

IN GOOD HANDS

Dr. Camran Nezhat and the Dawn of Modern Surgery

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For more than ten years, Jennifer Ghosoph suffered severe abdominal pain, bleeding day and night. Occasional respites would end in severe hemorrhaging and a race to the emergency room. Chronically anemic from age 13, her swollen abdomen so painful that she sometimes couldn't move, she sought help from a half-dozen male gynecologists up and down California. They prescribed every kind of birth control medication, but the pain and bleeding only got worse. "It's just period pain," they condescended. And pain, she must learn, was a woman's lot.

She was referred to a chain of specialists who did repeated Pap smears and pelvic exams. She saw an orthopedist, a urologist, and fibroid and ovarian cyst specialists who said her problems were simply hormonal imbalances—she needed to go home and toughen up. She had false positives for chlamydia and cervical cancer. A specialist in endometriosis at UCLA said she was too young to have that disease. She should "find a good psychiatrist."

The story of her twin sister Elizabeth is no less appalling—constant, debilitating pain and a series of male OB/GYNs who said her problems were normal and could be regulated with diet and exercise. It wasn't until age 22 that the sisters found a gynecologist, this time female, who diagnosed endometriosis, fibroids, and other growths. "She just opened me up," says Elizabeth, "and looked in horror. It was one big spider web, every organ attached to every other, fused together by growths. As to my hope of having children, she said no amount of money would get me pregnant." The twins were the most severe cases she'd ever seen, and she hadn't the skill to help them. But she gave them the name of a surgeon at Stanford.

In the late 1970s, Doctor Camran Nezhat attached a video camera to the laparoscope, a thin, flexible tube inserted through a quarter-inch incision in the abdomen and operated while viewing a video monitor. This idea revolutionized laparoscopy, which until then had required the physician to bend over and peer directly through a scope, leaving only one hand free, a fact that had con-

fined the process largely to diagnostics. Whereas most doctors would open the patient from hip to hip, videolaparoscopy, with tiny incisions for lights and instruments, leaves minimal pain, adhesions, and scarring, fewer complications, lower overall costs, and hospital stays of hours rather than days. Camran Nezhat's innovation, which earned him the title, "father of modern laparoscopy," was in fact the greatest medical advance since the introduction of anesthesia.

His visionary foresight and virtuoso skill allowed him to develop devices and techniques to perform procedures never before done by the laparoscope, and in areas so delicate that few surgeons in the world have the experience to treat them. Though he specializes in pelvic and abdominal disorders, many of his techniques are now widely used and can be applied to any part of the body where a cavity exists or can be created. Nezhat has performed more than 12,000 surgeries—cases often rejected by other surgeons as "too advanced"—and never lost a patient. No other surgeon has done more laparoscopic surgeries or had fewer complications. Internationally renowned, he is one of the leading minimally invasive surgeons in the world.

"He listened to me," says Elizabeth. "He was so calm. When I told him my pain was constant, he said, 'That is not normal.' He's very soft-spoken, with his gentle Persian accent. He said, 'You are in my care now. I will make you better.'" He did have to do three surgeries over two years, repairing her reproductive system. "I felt so light after the surgeries," she says, "free of pain for the first time I could remember."

Her sister came to Nezhat with massive lesions, severe reproductive abnormalities, and looking four months pregnant from swelling. It took three surgeries to correct her condition but her 13 years of pain were over. With stage IV endometriosis and congenital abnormalities, most doctors would have removed the uterus, but Nezhat believed that she could have children, a hope that every other doctor had denied. He did two more surgeries on Elizabeth, began intrauterine inseminations, and put Jennifer on a strict hormonal regimen, following up persistently. Each now has a "miracle baby boy." They see Doctor Nezhat as the "hand of God."

But Nezhat insists that his patients are the true heroes. "I see the most challenging cases," he says. "These are women who have sometimes been to dozens of doctors who were unable to give them help or hope. Yet they persevered. Unfortunately, women are raised by their mothers to expect painful periods, and even doctors buy into the idea that menstruation typically is painful." So they often overlook the fact that the most common cause of painful cramps is endometriosis, a condition in which renegade tissue from the lining of the uterus colonizes the surfaces of other organs, forming bandlike patches and scars, sometimes causing bleeding, tremendous pain, and infertility. The disease is now estimated to affect 10 to 20 million women in the United States alone. "Among women with unexplained infertility," says Nezhat, "the majority have endometriosis—in our practice it's more than 90 percent. The most severe cases often need repeated surgeries. Sometimes

physicians give up when the first surgery doesn't solve the problem, telling the patient that there's no hope of normal conception. My mission is to give them hope." A bulletin board in his office is covered with pictures of babies—some of them named Camran.

