

ORIGINAL ARTICLES

From the Eastern Vascular Society

From the vineyard—Reflections and perspectives

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A farmer, being at death's door, and desiring to impart to his sons a secret of much moment, called them round him and said, "My sons, I am shortly about to die. I would have you know, therefore, that in my vineyard there lies a hidden treasure. Dig, and you will find it." As soon as their father was dead, the sons took spade and fork and turned up the soil of the vineyard over and over again, in their search for the treasure which they supposed to lie buried there. They found none, however; but the vines, after so thorough a digging, produced a crop such as had never before been seen.

—Aesop¹

I don't know the purpose of a Presidential Address. To make matters worse, I have always been wary of reports in which the purpose is not clearly stated. It appears that their function is to deliver a message, make a statement, communicate facts, or even serve notice. The subjects of these addresses are quite disparate, and it is often possible to detect some personal bias or conviction of the author at that moment in his or her career. It is in this light that I relate these personal reflections. It is appropriate at this point to recite an early 19th century prayer uttered by tough Scots-Irish pioneers when they departed for the wild and primitive American frontier of Missouri. "Lord, grant that I may always be right, for thou knowest I am hard to turn."²

"CHANCE FAVORS THE PREPARED MIND" (LOUIS PASTEUR)

Some of you will interpret my following remarks as war stories, but there are lessons to be learned from our surgical heritage. I am lucky to have had a

professional career that spanned the era of modern vascular surgery. I am saddened when I read vascular reports with references no older than 10 years. History is valuable.

Aortic aneurysm

In 1952, DuBost et al.³ first reported the resection of an abdominal aortic aneurysm. I had the good fortune to meet Dr. DuBost and hear him describe this first operation. The procedure was done in a retroperitoneal fashion with a homograft. Although he performed several thousand subsequent operations, he joked about the fact that it was the first and only time that he ever used the retroperitoneal approach! In those early years, elective aneurysm resection was carried out as if it were a cancer. The 1950s represented the pinnacle of radical surgical treatment. It was not at all unusual during my residency (1953 to 1958) to perform forequarter and hindquarter amputation for malignancies, 90% gastric resections for benign peptic ulcer, and pneumonectomies for lung cancer. During the early years of my training, ruptured abdominal aneurysms were not repaired. The diagnosis was made by laparotomy to exclude hemorrhagic pancreatitis, perforated viscus, and mesenteric infarction. After operation the patient was given lots of opiates and allowed to die.

In my estimation the greatest breakthrough in abdominal aortic aneurysm surgery occurred in 1966 when Oscar Creech, MD, applied his historical knowledge and described the nonresectional treat-

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ment of abdominal aortic aneurysm.⁴ This key change in technique led to dramatic lessening of blood loss, operating time, and morbidity and mortality rates. It is a technique that we all use now, but it was first reported by Rudolph Matas, MD, Dr. Creech's mentor, in 1902.⁴ The prepared mind of Oscar Creech, MD, modified this concept by inclusion of a synthetic graft.

Where are we going in 1995? The endovascular technique for treatment of abdominal aortic aneurysm is interesting, but as a Pennsylvania Dutchman would say "Why do we do this hard?" Endovascular surgery is here to stay, but for abdominal aortic aneurysm management, I would keep my eye on the people who are talking about the cause and the pathophysiologic condition of aneurysms. I believe the ultimate solution for aneurysms will be a genetic and biochemical prophylaxis and treatment.

Carotid artery surgery

Thank goodness vascular surgeons are persistent souls! We never were convinced that the disease found in ulcerating, debris-laden, stenotic carotid artery lesions was safe for the downstream brain. Nor could we be persuaded that aspirin, dipyridamole (Persantine), or ticlopidine could really take on this tiger. In 1970 Fields et al.⁵ reported the first large prospective randomized carotid study for patients with transient ischemic attacks. Friedmann reminds us that in that study, if the perioperative mortality and stroke rates were ignored (they were high), the surgical survivors showed a definite and significant advantage.⁶ It took more than 25 years and at least four or five large prospective randomized studies to prove that surgery is superior in patients with symptomatic and asymptomatic stenoses if we keep the perioperative mortality and morbidity rates low. Dr. Jesse Thompson et al.⁷ said this in 1966. Yes, we do toil and learn hard! These carotid artery studies demonstrated that the margin of error in vascular surgery is often extremely small. The future? Prevention and treatment are our goals, but our immediate challenge is to identify which of the patients with significant carotid artery stenoses will go on to have a stroke (approximately 20%) and which will not (approximately 80%). The identification of these unknown risk factors will save much time, money, and suffering.

