

Trauma Surgery: Every Surgeon's Specialty—Presidential Address, Western Trauma Association

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In this address I would like to reflect upon trauma surgery as a specialty and what role, if any, surgeons who do not choose trauma as their major interest should continue to play in its future development. This is an important topic for the Western Trauma Association because it relates to a remarkable change in the constitution of our membership during recent years. Our organization was founded by a small group of general and orthopedic surgeons who had a genuine interest in trauma but today would not be considered trauma surgeons.¹ The majority of our new members, however, are surgeons for whom trauma is a major, if not exclusive, interest. As one of few remaining non-trauma specialists to serve as President of the Western Trauma Association, I would like to share with you my thoughts concerning specialization in this field.

I considered entitling this address "Trauma Surgery: General Surgery's Last Stand," and making some analogies with General Custer's famous battle against the Sioux Indians some 200 miles northeast of here in 1876. Analogies have their limitations, however, and this is an issue that involves more than just the potential fragmentation of general surgery;² it also affects all of the other major surgical specialties. Since earliest times in medical history the care of trauma patients has been an integral part of a surgeon's life work, and I would like to develop the thesis that this should continue to be the case for surgeons regardless of their area of anatomic specialization.

When I was a resident, general and thoracic surgery were still under the same umbrella despite separate board status. It was not unusual for an attending surgeon to replace an aortic valve, perform a gastrectomy, and then perform a pulmonary resection all on the same day. For many of us who were students or residents in those days no subspecialty could possibly hold as much interest and promise as the broad field of general and thoracic surgery with its many potential opportunities.

Despite this background, however, I realize that progress in any field is achieved primarily by those who

devote most of their time and energy to one area and do not become distracted by sideline interests. Clearly the past 100 years have been the century of specialization in medicine. In the early 1900s only four recognized specialties existed: medicine, surgery, gynecology and obstetrics, and pathology, represented at the newly established Johns Hopkins School of Medicine by Sir William Osler, William Stuart Halsted, Howard A. Kelly, and William H. Welsh, respectively. As we come to the end of this century there are 50 specialties and subspecialties recognized by the Accreditation Council for Graduate Medical Education; 20 of these are surgical. There are six subspecialties within the field of orthopedics including musculoskeletal oncology, hand surgery, foot and ankle surgery, sport surgery, joint replacement surgery, and spine surgery; and four within general surgery including pediatric surgery, vascular surgery, surgical critical care, and hand surgery. Undoubtedly specialization has played a major role in the rapid medical progress made during the past 100 years, and further specialization is inevitable.

Trauma surgery today stands on the threshold of formal specialty status and, as it does so, it faces an important crossroad. Will it develop as a free-standing specialty like thoracic surgery or will it become a formal subspecialty of general surgery like vascular surgery and, to paraphrase Dr. John Mannick in his presidential address to the Society for Vascular Surgery, remain "a part of the Main"?³ Either way, how will it relate to the other major surgical specialties?

During the past decade, thanks to the vision, tireless efforts, and the organizational and political skills of trauma surgeons, many of whom are members of the WTA, we have witnessed development of a number of outstanding trauma centers, which serve large geographic areas. Studies clearly suggest that the trauma patient is likely to have a better outcome if cared for in a hospital with an organized approach to trauma management.⁴⁻⁷ If we could transport all trauma patients to trauma centers and train enough trauma specialists to care for them in these centers, there would be little reason for the rest of us in the surgical community to be involved in trauma care. For several reasons, however, it seems unlikely that such a goal could be attained within the foreseeable future.

One reason for this is that many patients place a high

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premium on having their operation performed as close to their home as possible. Some surgeons, especially those of us in tertiary referral centers, find it difficult to understand this emphasis on proximity to surgical care but it appears to be a fact of life. When I was growing up in a small town in Wyoming, most of us took it for granted that we would have to travel 250 miles to Denver for major surgery, but today some patients are unhappy if they have to go more than 50 miles for a heart transplant. Although we can rapidly transport patients long distances to a trauma center, the patient and his or her immediate family members are often distraught that they are so far removed from their friends and relatives. To what extent healthcare providers are obliged to cater to this concern is debatable, but as long as the public has a voice in the matter, there will be continued demand for at least general surgeons, orthopedic surgeons, and urologists to provide a wide spectrum of operative services in hundreds of smaller communities distant from major metropolitan areas. Based upon manpower distribution and caseload requirements, subspecialization in trauma does not seem feasible in these areas, which are home to a large segment of the United States population.

