

Interview with Fayaz A. Shawl, MD

by Laurie Gustafson

A personal conversation with one of the world's most talented interventionists. Dr. Shawl discusses his youth and his training in Kashmir and England, his enthusiasm for participating in live demonstrations throughout the world, and his current interests.



Dr. Shawl demonstrating PTMR using a non-laser device on the world's first patient in at Batra Hospital New Delhi, India.

Fayaz Shawl, MD is Director of Interventional Cardiology at Washington Adventist Hospital in Takoma Park, Maryland. He is also Clinical Professor of Medicine at George Washington University Medical School in Washington D.C. He has been a pioneer in the use of percutaneous cardiopulmonary support and has disseminated this life-saving procedure throughout the world. Having performed over 13,000 interventional procedures, he is considered to have performed more procedures as a single operator than any other interventionist. He is a proponent of minimally invasive angioplasty and the "hybrid" procedure, which is a combination of minimally invasive surgery with percutaneous interventions. Dr. Shawl conducts research on several new technologies including percutaneous transmyocardial revascularization and carotid stenting.

I interviewed Fayaz Shawl in Washington D.C., during the Transcatheter Cardiovascular Therapeutics meeting in October 2000. Dr. Shawl was scheduled to give five lectures during the course of the 4-day meeting.

LG: *You are considered the pioneer of numerous innovative procedures. Could you describe cardiopulmonary support?*

FS: To start with CPS is a technology that really saves lives. The principal role that I see for CPS is for managing cath lab catastrophes. This is the only technology that stabilizes a patient in the cath lab if in cardiac arrest. Such catastrophes don't happen very often, but when that occurs, CPS provides complete hemodynamic support. That's how I got involved in CPS almost 12 years ago, in 1988. During high-risk angioplasty when something went wrong that prevented safe transfer to the operating room, it used to be a nightmare.

Therefore, I was always looking for something that would bail me out in these high-risk patients. With CPS, one can tackle any kind of hemodynamic collapse. This is why I developed the percutaneous insertion technique for CPS, which became a practical cath lab therapy, particularly for cath lab catastrophes. I just presented data at the last ACC meeting and also the AHA on 39 cath lab cardiac arrests out of 23,000 cases. We saved 31 lives of the 39, and none died in the cath lab. So really, for me, CPS has a tremendous role in cath lab catastrophes. But the down side is that it is a very complex procedure. You have to have some experience in elective CPS before you embark on emergent CPS. Many of our high-risk cases have very poor LV function with only one remaining artery being dilated. Such patients are placed on prophylactic CPS. These elective cases provide important training for people who want to embark on CPS in emergencies.

LG: *Is it being widely used?*

FS: No. It has not gained widespread use because of its complexity and the difficulty in gaining experience necessary to use it in an emergency.

LG: *What do you think about PTMR?*

FS: I have substantial experience with this procedure and have been impressed with the symptomatic improvement that it can bring about. While the mechanism is not yet fully worked out, it seems likely that it relates to denervation rather than improvement in perfusion. So, it is unlikely that longevity will be improved — the ultimate niche will likely be the improvement of quality of life.

I have recently been involved in development of a mechanical PTMR device that promises to markedly reduce cost.

LG: *How far do you go and how much does this procedure cost?*

FS: We make channels or holes about 5 mm in depth and 1 mm wide.

But, the equipment for mechanical TMR is \$10,000 versus the \$250,000 for laser PTMR.

LG: *Why are you interested in CPS and PTMR?*

FS: The reason I have been involved with both PTMR and CPS has been due to my interest in patients with end stage coronary disease, that

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includes inoperable heart disease due to very poor LV function, where you want CPS on standby, or patients who have small diffuse coronary disease or have no remaining conduits for bypass surgery, what we call a “no-option patient” where PTMR may have a significant role.

LG: *You are credited for having performed over 13,000 interventional procedures. Are you currently considered the world’s leader?*

FS: I don’t know for sure, but I believe that I am certainly one of the most experienced.

