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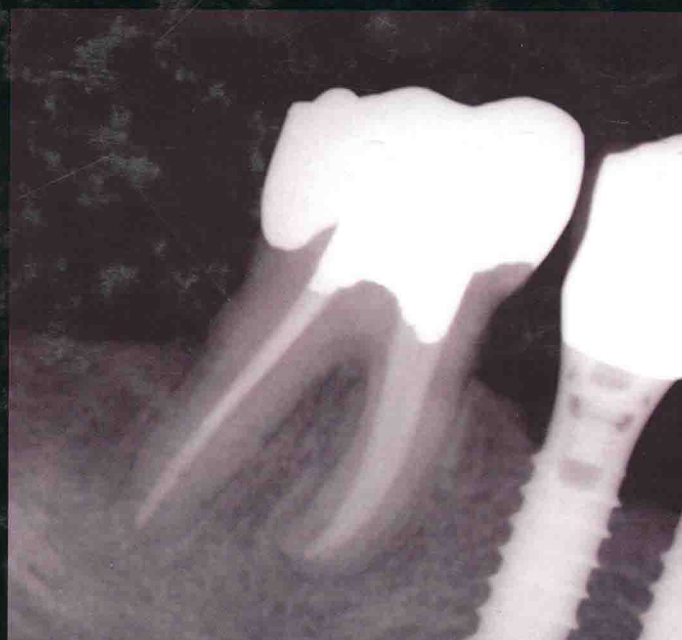
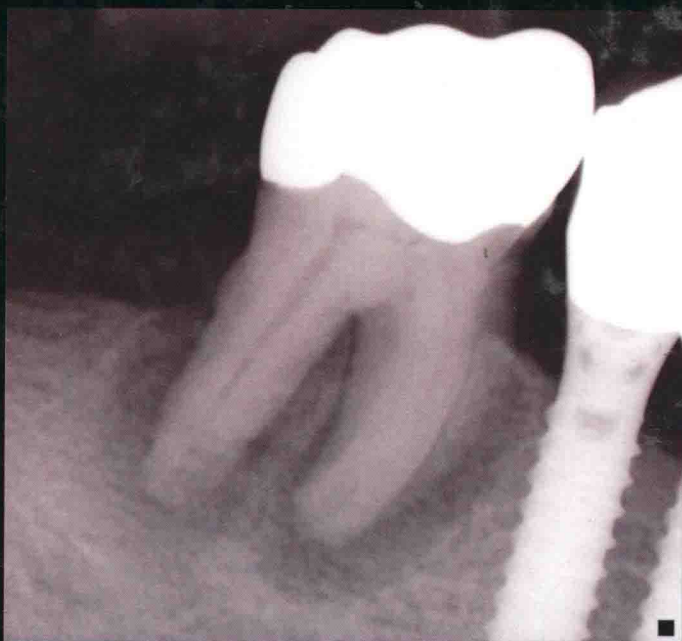
临床牙髓病学

Pathways

原 著 Stephen Cohen
Kenneth M. Hargreaves
Karl Keiser

of the Pulp

主 译 刘荣森 李颖超 张贤华 李 锐



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内容提要

本书是口腔牙髓病学最经典、最权威的专著之一，被世界上绝大多数口腔院校指定为牙髓病学的必修教材，由知名口腔医学专家Cohen 教授主编。本次出版的中文版为第9版，主要内容包括牙外伤后的牙髓治疗、牙髓病与牙周病的相互关系、牙髓病治疗中的局部麻醉、根管治疗牙的修复、儿童牙髓病学、老年牙髓病学、非手术根管再治疗。本书内容全面、结构合理，是牙体牙髓病科医师、口腔全科医师、口腔院校在校生不可或缺的经典参考书。

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献 辞

谨将本版《临床牙髓病学》敬献给现任 Pacific 大学牙学院院长 Arthur A. Dugoni 博士，Dugoni 博士致力于推广包括在线教育在内的创新性教学方法，通过先进的终生教育推动医疗服务，不仅自己身体力行，还启发了许多口腔医学界的领军人物，并因之具有世界性声誉。因此，将充满创新性的第 9 版《临床牙髓病学》敬献给终生学习理念的代表人物、现任 Pacific 大学牙学院院长的 Arthur A. Dugoni 博士适得其所。

