


CARDIOVASCULAR & THORACIC



Asian Annals

Volume 4 • Number 3 • 1996



Borobudur of Indonesia

APEX
ASIA PUBLISHING EXCHANGE PTE LTD

Upon completion hit "back" on web browser to return or click > Power-Memoir.com

DR. DENTON A COOLEY



**OVER 50 YEARS OF
CARDIAC SURGERY**

8-8-00 UNITED STATES
OF AMERICA

Denton A. Cooley MD

AA: Why did you undertake a career in cardiac surgery in the first place, considering you had many choices to pursue? What really motivated you to get involved in cardiac surgery which was in a nascent state as World War II was coming to a close?

Well, I would like to say I had some interest from my earliest days of schooling but it was a mostly fortuitous thing. When I was an intern, there was almost no cardiac surgery, only isolated reports. I was an intern under Dr. Alfred Blalock and was invited to be on the surgical team in November 1944 that did the first operation for tetralogy of Fallot, and even at that time, as a young man, I could not anticipate the impact this would have on the development of the new specialty.

AA: Therefore you have been doing cardiac surgery for more than 50 years and obviously, you entered this field at an interesting age and time with a renowned teacher. When did you perform your first case as the lead surgeon?

From the time I was a medical student, Dr. Blalock picked me up and guided me through the profession.

By early 1946, I was his first full-time assistant and he appointed me to this position at a very young age as I was only 25 at that time. I managed all of his cases and set-up his schedule everyday. He would assign a certain number of cases to me and a certain number to himself, depending on the nature of the case, and whether Dr. Taussig would object to having a young surgeon like myself operating on some of her patients. I had an unusual opportunity at this early age even before I had any experience or expertise in general surgery and others.

AA: It has been remarked that you may have performed as many as 100,000 surgeries in your career. What is the number of cardiac cases you've done over the years?

I believe so. Now we think of heart surgery as open-heart surgery. In general, our group in Houston has performed 90,000 open-heart operations on cardiopulmonary bypass to date. But now, I personally do about 10% to 12% while my younger associates are doing the bulk of the cases. In estimation throughout my career, I have perhaps done 40,000 to 50,000 open-heart operations and, of course, a wealth of other surgeries to add to the total.

AA: Many people are interested to find out if you are still active and continue to operate. If so, and considering your age, do you experience physical problems or limitations when you operate?

I operate everyday I am in Houston. There is no problem for me only with the exception that sometimes I get a little more tired compared to 20 and 30 years ago. I still work as usual, play golf and tennis, and do things that I have always done.

AA: At your peak, what number of patients would you operate on in a day?

It is hard to define exactly how many I actually did. To be realistic, one surgeon could be involved in one operation, just by himself, he would be there for 3, 4, or 5 hours and there are so many operating hours in the daytime. I would schedule for myself, with my name on them, 8 to 10 operations a day. But my residents would make the incisions, close-up, and so on. So, when I made rounds in the hospital to check on my postoperative patients, there could be 75 to 100 patients to see.

AA: You have had a long, successful surgical career and as much as we all would like to know, what do you consider the "high point" of your career? If you could choose one event or honor received, and perceived to be the number one achievement of your career, please tell us.

Well, that is difficult to say. I have had some clinical experiences which I thought were high points, for which I may have been identified. I think the performance of the first successful heart transplantation in USA was one of those high points, and having the opportunity to implant the first total artificial heart.

AA: When did you implant the first total artificial heart?

It was in 1969. We did the second in 1981.

AA: What about the "low point" of your career?

I think some of the frustrations were during the early transplant experience. I attempted a xenotransplant and realized later that this was completely foolhardy, and not well-studied beforehand. It was a source of some

embarrassment to me. But someday, xenotransplantation may reemerge.

AA: What are your views on transgenic organ transplantation?

At the present time, I think it is really out of the question, but we would not know what can be accomplished in the future by changing the genetic makeup of an animal. Interestingly, there is only one animal at the present moment that seems anatomically and otherwise suited for transplant to the human being, and ironically it is the pig.

AA: If you could do anything differently in your career, perhaps a different path, what specialty would you have pursued?

Right now, I think a rather significant subspecialty is in congenital heart surgery. Of course, I did all the congenital cases at Texas Children's Hospital for the first 25 years of its existence and I found it very fascinating, but some of the developments that have occurred in the last 5 years or 10 years are so challenging and interesting that it has become a new area of thought and exploration.

