



Otorhinolaryngology–Head and Neck Surgery Series

Series Editors

Milind V.Kirtane

Chris E.de Souza

Volume Editors

Anand K.Devaiiah

Bradley F.Marple

# 鼻科学和内镜颅底手术

Rhinology and Endoscopic Skull Base Surgery

主 编 [美] 阿南达·K. 狄雷尔

布兰德利·F. 马普

主 译 刘 钢

副主译 张金玲 杭 伟

天津出版传媒集团



天津科技翻译出版有限公司

著作权合同登记号:图字:02-2014-419

---

图书在版编目(CIP)数据

鼻科学和内镜颅底手术/(美)阿南达·K. 狄雷尔  
(Anand K. Devaiah), (美)布兰德利·F. 马普  
(Bradley F. Marple)主编;刘钢主译. —天津:天津  
科技翻译出版有限公司,2018.4

书名原文:Rhinology and Endoscopic Skull Base  
Surgery

ISBN 978-7-5433-3794-7

I. ①鼻… II. ①阿… ②布… ③刘… III. ①鼻科学  
②内窥镜-应用-颅底-外科手术 IV. ①R765  
②R651.1

中国版本图书馆CIP数据核字(2018)第002935号

---

Copyright © 2013 of the original English language edition  
by Thieme Medical and Scientific Publishers Private Limited, India.

Original title:

Rhinology and Endoscopic Skull Base Surgery

Otorhinolaryngology – Head and Neck Surgery Series

by

Series Editors: Milind V. Kirtane/Chris E. de Souza

Volume Editors: Anand K. Devaiah/Bradley F. Marple

---

中文简体字版权属天津科技翻译出版有限公司。

授权单位:Thieme Medical and Scientific Publishers Private Limited, India.

出版:天津科技翻译出版有限公司

出版人:刘庆

地址:天津市南开区白堤路244号

邮政编码:300192

电话:(022)87894896

传真:(022)87895650

网址:www.tsttpc.com

印刷:山东鸿君杰文化发展有限公司

发行:全国新华书店

版本记录:889×1194 16开本 16印张 400千字

2018年4月第1版 2018年4月第1次印刷

定价:168.00元

(如发现印装问题,可与出版社调换)

# 译者名单

主 译 刘 钢

副主译 张金玲 杭 伟

译 者 (按姓氏汉语拼音排序)

何京川 胡云磊 李海艳 卢 醒

王 铭 徐 鹏 于焕新 翟 翔

张 强

# 编者名单

**Nithin D. Adappa, M.D.**

Division of Rhinology and Skull Base Surgery  
Department of Otorhinolaryngology – Head and Neck Surgery  
Hospital of the University of Pennsylvania  
Philadelphia, Pennsylvania, USA

**Vijay K. Anand, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
Weill Cornell Medical Center  
New York, New York, USA

**Ashwin Ananth**

Department of Otolaryngology Head and Neck Surgery  
University of Kansas School of Medicine  
Kansas City, Kansas, USA

**Michael S. Benninger, M.D.**

Head and Neck Institute  
The Cleveland Clinic  
Cleveland, Ohio, USA

Department of Surgery  
Lerner College of Medicine  
Case Western Reserve University  
Cleveland, Ohio, USA

**Ricardo L. Carrau, M.D., F.A.C.S.**

Department of Otolaryngology – Head and Neck Surgery  
Skull Base Surgery Program  
The Ohio State University Medical Center  
Columbus, Ohio, USA

**Rakesh K. Chandra, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
Northwestern University Feinberg School of Medicine  
Chicago, Illinois, USA

**Philip G. Chen, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
University of Virginia  
Charlottesville, Virginia, USA

**Alexander G. Chiu, M.D.**

Division of Otolaryngology – Head and Neck Surgery  
Department of Surgery  
University of Arizona  
Tucson, Arizona, USA

**Daniel T. T. Chua, M.D.**

Comprehensive Oncology Centre  
Hong Kong Sanatorium and Hospital  
Happy Valley, Hong Kong, China