Furthermore, although subspecialization is essential at academic and other major tertiary care centers, one might question whether the same degree of specialization is necessary at the community level. Here the emphasis is on healthcare delivery, not on research or the development of new operations. The trauma-specific surgical skills of the trauma specialist must be given due credit but much of the trauma centers' success may be attributable to the overall organization, rapid transport systems, deployment of emergency medical technicians, and effective triage. How often must a surgeon perform any one operation, including trauma procedures, to become and remain competent? Intuitively we assume "the more the better," but hard data to prove a correlation between increased numbers of procedures performed and improved patient outcomes generally are not available. Undoubtedly we must perform any given operation with a certain frequency to achieve and maintain our skill, but increasing the frequency beyond this threshold may result in only slight or no improvement in patient outcomes.⁸

Another potential problem is related to the relationship between trauma surgery and the major specialties of surgery, which are compartmentalized according to specific anatomic areas or organ systems. How well have specialties flourished that cross these lines? Although surgical oncologists, for example, have made very important contributions to the biology of cancer and the management of many different kinds of tumors, the bulk of cancer surgical care is still delivered by surgeons in the major anatomically defined specialties. Brain tumors are managed by neurosurgeons, urogenital neoplasms by urologists, colon cancer by general and colorectal surgeons, and pulmonary tumors by thoracic surgeons. If

trauma surgery develops as either a formal subspecialty of general surgery or as a freestanding specialty, how will it relate to these other specialties? Can one individual become expert in the care of trauma to all anatomic areas? Alternatively, should each of the major surgical boards set up a trauma fellowship within its own specialty and, if so, will trauma centers be able to support not only general surgeons but also neurosurgeons, orthopedists, urologists, and plastic surgeons who limit their practice to trauma?

Dr. Donald Trunkey has called surgeons from all specialties who enthusiastically participate in the care of trauma patients his "heroes."⁹ I believe as he does, that surgeons who are specialists in their own anatomic area of surgery should continue to include trauma surgery as part of their practice. In the future we should provide improved training in trauma care for all surgical residents.¹⁰ Working in concert with full-time trauma specialists these surgeons can contribute to an improved, well-organized healthcare system for trauma patients.

Although we must support efforts to improve the quality of special training programs and fellowships in trauma surgery, we should be aware that establishment of a formal specialty or subspecialty may discourage others from participating in trauma care who are well qualified by virtue of extensive experience or comparable training but who lack the board or certificate. To what extent formalization of a specialty affects practice patterns is uncertain, but it is interesting to observe what has happened in vascular surgery. In 1989 70% of all general surgical initiates into the American College of Surgeons had not performed a single aortic aneurysm repair, peripheral arterial reconstruction, or carotid endarterectomy during their first 3 or 4 years in practice, and only 10% had performed more than five of these procedures in any one category per year.¹¹ This pattern has evolved despite successful efforts to maintain adequate teaching case loads and despite the impression, shared by many of us, that fellowships in vascular surgery have enhanced rather than detracted from the training of general surgical residents. Conceivably this trend could lead to a shortage of surgeons outside major metropolitan areas who are qualified to perform vascular surgery. How to resolve this dilemma is unclear, but training programs in trauma surgery, formalized by a board or a certificate of added qualifications, might have a similar impact.

It is also relevant to consider apparent trends in a subspecialty closely related to trauma surgery such as surgical critical care. The certificate of added qualifications in surgical critical care was established to improve the quality of training in the care of critically ill surgical and trauma patients; it also provides surgeons a mechanism by which to compete with medical specialists for hospital privileges in intensive care. Lack of the certificate, however, may disenfranchise or discourage some surgeons from participating who have a strong back-

ground in cardiopulmonary and renal physiology and years of experience in postoperative intensive care. Hospital credentialing committees may deny these surgeons privileges for this aspect of patient care and their professional liability may be increased without the certificate of added qualifications. Trask and Faber reported that in 70% of hospitals they surveyed surgeons do not have the principal managing role in the intensive care unit for surgical patients.¹² Not all surgeons believe they should remain in charge of postoperative care, especially in the face of difficult or life-threatening complications. Many share the opinion, however, expressed in a recent editorial, that "the operating surgeon is the best qualified of all physicians to deliver and coordinate post-operative care . . . Consultants frequently offer conflicting advice on how best to manage disordered physiology . . . Conflicting opinions have to be put into perspective and the best person to do so is the surgeon who operated on the patient."¹³

Strauch and Bligh reported in 1983 that approximately 20% of all members of the American College of Surgeons who practiced in hospitals with a trauma call schedule did not take trauma call.¹⁴ Trunkey believed that the number of surgeons who do not take call is much higher.⁹ Undoubtedly some do not participate because of advanced age and some probably should not participate because they have failed to keep up with recent developments and techniques. The number of *qualified* non-participants, however, might increase, at least transiently, as trauma surgery emerges as a formalized specialty. Just as with surgical critical care, concerns about professional liability and perceived inadequacies based on lack of certified training might discourage their continued involvement.