AA: In the past, you and your team at Texas Heart Institute have been involved in some of the most exciting new developments and techniques in cardiac surgery, including heart transplantation, assist devices, and lasers. What direction do you feel cardiac surgery will head in the next millennium?

I think that all the rather revolutionary breakthroughs have been made, and nothing will ever compare with cardiac transplantation as something that is as exciting and electrifying. Now, we are in the process of trying to perfect some of the techniques which we have developed; it is difficult to predict what is going to be done, but we know the techniques of cardiopulmonary bypass today are not the complete answer. We will probably develop other drugs perhaps that will give us a sort of "suspended animation" so that you do not put that much stress or dependence upon the heart-lung machine. I suppose we can cut-down the needs of circulation like we do with hypothermia. We will need to reduce this by 60% to 80% of that. We may be able to do that pharmacologically and simplify open-heart surgery enormously.

AA: What do you think of some of the new techniques, for example, minimally invasive coronary artery surgery? Would you encourage surgeons to undertake this type of surgery?

Surely, I think it is something that should be explored and in fact I have introduced it within my own institution. There are about 25 patients where I have used minimally invasive techniques, with a small insertion on a beating heart. Although it has some technical limitations, it certainly deserves exploration. It may really develop into a very useful technique for the cardiac surgeon.

AA: What are your views on cardiomyoplasty?

As it stands now, I really do not see clinical justification to continue doing this operation, unless they can develop some important adjunct which would enhance the ability of the transferred muscle to give a good strong ejection fraction. I think the results have been disappointing and although they expected the transplanted muscle to gain strength, I think it is gradually losing strength because of fibrosis due to ischemia.

AA: Everyone seems to be very excited about the "Batista Operation" (partial left ventriculectomy) and are making visits to Brazil to see it performed. What do you think?

I want to maintain certain healthy skepticism about it. I do believe we can do something about the dilated heart in terms of improving its functions by reducing its volume. Some of the work I have been involved in like intracavitary repair of ventricular aneurysms is not dissimilar to a Batista Operation. It is simply a matter of excluding some of the tissue that is not contractile and putting the left ventricle in a more physiologic and anatomic configuration to eject properly. It is rather a radical approach and I think that they are going to find a lot of dysrhythmias that occur from excising such a large portion of the ventricle. I believe we have to keep an open mind about this but I do congratulate Dr. Batista for his courage in doing the operation. However, we need a lot more experience and require some follow-up because the operation has only been done for about 18 months now. In addition, I have heard some pessimistic comments about long-term results.

AA: You have also been involved with the early clinical studies on transmyocardial revascularization (TMR) with the CO₂ Heart Laser™. What part do you see TMR playing in treating coronary artery disease in the future?

Well, although I have not been strongly convinced of its efficacy across the board, some patients seem to respond very well to it, and we have been able to confirm improvement by using the PET scan and thallium tests. However, I think we should, again, maintain a healthy skepticism until TMR is further studied. It just might be useful, in conjunction with some other techniques such as using an angiogenesis factor, so let us keep an open mind and not get carried away by some of the promotional claims from the people making and selling these various other lasers.

AA: What about use on transplanted patients because of their accelerated atherosclerosis?

That would be an opportunity if it does prove to be an effective technique, and may just be an opening for future investigation. It is a very large console now and perhaps laser technology will continue to change and improve, and someday with modification of the original concept prove to be useful, or it may not. They may not need to do an open

technique and may be able to do it by intracavitary laser application.

AA: Since you have made numerous trips to the Far East over the years and have followed the steady increase in cardiac operations, what is your current impression of the work being done in Asia?

It is astounding to me to see the rapid progress that has been made in Asia since my first visit. Asian cardiac surgeons almost overwhelm the rest of the world with their innovations and industry, their keen interest in research and the like. They are surely a very enthusiastic group of surgeons who want to be leaders in this field, and they deserve to be.

**“IT IS ASTOUNDING TO SEE THE
RAPID PROGRESS THAT HAS BEEN MADE
IN ASIA SINCE MY FIRST VISIT.
GOOD CARDIAC SURGERY IS PERFORMED
IN SO MANY CENTERS IN ASIA
AND AROUND THE WORLD.”**

AA: Throughout the years, you have operated on many Asian patients, but have you seen an ebbing of that flow? Many believe the quality of work being done in Asia has increased dramatically over the last 10 years.

There is no question about that! One time, we almost had a monopoly on open-heart techniques but now surgery is being done so capably in Asia and throughout the world. Currently, we get only a limited number of patients from Asia, European countries, the Middle-East, and so forth. Good cardiac surgery is routinely performed in so many different centers in Asia and other regions as well.

