

A Guide to Aesthetic Medicine and Cosmetic Surgery

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Edited by

Sky Tin Hau Wong and Tingsong Lim

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PREFACE

This book is an interdisciplinary and global project intended to provide concise but comprehensive and essential information for the aesthetic medicine and cosmetic surgery fields. The book not only provides knowledge to the industry but also defines new technologies, draws conclusions regarding traditional therapies and sets up a new consensus for the field. The chapters have been contributed to by experienced and renowned doctors and professionals across the world, from the Asia Pacific areas to Europe and the USA. Without their extraordinary efforts, this project would never have been possible. I would like to express my deepest thanks and sincere gratitude to them. Last but not least, I hope everyone can enjoy this book.

—Dr Sky Tin Hau Wong

First and foremost, I would like to congratulate and express my gratitude to the team which has made this textbook a reality and a success. Kudos to Dr Sky Wong who has dedicated himself to making this whole thing possible. Aesthetic medicine and cosmetic surgery are relatively new fields in medicine, encompassing solutions for better skin quality, reversing the signs of ageing, improving psycho-social well-being as well as elevating the quality of life. There is a massive amount of wisdom and knowledge that could be passed down via this textbook, but we know there is a limit to how much we could deliver at this point in time. I do hope everybody can enjoy this book as much as I did, and acquire new knowledge as well as be inspired by the multiple authors of this book.

—Dr Ting Song Lim

CIRCLE OF FRIENDS

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Dr Chan is a Researcher, Author, Educator and Entrepreneur in the specialised fields of Biotechnology Research & Development of Stem Cells and Peptide Therapeutics and Biological & Regenerative Medicine for multiple corporations globally. He is in charge of various academies and restorative centres in Europe and the Asia Pacific, including Switzerland, Germany, Greece, China, Hong Kong, Malaysia, Thailand, Philippines, Mexico, Vietnam, Cambodia, Laos, and Bangladesh. He is an author/co-author of over 20 scientific books on Stem Cells (including for animals), Aging, Neurodegenerative & Neurodevelopment Disorders, Metabolic Diseases, Biological & Regenerative Medicine and over 50 scientific and medical publications in the USA and UK. He also receives multiple international awards for Biotechnology in Europe and the Middle East. He also holds numerous international patents worldwide for a number of biopharmaceuticals, including stem cells, peptides, autoimmune therapies and parenteral nutrition.

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Daniel P. Friedmann, MD, FAAD is a board-certified, fellowship-trained dermatologist at Westlake Dermatology & Cosmetic Surgery, US and Clinical Research Director and founder of the Westlake Dermatology Clinical Research Centre. Dr Friedmann completed his dermatology residency at the East Carolina University Brody School of Medicine Division of Dermatology in North Carolina, US and served as a co-chief resident during his final year. Dr Friedmann subsequently completed a dermatologic cosmetic surgery fellowship sponsored by the American Academy of Cosmetic Surgery at Cosmetic Laser Dermatology in San Diego, California, US. Dr Friedmann was born in Montevideo, Uruguay and speaks fluent Spanish. He has a number of varied interests, including travelling, basketball, classic movies and computer assembly.

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Dr Jeffrey TS Hsu, M.D., FAAD, is a fellowship-trained, board-certified dermatologist with expertise in neurotoxins, laser surgery, skin cancer surgery, liposuction, fillers and scar revision. Dr Hsu specialises in minimally invasive techniques for facial and body rejuvenation. Dr Hsu graduated with distinction from Stanford University, US then received his medical degree from UCLA, followed by a residency in dermatology at the Mayo Clinic, US. He pursued further training through a laser and cosmetic surgery fellowship under the direction of the faculty from Harvard University and Yale University, US. Dr Hsu is passionately involved in teaching and academic pursuits. He is an internationally recognised expert in dermatologic and cosmetic surgery and is frequently invited to teach other physicians in Asia, Australia and Europe while continuing to care for his patients at home. He has already co-authored several widely used textbooks. He is the author of numerous scientific publications in leading dermatology journals and is regularly invited to present his newest techniques and his latest scientific discoveries at national and international conferences. Dr Hsu is a clinical assistant professor at the University of Illinois, US. Dr Hsu is the co-founder and co-director of Oak Dermatology, based in Chicago, IL, US.

