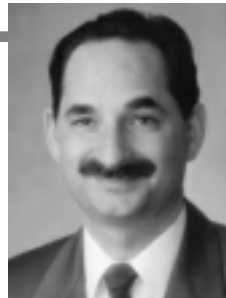


The Frontier and Beyond ... *The International Society for Minimally Invasive Cardiac Surgery* Revitalizes Our Profession

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"Life is change. Growth is optional. Choose wisely."
— Karen Kaiser Clark



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Just a few years ago, every surgeon could boast of a familiar, reproducible method for coronary revascularization that suited all patients and nearly all situations. With great pride, all patients were made to fit a procedure with the chief benefit being reliability and reproducibility. Decades of steady training and reinforcement in the techniques of cardiopulmonary bypass, cardioplegic arrest, and peri-operative recovery were rewarded by the development of a national "standard" of cardiac surgical results. Mortality rates for uncomplicated cases fell, operative efficiencies yielded shorter and shorter procedure times and everyone was content. It appeared as if progress was coming to a final stopping point and nothing more would be added to the standards of modern cardiac procedures.

What has changed? Most importantly our cardiology colleagues have changed. When I entered cardiothoracic residency in 1983, angioplasty was just a rumor. The gold standard for the care of medical refractory angina was surgical bypass. Surgeons were needed in every corner of the country to satisfy the increasing demand for anginal management. The operating room schedule was booked for two months in advance with chronic stable angina cases. Patients with ejection fractions below 40% were rejected as too risky for surgery. Emergency operations were reserved for aortic dissections, not acute ischemia.

Just four short years later, everything was reversed. The cardiologists treated nearly all coronary disease electively, reserving severe multivessel disease and interventional failures for the surgeons. Elective surgery nearly disappeared and a new class of urgent cases (within 48 hours of diagnosis) appeared, along with acute angioplasty failures, evolving myocardial infarctions, salvage cases, reperfusion arrhythmias, multi-infarct cardiomyopathies, low ejection

fractions, and percutaneous bypass in the catheterization laboratory. The volume of angioplasties rose from just a few thousand in 1981 to over 400,000 procedures in 1996. Instead of proudly returning the patient to their referring practitioner after a successful bypass, modern cardiologists feel frustrated and embarrassed when forced to refer a patient to surgery and continue to promote treatment "without surgery."

During the explosive growth in angioplasty, what did cardiac surgery accomplish in turn? My own personal answer to this disturbing question is the following. First, surgeons proved the value of arterial conduits, which provided increased longevity and freedom from angina compared with operations done with vein grafts. Secondly, surgeons and the perioperative team were able to reduce mortality to a basement value of 2% to 5% despite an increasingly morbid referral source. These accomplishments are important, but do they reassure surgeons of a future? Lets see....

The search for a perfect non-surgical alternative continues. Atherectomy, lasers, stents, radiated stents, drug eluting stents, and more. Multiple niche devices each to overcome one of the obstacles of the past. Wires that find and recannalize chronic total occlusions. Angiogenesis growth factors. Transcatheter endocavitary TMLR (transmyocardial revascularization). There is no foreseeable end to the creativity and driving pressure of our colleagues aiming for a non-surgical treatment of coronary disease. Those of us who feel these are all just passing fancies should recall that we had the same impression when Gruentzig performed the first coronary intervention in 1977.

Change is normal. Progress is normal. It is time for surgeons to accept that two decades of consistent results with the same procedure (CABG) does not protect the future of the profession. As cardiology marches forward, where is cardiac surgery headed? This question is best answered by the explosive development of minimally invasive cardiac surgery (MICS).

Our orthopedic, general surgery, gynecology, and otolaryngology colleagues moved from open to endoscopic procedures years ago. The response by patients and referring physicians was dramatic. Remember when general surgeons trained their residents by the adages "if you can't see, make a bigger incision", and "incisions heal side to side, not end to end"? Open cholecystectomy was once a repetitious and remarkably safe procedure and yet laparoscopic cholecystectomy quickly flourished. What drives surgeons to take on more difficult endoscopic cases to replace time honored open surgery?

Patient mediated factors, such as freedom from pain, early recovery and early return to work are certainly very important. Reduced hospital length of stay and reduced total charges are other potential gains. Patients experienced a perception that the operation is not too big or serious for them to consider. These factors have raised the consciousness of an entire generation of non-cardiac surgeons. We must learn from their experiences.

Cost pressures are enormous, and must be met head on. Now that angioplasty has proven it can return a patient to work in just a few days, cardiac surgery appears far less attractive to our patients and referring physicians. If cardiology continues to develop technology to obviate surgery, referrals will decline.