AA: It is well-known that you have trained many of these Asian surgeons yourself and they have now gone back to operate in their respective countries.

Yes, we have trained numerous fellows from Asia.

AA: Surely, you have heard the story over the years that you have probably “killed” as many patients as you have saved because the surgeons that have trained with you see how fast and easily you perform the surgery, then return to their country to apply the same techniques, and some patients never make it. What are your comments?

Well, I know that is said in a jocular vein. I have always strived to develop technical ability but I think the surgeon who can get the job done and complete the procedure in the shortest space of time, and with the least period of general anesthesia is going to get the best results. I marvel at the fact that some very slow and methodical surgeons who are particularly meticulous get good results too. But take

open-heart surgery and look closely at anyone who is recording a series of cases who tried to determine the morbidity and mortality, and the common denominator for the best results seems to be the duration of cardio-pulmonary bypass in all such studies.

AA: So, you take aggressive action and try to teach speed but also accuracy?

Right. I have heard people going away from my operating room saying that he did not look like he was in a hurry and in haste, but for some reason the clock on the wall moved slowly. They thought it was the fault of the clock not anything I was doing.

AA: Another question that is commonly asked: What is your relationship with Dr. Michael DeBakey right now? Do you have any contact with him at all?

Well, almost none.

Usually, I do not get to see Dr. DeBakey. He does not seem to attend the same society meetings that I do. Although, I do not try to avoid him either professionally or socially or anything else, it is interesting in a city like Houston having a common specialty which we enjoy, that we have so little personal contact.

AA: Would you have any objection to sitting on a dais with Dr. DeBakey, say for pioneers in cardiac surgery?

No, absolutely not, but I believe he would not sit with me and I avoid any offers from others to participate with him. If he requested it, yes, but I would certainly want to make sure he was comfortable. Actually, Dr. DeBakey is my senior, and I have a certain debt to him for welcoming me onto his team in Houston in those early days. And, in many respects, I regret that we ever developed this sort of a conflict for so long. But look at the other side, it has been good for my sort of success and made it possible for me to separate from a person who was one of the most renowned surgeons in the world at the time, and had I stayed with him, I probably would always have been known as his assistant. Anyway, it worked out well for me and I do not regret that aspect, but I do rather regret that people may feel there is this enmity that I hold for him. I am pleased that two of the honorees here in Hiroshima were people that I have trained under, Blalock and Brock, and I did want to openly acknowledge the fact that Dr. DeBakey has also influenced my life.

AA: Do you think there exists an opportunity to reconcile any past differences, perhaps during the International Society of Cardio-thoracic Surgeons meeting to be held in Houston in 1998?

If he is still viable at that time, and he is willing to do that, it would certainly be a good occasion to have some sort of reconciliation.

AA: Truly, I think this will be good for cardiac surgery in general and we look forward to that time. What are your plans when you actually stop operating? Do you have an idea of how you see your life taking shape?

I do not know how long I will continue operating. If I keep my health and nothing else changes, I may go on until I reach 80 years old, which should be another 4 years. At that time, hopefully, I can stay at least as I am, president of our Texas Heart Institute, which is a part-time job. I do have a large family and I have some hobbies and things I like to do, but nothing will ever challenge me like surgery. I enjoy the feeling of accomplishment when something goes well, enjoy the association with young people, young surgeons, and students. I do not think I ever will settle down and be content to grow roses.

AA: Do you enjoy speaking at various meetings?

Yes, to some extent. My first love is to be in the operating room. There is something challenging, something new, something I might be able to do better than someone else.

AA: Over the years, you have visited distant countries and the story goes that you once flew into India at two in the morning, given your talk at eight-thirty, had lunch, and left straight that same afternoon to Houston. Is that true?

Yes, I have often done that but now there is not so much pressure on me to get back into the operating room. I can

take off four to five days and things are going very smoothly at the Texas Heart Institute.

AA: What advice would you offer to a young "Denton Cooley," considering your experience, only in today's time, where things have changed and cost has become a big issue in cardiac surgery. If you have a young fellow coming up to your side, what advice would you give him?

I will tell him personally he should prepare himself well and that it is his responsibility to strive for a good record during the educational period at the undergraduate and medical school level, and then select the most prestigious place to get his postgraduate training. Always try to keep a "good address," even though he might stay in a place like Johns Hopkins, a young surgeon is not able to do much surgery independently. But, that is not the issue, what you want to do is to be in a place where you can gain some inspiration from the teachers, the faculty, and so on. When you develop your own curriculum vitae, you can have both respectable, prestigious institutions and people behind you. Look at what I had, because I did not have anyone telling me what to do. I was just one of those who wanted to do well and ended up with Blalock and Brock.