**Noam A. Cohen, M.D., Ph.D.**

Department of Otorhinolaryngology – Head and Neck Surgery  
Philadelphia Veterans Affairs Medical Center  
University of Pennsylvania  
Philadelphia, Pennsylvania, USA

**Anand K. Devaiah, M.D., F.A.C.S.**

Department of Otolaryngology - Head and Neck Surgery  
Department of Neurological Surgery  
Department of Ophthalmology  
Boston University School of Medicine  
Boston Medical Center  
Boston, Massachusetts, USA

**Angela M. Donaldson, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
University of Cincinnati Medical Center  
Cincinnati, Ohio, USA

**Wolfgang Draf, M.D., Ph.D., F.R.C.S. (Ed)**

Department of Ear, Nose and Throat Diseases, Head and Neck Surgery  
International Neuroscience Institute  
Hannover, Germany

**Ivan H. El-Sayed, M.D., F.A.C.S.**

Department of Otolaryngology – Head and Neck Surgery  
Center for Minimally Invasive Skull Base Surgery  
University California San Francisco  
San Francisco, California, USA

**Juan C. Fernandez-Miranda, M.D.**

Department of Neurological Surgery  
University of Pittsburgh School of Medicine  
Pittsburgh, Pennsylvania, USA

**Elisa N. Flower, M.D.**

Division of Neuroradiology  
Department of Radiology  
Boston Medical Center  
Boston University School of Medicine  
Boston, Massachusetts, USA

**Paul A. Gardner, M.D.**

Department of Neurological Surgery  
University of Pittsburgh School of Medicine  
Pittsburgh, Pennsylvania, USA

**Andrew N. Goldberg, M.D., M.S.C.E., F.A.C.S.**

Division of Rhinology and Sinus Surgery  
Departments of Otolaryngology – Head and Neck Surgery and Neurological Surgery  
University of California, San Francisco  
San Francisco, California, USA

**Mitchell Ray Gore, M.D., Ph.D.**

Greensboro Ear, Nose, and Throat Associates  
Greensboro, North Carolina, USA

**Satish Govindaraj, M.D., F.A.C.S.**

Department of Otolaryngology – Head and Neck Surgery  
Icahn School of Medicine at Mount Sinai  
New York, New York, USA

**Timothy Haffey, M.D.**

Department of Otolaryngology  
Head and Neck Institute  
Cleveland Clinic Foundation  
Cleveland, Ohio, USA

**Brendan C. Hanna, M.B.B.Ch., Ph.D., F.R.C.S.I.**

Department of Otolaryngology – Head and Neck Surgery  
The Queen Elizabeth Hospital  
Adelaide, South Australia, Australia

**Ehab Y. Hanna, M.D., F.A.C.S.**

Departments of Head and Neck Surgery and Neurosurgery  
MD Anderson Cancer Center  
The University of Texas  
Houston, Texas, USA

**Eric H. Holbrook, M.D.**

Department of Otology and Laryngology  
Harvard Medical School  
Massachusetts Eye and Ear Infirmary  
Boston, Massachusetts, USA

**F. Christopher Holsinger, M.D., F.A.C.S.**

Department of Head and Neck Surgery  
Stanford University  
Stanford, California, USA

**Larry A. Hoover, M.D., F.A.C.S.**

Department of Otolaryngology – Head and Neck Surgery  
The University of Kansas School of Medicine  
Kansas City, Kansas, USA

**David W. Kennedy, M.D., F.A.C.S., F.R.C.S.I.**

Department of Otorhinolaryngology – Head and Neck Surgery  
Perelman School of Medicine  
University of Pennsylvania  
Philadelphia, Pennsylvania, USA

**Eleanor Pitz Kiell, M.D.**

Department of Otolaryngology  
Wake Forest University Baptist Medical Center  
Winston Salem, North Carolina, USA

**Nataliya Kovalchuk, Ph.D.**

Department of Radiation Oncology  
Boston Medical Center  
Boston, Massachusetts, USA  
Harvard School of Medicine  
Boston, Massachusetts, USA