As I see it, the primary strength of cardiac surgery in the new century will be two primary accomplishments: 1) minimally invasive techniques, and 2) full arterial grafting. What we will be able to offer our patients more than any cardiology technique will be longevity of the procedure and freedom from symptom recurrence. Arterial grafts to all territories is the best strategy for a long lasting procedure. In addition, our non-cardiac colleagues have already shown us the acceptance of minimally invasive approaches (by both the patient and referring physicians). The value of MICS is easy to appreciate when you ask yourself a simple question: "If I could have my own operation done through tiny ports and achieve the exact same result as a large sternal and leg incision, which would I prefer?"

Minimally Invasive Cardiac Surgery is the most important frontier facing the profession today. It is a huge oasis of opportunity for the profession and our patients. The skepticism of MICS is natural as most of the operations are more difficult, time consuming, and non-standard. These new procedures require creativity and persistence, but the early results are very promising.

Beginning with the first reports of minimally invasive direct coronary artery bypass (MIDCAB) by Subramanian, Robinson, Benetti, Calafiore and others in late 1995, surgeons began to revamp and rebuild the surgical approach to coronary artery disease. Revascularization without cardiopulmonary bypass has spread from a few small enclaves in South America to a world wide practice. Novel medical technology for stabilization, exposure, and visualization have sprung up everywhere. Incisions have been completely shuffled in variety, length, and position. Even MIDCAB now comes in several variants, including so-called "standard" MIDCAB (direct IMA to coronary anastomosis), the "H" or "T" MIDCAB (bridge graft between the IMA and coronary), extension grafts off the IMA to multiple targets, port access, subxyphoid, and more.

The development of new techniques and new equipment has been explosive and unparalleled in any of the past four decades of cardiovascular surgery. Change is everywhere and old standards are being swept aside. Skepticism and backlash abound. Progress in reduced mortality, length of stay, and patient satisfaction continues despite disbelief and inertia in the majority of the current practicing surgeons. Recent reports of 97% graft patency for off-

pump anastomosis have not quelled the backlash from within the cardiac surgical community.

The formation of the new International Society of Minimally Invasive Cardiac Surgery (ISMICS) marks a dramatic leap forward in the goal to foster the science and practice of MICS. Created in Paris in the spring of 1997, the ISMICS steps forward to offer a sponsoring body for meetings, papers, research, and education in this new subspecialty. The ISMICS owes its existence to Patrick Nataf, MD of Paris who provided the initial idea as well as bringing together the key thought leaders in MICS. During the World Congress of MICS at the Palais de Congres, over 600 surgeons followed Dr. Nataf's lead and voted to form a new international professional group to promote the science and teaching of minimally invasive techniques. With the assistance of The Heart Surgery Forum as the official journal, the Society rapidly sprang into life with a means to share information worldwide via the Internet and to publish expeditiously in full color, video, and text.

The first ISMICS president, Dr. Robert Emery of Minneapolis provided the much needed personal inspiration, dedication, and experience which ensured the first years growth and success. Under his leadership, the ISMICS was incorporated in the state of Minnesota, registered as a non-profit medical society, appointed Gary Crowe as administrative assistant, planned and successfully executed a fantastic first annual meeting and scientific session (Minneapolis 1998), and organized multiple committees for the nourishment of the Societies activities. The Society's elected officers represent key leaders of MICS from every continent. The Publications, Scientific, Membership, Fellowship, Education and other committees have already been formed and populated. Industry support and alliances have been established to ensure a stable operating budget as well as fostering of traveling fellowships and educational opportunities. Future international congresses of MICS have already been scheduled for Paris and Munich interspersed with exciting venues in the continental US during alternating years. Relationships with other key societies are under discussion. The official publication, The Heart Surgery Forum, began circulation in August of 1998 with an initial distribution to 3,000 surgeons around the world. The current issue contains manuscripts submitted and accepted at the World Congress of ISMICS in Minneapolis this past June.

It is time for every practicing cardiac surgeon to embrace the future of the profession. The quality and outcomes of MICS need to be refined. Original scientific research on methodology, equipment, physiology, outcomes, and patient management need to be performed. Input into reimbursement policies, coding, nomenclature, and legislation affecting MICS needs to be addressed by a mass of surgeons acting in one voice. The ISMICS was formed without geographic barriers with the intent to organize and represent the entire fund of knowledge regarding MICS around the world. Take your place and join the Society, participate in its meetings, and report your results. It is through your efforts that the benefits of

less invasive cardiac surgery will be realized and spread in a safe and reproducible manner.

Advantages of Society membership include a full subscription to The Heart Surgery Forum multimedia journal, reduced fees for attending annual meetings, reduced prices on educational products sponsored by the Society, and participation in the development of MICS through activity on various committees. Dues collected from the membership at large support the activities of the Society, including annual meetings, traveling fellowships, and more.

As quoted above, life is full of change. The wisest choice is to grow forward with the change, to contribute positively to the change and the world around us. Join the ISMICS and contribute your ingenuity to the next century of cardiac surgery. Membership details are available on page 169 of this issue of the HSF or by visiting the ISMICS Web site at <http://www.ismics.org/ismics/home.html>.

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