone home, thought about what has been said and returned at no additional cost for a second office visit should he or she be allowed to schedule surgery.

5.16 Guaranteeing Results

The aesthetic surgeon who guarantees results may be either inexperienced or dishonest. Careful consideration should be given to showing patient photographs to cosmetic surgery

candidates, which the courts interpret as "expressed warranty". Unless you show pictures of poor and average results along with the good ones, you are essentially saying "This is the kind of work I do; therefore, this is what you can expect".

5.17 The "Iron Surgeon"

The overworked or unhealthy surgeon may do the patient considerable harm. The fact that a patient is the third facelift of the day for an over-committed sleep-deprived surgeon may strengthen the ego but weaken performance and diminish the patient's result. Although inconvenient, patients will usually appreciate the surgeon's admission that he is "too tired" that day to give their best result; there are few second chances in surgical practice.

5.18 Managing the Undesirable Result

If a patient complains legitimately about a postoperative deformity, it deserves a surgeon's full attention and respect. Pretending the problem does not exist or minimizing it will anger the patient and more importantly over time will distort the surgeon's judgement and perception. Eventually that surgeon will accept the unacceptable. The best response is to admit that the patient is correct in his observation and to focus on rectifying the situation if possible.

5.19 Blaming the Patient

Because our egos are involved in our work, an instinctive reaction is to blame the patient, just as the ancient ruler killed the messenger who brought bad news. Patients spend good time and money for their procedures; they may feel angry or ashamed when something goes wrong (particularly if they felt uneasy undergoing surgery in the first place). Increasing a patient's guilt may increase their hostility. The patient wants the security of knowing someone is in control and that someone should be the physician.

5.20 Being Distant or Unavailable

Understandably, surgeons would like to run away from their bad results, but no professional should do that. The best approach is hand-holding via frequent telephone calls and office visits. The patient will feel better knowing that the surgeon is sympathetic and emphatic. There will be less hostility because the patient will not feel abandoned or helpless. For certain patients, the "hot line" should always be open: giving your cell phone number may actually decrease the number of phone calls to the office.

5.21 Failure to Structure a Treatment Plan

Adversity is much harder to bear when there is ambiguity; therefore a treatment plan should be outlined for patients with postoperative complications. Even if the plan involves waiting, it should be clearly communicated with the patient. An outside consultation with a colleague may be useful to reinforce a treatment plan when there is a complication, for example, waiting until a patient's scars have matured before performing revisional surgery.

5.22 Unreasonable Fees

Although an attorney might advise that secondary procedures done by the original surgeon should be charged to the patient, the surgeon should exercise common sense. Should a carpenter who did not perform the work properly charge to fix the problem? Even if the surgeon is not at fault, the patient will feel that he or she is responsible. Anger over revisional surgical fees may bring a lawsuit. Treat the patient, satisfied or dissatisfied, as you would want to be treated.

5.23 Failure to Refer

To get another opinion can be of help for both the surgeon and the patient and it is advisable to communicate to the referring doctor and to the primary physician any complication. A predicament may arise if a patient asks another surgeon to perform revisional surgery. Occasionally, the patient will not want to pay the second surgeon's consultation fee (let alone the surgical fee) because of the original "mistake". In that situation, it is better for the surgeon to offer to pay the consultant's office fee, if applicable.

5.24 Lack of Follow-Up

No operation is over until the patient is discharged from the surgeon's care. The operation is only part of the sequence in the care of aesthetic surgical patient. Most surgeons prefer operating over attending to the postoperative care of their patients; however, a surgeon may learn very little and may wind up with dissatisfied patients unless he or she is willing to follow patients for 1 or 2 years after any aesthetic procedure.

6 A Critical Analysis of the Psychology and Plastic Surgery Relation Literature

Are there "patient types" or forms of psychopathology that serve as contraindication to cosmetic surgery? What is the likelihood of a psychological change following cosmetic surgery? Research has not fully answered these questions and a new direction for psychological investigation focuses on the psychology of appearance and specifically on issues of body image in cosmetic surgery patients.

Individuals pursue cosmetic surgery because they are unhappy with some aspect of their appearance. Patients (and surgeons) implicitly assume that a physical change can lead to positive psychological change; in this regard cosmetic surgery can function in a manner similar to a psychological intervention. As described in the Introduction, formal psychiatric evaluation of cosmetic surgery patients first began to appear in the medical literature in the late 1940s, conducted primarily by psychiatrists working from a psychoanalytic perspective. Within this theory, appearance-related concerns typically were interpreted as symbolic displacements of intra-psychic conflicts. The majority of patients were described as highly neurotic or narcissistic. Postoperative psychiatric outcomes generally were described as positive.