Camran Nezhat is a solitary man. From his early morning run and meditation, through his workday and late hours in the office, his devotion to medicine is his joy and his life. "I live mostly in my own world," he says, "trying to make a good contribution. My entire philosophy of life and practice as a surgeon has been deeply influenced by the spiritual teachings of the old Persian philosophy: think good thoughts, speak good words, do good deeds. The Persian word for God is 'Khoda,'" he explains, "which means to know yourself." For the Persian poet, Rumi, the key to wisdom is self-realization; life is a process of evolving through love toward reconnection with the spiritual ground from which he believes we emerged.

Following Rumi's example, Nezhat endeavors "to feel love for whomever I come across and to give freely to anyone I meet, even if it is just a smile or kind word. I try to be what others need me to be." His career is the quintessence of Sufi teacher Hazrat Khan's injunction to "turn one's occupation or profession into a religion—to transform everyday life into a religion, so that every action may bear some spiritual fruit." "While I strive for the best," Nezhat explains, "I try to do it with a certain detachment, without entanglement in material concerns, but with the bigger picture—a sense that we are not self-contained, that we all share a common humanity. We are spiritual beings. Every moment of life is a miracle." That he has never lost a patient is "a miracle that comes from a connection between my patients and myself through an energy that I cannot comprehend or explain. Over and over, I observe that if I do the exact procedure for two different patients, the one who has the more serene mindset and more trust in me will have a better outcome, no matter how difficult the surgery."

During his internship and residency at the State University of New York at Buffalo, Nezhat found he had a talent for laparoscopy. He developed a reputation among his co-workers for "good hands" and was increasingly called on for laparoscopic procedures. But the process was severely constrained, not only by the surgeon's contortions, back-strain, eye-fatigue, and need to continually move around the patient to reposition the scope, but by its limited applicability, forcing patients to endure large incisions for even the mildest of pathologies. Driven less by his discomfort than by the pain and suffering of his patients—the long convalescence and the serious complications arising from open surgeries—Nezhat had the brainstorm that would revolutionize modern surgery.

In 1978, he attached a large video camera to the laparoscope and began learning to work on animals directly off a TV monitor. "At one point," he says, "I lugged myself and the heavy camera equipment up a ladder and somehow got the whole system to suspend from the ceiling, rigged together with duct tape! Words cannot describe just how ridiculous this hanging, swinging contraption looked. And with poor light sources and old black and white video equipment, those first murky images were reminiscent

of Jackson Pollock's *Number 8*." Nezhat worked with the manufacturers of medical devices and surgical instruments to improve the technology, and by 1985 he was able to present his work at the annual meeting of the American Fertility Society, showing laparoscopic treatment of extensive endometriosis to be feasible and safe. With video technology, the surgeon could stand comfortably next to the patient with both eyes open and, with magnification, see details on the monitor that would elude the naked eye. Blood loss is in teaspoons rather than cups, the tiny incisions need few stitches, if any, and the number of people in hospital beds is greatly reduced.

Nezhat predicted that almost all other pathologies could be managed in the same way, as long as a body cavity existed or could be created by inflation. Yet his vision was 20 years ahead of its time. Laparoscopy was still considered dangerous when not limited to diagnostics. But with the advent of miniature digital cameras, high-definition monitors, lasers, xenon lights, hair-thin fiberoptic cables, ultrasound harmonic scalpels, and robotics, Nezhat's prediction that almost all open surgeries could and should be avoided has become a reality.

He was the first to treat not only the most advanced pelvic and abdominal disorders by videolaparoscopy, but many other procedures as well. His collaboration with specialists in different disciplines became crucial in spreading these techniques to surgeries once considered inoperable using minimally invasive approaches. "Operating from the monitor transformed the operating room from a one-man band into an orchestra," says Nezhat, so that those assisting could act more readily and learn more easily.

With 40 patents and at least 20 more innovations given freely to the world, Nezhat continues to invent techniques and modify established surgical procedures. When Ajit Shah and Phil Green of Stanford Research Institute developed the da Vinci multi-armed robot, Nezhat was a major consultant, repeatedly testing it and making suggestions. With its magnified, high-definition, three-dimensional view of the surgical area, the remotely operated robot eliminates shaking or tremors and affords full manual dexterity inside the cavity without large incisions.

