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理论基础与临床实践

The CORNEA

第 4 版

Scientific Foundations &
Clinical Practice

Fourth Edition



C. Stephen Foster

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主编

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天津科技翻译出版公司出版

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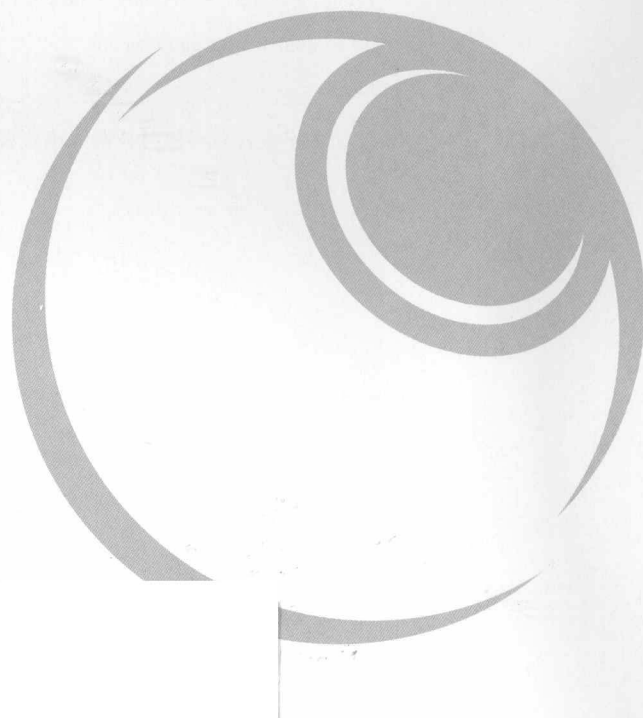
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天津科技翻译出版公司出版

著作权合同登记号：图字：02-2005-85

图书在版编目(CIP)数据

角膜：理论基础与临床实践 / (美)福斯特(Foster, C.S.)等主编；李莹主译.
天津：天津科技翻译出版公司，2007.10

书名原文：Smolin and Thoft's the Cornea: Scientific Foundations and Clinical Practice

ISBN 978-7-5433-2039-0

I. 角... II. ①福...②李... III. ①角膜-基本知识②角膜疾病-诊疗 IV. ①R322.9②R772.2

中国版本图书馆CIP数据核字(2006)第049616号

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ISBN 0-7817-4206-4

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授权单位：Lippincott Williams & Wilkins Inc.

出版：天津科技翻译出版公司

出版人：蔡颢

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. tsttpe. com

印刷：山东新华印刷厂临沂厂

发行：全国新华书店

版本记录：880×1230 16开本 83.75印张

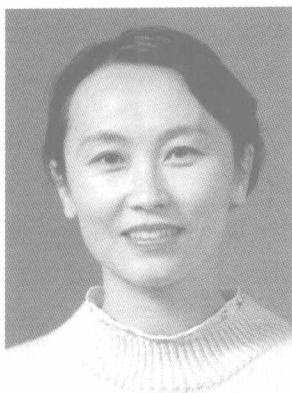
1200千字 配图895幅

2007年10月第1版 2007年10月第1次印刷

定价：380.00元

(如发现印装问题，可与出版社调换)

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李莹 河北人,中国共产党党员。先后毕业于中国医科大学、中国协和医科大学研究生院,分别获学士、硕士和博士学位,医学博士,眼科博士后。现任中国医学科学院中国协和医科大学北京协和医院眼科准分子激光中心主任,眼库和角膜组长,研究生导师。中华医学会眼科分会角膜病学组委员。长期从事角膜病、屈光性角膜手术的临床工作与相关基础研究,手术技术娴熟,在感染性、非感染性角膜疾病和屈光性角膜手术并发症的诊治方面有较丰富经验。《准分子激光角膜切削术治疗近视眼的临床研究》1996年获卫生部科技进步三等奖。发表论文几十篇,参加多部论著编写。承担和负责多项国内外科科研项目,任《国际眼科》杂志和《眼科新进展》杂志编委,全国“准分子激光治疗仪”使用人员上岗资格考试培训专家,国家自然科学基金评审专家。