**Greg A. Krempl, M.D., F.A.C.S.**

Department of Otorhinolaryngology  
University of Oklahoma Health Sciences Center  
Oklahoma City, Oklahoma, USA

**John M. Lee, M.D., F.R.C.S.C., M.Sc.**

Department of Otolaryngology – Head and Neck Surgery  
St. Michael's Hospital  
University of Toronto  
Toronto, Ontario, Canada

**Paul A. Levine, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
University of Virginia School of Medicine  
Charlottesville, Virginia, USA

**Larry G. Linson, D.O.**

Department of Otolaryngology  
Ohio University College of Osteopathic Medicine  
Columbus, Ohio, USA

**Rodney Lusk, M.D.**

ENT Institute  
Boys Town National Research Hospital  
Omaha, Nebraska, USA

**Elizabeth Mahoney Davis, M.D., F.A.C.S., F.A.A.O.A.**

Department of Otolaryngology – Head and Neck Surgery  
Boston University Medical Center  
Boston, Massachusetts, USA

**Bradley F. Marple, M.D., F.A.A.O.A.**

Department of Otolaryngology – Head and Neck Surgery  
University of Texas Southwestern Medical Center  
Dallas, Texas, USA  
Graduate Medical Education University of Texas  
Southwestern Medical Center  
Dallas, Texas, USA

**Edward D. McCoul, M.D., M.P.H.**

Department of Otolaryngology – Head and Neck Surgery  
Weill Cornell Medical Center  
New York, New York, USA

**Colby G. McLaurin, M.D.**

Department of Otorhinolaryngology  
The University of Oklahoma Health Sciences Center  
Oklahoma City, Oklahoma, USA

**Ralph Metson, M.D.**

Department of Otology and Laryngology  
Harvard Medical School  
Boston, Massachusetts, USA

**James Whit Mims, M.D.**

Department of Otolaryngology  
Wake Forest University School of Medicine  
Winston Salem, North Carolina, USA

**Amir Minovi, M.D.**

Department of Otorhinolaryngology  
St. Elisabeth Hospital  
Ruhr University Bochum  
Bochum, Germany

**Candace A. Mitchell, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
University of North Carolina School of Medicine  
Chapel Hill, North Carolina, USA

**Rohini N. Nadgir, M.D.**

Department of Radiology  
Boston Medical Center  
Boston University School of Medicine  
Boston, Massachusetts, USA

**A. Omer Nawaz, M.S., D.A.B.R.**

Department of Radiation Oncology  
Boston Medical Center  
Boston University School of Medicine  
Boston, Massachusetts, USA  
Paoli Hospital Cancer Center  
Main Line Health Systems  
Paoli, Pennsylvania, USA

**Bradley A. Otto, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
The Ohio State University  
Columbus, Ohio, USA

**Stephen S. Park, M.D.**

Division of Facial Plastic Surgery  
Department of Otolaryngology – Head and Neck Surgery  
University of Virginia Health System  
Charlottesville, Virginia, USA

**Aaron N. Pearlman, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
New York Presbyterian Hospital  
Weill Cornell Medical College  
New York, New York, USA

**Michael P. Platt, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
Boston University School of Medicine  
Boston, Massachusetts, USA

**Steven D. Pletcher, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
University of California, San Francisco  
San Francisco, California, USA

**Rosser Kennedy Powitzky, M.D.**

Division of Otolaryngology  
Texas A&M Health Sciences Center  
Scott & White Health Systems  
Temple, Texas, USA

**Daniel M. Prevedello, M.D.**

Department of Neurosurgery  
The Ohio State University  
Columbus, Ohio, USA

**Alkis J. Psaltis, M.D., Ph.D., F.R.A.C.S.**

Division of Rhinology and Skull Base  
Department of Otolaryngology – Head and Neck Surgery  
Medical University of South Carolina  
Charleston, South Carolina, USA