More recent investigations have shed the psychoanalytic orientation, but early studies set the agenda for the majority of subsequent work. Most often, cosmetic patients have been described by the presence or absence of diagnosable psychopathology, which was thought to assist surgeons in screening out severely disturbed individuals. Researchers have used two primary methods to investigate psychopathology among patients: the clinical interview and standardized testing. These approaches have yielded diametrically opposed findings.

6.1 Individual Interview Studies

Although most interview studies are similar in that they report a high degree of psychopathology in prospective patients, they share common methodological shortcomings which raise questions about their validity. In most cases, interviews are not standardized. The nature of the interview was frequently not described and uniform diagnostic criteria as reported in the DSM-IV manual were not applied. The majority of published investigations do not include a control group, making it impossible to determine if the reported level of psychological disturbance was greater than found in the general population or in patients presenting with other surgical problems. Such reports reflect assessors' biases: interviews were not blind to either the nature of the patient population or the purpose of the study. Pre-existing belief or theoretical assumption held by psychodynamically trained interviewers may have affected the questions asked and interpretation of the responses.

6.2 Standardized Assessments

In contrast to the findings from individual clinical interviews, initial studies using standardized testing found prospective patients to be relatively free of psychopathology. Research using standardized tests has shown no psychopathology or only a modest degree, including aesthetic surgery patients using the California Personality Inventory, Brief Symptom Inventory, Eysneck Personality Inventory, Minnesota Multiphasic Personality Inventory, Crown-Crisp Experimental Index and the Beck Depression Inventory.

Surgeons have also been interested in psychological changes following surgery, but there have been few such studies. Interview-based individual studies have produced inconsistent findings: early investigations reported transient anxiety or depression vs. decreases in psychopathology. Only a few postoperative investigations used standardized testing, showing no postoperative change in psychological symptoms vs. improvement in anxiety, depression or obsessiveness.

Therefore, literature reports of rampant preoperative psychological disturbances in cosmetic surgery patients are at odds with standardized testing as well as with the experiences of practicing plastic surgeons. To conclude that individuals requesting cosmetic surgery are no different from the general population, as suggested by the results of standardized testing, does not make intuitive sense.

6.3 Body Image Research

The pursuit of cosmetic surgery demonstrates an interest in the focus on physical appearance. Research has consistently demonstrated the importance of physical appearance and preferential treatment in virtually every situation examined to date. In society, appearance matters, and cosmetic surgery patients may receive a greater deal of their self-esteem from their appearance. Body image is seen as a multifaceted construct encompassing thoughts, behaviours and feelings involving the body and is thought to be critical to our understanding of the psychology of cosmetic surgery. Body image dissatisfaction is widespread, with recent surveys suggesting that a majority of Americans are dissatisfied with their appearance, referred to as a "normative discontent". Dissatisfaction merges into psychopathology as thoughts about the appearance take on greater significance and behaviour is significantly affected by the concerns. At its most extreme, body image disturbances are found in DSM-IV: body dysmorphic

disorder (BDD) is defined as preoccupation with the defect in appearance that is either imagined or, if slight, leads to markedly excessive concern. Perceptual inaccuracy is part of the defining criteria, as are extreme negative value judgements of the appearance and obsessive preoccupation with the body feature. Most patients engage in repetitive behaviours, including checking, examining or "camouflaging" the offending appearance feature. The most common areas of the body for concern are the skin, fatty areas and the nose. Clinically and experimentally, it has been estimated that 7–15 % of cosmetic surgery patients have body dysmorphic disorder. The characteristics of patients with body dysmorphic disorder who seek cosmetic surgery may include patients with the "minimal deformity" or the "insatiable" cosmetic surgery patient. Patients with BDD may have no improvement or a worsening of symptoms following plastic surgery or may go on to focus on a new appearance features. The most appropriate treatment is psychiatric [4].

Measurement techniques now exist to explore the degree of body image dissatisfaction in cosmetic surgery patients, including the Multidimensional Body-Self Relations Questionnaire, the Body Dysmorphic Questionnaire and the Modified Yale-Brown Obsessive-Compulsive Scale. These measures can be used preoperatively to screen patients with potentially excessive or unrealistic body image concerns who may be inappropriate for surgery (BDD), and can also be used to assess changes in body image postoperatively.

Although historically patients in plastic surgery have been categorized into distinct psychological diagnostic categories, a revolution is currently underway in the field of psychiatry. Recently, it has been recognized that there is a continuum of different personality disorders and psychiatric diagnoses. More often than not, a given psychiatric patient will have manifestations of many different conditions in the DSM-IV-R. Along with this, there has been the recognition that many of these conditions have a strong genetic (rather than environmental) basis. There are several new classes of drugs which can successfully treat conditions that were formally treated by psychotherapy. It is likely that the diagnostic criteria of the new DSM manuals will be dramatically different and will change the way that we think about patient types in plastic surgery.