Lower extremity ischemia

In 1949 Kunlin⁸ first reported a reversed saphenous vein bypass technique. By the 1960s, there were sporadic reports of bypasses to the tibial vessels, and

in 1966, R. Robert Tyson, MD, and I⁹ reported a series of 12 patients in which tibial bypasses were carried out for threatened limb loss. In nine patients (75%) the inflow originated from the superficial femoral ($n = 7$) or the popliteal arteries ($n = 2$). Then we wandered! Some Monday morning quarterback decided that the only proper way to perform these bypasses was to use inflow from the common femoral artery. I know ischemic extremities were lost trying to fulfill this precept with a reversed saphenous vein. It got so bad and we wandered so far, that Paul Friedmann, MD, and I¹⁰ even invented a new operation to overcome the inadequate saphenous vein. We called it the sequential composite bypass. It was the last President of this Society, Frank Veith, MD, who brought us back to the proper path when he again demonstrated that an unobstructed superficial femoral artery or a popliteal artery is an adequate inflow vessel for a distal bypass.¹¹

For me, one of the more recent comforting aspects of lower extremity ischemia is the security and complete confidence that almost any chronically ischemic limb can be revascularized. Our persistence has produced notable technical advances such as pedal bypasses, production of arteriovenous fistulas at distal anastomoses, patches, and the in situ technique. Endovascular techniques should enhance our ability to offer patients a less traumatic alternative to surgical revascularization, but I hope these results are measured against our well documented historical patency and limb salvage rates. Incidentally, in our rush to embrace endovascular grafting for lower extremity ischemia, what happened to the gold standard graft—the saphenous vein?

What the future holds for patients with end-stage ischemia of the lower extremities is not clear. It seems that we have extended the frontiers of bypassing as far as possible; however, who knows? Are we at a stage similar to that of arteriectionomy, which was being performed by Rene Leriche when his pupil, Kunlin, performed the first bypass in 1949? Does a new and more bountiful field lie ahead for the treatment of this type of ischemic disease?

FEARS—PERCEIVED AND REAL

Throughout my professional career, I have witnessed challenges to the independence of the physician. In the late 1950s and 1960s, we feared the medical school deans who wanted physicians to be full-time employees of the medical school. Flush with federal research money, many deans did indeed accomplish this feat. However, once this source of money was shut off (early 1970s), many deans lost

power. By then the open-ended Medicare program was in full swing, and money started to flow into hospitals and physicians' practices at an unprecedented rate. Major growth in hospital facilities commenced. In university and teaching hospitals, income derived from the clinical activity of the full-time faculty helped support those institutions. We feared that we would become hospital employees and that all monies for clinical, education, and research activities would be controlled by hospitals. Our enemy became the hospital and its ever burgeoning administrative staff. Technical industries responded to the huge amounts of capital in hospitals and a massive medical technical complex developed. These were the glory days of procedure-oriented specialists. Finishing residents often commanded starting salaries in excess of that of their full-time mentors. Hospitals were in fat city, but medical costs soon became intolerable for large corporations and all businesses. In the early 1980s, as a consequence of the escalating cost of medical care, entrepreneurs, some hospitals, and many corporations, aided by grants from the federal government, started to look at alternative care systems such as health maintenance organizations (HMOs). At this point in time, Medicare costs were becoming a major federal budget expense, so price controls were imposed on medical providers. With reimbursement caps in place, doctors simply found a way to perform more procedures. You all know the rest of this story. Today, hospitals no longer have the control, and our new fear is "managed care", better described as "managed cost." A major reason the Clinton Health Care Reform Bill failed was that the cost of medical care for employees had already started to decrease after implementation of managed care policies. Many of these managed systems are making great profits. Some physicians believe this to be unconscionable. However, could these middlemen make these profits (30 cents on each premium dollar) if fat or waste did not exist in the delivery of traditional medical care? I think not. I define *fat* or *waste* as money earmarked for direct patient care that never reaches the patient because of hospital bureaucracy, poor physician management, unreasonable government mandates, and practice liability insurance. Some will challenge the last point, that is, the cost of medical liability. They will condescendingly remind us that medical liability represents only 1% of total health care costs. These experts, however, just don't get it. For most surgeons, the cost of medical liability insurance represents 10% to 20% of their income. Consequently, that 1% is responsible for higher indirect costs