Nezhat envisions future centers of excellence where the same procedures are done over and over by the best surgeons. Robotics allows those surgeons to operate remotely on patients located anywhere in the world (though the U.S., as always, has been slow to approve it). Twenty years from now, surgeons will be operating by computer interface, using tiny high-tech tools to travel inside the body with a precision beyond imagining. Descending from Nezhat's innovation, the vast potential of robotic surgery alone leaves no doubt that his development of videoendoscopy is commensurate with the introduction of anesthesia or the discovery of antibiotics.

Such revolutionary advances, however, are almost always hard fought and slow to develop. This has been especially true of laparoscopy. Even today, only 25 percent of the 10 million major surgeries in the U.S. are minimally invasive. About 10 percent of hysterectomies and 5 to 10 percent of procedures on uterine fibroids are done laparoscopically, while millions of women are subjected to multiple open surgeries for insignificant pathologies.

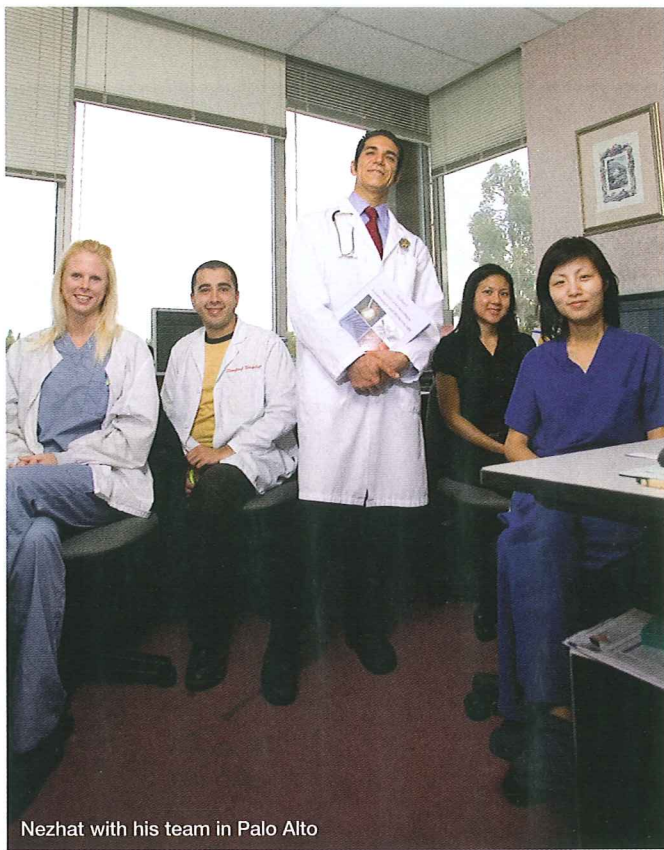
Surgeons' initial resistance to doing advanced procedures laparoscopically was in part the result of concern over complication rates, which were due mainly to inexperience. In the late 1970s, laparoscopy was second only to pregnancy complications as a source of gynecological lawsuits. So the timing could not have been worse to introduce a radically new concept like videolaparoscopy, especially in the pre-digital era. Operative videolaparoscopy, with its loss of direct sight and touch, seemed counterintuitive and too risky. Even today, residency programs still emphasize the older methods for the majority of procedures like hysterectomy or bowel resection. To a degree, the popularity of laparoscopy has been driven more by patients than by surgeons.

When Nezhat presented his ideas on videolaparoscopy at the annual meeting of the American Society of Reproductive Medicine in the mid-1980s, the audience, according to one observer, was "ready to throw tomatoes at him." For years, his papers were rejected. One reviewer wrote him a

letter saying that only one out of 200 surgeons could succeed in operating off the monitor and that what he was advocating would kill patients. But Nezhat pushed on, undaunted, finally publishing in 1986. By 1993, he was invited to join Stanford University Medical Center, with many institutions competing for him. Studies have since poured forth confirming the advantages of operative videolaparoscopy. The same procedures pioneered by Nezhat and considered so controversial a few years ago are now encouraged by the most prestigious journals. That Stanford University Hospital is one of the leading minimally invasive surgery centers in the world is due largely to Nezhat's efforts and his collaboration with surgeons of other disciplines, performing some of the most innovative endoscopic surgeries in such areas as urology, colorectal surgery, cardiothoracic surgery, vascular surgery, and neurosurgery.