7 Critical Evaluation of a Case Study: The Murder of a Plastic Surgeon by a Dissatisfied Patient

This case study is meant to draw attention to the need for a thorough and thoughtful personality profile of each patient and, when in doubt, requesting the help of a psychologist. Despite the stature that Dr. Vazquez Anon had achieved in the field of aesthetic surgery in Madrid, Spain, he was murdered by a disgruntled patient along with two of his nurses in March 1977 [3]. In an interview published on the occasion of his death, Dr. Anon had said that he was considering abandoning the field of aesthetic surgery to pursue reconstructive patients, stating that "the majority of persons who requested an aesthetic surgical operation needed a psychiatrist rather than an aesthetic surgeon". A lesson can be learned from the details leading up to the murder, which was compiled by Dr. Ulrich Hinderer from Dr. Anon's office chart and from the patient's primary care doctor's chart.

The patient was a bachelor aged 45 with a strong family history of sociopathic and aggressive behaviour. The patient's father and two uncles were killed during the Spanish Civil War; the patient's sister had two mentally retarded children; a first cousin married a 16 year old girl and committed suicide, then another first cousin shot a neighbour whom he thought responsible for the cousin's death. A third cousin murdered his wife and the patient's uncle shot a business rival with a gun. The patient said that he had never married because of his nose and indicated that there was a woman he loved who would agree to marry him if the appearance of his nose could be improved. Although the murderer belonged to a family of wealthy landowners, his intellectual level was below average. In his village the patient's family was called "the big noses" which contributed to the patient's decision to request aesthetic surgery. The patient was known to be avaricious and reclusive. He had few friends, preferring inexpensive prostitutes.

According to Dr. Anon's records, the patient sought help because he desired a smaller nose and improved breathing. Examination revealed a large nose with a marked hump, a dropped tip, a rightward shift of the nasal dorsum and a leftward deviated septum. Dr. Anon noted in the chart that the patient seemed to be a disturbed patient isolated from society, due to feelings regarding his physical deformity, but Dr. Anon did not request a psychologist's referral. After surgery, the people in his village still referred to the patient as "big nose" and made remarks regarding the surgical procedure, which made the patient upset.

The patient sought a revisional operation although the result from the first operation would be considered good. The patient insisted on being re-examined a second time by Dr. Anon before the second operation, but was prevented by his nurses, who mocked the patient as "a clumsy villager". Finally, the patient was granted another appointment.

Examination before the second procedure revealed a nose which deviated slightly to the left, with a left-sided protrusion of the base of the columella due to the nasal spine. In the chart Dr. Anon referred to the "unjustified psychological stress of the patient". The result of the secondary procedure was considered satisfactory by Dr. Anon, who refused to see the patient again after the routine 1-week postoperative

check. Several months later, on the morning of the murders, the patient wanted to see Dr. Anon. First, he gave a false identity, and then was caught loitering around the operating room, trying to force the entry. Although Dr. Anon's clinic staff had not informed the doctor that the patient had already tried to see him during the morning and had tried to break into the operating room, they finally allowed him into Dr. Anon's office, where he promptly committed the murders. After escaping to his car, the patient crashed while driving at high speed and died of internal injuries.

In summary, Dr. Anon's assassin was a social outcast with paranoid tendencies and an alarming family history undergoing a high-risk procedure. Although the surgeon documented many "red flags" preoperatively, he failed to take action. Despite a good result, the patient's care was handled poorly by the physician and his staff. This patient's frustrations increased, intensifying his aggression, which was finally directed against the medical team.

On a practical level, refusal to see a dissatisfied patient is a very serious mistake. A plastic surgeon has probably never lived who enjoyed seeing dissatisfied patients. This reaction should be overcome, and these patients should be seen frequently. The case of Dr. Anon also points out the dangers of an overprotective staff.

Dr. Hinderer felt that the mistake in this case was not failing "to request a deeper psychological study" but in operating on the patient at all. Any aesthetic plastic surgeon should be able to recognize psychopathology as grave as that exhibited by Dr. Vazquez Anon's patient.

References

1. Goin JM, Goin MK (1981) Changing the body: psychological effects of plastic surgery. Williams & Wilkins, Baltimore
2. Goldwyn RM (1991) The patient and the plastic surgeon, 2nd edn. Little, Brown & Co, Boston
3. Hindererer UT (1978) Dr. Vazquez Anon's last lesson. Aesthetic Plast Surg 2:375–382
4. Sarwer DB, Pertschuk MJ, Wadden TA et al (2006) Psychological aspects of reconstructive and cosmetic plastic surgery. Lippincott Williams & Wilkins, Philadelphia