RHINOPLASTIC SURGERY

Walter E. Berman

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Walter E. Berman, M.D.
Clinical Professor of Head and Neck Surgery,
Director of Facial Plastic Surgery,
University of California, Los Angeles,
Los Angeles, California
President, Beverly Hills Wilshire-Beverly Surgi-Center,
Beverly Hills, California,
Past President, American Academy of Facial Plastic and Reconstructive Surgery,
Past President, American Academy of Cosmetic Surgery

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Contributors

Jack R. Anderson, M.D.
Clinical Professor,
Departments of Otolaryngology, Head and Neck Surgery and Ophthalmology,
Louisiana State University Medical School,
Clinical Professor,
Department of Otolaryngology, Head and Neck Surgery,
Tulane University Medical School,
New Orleans, Louisiana

W. Douglas Appling, M.D., F.A.C.S.
Assistant Professor,
Department of Otorhinolaryngology and Communicative Sciences,
Baylor College of Medicine,
Houston, Texas

David A. Behrman, D.M.D.
Associate Attending Oral and Maxillofacial Surgeon,
Assistant Professor of Surgery, Oral and Maxillofacial Surgery, Department of Surgery,
Division of Dentistry, Oral and Maxillofacial Surgery,
The New York Hospital–Cornell Medical College,
New York, New York

Stanley J. Behrman, D.M.D.
Attending Oral and Maxillofacial Surgeon-in-Charge,
Clinical Professor, Oral and Maxillofacial Surgery,
Department of Surgery,
Division of Dentistry, Oral and Maxillofacial Surgery,
The New York Hospital–Cornell Medical College,
New York, New York

Louis O. Boileau, M.D., F.R.C.S. (C)
Consulting Plastic and Reconstructive Surgeon,
Department of Surgery,
Vancouver, British Columbia, Canada

Nabil S. Fuleihan, M.D.
Assistant Professor,
Department of Otolaryngology,
Boston University School of Medicine,
Boston, Massachusetts

Usama S. Hamdan, M.D.
Clinical Instructor,
Department of Otolaryngology,
Boston University,
Boston, Massachusetts

Rodolphe Meyer, M.D.
Postgraduate Professor ISAPS (IPRS),
Former Associate Professor,
Department of ENT and Plastic, Reconstructive and Aesthetic Surgery,
University Clinic,
Lausanne, Switzerland

Nathan E. Nachlas, M.D.
Clinical Instructor,
Department of Otolaryngology/Head and Neck Surgery,
University of Miami, Private Practice,
Boca Raton, Florida

Milton Perlow, M.D.
Medical Director,
Chief, Department of Anesthesia,
Beverly Hills Wilshire Surgi-Center & Medical Group, Inc.,
Beverly Hills, California

Dominique M. Rheims, M.D.
Department of ENT Facial Plastic and Reconstructive Surgery,
Hospital Robert Debre,
Paris VII University, Paris, France

Howard W. Smith, M.D.
Clinical Professor of Surgery,
Department of Otolaryngology,
Yale University,
New Haven, Connecticut

Richard C. Smith, M.D.
Research Director,
Plastic, Aesthetic, and Cosmetic Surgery, P.C.,
Brookline, Massachusetts

Robert A. Stern, M.D.
Lecturer, Department of Head and Neck Surgery,
University of California at Los Angeles,
Los Angeles, California

Claus Walter, M.D.
Professor, Department of Hals-Nasen-
Ohrenklinik, Univrsitat Bonn,
Bonn, West Germany,
Head of Department,
Abteilung fur plastische Chirurgie und
Hals-Nasen-Ohrenkrankheiten,
Klinik am Rosenberg,
Heiden, Switzerland

Richard C. Webster, M.D.
Professor, Department of Otolaryngology,
Boston University School of Medicine,
Boston, Massachusetts

Mary Ruth Wright, Ph.D.
Clinical Assistant Professor of Psychology,
Department of Otorhinolaryngology and
Communicative Sciences,
Baylor College of Medicine,
Houston, Texas