Dr Patrick PH Huang

Dr Patrick Huang, MD, was appointed as the chair of the Department of Dermatology at Chang Gung Memorial Hospital-Kaohsiung, Taiwan, in 2002. During his term, he established the aesthetic dermatology service in 2003. Dr Huang has been serving as an executive director of the Taiwanese Dermatologic Association since 2012. He established the Taiwanese Dermatology Aesthetic Conference to serve Asian dermatologists and

aesthetic practitioners in 2013. He was invited to organise IMCAS Asia in 2014 and continues to do so. Dr Huang founded the Taiwan Society for Dermatologic and Aesthetic Surgery in 2016. In 2017 he revised the dermatology residency training programme in Taiwan with more intense training in skin surgery and aesthetic dermatology. This is the main reason why the Residency Review Committee of the Ministry of Education of Taiwan recategorised the dermatology speciality from internal medicine to surgery afterwards. He was approved as a mentor/ host of the International Traveling Mentorship Program of the American Society for Dermatologic Surgery in 2018. Dr Huang was hailed as one of the pioneers in expanding the roles of dermatologists in Asia. During COVID-19, he established the Cyber Conference of Aesthetic Dermatology and Skin Surgery in APAC (CyASIA) to provide interactive webinars that meet the demands of regional practitioners.

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Dr Law is an Australian-trained general practitioner with a passion for skin health, and functional and lifestyle medicine. She takes a holistic approach by addressing the root causes of many chronic diseases and skin conditions that are attributable to lifestyle changes. She is board-certified in anti-ageing and regenerative medicine and has completed a fellowship in anti-ageing, metabolic and functional medicine. With many aesthetic goals, optimal internal and external health is complementary and provides many benefits such as better wound healing, skin regeneration and protection against oxidative stress. Based in Hong Kong, in private practice, Dr Law collaborates with health coaches, nutritionists and complementary health

professionals by taking a person-centred approach to transforming the way individuals approach their aesthetic goals.

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Dr Ting Song Lim (Editor)

As the author of *Facial Overfilled Syndrome*, Dr Ting Song Lim has been known internationally for moving the industry toward a safer and more natural approach to medical aesthetics. A frequent speaker regionally and internationally, Dr Lim is a key opinion leader in Asian facial and body aesthetics, the clinical application of filler rheology, pigmentary disorders, laser medicine and regenerative medicine. Graduating from Tohoku University School of Medicine under the Monbusho Scholarship, Dr Lim speaks four languages (English, Mandarin, Bahasa Malaysia and Japanese) fluently. He is also actively involved in many Global Advisory Board meetings, steering trends in the industry.

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Dr Sky Tin Hau Wong (Editor)

Dr Wong graduated from the Medical Faculty of the University of Hong Kong. As a general practitioner having a great interest in aesthetic medicine, he then pursued his postgraduate master's degree and training in the UK, Europe, Korea, the USA, Singapore and Taiwan for related practical dermatology and aesthetic surgical techniques and technologies. He also gained his membership diploma from the Royal College of Surgeons in Edinburgh. Dr Wong is the keynote speaker at various worldwide conferences and a trainer of various energy machines, injectables and minimally invasive procedures. He is now a visiting lecturer and course director for a number of tertiary institutes. He has been appointed as the director and chief doctor of various medical groups, including the Leciel Medical Centre and the Medaes Medical Clinic in Hong Kong, China.