主审简介



谢立信 男,1942年12月12日出生,山东莱州人,中国共产党党员。中国工程院院士、教授、研究员、博士生导师。1965年毕业于山东医学院医疗系,同年到潍坊医学院眼科任教,是该院眼科的创始者,历任助教、讲师、副教授和教授。1987~1988年赴美国路易斯安那州立大学眼科中心从事角膜病博士后研究。1990年在青岛创建山东省眼科研究所,2001年当选中国工程院院士。现任山东省医学科学院名誉院长、山东省眼科研究所所长、青岛大学眼科学院院长。兼任《中华眼科杂志》副总编辑、中华医学会眼科学分会角膜病学组组长。是亚洲角膜学会副主席、美国眼科学会国际会员、国际眼表疾病学会理事、国际泪膜与眼表学会学术委员会委员。

谢立信教授主要从事眼科角膜病、白内障的应用基础研究和临床诊治,特别在角膜内皮细胞、感染性角膜病和眼内植入缓释药物等方面做出了卓有成效的开拓性工作。获国家和省级科技进步奖15项和国家发明专利4项。出版国内首部《角膜移植学》和《角膜病学》专著以及主编国内首部《人工晶体植入学》。主编、主译书籍8部,参编18部。在国内外眼科杂志发表学术论文342篇,其中以第一或通讯作者在《中华眼科杂志》发表论文114篇,在SCI收录期刊论文35篇。完成角膜移植手术和白内障手术各万余例。先后承担国家“863”、“973”子课题和国家自然科学基金重点项目等省部级以上科研项目共30项。现为北京大学、浙江大学、武汉大学和青岛大学博士生导师,培养的研究生、进修医师遍布全国各地,为我国眼科学教育事业做出了重要贡献。

由于谢立信教授为我国眼科事业所做出的突出贡献,他先后被授予全国“五·一”劳动奖章、全国劳动模范、卫生部优秀留学回国人员。是第八、九届全国人大代表,中国共产党十六大代表。并于1998年获中华眼科学会奖,1999年获美国路易斯安那州立大学眼科中心国际杰出成就奖,2004年获中美眼科学会“金钥匙奖”,2005年获青岛市科学技术功勋奖,2006年获得中华眼科杰出成就奖。

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中译本序言

近年来,随着我国改革开放的深入发展和科学技术的飞速进步,国际间的学术交流也日趋频繁。上世纪80年代初开始,国内个别医院即开展了与国际眼科学领域的友好往来,到今天,我国与国际间的交流合作已呈现出百花齐放的大好局面。通过这些交流合作,发达国家的大量先进经验和技術被引进我国,并通过杂志、书籍等载体传播开来。

北京协和医院李莹教授和她的同事们,经过两年多的努力和反复修改,终将著名角膜病专家C. Stephen Foster、Dimitri T. Azar和Claes H. Dohlman教授合作编写的第4版《角膜——理论基础与临床实践》一书翻译成中文出版。此书的翻译出版对促进中美眼科学术交流和提高我国眼科医师的角膜病诊疗水平具有很大的促进作用。另外原著者的渊博学识和书写风格都会给我国相关领域的学者在书写专著时以启迪。

我在主审此书的过程中,充分体会到李莹教授等译者们的科学精神和为尽量体现原著风格所付出的辛勤劳动,他们精益求精,在翻译过程中做出了巨大的努力。他们的勇敢和对科学事业的执著,值得我和广大青年医师学习,感慨之余,作序为志。

此书在翻译过程中,限于国内外文字表达和学术水平的差异,难免仍有不当之处,请读者斧正。

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2007年3月7日于青岛

Preface to the Chinese Version

With the deep development of reform and opening-up, as well as the rapid improvement of science and technology, international academic exchange and collaboration have become more and more frequent in China. A great number of advanced experience and techniques from developed countries have been introduced to our country and spread via journals, books, etc.

Professor Ying Li and her colleagues at Peking Union Medical College Hospital spent over two years in translating the book of *The Cornea—Scientific Foundation and Clinical Practice* (Fourth Edition) edited by Professor C. Stephen Foster into Chinese. Publication of the Chinese version would not only help to improve the diagnosis and treatment of corneal disorders in China, but also promote academic communication in the field of ophthalmology between China and the US. The erudite knowledge and the writing style of the original writers may give some enlightenment to us.

I was impressed by the scientific spirit of the translators after reviewing this translated book. They made great efforts to completely reflect the original articles. Their diligence and persistence is admirable.