LG: *What does that mean for the hours you spend? Give us an idea of your workload and life outside the cath lab.*

FS: Until about a year ago, I would probably work 12–14 hours a day. But this year I have somewhat slowed down because my children are growing up and I want to spend some time with them. At the present time, I am home by 6 or 7 PM. I spend now about 3–4 days a week in the cath lab. I see patients once a week in my clinic. I spent evening reading my cardiology journals. I travel 1–2 times a month as an invited speaker here in the U.S. as well as 1–2 times a year abroad. I love live demonstrations on difficult cases.

LG: *How many children do you*

have and when were they born?

FS: I have two children. My oldest son, David, was born in 1985 and Jonathan was born in 1986.

LG: *That kind of schedule left little time for anything above and beyond your medical career.*

FS: With my current schedule, I am able to spend a lot of time with them — particularly on the weekends.

LG: *Since you have done so many interventions for almost 20 years, how is your back?*

FS: My back is fine, thank God! I have no physical problem. Not yet anyway.

LG: *Do you have a fitness regimen?*

FS: I do the treadmill at home 3 times a week along with free weightlifting. I had a trainer up until a year ago.

LG: *You are on the editorial board of the Journal of Invasive Cardiology, and have been for over 10 years. Why have you taken on this kind of responsibility in addition to your already jam-packed schedule?*

FS: When I was asked to be a board member, I was delighted. It gives me the opportunity to read the manuscripts. When you read the manuscripts, you also know what is happening in the world and then also try to use your scientific background to see if this manuscript is worth publishing and by that, read more and get more knowledge than I otherwise would.

LG: *Tell us about your early years. You were born in Kashmir?*

FS: Yes. I was born in Kashmir in 1951. Kashmir is a very small area in the foothills of the Himalayas, north of India. I did my schooling there. The system is a little different. There is no kindergarten or pre-school. I think I was 4 years old when I went to first grade. But you had to be a minimum of 5 years old. There is no record of birth, so families often change the dates. People want to send their children earlier, so they basically lie and say he is already 5

years old. They make up a date of birth and this is what we did. I went one year earlier and the school is such that you go Monday through Saturday. The weekend doesn't start until Saturday afternoon. You can go to the next grade when you pass an exam. If you don't pass it you don't go to the next grade.

LG: *So you could do it in 6 months, or it could take 3 years?*

FS: Yes, in fact. I did one as a double promotion. I went from 4th to 6th grade. I skipped one year by taking both exams together. In fact, I graduated from high school at age 14 and then went to college.

LG: *What was your major in college?*

FS: Botany, zoology, chemistry and physics. We called it pre-med. You can finish in 2 years or 4 years. I finished in 2 years. So really that led me to go to medical school just before I turned 16, and I spent 5 years there.

LG: *Did you go to medical school in Kashmir as well?*

FS: Yes. Then after that I did first a year of internship in Kashmir. In Kashmir, medicine is a national health service. First you get posted in rural areas or somewhere where there is no doctor. So after I finished my internship, I was posted in a village in the foothills of the Himalayas. In fact, to reach that place you had to take first a plane for half an hour, then a bus for 8–10 hours, then a horse for 2–3 hours. I was there for almost 10 months. I was the only doctor for approximately 6,000 people. It was like an out-patient clinic where I could do everything from medicine to surgery including obstetrics and gynecology. I was 23 years old.

LG: *That is a lot of responsibility at that age. Did you have a staff?*

FS: Yes. I had one nurse, one midwife, one pharmacist and medicine was free to the people. They'd come to the hospital in the morning. There were no appointments. They would stay in line. What is fascinating is when you see those patients, each would carry something in their hands whether it was a couple of eggs, a live chicken, some milk, or some butter. They wanted to show their gratitude. They were grateful because there were no charges. We were not



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really expecting them to bring anything. But they had a desire to bring something to the physician, from their homes. Sometimes they just got me rice or some vegetables. After I did a big surgical case, one family gave me a “goat” as a present. During my stay there, I never had to buy any groceries. I did have somebody to cook for me, from the hospital. In fact, these hospitals were out-patient dispensaries or health clinics, and they were all over Jammu and

Kashmir. The place I was posted, there were no roads, no social life, and very little electricity. I would also make house calls on very sick patients. I was the boss — I had nobody above me, so I could leave and come whenever I wanted. There is nobody who checks on you. In fact, you also have other responsibilities there. Every Sunday, I would make decisions for the villagers about their problems and disputes and my decision was final!