imposed on patients and third parties by physicians and hospitals.

What will happen after managed care skims all the cream and moves on to cover senior citizens? What will happen after the big health care buyouts and conglomerates occur? Incidentally, I hear no media outcry over the huge profits (\$7 billion in 1994) made by these HMOs. It makes the decade of greed (1980s) look like child's play. What will happen when managed care profits decrease because their reimbursements are dependent on and pegged to government-capped Medicare and Medicaid schedules? I suspect that when the managed care systems can no longer squeeze any profit from this source, they will fail and will be bought out by, guess who — yes, good old Uncle Sam! We will then face the mother of all fears! I predict that many hospitals by that time will go broke, and their bond issue defaults may make the savings and loan debacle resemble a picnic! On the other hand, when my gout is under control, and there is a good warm wind filling the sails, I dream that we will be savvy enough to pass a medical saving account bill, reestablish a private market for medical care by removing price controls, and that most bright young physicians, will have double degrees, not MD, PhD, but MD, MBA.

WE HAVE ARRIVED—LET'S NOT BE THE LAST ONES TO KNOW!

I vividly remember the joint annual meeting of the Society for Vascular Surgery/International Society for Cardiovascular Surgery held in Carmel, Calif., in 1972, not because of any particular scientific report, but because the pillars of modern vascular surgery came out of the closet and started to lobby for partition of vascular surgery from general surgery. The concept they proposed was and remains that specialized training in this field should occur and should be recognized because it leads to superior care of patients with vascular disease. The political battles were especially debilitating because we were all trained as general or thoracic surgeons. Separation was difficult, but it has occurred in spite of sporadic skirmishes that still occur with the American Board of Surgery (ABS) and the Residency Review Committee (RRC).¹² By 1983, under the auspices of the ABS, a new examination and Certification for Special Qualifications in General Vascular Surgery was instituted. That same year, programs offering special training in vascular surgery were reviewed by the RRC, and approval was granted to approximately 45 programs. In January 1984 the first edition of our official journal was published. How could the

JOURNAL OF VASCULAR SURGERY not be a stellar periodical with Drs. Michael E. DeBakey, Emerick Szilagyi, and Jesse E. Thompson as the founding editors, followed by Drs. James C. Stanley and Calvin B. Ernst? Although some traditional general surgeons still blame vascular surgery for fragmentation, it is apparent, as other chunks of general surgery break off, that specialization should not be confused with fragmentation. Can anyone really criticize the concept of specialization in burn and trauma centers, pediatric hospitals, or transplant centers? Specialization will continue because it represents the desire of patients, physicians, and scientists. This innate drive to do something better or find out that it doesn't have to be done at all will not subside, and, indeed, it should be encouraged. Although muted, I believe this concept has been accepted by the surgical profession. One only has to review the January 1995 *American College of Surgeons Bulletin* where "What's New in Surgery" lists 17 specialties; vascular surgery is there, but general surgery is not.¹³ The latter was replaced by specialties of critical care and metabolism, gastrointestinal and biliary surgery, surgical oncology, transplantation, and trauma and burns. As I dictate this address, I received notification from the staff liaison to the Advisory Council for Vascular Surgery that my request to change my specialty designation in the College's Yearbook to Surg(Vasc) was confirmed. The specialty of general surgery has tried to define itself for some time. Meanwhile in real life its boundaries become smaller and less inclusive. It appears to me that all surgical specialties would benefit by a period of training in basic surgery (3 to 4 years) followed by different specialty pathways. Whether some vascular specialty pathways should be in a freestanding mode is not completely settled yet. I believe that freestanding specialty programs with dedicated teachers and facilities, a good supply of patients, and a scholarly milieu will eventually receive approval.