**Paul B. Romesser, M.D.**

Department of Radiation Oncology  
Memorial Sloan-Kettering Cancer Center  
New York, New York, USA

**Austin S. Rose, M.D.**

Division of Pediatric Otolaryngology – Rhinology, Allergy  
and Sinus Surgery  
Department of Otolaryngology – Head and Neck Surgery  
University of North Carolina School of Medicine  
Chapel Hill, North Carolina, USA

**Osamu Sakai, M.D., Ph.D.**

Department of Radiology  
Boston Medical Center  
Boston University School of Medicine  
Boston, Massachusetts, USA

**Rodney J. Schlosser, M.D.**

Ralph H. Johnson VA Medical Center  
Charleston, South Carolina, USA  
Division of Rhinology  
Department of Otolaryngology – Head and Neck Surgery  
Medical University of South Carolina  
Charleston, South Carolina, USA

**Brent A. Senior, M.D., F.A.C.S, F.A.R.S.**

Division of Rhinology, Allergy, and Endoscopic Skull Base  
Surgery  
Department of Otolaryngology – Head and Neck Surgery  
University of North Carolina  
Chapel Hill, North Carolina, USA

**David C. Shonka, Jr., M.D.**

Department of Otolaryngology – Head and Neck Surgery  
University of Virginia School of Medicine  
Charlottesville, Virginia, USA

**Anthony G. Del Signore, Pharm.D., M.D.**

Department of Otolaryngology – Head and Neck Surgery  
Mount Sinai School of Medicine  
New York, New York, USA

**Raj Sindwani, M.D., F.A.C.S., F.R.C.S.(C)**

Department of Rhinology, Sinus and Skull Base Surgery  
Head and Neck Institute  
Cleveland Clinic Foundation  
Cleveland, Ohio, USA

**Stephanie Shintani Smith, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
Northwestern University Feinberg School of Medicine  
Chicago, Illinois, USA

**Carl H. Snyderman, M.D., M.B.A.**

Departments of Otolaryngology and Neurological Surgery  
University of Pittsburgh School of Medicine  
Pittsburgh, Pennsylvania, USA

**Zachary M. Soler, M.D., M.Sc.**

Department of Otolaryngology – Head and Neck Surgery  
Medical University of South Carolina  
Charleston, South Carolina, USA

**Nicholas C. Sorrel, M.D.**

Department of Otorhinolaryngology  
University of Texas Medical Center  
Houston, Texas, USA

**James A. Stankiewicz, M.D.**

Department of Head and Neck Surgery  
Stritch School of Medicine  
Loyola University  
Maywood, Illinois, USA

**Michael G. Stewart, M.D., M.P.H.**

Department of Otolaryngology – Head and Neck Surgery  
New York Presbyterian Hospital  
Weill Cornell Medical College  
New York, New York, USA

**Jonathan Y. Ting, M.D.**

Department of Otolaryngology and Laryngology  
Harvard Medical School  
Boston, Massachusetts, USA

**Minh Tam Truong, M.D.**

Department of Radiation Oncology  
Boston University School of Medicine  
Boston, Massachusetts, USA  
Department of Radiation Oncology  
Boston Medical Center  
Boston, Massachusetts, USA

**Craig R. Villari, M.D.**

Department of Otolaryngology  
Emory University  
Atlanta, Georgia, USA

**Patrick C. Walz, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
The Ohio State University Medical Center  
Columbus, Ohio, USA

**Eric W. Wang, M.D.**

Department of Otolaryngology  
University of Pittsburgh School of Medicine  
The Eye and Ear Institute  
Pittsburgh, Pennsylvania, USA

**William I. Wei, F.R.C.S., F.R.C.S.E., F.A.C.S. (Hon.)**

Department of Surgery  
Li Shu Pui ENT Head and Neck Surgery Centre  
Hong Kong Sanatorium and Hospital  
Happy Valley, Hong Kong, China