LG: *You were also, therefore, considered a judge at age 23?*

FS: Yes, in a way; the people would present a case to me and I would render judgment. I did this type of duty for almost 6 months, mostly on Sundays. Many would involve injury cases, where I would have to give a certificate before police got involved. I would determine whether it was a major or minor injury; however, a major injury meant trouble. After I spent 10 months there, I took a trip to England.

LG: *What brought you to England?*

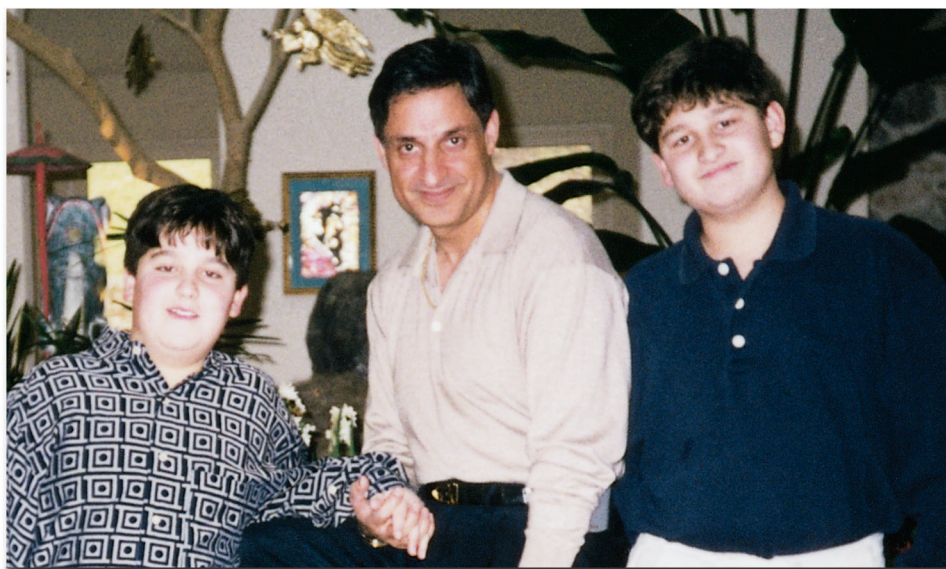
FS: After answering the last question, I am surprised you have to ask this one! I went to England to take the ECFMG exam, which would allow me to apply for residency in the United States. The nearest test center from India was to go to England, which I did in 1974. My intention was to take the exam and go back to my village hospital called Shahadra Sherief Dispensary, where I had spent the last 10 months. But, while I was there in England I visited a friend who said, “Let me take you around my hospital.” So, I went along with him and he asked me to wait in the doctor's lounge until he finished his rounds. I sat there and I met an older gentleman named Dr. Richard Fletcher. He happened to be

chief of medicine. So I introduced myself and he asked me what I was doing there. I said, "I am waiting for my friend, Doctor Din." He said, "Aren't you working in the U.K.?" and I said, "No, I just came from India to sit for the exam and I'm planning to go to the United States if I pass the exam." He said, "You don't want to work in England?" I said, "If I can get a job." He said, "Come in on Monday and I'll give you a job called clinical attachment," which would qualify for me to get a license for residency after one month. So, I started

my residency and I never went back to Shahadra Sharief. I stayed in England for 3 years, but I did not go to the U.S. until 1977. In these 3 years I did my residency in England and also did my post-graduate work. I think that is where I got my interest in cardiology. I always thought that cardiology was best in the United States and so, I came here in 1977.

LG: *Your interest in cardiology finally brought you to the United States?*

FS: Yes. When I passed the ECFMG exam in 1974, I got my green card. In those days you got it early. Things are a bit different now. But in 1977, I think Ford was president and he signed a law that would have changed immigration laws for green card holders like me. At the same time, I was really very interested in cardiology, especially invasive cardiology. As a resident in England I began putting in the Swan-Ganz catheters and arterial lines. Everybody said, "What is he doing?" I was considered very aggressive there in cardiology and in general medicine. So, anyway, I applied for the matching program and was matched at Prince George's Hospital in Maryland, and then I came in July 1977 to do my 3 years of residency in internal medicine.