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THANKS TO THE EDITORIAL TEAM

I would like to take this opportunity to thank our editing team for their professional and unlimited support. *Ms Sarah Choong-yee Chai*, the medical proofreader, devoted so much time and energy looking into every single word, reference and detail day and night to make sure the content and format were right. She had been the medical proofreader of other books, but this book, with more than 41 contributors from 13 countries and 190,000 words, must have been the most challenging part of her proofreading life. *Ms Gisele Gwee*, the graphic designer, is a professional illustration planner who meticulously drew and managed more than 100 graphics and figures in great and accurate detail for this book and took the trouble to finely adjust the small details. *Ms Rinky Chung* and *Ms Katrina Lee*, the supporting graphic designers, also contributed to making the illustrations perfect. My sincere gratitude also goes to *Ms Elanor Harris* for her professional proofreading service. Last but not least, I would like to thank *Ms Rebecca Gladders*, *Ms Amanda Millar* and *Ms Courtney Dixon* of Cambridge Scholars Publishing for their patient advice and guidance. The book is made possible because of our circle of friends and our fantastic editing team.

—Dr Sky Tin Hau Wong

CHAPTER ONE

THE HISTORY OF AESTHETIC MEDICINE AND SURGERY

DR R GLEN CALDERHEAD, THE UNITED KINGDOM

Introduction

Aesthetic surgery is part and parcel of our everyday modern life. The need to look good is all-pervasive, whether it is to feel good in oneself, to look good for one's prospective partner or colleagues, or as the final touch as part of our 'visual' *curriculum vitae* when applying for a position. The field of aesthetic medicine and surgery is actually extremely complex and encompasses different specialities. In this chapter, we hope to take you on a journey which will start with the etymological roots of the word 'aesthetic'. We will next explore the history of the field itself from crude corrective surgery by the Ancients to not-so-ancient, and trace the first stirrings in Europe and elsewhere of the modern-day concept of aesthetic surgery (meaning surgery to look more beautiful, or at least to look better). We will touch on the tragic but vital importance of the significant learning curve of the art enforced on clinicians by those wounded in conflicts, in particular World War I. Finally, we will come to the present day, when aesthetic medicine and surgery have become an enormous patient-driven industry embodying the entire gamut of approaches from totally non-invasive treatments to frank surgical interventions and all the many steps in between.

Etymological Roots

It is always interesting to study the etymology of words we take for granted today but do not know their real meaning, and the word 'aesthetic' is a good case in point.

Classical Greeks to the Renaissance

In the classical sense, ‘aesthetics’ is the philosophical science that deals with the conditions of sensuous perception (Oxford English Dictionary). Where did this word come from? The Ancient Greeks combined the sense of two words, namely αἰσθῆσθαι (*aisthēsthai*, meaning ‘to perceive [by the senses, by the mind], to feel’) with αἰσθητά (*aisthēta*, meaning ‘perceptible things’) to obtain αἰσθητικός (*aisthētikós*, meaning ‘of or for perception by the senses; perception [of things]’), which was in use by the 5th century BCE. In the dark ages and mediaeval times, all of this philosophy was lost. However, interest was rekindled during the Renaissance period in the fourteenth and fifteenth centuries, when, to borrow from the Greek philosopher Protagoras, the central theme of “Man is the measure of all things” became the driving force behind artists and intellectuals, leading to an explosion of creativity in the Fine Arts with myriad objects of beauty being sculpted, painted and carved. But, as always, mankind likes to complicate simple things, and arguments arose amongst philosophers as to *how* we should appreciate these treasures.

German Aesthetic Conflict: The Objective vs Subjective Perception

In more modern times, *Ästhetisch* (aesthetics) developed in Germany as a philosophy, or as parallel philosophies, from the early 18 century, with arguments about how we should ‘perceive’ beautiful things—taking us back to the fifth-century *aisthētikós*. The concept of ‘aesthetics’ was popularised in the English language through translations of the writings of the 18th-century German philosopher, Immanuel Kant. In his essay *Critique of Judgement*, Kant looked at *Ästhetisch* from a purely philosophical standpoint and held that our feelings about beauty differed from our feelings about pleasure and moral goodness in that they were ‘disinterested’, i.e., purely objective¹. Beauty should therefore be perceived objectively. This somewhat cold approach was challenged by Alexander Baumgarten, another 18th-century. German philosopher developed his concept of aesthetics to mean the study of good and bad ‘taste’, in, for example, good and bad art and for the first time, subjective good taste was linked with beauty¹. This tenet freed ‘aesthetics’ from pure philosophy and brought the subjective feelings of the observer into play. Baumgarten’s concept gained strong momentum in France (*Esthétique*) and thence to the UK in the mid-to-late 18th century and continued into the 19th.