William K. Wright, M.D., F.A.C.S.
Clinical Professor, Department of
Otorhinolaryngology and Communicative Sciences,
Baylor College of Medicine,
Houston, Texas,
Clinical Professor, Department of Otolaryngology,
Head and Neck Surgery,
University of Texas Medical School
Houston, Texas

Foreword

It is an important event when a master surgeon directs his energies to the writing of a book on a subject that has involved the major portion of his professional life. This book is a splendid reward to us of the efforts of Dr. Walter Berman and his collaborators in presenting the essence of their experience in a well structured and practical text that not only fulfills the academic and scientific aspects of the subject, but richly fills their enterprise with an illumination of experience and wisdom.

Dr. Berman has been recognized for years as a leading plastic surgeon in the world. His stature is measured by his accomplishments, his character, and his style. He is identified by all as a surgeon who has something worthwhile to say, and now we have the verification of this truth in this publication.

This book has a definite approach and orientation to the condition of rhinoplasty. It begins with the basic positions of primary and secondary rhinoplasty in a way that will enhance surgical expertise and create a feeling of security in dealing with revisions and complications.

The art of photographic documentation and esthetic competence and the management of nasal abnormalities that are associated with cleft lips, craniofacial deformities, and septal perforations are approached in a practical and realistic manner that links those situations with the rhinoplasty concept and also suggests rational principles to manage these related problems. This book concludes with a review of the psychological principles that motivate individuals to opt for rhinoplasty; the review includes warnings, precautions, and suggestions to render this procedure as effective and humane as possible.

John Conley, M.D.

Preface

Nasal surgery, certainly a most rewarding and gratifying experience, is also beset with frustrations. The best planning, meticulous surgery, and careful postoperative care do not guarantee a perfect result. The vagaries of tissue healing, condition of the tissues preoperatively and postoperatively, postoperative care, and the surgeon's skill all influence the outcome. The final result may not be known for several years, and it depends primarily on the thickness of the nasal tip skin and the factors affecting nasal tip projection.

The purpose of this text is to provide an in-depth discussion of rhinoplasty procedures. I have purposely included various points of view in an effort to present multiple pathways to the same end. A knowledge of multiple techniques will result in a more thorough understanding of nasal surgery.

In this book we will discuss why certain results are achieved, the anatomical reasons for postoperative imperfections, preoperative and postoperative care of the patient, as well as adjunctive nasal care. Rhinoplastic surgery should not be a static procedure, but rather an evolutionary process that I trust can be built upon the basic facts that are presented in this book.

I have been fortunate in that *Rhinoplastic Surgery* has as co-authors an outstanding cast of internationally respected rhinoplastic surgeons. To this I have added my own views. Together this accounts for almost two hundred years of experience with thousands of patients.

In our ever-changing field, there are still basic rules that must be followed. I hope that this text will be both pragmatic and provocative as a framework for rhinoplastic surgery and care of our patients.

I would like to thank my wife, Dee, my colleague, Robert Stern, M.D., our editor, Eugenia A. Klein, and Assistant Editor, Barbara S. Menczer, and the contributing doctors for valuable contributions that each has made to the book. I greatly appreciate the outstanding artwork done by Suzanne E. Merrick for my chapters and the illustrations done by David Bolinksy for Dr. Smith's chapters and Kathryn Sisson for one of Dr. Meyer's chapters.

Walter E. Berman

Contents

Part I

PREPARATION

1

Nomenclature

Walter E. Berman

Communication is the key to opening the doors of knowledge. The ability to relate thoughts to one another is the basis of learning. Unfortunately, because of the host of contributors to nasal surgery and physiology, nasal terminology has evolved into a morass. Some years ago, Drs. Jack Anderson, Richard Webster, and I devised a rather simplistic group of terms that were applicable to the nose (Fig. 1-1). We used the prime directions of *anterior* for dorsal, *posterior* for the floor of the nose, *superior* for the glabellar or forehead direction, and *inferior* for the caudal or columellar direction. This rationale, the four cardinal direction approach to nasal anatomy, has proved to be most helpful in communication.