Fayaz Shawl with his sons, Jonathan (14) and David (15).

LG: *What is the matching program?*

FS: You apply through the central registry and they match you to the different hospitals. You apply for several residencies and indicate what your first preference is when you come from the interview. I matched at the Prince George Medical Center as an intern. But within one month after I came here I got very lucky in the sense. Well, I had done 3 years of residency in England, and English medicine is a lot of bedside medicine. You make your diagnosis by taking a detailed history and physical exam. Here in the United States it is more invasive: chest x-ray, CT scan, a lot of laboratory tests. Because of training in England, the then chief of medicine, Dr. David Goldman, felt that I should not be a resident. He felt I should be allowed to sit for the internal medicine boards. So he wrote to the board of internal medicine that I should be exempted from further training and be allowed to sit for boards, so luckily I got exemption from residency.

While I was at PG hospital there were cardiologists from Walter Reed moonlighting in the evening. So I came across the chief of cardiology from Walter Reed, Dr. James Davia. I was very impressed with the fellow-

ship program at Walter Reed. Therefore, he got me very interested in a fellowship at Walter Reed. But I was not a U.S. citizen then. To make a long story short, he got a special permission for me to be enlisted in the Army and therefore special permission to do a cardiology fellowship at Walter Reed. I started my first year of cardiology at PG hospital, but I finished the fellowship at Walter Reed.

LG: *So to do that you had to join the Army?*

FS: Yes, I was a captain in the U.S. Army and later a major.

LG: *That's interesting. You could join the army even as a recent Indian immigrant?*

FS: You're right. At that time I had an Indian passport.

LG: *You did the Army's first PTCA.*

FS: Yes. That was the first in the Army, Navy and Air Force.

LG: *Where did you learn to perform angioplasty?*

FS: Well, I heard Andreas Gruentzig present a paper in late 1979 at the American Heart Association about angioplasty and I got very excited. I came to learn that he had a course in Zurich, so I attended. It was his last course in Zurich. In fact, my

cath lab chief told me not to do it. "Don't waste your time," he said. He didn't believe balloons would work, neither did my cardiovascular surgeon. Now we have our own interventional meetings like the TCT meeting, my God! I couldn't imagine this would have happened. So, I went there and I met Andreas Gruentzig and Richard Myler. They were the great teachers in those days. When Dr. Gruentzig came to Emory, I continued going to his courses and also to Dr. Myler's courses. I also met Kenny Kent here in Washington and he had a protocol at NIH in 1981–82. So, I would take my patients from Walter Reed to the NIH and learn basically right from the beginning. In 1982, when I left Walter Reed, there were only 2 of us in private practice in the Washington metropolitan area. Now there are about 20 in my hospital alone.

LG: Tell us about your own live demonstration courses in Washington and your practice of demonstrating the complete case from "skin to skin" rather than just broadcasting the treatment highlights.

FS: I have done demonstration courses all over the world. In my course, when I have a problem in a live case, I always include the audience as I try to work my way out of trouble. I think the willingness to show how I work through a case in which there are problems is very educational. I give credit to Drs. Gruentzig and Myler who started this sort of thing.

LG: By the way, Dr. Myler told me to tell you that he is one of your greatest fans. And now you are his cardiologist, too.

FS: Dr. Myler is really one of the early pioneers of angioplasty, whom we now call "the father of angioplas-



Dr. Shawl with assistant Gina Rigali perform a live demonstration via satellite transmission from the Washington Adventist Hospital in Takoma Park, Maryland.

ty." So, I am honored by my association with him.

LG: You have also taught many cardiologists to do angioplasty, all over the world, especially in India.

FS: Yes, I do visit India frequently. I have been invited to do live demonstrations all over the world. I also do a lot of charity work. I go to hospitals in India, Pakistan, and to underdeveloped countries to help them out — on my own time — to teach them. I treat patients free of charge. It gives me a lot of satisfaction.

LG: Do you work anywhere else?