Like Jennifer and Elizabeth, most patients come to Nezhat as a last resort, many having seen a chain of prior specialists who either believed out of ignorance that the patients were beyond help or who deliberately shirked the necessary surgery to protect a comfortable, risk-free practice. Like airplanes, most surgeries are relatively safe. But inheriting the worst cases, Nezhat must guide his plane down onto the Hudson River almost every day, and does so with no fatalities. Annie Maghan, whose perpetual period would soak her bed in blood, saw a string of doctors who

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Nezhat with his team in Palo Alto

put her on drugs, wouldn't return calls, and treated her, she says, "like a pest." When she found Nezhat, he took out over 100 fibroids and sent her home the next day. She has had no problems since. Donna Lee saw more than ten OB/GYNs who did no tests, suggested birth control pills, and told her she was just one of those "unlucky women" who could never have children. After 23 years of pain and distention, she found Nezhat, who removed the endometriosis and a very large fibroid. A day later she was up and walking in her hilly neighborhood with no pain at all. She now has a baby girl.

How does one account for the dozens of doctors who couldn't help these women? Lack of skill would be the kindest answer. Even with open surgery, the location of Annie's and Donna's fibroids would have required a high level of skill to excise. Because one can safely ignore these symptoms in otherwise healthy people without killing the patient, there is a reluctance to operate, particularly on young people, just to look for fibroids or endometriosis. "Traditional surgery is like carpentry," says Nezhat. "Videolaparoscopy is like watchmaking." "It's high time," a colleague agreed, "that we begin training young surgeons to be watchmakers rather than butchers." Until recently, laparoscopy was not commonly taught, and a 60-year-old surgeon about to retire is reluctant to learn a new technique. So there is also a fear of established procedures becoming obsolete and of ensconced authorities losing control.

But the saddest explanation is simply ignorance. Added to the failure of many doctors to stay informed or to understand the safety and success of Nezhat's method is the enduring tendency to assume that women's problems are largely in their head. The term "hysteria" comes from the word "uterus." If the woman shows any hint of psychological factors, doctors will often dismiss physical problems to folk notions about women's misconceptions

over what should be accepted as normal. In reams of thank-you letters to Nezhat, patients often mention being told by previous doctors that problems were all in their head. Coupled with this is the fact that we tend to believe what the doctor tells us, unaware that there is a bell curve to everything, that true proficiency in doctors is as uncommon as proficiency in any trade or profession.

Camran Nezhat grew up in Shahreza, a small town in central Iran. As a boy, he loved to take things apart, put them back together, improve them, and find better ways to do things. When he was very young, doctors saved his mother's life, an incident he feels was responsible for his becoming a doctor. After college and medical school in Tehran, he fulfilled his military obligation in Iran and came to America in 1974, joined by his mother and brothers. Following internship and residency at the State University of New York at Buffalo and a fellowship at the Medical College of Georgia in Augusta, Nezhat came to Stanford in 1993 where he is now Deputy Chief of the Department of Obstetrics and Gynecology. As Clinical Professor at both Stanford and UCSF, teaching laparoscopic surgery while in private practice, he has trained over 10,000 postgraduate students from most countries in the world, with up to 12 nations represented at one time in the operating room. In 1995, he set up the nonprofit Stanford Endoscopy Center for Training and Technology Fund to provide research and education for young physicians and scientists working to eliminate the debilitating disorders that affect millions of women. He is co-author of six textbooks, has published more than 500 articles, abstracts, and video presentations, and has won a long list of awards and honors.

In addition to his heavy involvement in many medical charities, Nezhat has acted as surgeon and advisor in poor countries on every continent, usually paying his own travel expenses. A colleague once wrote that Nezhat had "the head of a scientist and the heart of a poet." It is hard to imagine anyone more emblematic of the fact that medicine is both science and art. His artistry extends beyond the operating room to a sincerity and compassion that mark his manner with whomever he meets. A medical historian once answered her own question as to how Nezhat, as a young resident courageously confronting senior surgeons with his radical vision, could risk his nascent career and take on the entire surgical world: "Very gracefully, of course."

When our descendants look back across centuries to the dawn of modern surgery, they will speak of the dedication and sacrifice of Camran Nezhat. There is an aura of compassionate humanity about this singular man, a healing, revitalizing presence, like a fresh breeze in the heat of the day. Patients come to him as a last resort and find new hope. Having suffered the resistance and envy of lesser minds to bring comfort and fulfillment to countless lives, Camran Nezhat is one of those uncommon souls who make our species seem just a little more than it may be. Though there are few such people, they are the lamps that line our journey—patches of light along the path, winding through the long night of life on this earth. ■