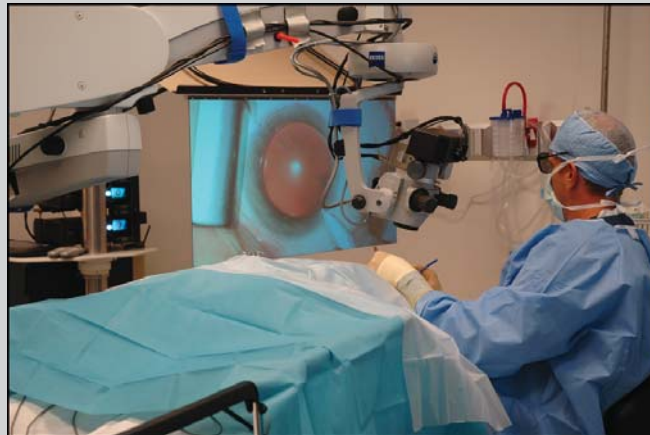


Mastering the Techniques of Advanced Phaco Surgery



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Mastering the Techniques of **Advanced Phaco Surgery**

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Mastering the Techniques of Advanced Phaco Surgery

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Foreword

United States Patent 3,589,363, filed July 25, 1967, lists Anton Banko and Charles D Kelman as inventors of “an instrument for breaking apart and removal of unwanted material, especially suitable for surgical operations such as cataract removal, including a handheld instrument having an operative tip vibrating at a frequency in the ultrasonic range with an amplitude controllable up to several thousandths of an inch.” These inventors realized that the prerequisite for removal of a cataract through a small incision is a technique to break up the hard nucleus into emulsate for aspiration. Inspired by the technique of dentistry to remove tartar with a metal tip that oscillates longitudinally at frequencies in the ultrasonic range, it was Kelman’s ingenious idea to adopt this principle, combining the oscillating tip and the evacuation tube into a hollow needle. **Error! Bookmark not defined.** In the years since Kelman’s invention, innovations in fluid management, including low compliance tubing and cassettes, microprocessor control of pumps, aspiration bypass and flow restriction systems, high resistance down-sized phaco tips, modification of parameters during tip occlusion and pressurization of irrigation have allowed safe use of high aspiration flow rates and very high vacuum levels, permitting extraction of moderately dense cataracts with minimal to no use of ultrasound. Evidence has continued to mount that this reduction of ultrasound use correlates with faster visual rehabilitation and improved outcomes. The advent of biaxial microincision phaco, which uses power modulations such as millisecond time scale pulse control to minimize ultrasound power, has eclipsed the early promise of laser phaco systems to deliver non-thermal cataract extraction. Many of these innovations in phaco technology have facilitated the treatment of difficult and challenging cases, such as pseudoexfoliation, intraoperative floppy iris syndrome and rock hard cataracts.



At the same time that surgeons have enjoyed continued improvements in innovative lens extraction modalities, the development of intraocular lens technologies have kept pace. With Sir Harold Ridley’s implantation of the first intraocular lens in 1949, lens extraction became irrevocably linked to refractive rehabilitation. The focus of intraocular lens technology today includes not only the correction aphakia but also of astigmatism, presbyopia and higher order aberrations. Science and industry are responding to the demographic changes in society and the predicted growth in lens surgery with the development of improved technology for biometry, IOL power calculation and lens extraction, as well as a wide array of innovative pseudophakic intraocular lens designs, including aspheric, multifocal, accommodative, toric, filtering and microincision compatible IOLs.

The future of cataract surgery is linked to the future of refractive surgery, just as lens extraction is linked to IOL implantation. **In this exciting new text, Dr Ashok Garg has assembled an array of highly regarded editors and authors to cover the full spectrum of the latest developments in cataract extraction and intraocular lens technology, as well as management techniques for those difficult and challenging cases which continually keep us on our toes.** All of us who desire the best for our patients will benefit from a close reading of the experiences of these authors who indeed are charting the course for the next developments in phaco.

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Preface

For the last one decade we have seen revolutionary developments and advancement in Phacoemulsification technology. Proved efficacy and predictability in new Phaco Surgical Techniques (Bimanual Microphaco, Coaxial Phaco, Biaxial Phaco, Torsional Phaco and 3D Robotic Cataract Surgery), New generation of Phaco Machines (Stellaris, Signature and Ozil Torsional etc.) and New Intraocular Lenses, viscoelastics, pharmaco therapeutic advances in preparation and postoperative care introduced for the attention of the patients are achieving tools to increase the success rate manifold. New innovations have certainly raised the standard of modern cataract surgery to greater heights which has become more safer with less complications and excellent visual results for the patients.

This International book contains 62 chapters covering the Pearls of Advanced Phaco technologies specially New Phaco Technique, including 3D high visualization cataract surgery, New Phaco Machines, Intraocular lenses, Modern Pharmacotherapeutics and complications Management in a easy to read and comprehensive format. The purpose to write this book was to provide uptodate information on all new Phaco technologies under one roof for the benefit of Phaco surgeons worldwide. Video DVD ROMs, an added attraction of this book, shows New Phaco Technologies including 3D high visulization Phaco Surgery by International Masters of this field.

The publisher deserves special thanks and our gratitude to Shri Jitendar P Vij (CEO), Mr Tarun Duneja (General Manager – Publishing) and all staff members of M/s Jaypee Brothers Medical Publishers Pvt. Ltd who poured hard efforts for the speedy publication of this book. We hope this book shall generate great interest among Phaco Surgeons worldwide who want to get updated on all new advances in Phaco technologies in a compact and comprehensive manner. Three-D high visualization cataract surgery, the special feature of this book, shall be of great interest.

Editors

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