For clarity, I have substituted the phrase *between the cartilage incisions* for the term *intercartilaginous*, which refers to the area between the upper and lower cartilages. The *nasal tip* is where the medial and lower lateral cartilages meet. The term *split incision* has also been substituted for the term *intracartilaginous* (Fig. 1-2). *Junction tunnels* are the elevations of the mucosal coverings on the undersurfaces of the upper lateral cartilages and nasal bones at their junction with the septum (Fig. 1-3). These elevations make it possible to separate the upper lateral cartilages from the nasal septum without cutting through the mucosa. This also keeps the mucosal envelope intact when decreasing the bony hump. These simple but effective terms should help to broaden our understanding.

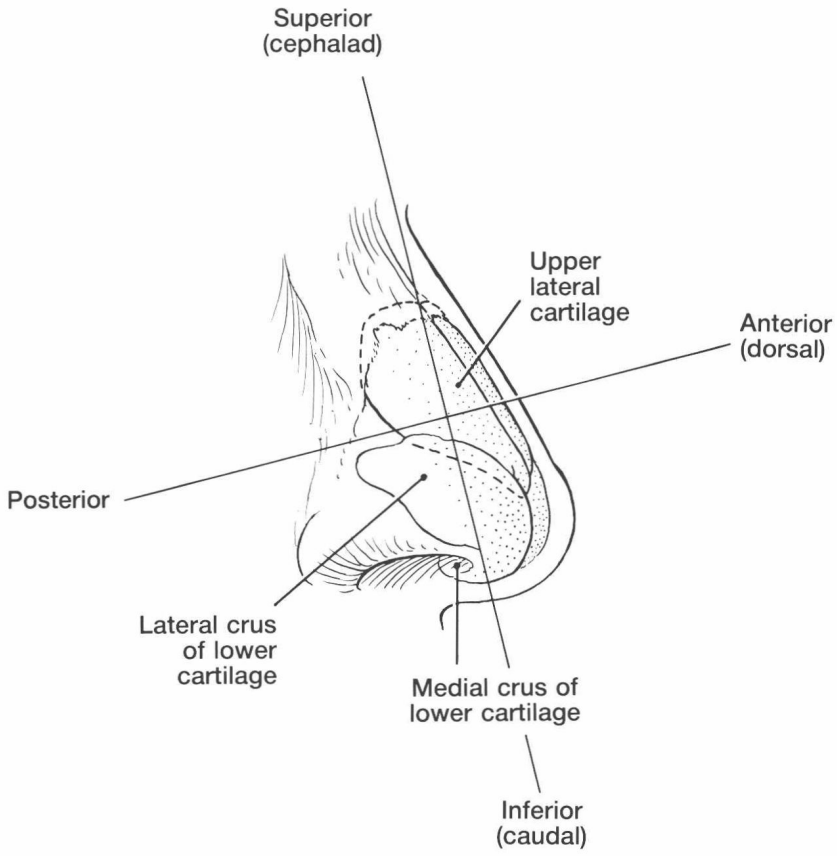

Fig. 1-1. Simplified nasal nomenclature. (From Berman, WE: Rhinoplasty, ed 2, Washington DC, 1984, American Academy of Otolaryngology-Head and Neck Surgery Foundation, Inc.)