Judging from the quality and subject matter of the scientific papers presented at this meeting by present and future leaders in this field, I am confident that, as trauma surgery evolves as a specialty, it will maintain a close relationship with general surgery and the other major surgical specialties. In his 1969 presidential address to the American Association of Thoracic Surgery, "The Compleat Thoracic Surgeon," Dr. Paul Samson made a plea for thoracic surgeons not to become too narrowly focused in one limited area such as coronary artery bypass surgery, but rather to maintain broad interests in esophageal and pulmonary neoplasms, thoracic trauma, and pulmonary infections.¹⁵ He cautioned that thoracic surgery will remain an enduring specialty only if it maintains a broad base. His comments seem clairvoyant today as we observe more aggressive use of coronary angioplasty and the introduction of increasing numbers of more effective pharmacologic agents to manage angina and arrhythmias. His message bears repeating for all surgical specialties including trauma surgery.

In today's pursuit of excellence in diverse narrow fields we may lose touch with our common surgical heritage.² Channeled efforts in a subspecialty, including trauma,

can limit time available to explore what is interesting and potentially useful in related fields. Surgical grand rounds are often poorly attended; many surgeons do not have time unless the topic directly concerns their specific specialty. This apparent loss of interest in the body of surgery as a whole and its underlying biologic sciences may have an adverse effect on creativity and development of new or different surgical approaches. It was not because of a focused interest in congenital cardiac defects, for example, but rather his broad interests in circulatory physiology and pulmonary hypertension which led Alfred Blalock to develop the systemic pulmonary shunt, a milestone in the history of cardiac surgery.

Again, however, as reflected by the papers presented at this meeting, I believe that trauma surgeons have done a better job of maintaining a broad base of both clinical and research interests than most other surgical specialists. Trauma surgery, by its very nature, demands knowledge and experience in a broad number of related fields. If trauma surgery continues to share with and nurture other specialties rather than developing independently, it will not only impact positively on other fields but also better serve its own goals.

If I were beginning my career all over again and forced to choose a subspecialty, I can think of none in more demand nor more rewarding than trauma surgery with its potential for promptly returning patients of all ages to normal productive lives and with its variety of challenging, complex problems that require interesting physiologic, pharmacologic, biochemical, nutritional, and immunologic approaches for their solution. In the future, trauma surgery, in terms of its complexity and variety of challenges, will likely be the "next best thing" to what we have known in the past as general surgery.

Until that time, if it does come, when the care of trauma patients is limited to specialized trauma surgeons, I hope that the Western Trauma Association will continue to welcome all those with an interest in and commitment to the management of trauma regardless of their other professional interests or fields of specialization.

REFERENCES

1. Moore EE: The Western Trauma Association—Past, Present and Future. (Presidential Address, Western Trauma Association—Snowbird, UT, February 1989). *J Trauma* 29:1309, 1989
2. Organ CH: Fragmentation and specialization. *Arch Surg* 122:639, 1987
3. Mannick JA: Vascular surgery—"A part of the main." *Surgery* 90:927, 1981
4. Clemmer TP, Orme JF, Thomas FO, et al: Outcome of critically injured patients treated at Level I Trauma Centers versus full-service community hospitals. *Crit Care Med* 13:861, 1985
5. Kreis DJ, Plasencia G, Augenstein D, et al: Preventable trauma deaths: Dade County, Florida. *J Trauma* 26:649, 1986
6. Shackford SR, Hollingworth-Fridlund P, Cooper GF, et al: The effect of regionalization upon the quality of trauma care as

- assessed by concurrent audit before and after institution of a trauma system: A preliminary report. *J Trauma* 26:812, 1986
7. West JG, Cales RH, Gazzaniga AB: Impact of regionalization. The Orange County experience. *Arch Surg* 118:740, 1983
 8. Hertzner NR, Avellone JC, Farrell CJ, et al: The risk of vascular surgery in a metropolitan community with observations on surgeon experience and hospital size. *J Vasc Surg* 1:13, 1984
 9. Trunkey DD: What's wrong with trauma care? *Bull Am Coll Surg* 75(3):10, 1990
 10. Grasberger RC, McMillian TN, Yeston NS, et al: Residents' experience in the surgery of trauma. *J Trauma* 26:846, 1986
 11. Wheeler HB: Should vascular surgery become an independent specialty? Implications of data about operation experience. *J Vasc Sur* 12: 1619, 1990
 12. Trask AL, Faber DR: The intensive care unit—Who's in charge? *Arch Surg* 125:1105, 1990
 13. Holcroft JW: Who should be responsible for care of the critically ill surgical patient? *Arch Surg* 125:1103, 1990
 14. Strauch GO, Bligh JJ: Involvement in trauma care by ACS Fellows: A national survey. *Bull Am Coll Surg* 68:19, 1983
 15. Samson PC: The Compleat Thoracic Surgeon. *J Thorac Vasc Surg* 56:155, 1968

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