Restricted by the difference in language and academic level, there may be some inappropriateness in the translated version. We hope that the readers enjoy reading this book.

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译者前言

当今世界的信息量极其巨大,人类所需要的信息有90%以上是通过视觉获得。角膜是视觉产生的第一个关键结构,且位于眼球最前面,因此在传递信息、保护眼球、维持外观等方面都起到非常重要的作用。近年来,眼科学的发展日新月异,其中很多临床和基础的研究是从角膜开始的。掌握角膜的解剖结构、生理学和病理学特点,是所有眼科医生在眼部疾病诊治中所必不可少的。

我很庆幸这些年自己能够有机会从事角膜病的基础和临床研究。由于角膜结构的特殊性和复杂性,角膜疾病的临床表现具有很大的变异性。同一种疾病在不同个体和不同阶段,临床表现千差万别,诊断和治疗都很困难。多年来我阅读过大量的关于角膜方面的书籍和文献,但当我有机会阅读著名角膜病专家C. Stephen Foster、Dimitri T. Azar和Claes H. Dohlman合作编写的第4版《角膜——理论基础与临床实践》这本书时,仍感收获颇大。厚厚的一本书读完两遍,仍然爱不释手。这本书从角膜和眼表疾病的基础到临床,从诊断到治疗,图片清晰,言简意赅。无论对于从事眼科基础的研究者到临床一线的眼科医生,还是对于年轻的研究生到年长的教授都是一本难得的好书。

这本书出版于2005年,包括基础理论,临床主题,结膜、巩膜和角膜手术3部分共83章内容。

第一部分详细地描述了眼角膜结膜的组织解剖、细胞生物学特征、生理、免疫特征以及角膜结膜疾病时的病理反应,特别是对角膜结膜修复过程中的细胞成分变化、细胞连接、胶原纤维排列过程循序渐进地加以描述。多张电镜照片清晰地记录了感染性角膜溃疡、病毒性角膜炎以及非感染性角膜疾病患者角膜细胞膜、细胞器的变化。第二部分逐节介绍了眼表各种感染性和非感染性疾病,如细菌性角膜结膜炎、真菌性角膜炎、免疫性角膜结膜炎、暴露性角膜炎、角膜结膜干燥、眼睑腺炎、巩膜炎等,以及疾病发生发展的过程和治疗原则。特别值得提出的是,本书除对疾病的临床特征描述外,还对引起疾病的病原体的形态、结构、生物特征以及病变组织的反应和诊断时应注意的问题均一一进行了介绍。第三部分主要介绍了常见的角膜、结膜和巩膜手术,包括适应证的选择、手术技巧和术后问题的处理。作者对于这些问题以图文并茂的形式进行了阐述,为临床工作提出了具体的指导性建议。

屈光性角膜手术发展很快,从以前的PRK技术到现在广为应用的LASIK/LASEK手术,使很多的屈光不正的患者包括近视、远视和散光得到了良好的矫正。角膜基质环

(ICR)植入也是近年来的新技术,主要用于低度屈光不正的治疗、早期圆锥角膜的预防,收到了良好的临床效果。作者通过临床数据,比较了术后视觉质量与手术方式的关系,提出角膜切削深度、光区和过渡区直径、眼跟踪系统以及手术操作对视觉质量的影响。对于手术并发症如角膜上皮内生、上皮植入、瓣融解、感染、瓣混浊、内皮损伤和视网膜脱离等提出了建设性的意见。作者对几种屈光手术方式包括LASIK和PRK,LASIK和LASEK,LASIK和有晶体眼人工晶体植入术,以及常规的LASIK和波前像差引导的LASIK进行比较,认为近十年屈光性角膜手术仍以LASIK为主流,其未来的挑战也仍然是视觉质量和并发症问题,主张我们不仅要做个屈光手术者,更重要的是要做个眼科学家。

为了使国内更多的同行可以分享该部著作,我与北京协和医院的其他几位教授、医生和研究生们共同努力,将此书翻译成中文出版。我们力图在中文译本中体现出原著的严谨和简洁的风格,但由于我们水平有限,加之时间仓促,错漏之处在所难免,恳请读者不吝指正。

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李莹
2007年 春

Foreword of the Translator

We are living in a world flushed with abundance of information. Ninety percent of the information was obtained through visual system. Located as forefront of the eyeball, cornea is the first key structure to generate visual sense, playing an important role in the information transmission, eye protection and appearance maintenance. In recent years, there is great development in the field of ophthalmology, and many of the laboratory and clinical studies started from research of cornea. It is essential for all ophthalmologists to know about the anatomy, physiology and pathology of cornea to have a good diagnosis and management of ocular diseases.