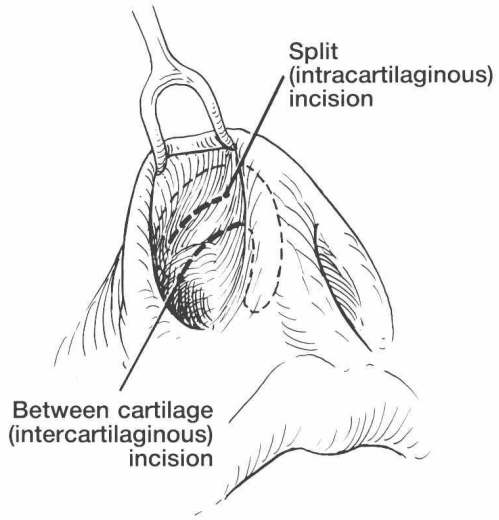

Fig. 1-2. Terms used in describing lower lateral cartilage incisions. (From Berman, WE: Rhinoplasty, ed 2, Washington DC, 1984, American Academy of Otolaryngology-Head and Neck Surgery Foundation, Inc.)

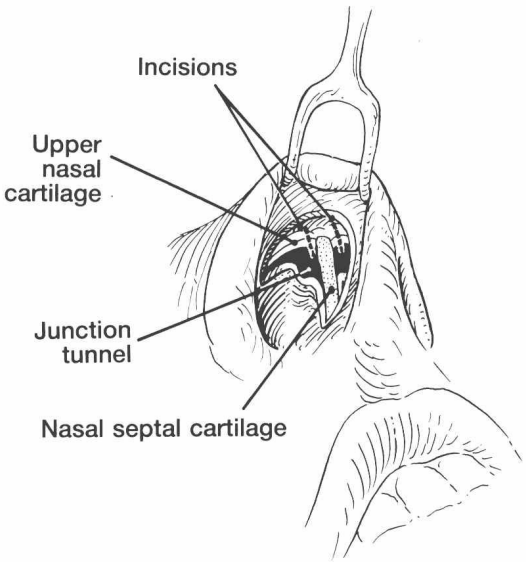

Fig. 1-3. Junction tunnel. (From Berman, WE: Rhinoplasty, ed 2, Washington DC, 1984, American Academy of Otolaryngology-Head and Neck Surgery Foundation, Inc.)

2

Applied Anatomy of the Nose

Robert A. Stern

It is said that nasal surgery is a surgery of millimeters. To effect these exacting surgical changes, a thorough knowledge of nasal anatomy is necessary. This study is based on fresh, unembalmed, cadaver dissection as well as on live operative procedures. It is assumed that the surgeon has a working knowledge of rhinoplastic anatomy. This chapter will discuss some of the detailed and complex relationships that make a difference in the final surgical result.

It is helpful to think of the nose as being like any other projecting structure: it is composed of framework and its support, and is finished with an external covering. The framework of the nose consists of skeletal components of cartilage and bone. Support is provided by ligaments and connective tissue that hold the framework together, as well as by the skeleton's inherent strength. Skin and soft tissue provide the covering for the structure of the nose. As with any well-conceived design, all of the components are interrelated.

External Coverings

Skin, subcutaneous tissue, and muscle comprise the covering of the nose. The nature of these individual components significantly affects the appearance of the nose.

Skin and Subcutaneous Tissue

Skin may be light or dark in color. Dark skin is often thicker, and may possess a greater amount of subcutaneous tissue. Thicker skin adapts to changes beneath it less readily than thinner skin does, and thus changes in the framework are less apparent in a thick-skinned nose. Stated another way, a greater change in the nasal skeleton is necessary in order to change the appearance of the nose in a thick-skinned individual.

Although thick skin can be a limiting factor in rhinoplasty and can hide modifications of the framework, it can be helpful too. Thick skin may hide small imperfections in the nasal skeleton that might otherwise be apparent in the thin-skinned nose.

In secondary rhinoplasty, a firm subcutaneous scar often makes it very difficult to modify the shape of the nose. Indeed, the subcutaneous scar may be so firm and thick that it may become its own framework, making it necessary to remove or weaken this scar before attempting to modify the true skeleton. However, such a scar may at times be used for framework when there is a deficiency of true skeletal support.