Stephen Cohen

Kenneth M. Hargreaves

Karl Keiser

序 言

第9版《临床牙髓病学》进行了世纪性的转变，以图反映当前数码时代传播信息和获取知识的最新方式。伴随彩图纸质版还一同推出了电子版，以突出新时代知识学习澎湃活跃的特点。以此逻辑，前8版也都是反映当时牙髓病学之艺术和科学的“快照”。相比之下，新的第9版更像一部有生命力的不断成长之书，以崭新的创造性方式每周更新相关的临床信息。每章的内容都会随被专业期刊发表的新发现不断更新。指导性视频片段能够将原来只能用文字或图片表达的临床操作实况展现出来。如果说一幅图片能抵千字，那么视频片段就能起到百科全书的作用。富有挑战性的互动性牙髓病病例展示，可启发你给出正确的诊断和治疗方案，部分回应会在每个月后发表，并展示最终的病例处置和循证医学讨论。文本中的图片可保存为个人的图像资料，并根据个人喜好建立“微综述”库。这些图像还可下载到计算机中，帮助你进行教学授课或记忆要点。作为编者，我们很荣幸地推出这本首部互动性牙科专著，使作者能够通过互联网不断将最前沿的牙髓病学理念、技术和材料进展奉献给读者。

时刻期盼得到您宝贵的反馈。

Stephen Cohen

Kenneth M. Hargreaves

关于本书

本书是一部权威性的牙髓病学专著，由作者 Stephen Cohen 博士和新版编辑 Kenneth M. Hargreaves 博士倾力合作完成，适合口腔专业大学生和临床医生阅读。著作的内容丰富全面，囊括根管治疗、根尖手术、根管治疗牙修复、感染控制方面的最新技术和材料进展。主要更新包括全新的彩图界面以及针对临床治疗的最新循证医学研究成果。在原版的基础上，许多新锐专家的加入使得本书在内容上与时俱进更上层楼。新增添内容还有牙髓病急诊和外伤处置、口面部疼痛以及 HIPAA 法规等。

致 谢

我们十分荣幸与多位天才专家合作，竭诚完成了这部致力于提高读者临床水准的新版牙髓病学。我们要感谢 Matthew Tonioli 博士提供病例资料用作封面插图，还要借此机会感谢热情、耐心又极其专业的 Elsevier 团队，他们是执行编辑 Penny Rudolph，管理编辑 Jaime Pendill，副开发编辑 Julie Nebel，高级项目经理 Ellen Kunkelmann，多媒体开发 Angela Almond 和全体网页版团队，没有他们的工作完成这本书是难以想象的。

本书导言

人间明慎之道，如天神的使女，与命运
谜一般款曲暗通：航行于变幻莫测的大海，
或碧海晴天或浊浪排空。目标既定，破浪前行。
航向颠簸不定，恰似罗盘斗乱，企稳只靠平衡。

智慧系于一线，唯操变故于股掌。

——美之誓约，1929，Robert Bridges

上一版的《临床牙髓病学》(Pathways of the Pulp) 出版后，牙髓病学相关的艺术和科学又取得了多方面的进展。同时，与相关的生物学进展相比，焦点似乎更偏重于牙髓病学的临床方面，而这一现象本身就是值得研究的途径。让我们边阅读本版《临床牙髓病学》边探寻这些途径，不是急于作出结论或确立准则，而是着眼于有关这一学科的观念、方向调整和对发展远景的激情。

我们都认同牙髓病学中的一个公理，即微生物导致牙髓和根尖周疾病。虽然口腔中能够培养出的细菌多达 500 余种，但感染根管或根尖脓肿内鉴定出的细菌少至 3 ~ 12 种。不过我们在牙髓病学中遇到的问题是——这些细菌的致病力和表达这些毒力的能力在牙髓病的进展过程中起到关键作用。由于患者的整体健康是我们关注的终极目标，在这一领域开展了大量的引导性研究，探索鉴定这些造成龋病并扩展到支持组织中的、遗传学上快速适应的细菌及其致病机制。有趣的是，虽然与牙髓和根尖周炎有关的细菌谱系不多，但原发感染和继发感染中出现的细菌种群大相径庭。这些问题给临床治疗规范带来很大挑战，也指出了研究的方向。借助 PCR、DNA 同源性分析、SDS-PAGE 分析、

ELISA 分析、棋盘式杂交、种群特异性、核苷酸探针分析等技术，细菌种群和牙髓病根尖周病状况之间的特定关系正得到确定和梳理。不过，正在读此导言的读者不要误以为龋病的发生、发展和造成的疾患问题已得到解决，实现这些目标仍任重道远，对于牙周病也是如此。