“Watching you do carotid stenting is a revelation...it will have an impact not unlike that of coronary angioplasty.” —Richard K. Myler, MD

FS: Well, I am on the clinical faculty at George Washington University Hospitals. I will be actively involved in their interventional program.

LG: I understand that Washington Adventist Hospital has named a cath lab after you, when was that?

FS: Yes, I am very much honored. This occurred in 1998.

LG: Do you ever travel for vacation?

FS: No, I really don't take vacations! My vacation is when I go on a professional trip. You know, recently when I was in Greece for the IAGS meeting, that was my vacation, too. Until a year ago, I used to work many long hours. But now, I am home by 7 pm, not midnight. I spend time on the weekends with my children and I have people — associates and fellows — who take calls and things have become much better in the last one or two years. My current schedule, hopefully, should allow me to take a vacation outside from a professional trip.

LG: Are you one of those people who need only 5 hours of sleep each night?

FS: You're right. If I can get 5 hours of sleep, that's great.

LG: What about hobbies?

FS: I never had any particular hobbies. I was never in sports. I read a lot, mostly medical journals. Plus, I publish and I think that is what I



Dr. Shawl with his interventional team at the dedication of the Fayaz Shawl Advanced Interventional Catheterization Laboratory in 1998. (Left to right:) Stephanie Cornell, Tamara Bulhack, Kathy Dougherty, Susan Hoff, Waleed Kadro, Fayaz Shawl, Robert Tobar, Amy Dukovich, Gina Rigali, Tariq Shahab, Fernando Lapetino.

enjoy. I read every journal every month including your journal. That, you could say, is my hobby. I also like to travel to other countries, particularly underdeveloped nations. I train people. I also invite people from India and Pakistan and other countries to my cath lab and train them.

LG: *What research are you currently involved in?*

FS: I am working on 2–3 trials on carotid stenting. I am also working on patients with small vessel disease. I use a modified angioplasty technique for small vessels. I am also doing research on angiogenesis, PTMR, using non-laser mechanical approach. I also research high-risk angioplasty and CPS during cardiac arrest, end-stage coronary patients, cardiogenic shock patients. But, carotids and angiogenesis are currently my main interests.

LG: *What do you think are the training needs before doing angioplasty with stenting in the carotids?*

FS: They should be very familiar with the anatomy. Cardiologists should not try carotids unless they *really* know the anatomy. It is important to have a dedicated multi-disciplinary team approach. The team

should consist of a neuro-radiologist, vascular surgeon, and a neurologist, because the brain is not forgiving if there is even a little minor complication.

LG: *Are you developing any products or devices?*

FS: No, I am a consultant only.

LG: *What do you think of the trend toward out-patient procedures?*

FS: Right now we are doing out-patient caths. We are about to embark on out-patient, straight forward angioplasty with stent. Europeans are already doing out-patient stuff. I think it can be done in selected patients. With the available closure devices, one can safely discharge patients after a few hours.

LG: *What advances do you think we'll see in interventional cardiology in the next 3–5 years?*

FS: I think the biggest challenge will continue to be restenosis, although it is already lower with stents. My gut feeling is that radiation would be very useful in certain high risk subsets like diffuse in-stent restenosis. And there will be certain drugs, like Taxol and rapamycin for coating stents for reducing resteno-

sis. That I think will be the big innovations that will come. It is only a matter of time.

LG: *What about in 10 or 15 years?*

FS: I'm sure by 10 or 15 years we are going to have basically outpatient interventions. Cardiology will be like one-stop shopping. You will do everything from head-to-toe. There will be a minimal role for bypass surgery. There will be a role for robotics — both for surgery as well as during certain interventions, and also catheter-based stent valves and direct gene/cell implants for myocardial dysfunction.

LG: *Should physicians align together to influence healthcare politics?*

FS: To me, the business part of medicine is one of my biggest frustrations. I am not for getting these organizations together. I want to be independent. I want to spend time with my patients and do what is necessary. I'm not so much into the politics.