“L’Art Pour L’Art”

Walter Pater, an English author, philosopher and poet, took us to another stage further. He used the term ‘aesthetics’ to describe the late 18th-century movement which developed Baumgarten’s idea even further, and moreover advocated “art for art’s sake,” translated from the French “*L’art pour l’art*” coined in the early 19th century. by the French philosopher Victor Cousin. Just as a side note, the reader may well recognise the Latin version of this phrase, *Ars Gratia Artis* as the motto surrounding Leo the Lion in the trademark of the enormous Metro-Goldwyn-Mayer Film Studios ... a different art form entirely! The concept of “art for art’s sake” succeeded in further blurring the lines between pure philosophical musings and personal subjective perception of beauty. Pater’s idea of true beauty was that beauty can, or should, only be defined specifically and personally and that the viewer should come to an individual understanding influenced by their specific situation and viewpoint. This evolution of the aesthetic nuance from objective to subjective is echoed in the gradual change in meaning from the 18th century, to the 19th century, of the word ‘aesthetic’ used as an adjective: “of or pertaining to (objective) sensual perception” in the more classical sense of the word in the mid-18th century. to “of or pertaining to a (subjective) appreciation of the beautiful” in the mid-19th century.

The reader can see that this change from objective philosophy to subjective appreciation is echoed in the well-known aphorism; “Beauty is in the eye of the beholder”. The first person to use these words was the 19th-century Irish author, Margaret Wolfe Hungerford. She penned this phrase in her book *Molly Bawn* (1878). It clearly suggests that beauty is subjective, whether “the beholder” is looking at themselves in a mirror, or is ‘beholding’ a third party.

From this historical and etymological perspective, the reader can therefore picture how, over time, from the Ancient Greeks through the Renaissance and the 17th century to the 20th century, the meaning and concept of ‘aesthetic’ became much nearer to our current concept. However, how do we link ‘aesthetic’ to ‘medicine’? Well, we can look at the very thing which aesthetics was developed to appreciate, namely ‘art’. From the Renaissance through the mid-19th century, the concept of the word ‘art’ was embodied in *Les Beaux Arts* (The Fine Arts). However, there is another very important ‘art’ that also developed in parallel with the Fine Arts during these historical times: let us not forget that the ‘practice of medicine’ is more properly and originally referred to *ars medicinae*. *The Art of Medicine* (originally a compilation of medical texts of Greek and Arabic origin), and this melding of the meaning of the word ‘art’ takes us closer and closer to

‘aesthetic’ as in ‘aesthetic medicine and cosmetic surgery,’ the central theme of this chapter.

The Evolution of Aesthetic Medicine and Surgery

Ancient Times

It could be said that plastic surgery has its roots in Ancient Egypt, over 5,000 years ago. Considering the anatomy of the nose, for example, the presence of the paranasal sinus is documented in Ancient Egyptian texts, whereby the brain was described as being removed through the ethmoid sinuses with instruments as part of the process of mummification. Furthermore, the Edwin Smith Papyrus (3000 to 2500 BCE, named after the American archaeologist who discovered it) describes rhinoplasty as a reconstructive operation for repairing a nasal defect as a result of punishment for a crime, trauma or disease, but not on the living!² It was performed on the dead before embalming and mummification (Figure 1-1). Mummification dried the body in such a way that the face often folded in on itself and became unrecognisable.



Figure 1-1. A portion of an Ancient Egyptian frieze from 4000 BCE depicting surgery being performed on the nose.