近来令人激动的研究进展来自那些使牙髓组织成其为特定组织的细胞：牙髓细胞，已经能够使这些细胞显示出表达多种表型的能力。这些细胞实际上具有潜在干细胞的特质，对今后的再生研究有一定意义。这些研究主要运用生长因子（例如骨形成蛋白）、超声介导的基因疗法、成软骨诱导剂、涎蛋白和生物活性磷脂刺激牙髓组织修复再生。不过，有待明了和积极探索的问题是，牙髓病损对残留细胞群造成了什么影响以及这些细胞将来能否完全恢复其潜能？或者说它们今后的表达会逊于平常或完全终止？我们是否必须通过生物工程再造补充受损细胞才能达到再生的目的？此外，牙髓也随患者的老化而老化，那些早期受到多种不同损伤的牙髓是否能够在其后的一生中还能承受这些损伤的后果而保持活力？这些遐想会引领我们今天的探索另辟蹊径吗？

生物学和临床研究相结合，我们发现清除玷污层对实现我们的目标大有益处，使用有抗菌性的氯己定和诸如 BioPure (MTAD) 液等能够增进根管消毒的效果，清除玷污层也为粘结树脂性根管充填材料的应用研究开辟了途径。这些是已取得的成绩，仍有待发扬光大。这些启动性研究虽然进展迅速，还

希望有长期的转归研究证实这些有意思的发现。及时在这一新的探索领域,我们也必须纵横拓展,来面对根管充填技术的高速进展。

承蒙这些临床和生物学技术的发展,患者们受益良多。数字影像和牙科CT对病情评估和对患者指导大有帮助。放大设备的应用使我们能够更高水准地治疗和指导病人,因为我们知道,我们只能治疗我们能够看到的东西。这些选择能使当今和将来的牙髓病科或全科医生追寻一条成功之路。一次性根管治疗变得平常且成功,即使是死髓牙和根尖周病牙也不例外。根管清理成形做得更好,患者也没有明显痛苦。牙齿得以迅速修复并行使功能。患者保存牙齿的意愿不断增强。更新了传统的根管治疗观念,在病程的任何阶段都可实施治疗并取得成功。最近的流行病学资料提示,我们行进在“正确”的道路上:通过现代根管治疗技术保存的牙齿比例远高于传统方法90%以上。

问题仍然存在,我们必须探索新的解决途径。我们能在出现症状之前诊断出牙髓的不可逆病变吗?我们能用分子标记物诊断不可逆牙髓炎吗?我们能开发出改变根尖脓肿进展的技术吗?我们能完全逆转龋齿造成的损害吗?我们能再生牙髓吗?我们能刺激牙髓选择性分化并在受损伤后改变环境吗?我们能再生牙本质强化牙齿吗?我们能彻底清除根管内的所有微生物吗?我们能在根管治疗后在根尖孔再生出有夏贝纤维附丽的牙骨

质吗?我们能确定并预防特异性牙吸收的原因吗?我们能可预期性地将根管壁粘结成一体化的功能单位吗?在那些甚至是最高水准完成的根管治疗却最终“失败”的病例中,我们能杜绝冠方渗漏因素吗?我们能通过治疗强化牙根吗?我们能修复或预防根纵折吗?我们可预期牙胚种植吗?这些方向都方兴未艾,也激励坚韧的有识之士以无畏的勇气探索攻关。

是的,许多难度大创新性强的新研究探索方向摆在我们面前,我们已在一些未知领域展开探索。很多研究都保持自省,使我们更加依循循证医学的理念。有些探索研究的结果已成为当代以镍钛技术为先导的根管治疗术的规范和指标。最后,与那些“转归良好”的研究一致,另一些合理且内省的研究使我们通过长期和艰苦的工作辨明成败,开发出实用的评估方法和新的术语。

我们希望灌输给读者一个理念或途径,这一点需要着重强调并希望受众得以启迪,那就是所有的牙髓病专家和全科医师都必须做出符合伦理道德的治疗选择,这关乎诚实,也是业者依法行医的要求使然。此外,我们必须以同情怜悯之心施展仁术。

一经开卷,始入这崭新且令人期待的根管之路,无论对你眼前的成功还是日后的眼界都大有裨益,使我们“操变故于股掌”。

James L. Gutmann

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