

Reflections on Charles Kelman and the Early Days of Phaco

Thoughts from those who were there.

BY JACK M. DODICK, MD, FACS; CHARLES H. BECHERT II, MD, FACS;
HOWARD V. GIMBEL, MD, MPH, FRCSC; DAVID PATON, MD, FACS, MSC(HON);
I. HOWARD FINE, MD; AND JAMES B. CARTY, JR, MD, FACS

JACK M. DODICK, MD, FACS



It must feel wonderful to be recognized as one of the most important contributors to ophthalmology in the past 100 years and to have changed the lives of millions of people around the world. The road to recognition was certainly not easy for Charlie Kelman. I, for one, know and bore witness to his early struggle to succeed.

In 1967, I was a third-year resident at the Manhattan Eye and Ear hospital. Charlie was but a few years out of his residency at the Wills Eye Hospital in Philadelphia and had arrived in New York City as a wannabe; he wanted to be, but there were several of the hierarchy at the Manhattan Eye and Ear who did not want him to be. Virtually the entire Board of Surgeon Directors at the institution opposed his way-out idea, but he pressed on nevertheless.

Early one morning that year, Charlie arranged to perform his first phacoemulsification—on a day when the chief of ophthalmology was not scheduled to be around. Charlie nearly had a heart attack when the chief of ophthalmology unexpectedly showed up in the hospital that day. Somehow, Charlie escaped his attention and began the historic procedure in OR No. 4. The equipment was rolled in and the door closed. Louise Brown, his surgical technician, and Cheryl Jalbert, his trusted helper, stayed at his side. A sign reading, “Contaminated Room—Do Not Enter,” appeared on the door. The approximately 4-lb ultrasound handpiece was suspended on an articulated arm because of its weight. Four hours of surgical time later, including 41 minutes of ultrasound time, Charlie had completed phacoemulsification on a blind eye, a procedure that ended with a purulent endophthalmitis and phthisical globe.

Charlie waited an entire year to attempt his second case in a patient with bare light perception, mature cataract, and a history of central artery occlusion. This case went somewhat better, but the patient sustained a severe corneal insult that took 3 weeks to clear. Had it not, Charlie confided in me, he would never have continued. The patient’s vision improved to light perception. Phacoemulsification was born, and I consider myself privileged to have witnessed it.

CHARLES H. (SKIP) BECHERT II, MD, FACS



During the early days of phacoemulsification, one had to learn, not extracapsular cataract extraction (ECCE) (we were all intracapsular surgeons), but the “cat game.” This scenario entailed (1) acquiring the cats, (2) transporting them from the pound to the lab (in my case, the hospital’s basement), (3) learning the technique of anesthetizing cats without permanently putting them to sleep, (4) performing flawless phacoemulsification without rupturing the capsule and inducing major corneal edema, and (5) fitting the cats with perfect aphakic glasses. I can vividly recall one of my first dilemmas: what to do with a dozen cats that had escaped from the trunk of my car and were looking down at me from the rooftop of my house as if to say, “no way.”

Back then, phacoemulsification was “see one, do one, teach one.” Charlie Kelman was our leader and “fall back guy.” In the beginning, the procedure elicited much controversy, and Charlie took most of the flak, as did others of us “pioneers,” from peers and academicians. We were the buccaneer surgeons, and Charlie was Captain Bligh.

From the start, it was obvious that the small incision would speed healing as well as lessen bleeding and the

amount of induced astigmatism. The practice of inserting intraocular implants through a small incision flourished during the late 1960s. With the help of Dr. Donald Praeger (the second surgeon to perform phacoemulsification), I completed the first phacoemulsification/implant surgery in 1973 by cartwheeling a rigid Copeland lens through a small phaco incision. The rest is history.

Recognition should be given to Cheryl Jalbert, who assisted with all aspects related to the operation of the first phaco machine—even sleeping overnight in the same room with it prior to the first case in order to ensure its safety. Kudos also to Robert Loftus, PhD, and Henry Mitchell for teaching the machinery's nuances and the techniques of phacoemulsification to thousands of surgeons worldwide.

By pursuing his ideas, Charlie Kelman made cataract surgery safer, better, and faster, and he led us into a world of intraocular surgery for the betterment of our patients. I feel privileged to have been there since the beginning and to have been associated with a man of his integrity and dreams. Charlie, it's been a great ride.