The thickness of the skin and subcutaneous tissue varies throughout the length of the nose (Plate 2-1). This is of critical importance. These tissues are thickest in the supratip area. They are somewhat less thick at the nasion (nasofrontal angle), and much less thick at the tip—specifically in the area over the nasal domes. The skin and its subcutaneous tissue is thinnest at the *rhinion* which is the junction of nasal bones with upper lateral cartilage. These factors have important applications.

First, it becomes apparent that the rhinion should be left higher (more anterior) than the adjacent upper lateral cartilage and nasal bone in order to prevent the appearance of a depressed or weak dorsum.

Second, the cephalic border of the lower lateral cartilage, the upper lateral cartilage, and the caudal septum must be on a lower (more posterior) plane than the nasal tip in order to prevent a high supratip, i.e., a "pollybeak deformity." The subcutaneous tissues here also tend to form more scarring than those in the rhinion and tip. This must be taken into account when lowering this area.

Third, as mentioned before, there is less margin for error with thin skin than with thick. After surgery, the rhinion must be free of any bony spicules or sharp angles because they may show. The nasal domes must be symmetrical and without bossae. However, the thick skin of the supratip will probably hide some unevenness of the upper lateral cartilages and septum.

Finally, the soft triangles should be mentioned. These triangles, also known as facets, are the only areas of the nose that are made up of primarily cutaneous tissue, with scant intervening subcutaneous tissue (Plate 2-2). The maintenance of these fine structures during and after rhinoplasty is extremely important. Violating them with an incision can lead to scarring and subsequent distortion. Marginal incisions for delivery of the lower lateral cartilages should not be created at the line of the vibrissae as suggested by some texts; often, this will cause the facets to be broached (see plate).

Muscle

Of the various paired muscles of the nose, only three have any significant effect on rhinoplasty: the *depressor septi,* the *procerus,* and the *transverse nasalis.*

The depressor septi is the only muscle whose function makes a difference in nasal appearance. It has its origin in the incisive fossa of the maxilla and inserts in the area of the caudal septum (Plate 2-3). If hyperactive, the depressor septi may produce pronounced tip drop during facial animation through its action on the feet of the mesial crura. If the septum is transfixed, the depressor septi may contribute to postoperative tip drop through its unopposed action on the mesial crural feet. Cutting the depressor septi helps to prevent this problem.

The procerus arises from the glabella and inserts at the upper lateral cartilage (Plate 2-4). It spans the nasion and can contribute to a shallow nasofrontal angle. Careful removal of a portion of this muscle may help to deepen the nasion, provided organizing hematoma does not later fill the cavity with cicatrix.

The transverse nasalis is important because it helps to form a covering across the mid-portion of the nose superficial to the skeleton (Plates 2-4 and 2-5). Together with the procerus, it forms a musculo-aponeurotic sheath over the dorsum of the nose that is much easier to elevate than the tightly adherent periosteum (see Plate 2-8). This musculo-aponeurotic sheath is helpful in hiding irregularities of the skeleton, and provides some support for the nasal components adhering to its deep surface.

Septum

The nasal septum is the cornerstone of the nose. It is of paramount importance in external rhinoplasty as well as in functional respiration. The dorsal and caudal borders of the septum are the portions that impact on the external nose and will be discussed with the nasal tip and mid-nose. The remaining bulk of the septum is of primary importance to respiration and support.

Framework

The septum is composed of cartilage and bone. The quadrilateral plate is the only cartilaginous portion. The bony portion is composed of the ethmoid plate and vomer, and is tucked away beneath the nasal bones. The septum rests on the nasal spine and the maxillary and palatine crests. Lateral support is provided by the structures of the external nose and their investing membranes.

The soft tissue integuments of the septum are of critical importance. The perichondrium of the cartilaginous septum and periosteum of the bony ethmoid plate are continuous and allow fairly easy elevation of flaps throughout their lengths. The perichondrium of the cartilaginous septum and the periosteum of the bony spine, crests, and vomer are not continuous. Each wraps around its own member. Sharp dissection is necessary to open these planes.