**Sarah K. Wise, M.D.**

Department of Otolaryngology  
Emory University  
Atlanta, Georgia, USA

**Troy D. Woodard, M.D.**

Department of Otolaryngology  
Cleveland Clinic Foundation  
Head and Neck Institute  
Cleveland, Ohio, USA

**Peter-John Wormald, M.D., F.R.A.C.S., F.C.S. (SA), F.R.C.S. (Ed.), M.B.Ch.B.**

Department of Otolaryngology – Head and Neck Surgery  
University of Adelaide  
Adelaide, South Australia, Australia

**Arthur William Wu, M.D.**

Division of Endoscopic Sinus and Skull Base Surgery  
Department of Otolaryngology – Head and Neck Surgery  
Cedars-Sinai Medical Center  
Los Angeles, California, USA

**Bharat B. Yarlagadda, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
Boston Medical Center  
Boston University School of Medicine  
Boston, Massachusetts, USA

**Adam M. Zanation, M.D.**

Department of Otolaryngology – Head and Neck Surgery  
University of North Carolina School of Medicine  
University of North Carolina at Chapel Hill  
Chapel Hill, North Carolina, USA

**Lee A. Zimmer, M.D., Ph.D.**

Department of Otolaryngology – Head and Neck Surgery  
University of Cincinnati College of Medicine  
Cincinnati, Ohio, USA



# 中文版前言

我们非常有幸参与了《鼻科学和内镜颅底手术》这本书的翻译工作。本书着眼于鼻科学及鼻内镜颅底外科疾病的诊治过程,旨在提高耳鼻喉科医师对该领域的认知。自20世纪70年代以来,鼻内镜与各种先进技术的出现促使传统鼻外科领域发生了巨大的改变。内镜设备不仅提高了鼻科学手术的精细度,而且将手术方式由对正常解剖结构的破坏转变为对鼻功能的修复与重建。内镜利用鼻腔解剖学的优势而向周围领域逐步扩大,形成鼻颅底外科、鼻眼外科等相关学科,为鼻科学的发展带来了质的飞跃。技术的革新迫使临床医师不断提升自身业务水平,如何将先进设备适当地应用于鼻科学及相关领域是鼻科医师最应该解决的当务之急。本书共分为3个部分,第1部分阐述了鼻科学和颅底的基础解剖知识,第2部分具体叙述了鼻科学疾病的诊治及鼻外科手术过程,第3部分对鼻颅底领域的相关内容进行了系统描述。翻译的过程也是学习及积累经验的过程,通过对英文原版书的翻译,我们对鼻科学及内镜颅底手术过程也有了较为深入的了解。希望读者通过阅读本书,提高对鼻科学及内镜颅底相关领域的认知,将理论知识应用于临床实践中,为广大医务工作者带来更好的医疗便利。



# 序

鼻科学是耳鼻咽喉头颈外科学中最富有动态的一个分科。促进鼻科学发展的驱动力是:内镜设备和图像导航系统的技术进步,对内镜解剖的进一步了解,相关手术学科的并行发展,以及合作精神。鼻科学的范围已经迅速进展至颅底、眼眶以及其他部位。

快速变化带来了新的挑战。鼻科医师如何才能及时掌握最新的医学技术与手术技术?要做的是把最好的经验应用于各项决策中,而不仅仅是追求新潮流。本书的各位编者都是各自相关领域的专家,依据其丰富的临床经验以及对现行临床实践的权衡理解,提供了内科和外科解决方案。鼻外科并不是孤立的学科。鼻科学手术医师必须通晓鼻科学的解剖和内科基础知识,这样才能做出正确的决策,并会考虑非手术替代方案。要明白,良好的手术效果取决于整体治疗方案,手术干预只是患者治疗的一个方面。治疗越来越多地是由学科团队提供的,因此鼻科医师必须熟悉不同的医疗方式和原理。

狄雷尔和马普教授成功地将世界各地鼻科学相关领域的领军人物汇集在一起完成了本书的编著。本书分为三部分:鼻科学和内镜颅底手术基础,鼻科学及鼻旁窦手术,颅底外科及相关颅底手术。各章节提供了现今的认知简况,并阐述了未来的技术发展方向。