HOWARD V. GIMBEL, MD, MPH, FRCSC



The early days of Kelman Phaco Emulsification cataract surgery were somewhat akin to the exploration of a new frontier. Charles Kelman resembled Lewis and Clark blazing the Oregon Trail, and we early adapters were confident that the goal of safe, smaller-incision surgery was reachable. Certain cases presented unexpected obstacles, however, just like the explorers encountered rapids in the river. I remember one such case that occurred a few months after I started performing phacoemulsification in January 1974. The pupil grew increasingly miotic until it was almost wrapped around the phaco tip. We did not have viscoelastics or know then about using epinephrine in the irrigation fluid. When I managed to remove the nucleus and epinucleus and could see the red reflex, I sighed in relief and closed the wound. The next day, however, when I dilated the pupil, I could see a layer of cortex that was already fluffing up and certainly obscuring the patient's vision. I had to tell her what had happened, take her back to the OR, perform another block (no topical anesthesia then), and irrigate/aspirate the cortex with the luxury of a widely dilated pupil.

By 1980, the waters were quiet, and I had grown very comfortable with the technique. I was quite puzzled, therefore, by the wave of enthusiasm for planned ECCE. Even some prominent cataract surgeons who had been performing Kelman Phaco Emulsification were advocating ECCE. So, Dr. Morley Kutzner, who was doing a fellowship with me, and I carefully analyzed the endothelial cell counts of our cases after phacoemulsification with IOL implantation versus our cases after ECCE with IOL implantation and

the cases of a colleague after intracapsular cataract extraction without IOL implantation. We found that phacoemulsification posed no added corneal risk compared with ECCE and less risk than intracapsular cataract extraction. Thereafter, we stuck to our convictions that phacoemulsification was safe, and we eventually witnessed the gradual conversion by most surgeons to the procedure.

DAVID PATON, MD, FACS, MSC(HON)



In the very early 1970s, I became the first departmental chairman outside New York City to start training residents in phacoemulsification. It was the collective effort of an enthusiastic senior faculty, but the decision was mine to make—and not without significant risk in those days. Initially, our faculty instruction was at Manhattan Eye and Ear Hospital, but later Charlie Kelman himself kindly provided his personal helicopter services from a helipad in Manhattan to the hospital in New Jersey where he was then performing the majority of his operations. We knew the basics, had practiced on cat eyes in the laboratory, and now could assist the surgeon and observe every detail of his hand- and footwork up close. Flying a helicopter, Charlie once told me, was about as different from flying a small fixed-wing aircraft as was the new hand and foot coordination of phacoemulsification.

Although the sensational innovation of microsurgery ultimately transformed modern ophthalmic surgery, as the 1980s approached, its ultimate application in the form of phacoemulsification constituted the steepest learning curve any eye surgeon had ever confronted. For the first time in the history of all surgery, the student could no longer learn his technique from textbooks and films. Hands-on instruction had become mandatory, and a dearth of such training became the chief reason so many leaders in academia deplored and criticized the use of phaco instrumentation. Before long, they realized that phacoemulsification, skillfully performed, was far better than the methods they had learned in the past.

Even the way Charlie taught the use of his machine was unique. He pointed out very clearly that not every ophthalmic surgeon was qualified to become a phacoemulsifier. Charlie rigged up a gadget that he used to test whether the students had the stereopsis and steadiness to perform the procedure. They had to introduce a steel test rod through two, small, obliquely separated wire loops en route to a model eye on the desk at waist level. A nasty alarm would sound if one of the loops were touched inadvertently. Grade F! Charlie was right again: not every ophthalmologist is basically qualified to perform phacoemulsification, no matter how excellent the instruction.

The main challenge for microsurgical instruction in the

rapidly changing world of ophthalmic surgery was in countries abroad where few surgeons had the opportunity to learn the new methods from hands-on teaching. For this reason, throughout the 1970s and by 1982, I had conceived, developed, and energetically promoted Project ORBIS for the on-site instruction of ophthalmic microsurgery in developing and developed countries.

Charles Kelman has won many awards and has prospered in what he has achieved. He himself is a piece of work, and a work always in progress—a paragon of creative achievement.