Ramesses II, also known as Ramesses the Great (1304-1214 BCE), was known for his elongated nose, so to make sure everyone would know him in the afterlife, bits of bone and seeds were surgically inserted under the skin of his nose after the desiccation stage of mummification, to restore and exaggerate its original shape³ (Figure 1-2).



Figure 1-2. Profile of the head of Ramesses II, showing how his nose maintained its distinctive shape even after the effects of mummification owing to the insertion of seeds and portions of bone after death. (Catalogue General Antiquites Égyptiennes du Musée du Caire; The Royal Mummies. G. Elliot Smith, 1912)

Greece and Rome

Coming a little bit nearer to modern times, it is known that the ancient Greeks and Romans also performed some reconstructive surgery. In Roman times, the procedures were minor, such as repairing damaged noses and ears, and a little bit more complex procedures like scar revision for wounded soldiers. Wounds on a soldier, while sometimes a badge of honour, could also be stigmatic as a sign of having been wounded while retreating. Other stigmata included branding slaves who had become free men. Removing brands was expensive but popular as it reduced the stigma of having been a slave. Some women in the upper classes underwent ear surgery, otoplasty,

because the heavy earrings that were very much in vogue tended to stretch their earlobes⁴.

Into the First Millennium

Once again, Rome and Greece gave us significant contributions to the understanding of medicine and surgery. The major Roman contribution came from the first century, with Aulus Cornelius Celsus who compiled a multi-chapter book called *De Medicina* (Concerning medicine), in which descriptions can be found of the reconstructive surgery of a man's face and a primitive nose job. *De Medicina* covered a vast range of medical topics encompassing pharmacy, surgery and even diet and is one of the best windows into Roman medical knowledge, especially dermatology⁵. His name can be found in some dermatological medical terms. It was Celsus who translated the Greek word *καρκίνος* (*karkinos*, meaning 'crab') referring to malignant tumours, into 'cancer'. *De Medicina* was so important that it served as a primary medical source for more than 1700 years⁶.

In Greece in the 2nd century, the name of the physician Aelius Galenus (Galen of Pergamon) stands out. ["Galen": entry in Collins English Dictionary.] Born in what is now Turkey to wealthy Greek parents, Galen travelled throughout a lot of the Roman Empire, learning many aspects of medical discoveries and theory. This extensive theoretical and practical radical knowledge gained him the position of personal physician to several Roman emperors. He is reckoned to be one of the best-learned researchers of ancient times with a true multidisciplinary background. Galen was a skilful surgeon, operating on the brain and the eye, and after he died many of his procedures, including cataract surgery, would not be seen again for several centuries. He was a prolific publisher, with his surviving works accounting for more than 50% of the ancient Greek literature of the time.

Indian Contribution

Back again in time, let's travel from Europe to Asia. During the 6th century. BCE, an Indian physician named Sushruta—widely regarded in India as the 'father of surgery'—(or more likely a group of surgeons), wrote one of the world's earliest works on medicine and surgery, the *Sushruta Samhita*. The *Samhita* documented the aetiology of more than 1100 diseases, the use of hundreds of medicinal plants, and instructions for performing scores of surgical procedures—including three types of skin grafts and reconstruction of the nose⁷ (Figure 1-3).



Figure 1-3. Statue to the memory of the Indian Father of Surgery, Sushruta.

The procedure was described as follows; “The portion of the nose to be covered should be first measured with a leaf. Then, a piece of skin of the required size should be dissected from the living skin of the forehead and turned back to cover the nose, keeping a small pedicle attached to the forehead. The physician should then place the skin on the nose and stitch the two parts, keeping the skin properly elevated, by inserting two tubes of the Castor oil plant in the position of the nostrils, so that the new nose has a proper shape.” Additionally, the surgical instruments listed show a striking resemblance to those we can find in aesthetic surgery today (Figure 1-4).