卡尔·H. 斯奈德曼

# 前 言

本书出版时正是内镜颅底外科和鼻科患者护理出现重大飞跃之际。本书重点介绍的一些研究、合作和创新领域都是人们最关注的。当团队医疗在各医学领域正处于不同程度的演变状态时，在许多领域人们尚未看到如此兴致勃勃地迅速聚焦于多学科治疗以及团队合作。同样，在对内镜颅底外科和鼻科进行综合评价时，我们力图为学习、讨论与发展建立一个基准。我们非常希望住院医师、研究人员、执业医师以及患者能从本书获得有益的参考。

本书是一项名副其实的国际化合作的成果，参与者来自全球各地。这也与我们的初衷非常契合，因为内镜颅底外科和鼻科领域的创新来自于全世界，而我们致力于帮助的也正是全世界各个社区的患者。

参与本书写作的每一位专家都奉献出了他们的时间和精力，在此对他们一一予以感谢。真的，我们要对本系列丛书的所有编者和著者表示祝贺，因为这真是一套世界级别的综合参考书！本套丛书主编 Kirtane 博士和 de Souza 博士为本套丛书的整合做了大量工作，在此一并表示感谢。

因而我们很高兴将此书推荐给读者，并希望它能帮助你们进一步提高业务知识水平，并在临床治疗中有所创新。

阿南达·K. 狄雷尔  
布兰德利·F. 马普

# 致 谢

我们不可能对每一位要感谢的人一一表示谢意,但在正文中会提到部分要感谢的人。

指导我们的很多导师,尤其是 Larry Hoover、Doug Girod 和 Terry Tsue 教授,给予了我们很多学习内镜颅底手术、开放颅底手术、鼻科手术基础和临床知识的机会。当时很多概念并不像现在这么清楚,某些概念还处于全球专家正在研究的阶段。我们的临床和研究合作伙伴,包括全球和本地的,已经成为非常优秀的合作团队。长久以来,许多特殊居民也已经成为我们团队的一部分,他们的许多问题已成为很棒的求知资源。

感谢患者及其家属给予我们的信任,正是因为他们本书才能问世。他们已经成为我们最好的老师。

最后应该感谢我的妻子 Manju 的爱和支持;我的儿子 Jayanth 和 Deven;我的父母 Kunchachandra 和 Vani。

阿南达·K. 狄雷尔

耳鼻咽喉科是而且一直是一个联系非常紧密的团队。在我们专业接受训练的人员不仅有机会读到专家的作品,而且有幸可以和专家直接学习。这种形式传承了一种普遍的职业传统。

我感到非常幸运,因为内镜技术第一次在美国引进时我参加了耳鼻喉的进修。光源小、止血困难、设备欠缺、不明确的手术步骤,这些固有的挑战促进改革、发展和创造机遇。这也提供了同时期鼻科学和内镜颅底手术华丽转变的基础。

想到此,我想借此机会感谢一些人,他们不仅在我个人的成长过程中提供了很多帮助,而且在鼻科学领域做出了很重要的贡献。Steve Schaefer 和 Lanny Close 教授了我早期 ESS 技术,并且推动了此类技术进一步发展。Peter Roland、Scotton Manning 和 Matthew Ryan 教我质疑想法的价值,怀疑论提供线索的重要性。Richard Mabry 博士教我重视综合考虑一个患者情况的重要性。

布兰德利·F.马普

# 主编按语

鼻科学是一门独立的学科,随着内镜的发展而得到认可,内镜使鼻内解剖结构可视,这在以往则是不可能的。以往的鼻外侧切口由外向内进入鼻腔,现如今已被内镜手术所替代,避免了难看的手术伤疤。正是由于内镜、非凡的光学、机器人技术和导航系统以及新型的CT和MRI,使一切变为可能。鼻科学最终会获得承认,进入繁盛期,但争议仍然存在。然而,随着时间的推移以及对患者的密切随访,最终将会明确,为了实现合适有效的治疗我们要遵循的途径。