LG: *Would you want your sons to choose a career in medicine?*

FS: I am not encouraging them. I mean I am already supporting them in what they want. I am not one of

those parents “I want my sons to be doctors.” If they are interested in medicine, I will absolutely support them. If they are not, I am not going to force them. I will support them in whatever they want.

LG: *They haven't shown an interest at this point?*

FS: My younger one, Jonathan, has shown an interest in medicine, particularly in becoming an emergency room doctor so he can be busy day and night! My older son is more into the computer and in making movies. My feeling is that he may end up with computers or in movie production. I will definitely support his interests.

LG: *Should cardiologists have to perform a certain number of procedures?*

FS: Oh, absolutely! That is a must.

LG: *What should be the minimum?*

FS: I think we have right now 75–100 cases a year to keep your proficiency. I mean if you don't do one or two cases a week, I think you should not do intervention. That is the way I feel.

LG: *Tell us more about your family, your siblings, and your parents.*

FS: My father, unfortunately, had cancer, and died when I was just 13. He was my biggest influence. My father was very healthy and never took a sick day in his life. He was having this indigestion and he went in to his physician and they diagnosed cancer. And when they operated it had already metastasized into the liver. And that is when he died. Post-op.

LG: *How old was he?*

FS: He was 50. He was very young.

LG: *What about your mother? Do you have siblings?*

FS: We are a very close family. I often call my mother and we see each other at least once a year or so. I also have two sisters and a brother. My sister, who is one year older than me, is an obstetrician/gynecologist. My other sister is a teacher in pharmacology, again in medicine. And my younger brother is in business. They are back at home in Kashmir.

Town Meeting

Questions from several members of JIC's editorial board for Dr. Shawl:

Q: *Cardiogenic shock patients often have an identifiable culprit artery amenable to angioplasty. However such patients often have multivessel disease. What is the role of emergency multivessel revascularization in this setting?* – John Webb, MD

Dr. Shawl: That is a good question. If you have multi-vessel coronary disease you can't just open the infarct-related vessel — you must do the whole thing. If you just open the infarct-related vessel their mortality is high. So, what I do is if somebody has critical multivessel coronary disease and I can approach every vessel, I do every vessel in the same sitting, either with the help of balloon pump support or in some very sick cases with the CPS.

Q: *When should hemodynamic support be used, especially CPS?* – John Webb, MD

Dr. Shawl: CPS is like a lifeboat in the cath lab. CPS is most useful in the setting of cardiac arrest or profound circulatory collapse. It allows coronary interventions to continue with the object of fixing the artery, the underlying pathology in such circumstances. It is also, I think, useful during high risk elective coronary interventions, like in patients with extremely low ejection fractions with the only patent vessel being dilated.

Q: *Who should use it?* – John Webb, MD

Dr. Shawl: An interventional cardiologist, who has the knowledge of cardiopulmonary bypass support, as well as experiences initially with its use in elective cases during high risk angioplasty. You have to have a perfusionist present, as well as well-trained technicians and nurses.

Q: *Do you have any technical tips for operators to use in high-risk patients?* – Gregg Stone, MD

Dr. Shawl: It is important to know when to use CPS prophylactically. It should be used for severe left ventricular function, e.g., ejection fractions of less than 20%, when the only patent artery or a bypass graft is to be dilated. CPS support may be also used when dealing with very poor LV function and only remaining patent vessel, which is not ideal for stenting, e.g. in those who require rotational atherectomy or in those whose likelihood of no-reflow is high — in the setting of severe LV dysfunction. Also, during weaning of CPS, if pulmonary artery pressures keep rising with drop in systemic blood pressure, in such patients gradual weaning, perhaps, over 4–6 hours, outside the cath lab along with the use of IABP appears quite helpful. A second worthwhile point is that iliofemoral angiography should be performed in all elective cases to guide decisions about CPS cannula placement.

Q: *How is high volume angioplasty done in terms of quality vs. quantity?* – Gregg Stone, MD

FS: I guess the question relates to the tradeoff of quality for quantity. Actually, most studies show that high volume operators have better outcome. So, high quantity and quality generally go hand in hand.

LG: *Thank you very much for talking with me today and sharing some of your story with the readers of the Journal of Invasive Cardiology.*

Dr. Shawl's Favorite Publications

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