Unless they have additional approved training, future general surgeons will not commence practice with an announcement that "their practice will include all aspects of vascular surgery." Why is this? (1) Patients demand surgeons with additional training and certification. (2) Training of general surgeons in laparoscopy and minimal invasive techniques has diminished their time on vascular surgery rotations. In some institutions, especially those with a vascular fellowship, the senior general surgery resident rotating through vascular surgery is often a fourth-year post-graduate student. (3) Hospitals, HMOs, and group practices demand special training and certifi-

cation in vascular surgery. (4) The cost of liability insurance is high. (5) Well-trained vascular surgeons are moving to rural and suburban areas. (6) Advances in vascular surgery such as endovascular techniques have a steep and long learning curve.

The future for the well-trained vascular surgeon is excellent because (1) the specialty is blessed with good genes; (2) our specialty is based on a system rather than an organ (diversification); (3) the population is aging; (4) minimally invasive surgical techniques are being accepted, albeit with some hesitation; (5) the number of vascular surgeons graduating from approved programs is relatively small; and (6) fewer general surgeons are trained adequately in all aspects of vascular surgery (i.e. "Just teach me the technique!"). If I were to name one drawback, it is that we are still hospital dependent, but even that can change in the future.

ORGANIZED VASCULAR SURGERY

As your President, I recently received a communication from Robert Rutherford, MD, with regard to getting more "grass roots" vascular surgeons involved in "organized vascular surgery." It is my perception that we are pretty well organized, but problems do exist with communication and with the lack of unified clout in socioeconomic, professional, and political matters. The pyramidal structure of local vascular societies, regional vascular societies, and the national societies resembles a loose federation and makes the national impact of vascular surgery difficult to measure, market, or use efficiently. Our societies, journal, certification process, training programs, and Association of Program Directors are all in place. It is now time to pull it together, and bring all vascular surgeons into the fold. We are at the brink of making this commitment. It will take the unselfish efforts and leadership of the two national societies with the help of all regional and local vascular societies to accomplish this project. Communication should not be limited to vascular surgeons in national and regional societies, nor should we depend on a trickle down process of information and education. Organized vascular surgery must include all vascular surgeons, beginning with those in training. The toughest part of this assignment is to define a "vascular surgeon." The abuse of using membership in vascular societies by poorly trained vascular surgeons as a mode of pseudocertification can be curtailed, but at the same time, we must assure all well-trained vascular surgeons that they are included in the system. Perhaps we should think in terms of a national association of vascular surgeons.

It would be a mistake to dismantle our relationship with the ABS and the RRC. However, they must appreciate the fact that we have grown up and have left the fold. If a sincere bilateral relationship of respect is achieved, there will be no need to waste the time, money, and energy to develop a separate credentialing board and residency review committee. Time, however, is running short on this issue.

NUCLEAR VASCULAR FAMILIES

Departmental structure in medical schools and hospitals should change to meet the professional, educational, research, and economic pressures of the next century. Modern departments have existed for most of this century, but with the explosion of specialization, they have contributed to duplication in teaching, patient care, and research. In addition, these departments waste money, soak up resources, and have led to debilitating political fights over turf! Think of the efficiency, cost saving, enhanced teaching, superior clinical investigation, and quality patient care that could be attained if we were part of a multidisciplinary vascular department made up of vascular and cardiac surgeons, angiographers, cardiologists, vascular internists, anesthesiologists, hematologists, and so forth. This may sound quite unorthodox, but in our vascular group we are seriously considering recruitment of a vascular internist and an angiographer as equal partners rather than additional vascular surgeons. This concept could lead to bundling of services, cross-fertilization between disciplines, and less expensive comprehensive care for patients with vascular disorders. In 1995 the biggest stumbling block in our practice is the poor coordination with and isolation from cardiology, anesthesiology, and angiography. The noninvasive laboratory should also be included in this concept. In our Section of Vascular Surgery at Pennsylvania Hospital, we have been fortunate to have our own approved, noninvasive, vascular laboratory in our patient office area. All of this may sound bizarre and impossible, but competition and economic forces could easily effect this restructuring.