I. HOWARD FINE, MD



I can recall the first time I met Charlie Kelman. It was at an international meeting. He was an extremely important ophthalmologist and my personal hero, so I was shocked at how friendly and approachable he was.

I think the important thing to remember when thinking about all of his many accomplishments is the fact that Charlie was also the role model for an entire generation of ophthalmologists who wished, as he had done, to combine clinical research and teaching with patient care. This group of ophthalmologists made enormous innovations to his procedure, taught it all over the world, and found, at the same time, tremendous satisfaction with their own careers.

Phacoemulsification in the early days was a far more arduous procedure, a lot less user-friendly, and much more difficult to learn. Thanks to what the second generation of eye surgeons has built on Charlie's innovation, phacoemulsification is now the preferred procedure for removing cataracts throughout the world, and it improves the lives of millions of patients each year.

JAMES B. CARTY, JR, MD, FACS



After completing the Kelman Phaco Emulsification course in the mid-1970s, returning home, and having difficulty performing the procedure, I visited Charlie monthly for a few years to watch him operate and ask many detailed questions on how to perform each step of the procedure. He was just as kind and helpful then as he is today. After finishing the day's surgeries, he would frequently fly me back in his helicopter to Manhattan from Lydia Hall Hospital where he operated.

After I had finally mastered the phacoemulsification technique in the late 1970s, Charlie asked me to assist him with his phacoemulsification course. What an honor! His courses took place every 2 to 3 months in New York City, where they were attended by ophthalmologists from all over the world. The courses consisted of introductory lectures, operations on animal eyes by every participant, more lectures on

aspects of phacoemulsification and the machine, observation of Charlie as he performed the procedure, further practice on animal eyes, and a lecture on the management of complications.

One evening in the middle of the multiday course, Charlie always put on a show for the visiting ophthalmologists and his other admirers. He told jokes, played the saxophone, and sang—backed by an orchestra led by Jack Parr's former conductor. It was mind-boggling to see someone so brilliant and creative in medicine also display creativity in music and comedy. The excitement of the attendees was so contagious that, from the late 1970s through the 1990s, I changed my schedule whenever necessary so that I never missed one course.

Virtually everything I have learned in cataract surgery and lens implantation I learned from Charlie. I can't begin to express my gratitude and appreciation for his mentorship. God bless him! ■

Charles H. (Skip) Bechert II, MD, FACS, is Director of the Sight Foundation in Fort Lauderdale, Florida. Dr. Bechert may be reached at (954) 727-0676; sightfoundation@aol.com.

James B. Carty, Jr, MD, FACS, is Chief of Ophthalmology at the Bryn Mawr Hospital in Bryn Mawr, Pennsylvania, and the Jenersville Regional Hospital in West Grove, Pennsylvania. He is also a team leader on the Cataract and Primary Eye Care Service at Wills Eye Hospital in Philadelphia. Dr. Carty may be reached at (610) 527-0990; cartyeye@aol.com.

Jack M. Dodick, MD, FACS, is Professor and Chairman of the Department of Ophthalmology, New York University School of Medicine, and he is Chairman of the Department of Ophthalmology, Manhattan Eye, Ear and Throat Hospital. Dr. Dodick may be reached at (212) 288-7638; jackdodick@aol.com.

I Howard Fine, MD, is Clinical Professor at the Casey Eye Institute, Department of Ophthalmology, Oregon Health and Science University, and he is in private practice at Drs. Fine, Hoffman & Packer, LLC, in Eugene, Oregon. Dr. Fine may be reached at (541) 687-2110; hfine@finemd.com.

Howard V. Gimbel, MD, MPH, FRCSC, is Professor and Chairman, Department of Ophthalmology, Loma Linda University, Loma Linda, California, and he is Medical Director and Senior Surgeon at the Gimbel Eye Center in Calgary, Alberta, Canada. Dr. Gimbel may be reached at (909) 558-2182 or (403) 202-3329; hvgimbel@gimbel.com.

David Paton, MD, FACS, MSC(HON) is retired. Dr. Paton is former Chairman of the American Board of Ophthalmology, former first Vice President of the AAO, and former Chairman of Ophthalmology at Baylor College of Medicine in Houston. He is the founder and long-time medical director of Project ORBIS. Dr. Paton may be reached at (631) 324-3979.