

## A NEW ERA IN CARDIOVASCULAR SURGERY

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Recently, I opened Volume I of my collected papers to review some of my early experiences in the Texas Medical Center. When I turned the page to paper number 6 - *Surgical Considerations of Intrathoracic Aneurysms of the Aorta and Great Vessels*, which I co-authored with Michael E. DeBakey in 1952 - I stopped to reflect on the circumstances leading to that very important case and decided that reminiscences about those years might be of interest to readers.

After I completed my residency training at Johns Hopkins Hospital in Baltimore, I spent one year as surgical registrar at the Brompton Hospital in London before returning to my hometown, Houston, in 1951. I returned to take a faculty position in the department of Surgery at Baylor College of Medicine (then known as Baylor University College of Medicine), with Dr. Michael E. DeBakey as my chief. Because of my exposure to the emerging specialty of cardiac surgery on the services of Dr. Alfred Blalock and Lord Russell Brock in London, Dr. DeBakey assigned me to develop a cardiac surgery program at Baylor.

The first ward rounds that I attended with Dr. DeBakey and the surgical staff were at the Jefferson Davis Hospital, the city/county facility that has since been demolished. During rounds that day, we saw a 46-year-old African American patient who had a pulsatile and painful syphilitic aneurysm of the innominate artery and adjacent aorta, which protruded under the sternoclavicular joint and threatened to rupture through the overlying skin. We discussed possible treatments, including wrapping the

aneurysm with cellophane coated with diceryl phosphate, a tissue irritant used to promote formation of scar tissue. We also discussed inserting a length of stainless steel wire to promote thrombosis. Dr. DeBakey asked for my opinion; I said that I believed excision to be the only practical and curative options. He suggested that I schedule the surgery for the next morning.

For the sternotomy, I needed a Lebsche knife, which I had used in two similar, successful procedures I had done while at Johns Hopkins. The only one I could find in Houston was at the Veteran's Administration Hospital on Holcombe Boulevard. That evening, I picked up the knife and a mailer, which drove the blade, and took it to Jefferson Davis early the next morning. The operation was underway at 8:00 a.m. Dr. DeBakey appeared at the scrub sink about 9:30 a.m. and began to scrub his hands. When he entered the operating room, he asked how the operation was proceeding. I proudly announced that the aneurysm was already in the specimen basin and that the aorta was being repaired. He was surprised but seemed pleased.

Thereafter, we discussed the concept of a new aggressive treatment for aortic aneurysms: excision would be the ultimate objective whenever possible. This first case in Houston and the two other similar procedures I had done at Johns Hopkins became the subject of the above paper, which was skillfully presented later that year by Dr. DeBakey at the meeting of the Southern Surgical Association. The paper was applauded enthusiastically by the members. I recall

Dr. Evarts Graham, a highly respected thoracic surgeon, saying that he felt the technique would have less impact than if it had been done before the advent of penicillin, which prevented tertiary syphilis, since, at that time, aneurysms were mostly sacciform lesions attributed to syphilis. In retrospect, I think the paper introduced a new era in cardiovascular surgery, and Baylor and the Texas Medical Center became a source of surgical innovations in this new and exciting field.

We then looked for a method to treat fusiform lesions, which could be excised but required preservation of vascular continuity; this was accomplished with the development of vascular grafts. This aggressive attitude toward creating major vascular disease extended beyond arterial aneurysms to occlusive lesions. Biologic grafts using cadaver vessels were replaced by synthetic fabrics that were more durable and convenient. Like others, we recognized that we needed a method for cardiopulmonary bypass both to repair some selected cases of thoracic aneurysms and for our cardiac program. A stainless steel oxygenator, based on the bubble principle, was developed and, together with a roller pump, provided effective cardiopulmonary bypass. Crystalloid solutions were introduced to prime the system, simplifying "so-called" open-heart operations.

Those were pioneering years, indeed, and the Texas Medical Center was at the forefront. Surgeons visited Houston from all over the United States and abroad, returning home to start their own programs to address treatment of

aortic lesions. I believe this initial work helped to inspire a second generation of brilliant young cardiovascular surgeons in the Texas Medical Center among them Stanley Crawford, Joseph Coselli, Hazim Safi, and others who have amassed an astounding series of aortic aneurysm repairs and innovations.

I also feel that the stimulus provided by this seminal paper on repair of aortic aneurysms played a vital role in advancing health care during the twentieth century. The authors may take satisfaction in having introduced an exciting new field to the practice of surgery. Few of my more than 1,200 publications have had such a major impact.