耳科学作为一门研究的学科先于鼻科学。只有在2004年Linda Buck博士和Richard Axel博士对嗅觉的初始研究获得诺贝尔奖之后才被认可。而有关听觉生理学的诺贝尔奖是在45年之前授予的。治疗鼻/鼻窦疾患的技术和专业性知识发展很迅速。现今已有很多治疗中心治疗鼻科疾病,并将其应用延伸至前颅底。这将使得鼻科医师与神经外科医师的合作更加紧密。这是一个令人兴奋的新领域。技术、光学以及专业性训练促进了鼻科学的发展和改善,使其不仅成为一项科学技术,同时也是一门艺术。

本书的编辑和作者均意识到我们是一个不可分割的整体。本书旨在为鼻科医师提供实时、易懂的最新信息。本书将有助于鼻科医师做好充分技术准备,以便在患者就诊时给予专业的指导与诊治。为此我们感谢本书的作者及编辑。

米琳达·V.基尔坦  
柯里斯·E.德索萨

# 目 录

第 1 部分 鼻科学和内镜颅底手术基础 .....	1
第 1 章 鼻腔和鼻旁窦胚胎学 .....	3
第 2 章 内镜下鼻、鼻旁窦和颅底的外科解剖结构 .....	7
第 3 章 鼻旁窦的应用生理学 .....	14
第 4 章 鼻旁窦和前颅底的影像学 .....	18
第 2 部分 鼻科学及鼻旁窦手术 .....	31
第 5 章 鼻窦炎 .....	33
第 6 章 慢性鼻窦炎诊断与治疗中的循证医学 .....	39
第 7 章 真菌性鼻旁窦炎 .....	44
第 8 章 嗅觉失调的评估及治疗 .....	49
第 9 章 变应性鼻炎和慢性鼻窦炎 .....	54
第 10 章 功能性鼻成形术:原理和技术 .....	58
第 11 章 鼻源性头痛 .....	64
第 12 章 鼻内镜下鼻窦手术的动力性器械 .....	70
第 13 章 外科导航技术的发展 .....	77
第 14 章 下鼻甲和鼻中隔手术:原则与技术 .....	82
第 15 章 筛窦、上颌窦与蝶窦手术 .....	86
第 16 章 鼻内镜额窦手术 .....	92
第 17 章 额窦闭塞和颅腔化 .....	98
第 18 章 儿科鼻窦炎 .....	103
第 19 章 鼻窦修正手术并发症 .....	109
第 20 章 鼻出血:手术和非手术治疗 .....	115
第 21 章 动力系统下内镜鼻腔泪囊吻合术 .....	121
第 3 部分 内镜颅底外科及相关颅底手术 .....	125
第 22 章 内镜眼眶减压及视神经减压 .....	127

第 23 章	脑脊液:生理学和内镜漏口修补 .....	133
第 24 章	颞下窝及翼腭窝内镜手术 .....	142
第 25 章	鼻腔鼻窦良性肿瘤 .....	147
第 26 章	内翻性乳头状瘤的内镜手术治疗 .....	155
第 27 章	青少年鼻咽纤维血管瘤的内镜手术治疗 .....	161
第 28 章	微创垂体手术 .....	170
第 29 章	内镜斜坡和后颅窝手术 .....	176
第 30 章	内镜或内镜辅助下颅底手术处理前颅底恶性病变:手术基本原理 .....	183
第 31 章	前颅底恶性肿瘤的内镜和内镜辅助手术:手术注意事项 .....	192
第 32 章	鼻窦与前颅底的开放路径 .....	197
第 33 章	内镜颅底缺损修补术 .....	203
第 34 章	鼻咽癌 .....	211
第 35 章	前颅底良恶性肿瘤的放射外科和放射治疗 .....	219
第 36 章	机器人内镜颅底手术 .....	231
索引	.....	237

第 **1** 部分

# 鼻科学和内镜颅底手术基础