AA: And this was because you were part of outstanding programs during your early years?

Correct. At the right place and at the right time, but I felt like I deserved to be there. I earned my way, a place there.

I first saw Dr. Cooley in May 1989, when I started working as a research scientist in the cardiovascular research laboratories of the Texas Heart Institute. I had just graduated from the bioengineering program of Clemson University in South Carolina with a PhD in blood-contacting biomaterials. As an engineer fresh out of graduate school, I was fascinated by the variety of medical and surgical applications I was being exposed to, and amazed by the fact that they were so readily accessible to me. I was allowed to roam freely in and out of the operating rooms, cath labs, and intensive care units, observing open-heart surgery and cardiac catheterization, much to my own heart's content. In fact, it was considered part of my training. In order to be able to communicate with cardiac surgeons and cardiologists at a scientific level, I needed to familiarize myself with their tools, techniques, and language.

It was on one of these excursions in the operating room that I found myself in Dr. Cooley's room, watching him perform a Bentall procedure from my corner at the head of the table, next to the anesthesiologist. I was so absorbed as I watched him putting those countless sutures around the valve and implanting the coronary arteries into the graft that I failed to notice him staring in my direction over his loops. Hypnotized, I could not even think about moving away until the anesthesiology resident pulled me aside, away from Dr. Cooley's line of vision of the monitors, to allow him to see the blood pressure as he was coming off the pump. I now realize that this was my first experience with Dr. Cooley's legendary "table manners," as he waited for me to be pulled away. In retrospect, I think he did not say a word because he was confident that others in the operating room so respectfully follow his every move and anticipate his every need that he knew they would immediately take care

of this particular mishap in a situation where, in another surgeon's operating room, a novice might easily have been soundly scolded.

As I became more and more involved with some of Dr. Cooley's clinical research protocols, I found the occasion to admire his sharp scientific insight. Many times when I have been with him in the clinic, seeing patients before or after a case or a new procedure like transmyocardial revascularization, I would catch a glimpse of how his mind works. From the questions he would ask, one would know that he was seeing through the details directly to the heart of the problem. He would make subtle adjustments to accommodate each patient's specific situation perfectly to a given protocol. Sometimes, he would spontaneously churn out totally new ideas that would lead to whole new protocols.

Finally, I have observed the social personality of Dr. Cooley at the family picnics he traditionally gives for the cardiovascular surgery department every year at "Cool Acres," a ranch about a one-half hour drive south of Houston. These picnics are truly festive occasions acclaimed by residents, surgeons, fellows, and personnel from various supporting departments of cardiovascular surgery. Spouses and children are included and are able to choose from such activities as basketball, volleyball, swimming, canoeing, western dancing, skating, and dozens of others that escape my mind. After generous servings of great southern-style barbecue and beans, the night is capped by fireworks as the fire marshal with his huge fire engine sits parked nearby ("City regulations," Dr. Cooley tells me). Kids love every moment of the day, being allowed to run around the huge compound. A special highlight is the hayride on the tractor driven by none other than Dr. Cooley himself. It is in his relationship with children that the truly caring nature of Dr. Cooley becomes evident. It is heartwarming to watch this great man be one with the kids while leading the various contests among them, making jokes, encouraging them to participate, and praising winners and losers alike.

Having been privileged to work under a celebrated legend of the medical and scientific community early in my career has had a profound influence on my life. Looking back, I feel grateful for this experience that, in a purely academic environment, would have been impossible for me to obtain.

*Kâmuran A Kadipaşaoğlu, PhD
Cullen Cardiovascular Research Laboratories
Houston, Texas, USA*

The *Asian Annals* was honored to conduct this personal interview with Dr. Denton Cooley during the 6th World Congress of the International Society of Cardio-thoracic Surgeons in Hiroshima, Japan, July 21–24, 1996.

Dr. Cooley has forged strong links to the Asian cardiovascular community over the years through his residency program at Texas Heart Institute, numerous speaking engagements in the region, and of course the operations he has performed on thousands of Asian patients.

A giant in cardiac surgery for more than a half century, Dr. Cooley has made tremendous advancements in the field (*and withstood personal misfortune*), and continues to lead his colleagues in Texas and around the world in delivering excellence in cardiac medicine.

We hope you have enjoyed this brief glimpse into the life of a true American hero.

The Publisher