In such a multidisciplinary departmental scenario, a surgeon may give up his position as captain of the ship, but what good is being at the helm when the rudder stock is broken and our course is controlled by the winds and currents of anesthesiology, angiography, cardiology, hospitals, and HMOs? Besides, have you hugged a traditional department chair lately and asked how much fun he is having! Naturally, this concept will be resisted to the utmost by the disciplines I mentioned, but just think how difficult

it is in 1995 to coordinate and collaborate with your medical comrades and coworkers. In my mind, this arrangement will fulfill the logical goals of consolidation of clinical forces, rather than the concept of grouping specialists into large single specialty syndicates because that will only lead to bigger, bloodier, and more expensive turf wars.

ATHEROSCLEROSIS

I was motivated to become a surgeon by a former mentor and Dean at Temple University, Robert M. Bucher, MD. His definition of an ideal surgeon is an internist who understands pathophysiology, is interested in cause and prevention, and, in addition, is able to cut! Over the past 40 years, surgeons have refined cutting techniques and have recognized the importance of perfection in performance of operations. Indeed this technical emphasis has become almost an obsession.¹⁴ However, shouldn't we participate in the quest for the solution to atherosclerosis? Except for a few excellent role models, the study of atherosclerosis, by most vascular surgeons, has been neglected and consists only of preliminary preparation for our board examinations. Yes, we know something about lipids, we have a hazy idea of the hemodynamic factors that contribute to atherosclerosis, and we certainly understand the general risk factors (smoking, diabetes, hypertension, obesity, lack of exercise, and hyperlipidemia). Let's be candid: vascular surgery would not exist if atherosclerosis, a generalized systemic metabolic disease, did not produce localized areas of obstruction and degeneration. In these specific sites, organ, limb, and, indeed, life are at risk. Organized vascular surgery was wise when it established a forum for venous disease. It is my opinion that a similar program should be implemented with atherosclerosis. There are a host of people working on this problem unknown to us and not in our societies. Indeed they consider our main thrust as mechanical treatment of end-stage disease. We should know more about the basic pathophysiologic condition we are treating. We should participate in the study of the cause, prevention, and treatment of atherosclerosis. Most of the reports on atherosclerosis are specialized and are foreign to us. However, that is a poor reason for not giving this problem more priority. We understand more about the end stages of atherosclerosis than perhaps any group of physicians. With gene therapy, new pharmaceuticals, space age imaging, and increased blood chemistry knowledge, we must look more seriously at this aspect of our specialty.

Finally, I want to thank you for the privilege of

serving as the ninth President of our Society and for the opportunity to address you. As he grew old, my father had a favorite saying: "When one has teeth, he has no bread. When one has bread, he has no teeth." But in my case, I don't think it applies. I prefer the last stanza of a poem by Henry Wadsworth Longfellow (*Morituri Salutamus*) written in his later years for the fiftieth anniversary of the class of 1825 in Bowdoin College:¹⁵

"For age is opportunity no less
than youth itself, though in another dress.
And as the evening twilight fades away,
the sky is filled with stars invisible by day".

For me, being honored as your President is certainly a star that was invisible by day.

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ERRATUM

It has been brought to the Editors' attention that the report entitled "Luminal surface concentration of lipoprotein (LDL) and its effect on the wall uptake of cholesterol by canine carotid arteries" by Xiaoyan Deng, PhD, Yves Marois, MS, Thien How, PhD, Yahye Merhi, PhD, Martin King, PhD, and Robert Guidoin, PhD, *J VASC SURG* 1995;21:135-45, should have included as a coauthor Dr. Takeshi Karino, Professor, Research Institute for Electronic Science, Hokkaido University, Sapporo, Japan.