It is my great honor to have the opportunity of active practice in the laboratory and clinical study of cornea for these years. Due to the specificity and complexity of the corneal structure, corneal disorders are of great variability, with highly diverse manifestation for different individuals and stages of the same diseases, so diagnosis and management are quite difficult. I have read many books and literatures on cornea, but I was still amazed to see composed by Drs. C. Stephen Foster, Dimitri T. Azar and Claes H. Dohlman. After reading through twice, I found it was still worth reading. With a concise style of writing and plenty of fine pictures, the authors discussed the diagnosis and management of corneal and ocular surface disorders, as well as the relevant basic researches. It is a valuable book for both the ophthalmologic researchers and ophthalmologists, regardless of the reader's experiences in the field.

The book was published in the year 2005, including 83 sections of 3 parts: Fundamentals, Clinical Topics, and Corneal, Scleral, and Conjunctival Surgery.

In part one, the authors described in detail the anatomy and cell biology characteristics, physiology, and immunologic characteristics of cornea and conjunctiva, and pathologic response of corneal and conjunctiva diseases. Particularly, changes of cell components, cell junctions, and array of collagen fibers of corneal and conjunctiva wound healing were described step by step. There was a great deal of electron micrographs, which clearly recorded changes of cell membrane and cell organelle in infectious corneal ulcer, viral keratitis, and noninfectious corneal disorders. In part two, various ocular surface infectious and noninfectious disorders were described, such as bacterial keratoconjunctivitis, fungal keratitis, immunological keratoconjunctivitis, exposure keratitis, keratoconjunctivitis sicca, Meibomian gland dysfunction, scleritis, and so on. The course of these diseases and principle of management were discussed. In particular, despite description of the clinical features, there were introduction of pathogen morphology, structure, biological characteristics, and reaction of pathological tissues, as well as the matters to notice in diagnosis. In part three, general corneal, scleral, and conjunctiva surgery were mainly discussed, including indications, surgical techniques, and post-surgical management. With the global development of kera-

torrefractive surgery, many young myopic patients had received detailed ocular examinations, including corneal topography, so detection of keratoconus and subclinical keratoconus was greatly increased. Opacity subsequent to keratopathy was usually polymorphic and intraocular pressure was instable, resulting in high astigmatism and vision impairment. These problems could be solved by corneal incisional surgery, keratoplasty, keratoprosthesis surgery, and in combination with anti-glaucoma surgery. These aspects were explained with detailed description and wonderful figures, giving concrete suggestions for clinical practice.

With the rapid development of keratorefractive surgery from previous PRK techniques to widely used LASIK/LASEK surgery at present, many ametropic patients including myopia, hyperopia and astigmatism have received favorable correction. Intrastromal corneal ring (ICR) is also a new technology in recent years, mainly used for the correction of low to moderate myopia and prevention of early keratoconus, and there are satisfactory clinical results. The authors used clinical data to obtain the relationship between operation methods and post-operation vision quality, and they proposed that ablation depth, diameter of optical zone and transitional zone, eye tracing system, as well as operative procedure could influence vision quality. They have given constructive suggestions on surgery complications such as corneal epithelial ingrowth, epithelial implantation, corneal flap melting, infection, corneal flap opacity, corneal endothelium damage, retinal detachment, and so on. By comparisons of several keratorefractive surgeries including LASIK & PRK, LASIK & LASEK, LASIK & phakic IOL implantation, and conventional LASIK & wavefront-guided custom LASIK, the authors preferred that LASIK was still the main trend of keratorefractive surgery in the next decade. The future challenges were still the problems of vision quality and complications, so the authors claimed that we were not only keratorefractive operators, but also ophthalmologists, and the latter was more important.

Together with some other professors, doctors and graduate students in Peking Union Medical College Hospital, I work hard to translate the book into Chinese version to make more Chinese ophthalmologists enjoy it. We would like to preserve the precise and concise style of the original work. However, with our limited capability and time, there must be some inaccuracy and careless omission. We hope the readers would never hesitate to point them out.

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Spring in 2007