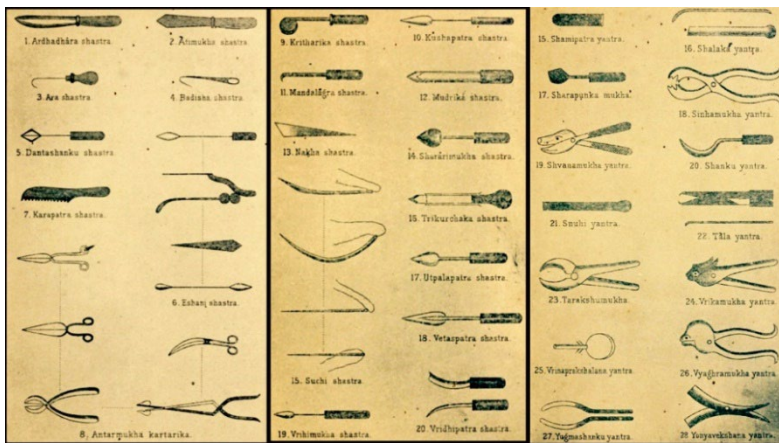


Figure 1-4. Illustrations from Sushruta's Samhita depict a selection of the surgical instruments being used in the 6th century BCE. Many are still recognisable in today's operating theatres and aesthetic cosmetic clinics.

British Contribution

Now our time machine will take a big leap forwards! Although somewhat forgotten during the Dark Ages, Sushruta's rhinoplasty technique was rediscovered in the 18th century, when post-Renaissance European surgeons travelled to India to study 'The Indian Technique', and a report appeared in a letter to the editor of the *Gentleman's Magazine* (London, 1794). The reconstruction of the nose of an Indian gentleman named Cowasjee was described. Cowasjee's nose had been mutilated as punishment for working for the British (Figure 1-5).

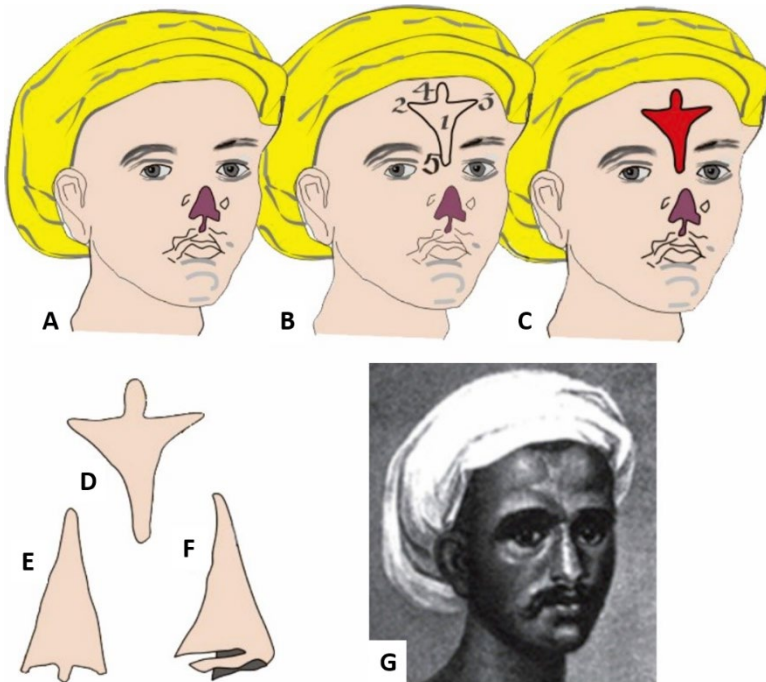


Figure 1-5. Schematic based on Sushruta's technique for rhinoplasty, "The Indian Technique". (A) Baseline, showing the defect; (B) The flap is outlined on the forehead, using a leaf as a guide; (C, D) The flap is raised. Note that the pedicle P is left connected to the forehead; (E, F) The flap is flipped over and shaped. Plugs made from the castor oil plant were inserted to maintain the appearance of nostrils and shape the nose; (G) A plate illustration (stipple engraving based on a portrait of the patient 10 months postop) published in *The Gentleman's Magazine* of 1794 showing the final result. The forehead scar is visible, but cosmesis is acceptable. See the text for details of the patient.