Transcript

Interview with Mithun Shenoi, MD, PhD
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Justin Barr: Good morning. This is Justin Barr interviewing Dr. Mithun Shenoi at the VA hospital in Durham, on May 7th, 2018. Thanks so much for participating in this project, Mithun. Do you want to start just by talking a little bit about your childhood, where you were born, grew up, how you eventually got into medicine?

Dr. Mithun Shenoi: Sure, I'm happy to be chatting with you. I was born in Kerala, India. It's located on the west coast of South India.

Justin: How do you spell that city?

Mithun: It's actually a state. K-E-R-A-L-A. Although I was born there, my parents were already living and working in Dubai. I grew up in Dubai and was there through my junior year of high school. My family immigrated to the United States just before my senior year.

Justin: Where did you end up in the United States?

Mithun: We moved to Newark, Delaware.

Justin: How did you see your career unfolding from then? You had an interest in math and science at the time?

Mithun: Yes, the school in Dubai split students into science or commerce groups. With my interest in science, I was obviously in the science group and taking high school courses in science and mathematics. After moving to the US, I ended up getting admission to Carnegie Mellon University for engineering. I majored in chemical engineering with a double major in biomedical engineering. It's hard to say exactly what got me interested in science. I was always interested in science. I seemed to have an aptitude for math and science and participated in the math and science clubs, Olympiads, and it just went from there.

Justin: How did you make the transition from chemical engineering to being a pre-medical student?

Mithun: Early on during freshman year in college, I was introduced to the on-campus emergency medical services group. It was a student-run group that basically acted as the EMS service for campus. The students had received either EMT basic or EMT paramedic training and served in that capacity. We didn't have our own ambulance or anything like that but we did provide first aid and first responder services for any emergencies that happened on campus. So I got involved with that group, I took night

classes to become an EMT and I worked with them throughout college. That was my introduction to medicine per se.

Justin: Any particularly cool cases you remember as a college EMT?

Mithun: Nothing in particular stands out, I do remember attending to many a drunk fraternity student on Friday nights. I can't say that I performed CPR on someone who had a heart attack though others in our group had done that. I never had the opportunity to fire up the AED but still, it was a great experience.

Justin: After freshman year, you started taking pre-medical classes or started seeing yourself moving towards a pre-medical track?

Mithun: Yes, working with the EMS group put the idea in me that medicine is something I'd be interested in. I attended the pre-medical student group meetings, and activities. I sat in on presentations by medical students from the University of Pittsburgh who would come talk to us and that stirred interest. Luckily, a lot of the pre-med courses were already a part of the chemical engineering curriculum. I probably just had to take a couple of extra biology courses that were outside the core chemical engineering curriculum.

Justin: Do you have any family members who are doctors or really developed your interest once you got to undergraduate?

Mithun: I think I really developed my interest when I was in college. I don't have any immediate family members that were doctors so can't say that I was inspired by anyone in my family.

Justin: What was your research like when you were an undergraduate?

Mithun: I dabbled in many different things. My first research project was with the Pittsburgh air quality study. I was a true intern. I knew absolutely nothing, I was there to make sure that the instruments worked like they were supposed to, cleaning equipment, and just learning a little bit from everyone by "osmosis". I was taking in everything that I could experience. After that, during my second year, I heard this talk on lab-on-a-chip devices and microfluidics by one of our chemical engineering faculty members, James Schneider. That really grabbed my attention and I ended up doing some work with him as my research mentor.

After my junior year in college, I worked at the Baylor College of Medicine and did a summer internship there in a basic science lab as part of the whole pre-med curriculum.

Justin: You ended up going straight through from undergraduate to medical school, or did you take off time?

Mithun:. Straight through.

Justin: When you were applying, you eventually matriculated into an MD/PhD program.

Mithun: Correct.

Justin: How did you decide to pursue that instead of "just" an MD?

Mithun: By the time the application process had started, I was engaged in research and I knew I wanted to become a doctor as well. I couldn't see a way forward without giving up one or the other. I had yet to learn the nuances of conducting research and at that time, I felt that a PhD was somewhat of a requirement to do high quality research. I still feel that way. It led me to apply to MD/PhD programs. Also, the fact that most MD/PhD or MSTP programs are fully funded was an attractive option as well given the cost of medical school.

Justin: How did you choose the University of Minnesota?

Mithun: Minnesota had a very strong chemical engineering program, easily in the top three in the country at that time. When I applied and I made my decision, I thought I would pursue my PhD in chemical engineering.

Justin: What was the application process like, because most people going into MD/PhD are not applying for chemical engineering as their research focus.

Mithun: I would say the MD/PhD application is more like just applying to medical school. At most programs I applied, there's not a separate application to the PhD portion of things. One way to think about it is, do you meet the minimum criteria to get into medical school, and then the second step is, do you have enough of a research background and do you demonstrate enough of an interest in research to get selected for an MD/PhD position? I think, in a nutshell, that's how they sorted out to who would be in the MD/PhD program.

Justin: When you started at Minnesota, did you know you were going to do surgery or you were pretty open about which specialty you would land in, or were you convinced you were something completely different?

Mithun: When I joined Minnesota, surgery didn't figure prominently in my career plans at that time. I want to say I always had a sense that I was going to do something procedural, perhaps Interventional Cardiology or Interventional Radiology, something along those lines. General Surgery didn't actually become a concrete idea until during the latter aspect of my research years.

Justin: Can you talk a little bit about those research years when you were at Minnesota? Where your research interest ended up and your PhD project there?

Mithun: Sure, I was still invested in working on microfluidics and lab-on-a-chip devices and…

Justin: Sorry. Can you define what microfluidics is, for those of us-?

Mithun: [laughs] Microfluidics is basically the design of devices that use very small volumes of fluids generally to perform diagnostic applications. There are certain advantages it offers beyond just the fact that you're using a smaller volume of fluid. You could consider the point-of-care blood glucose monitor that diabetic patients use a microfluidic device. The idea was to expand that to diagnosing other diseases and developing novel point-of-care testing strategies.

The way our MD/PhD program was structured was to do the first two years of medical school, then complete the entire PhD curriculum, and finally come back to finish the third and fourth years of medical school. I started in an electrical engineering lab, working on lab-on-a-chip devices. Unfortunately, that advisor moved to another university, took up a better position about a year into my PhD, and so I had to switch labs. It was at that point I joined John Bischof's lab.

Justin: How do you spell his last name?

Mithun: B-I-S-C-H-O-F. His lab was working on conducting pre-clinical experiments using nanoparticles to enhance thermal therapies. They were working on a prostate cancer model. At that point, that looked like a very interesting research avenue. I spent about three and a half to four years in his lab, finishing my thesis project.

Justin: Then, you came back to the wards and you said that's roughly around the time when you settled on general surgery as a future?

Mithun: Yes. In Dr. Bischof's lab, I worked with many different animal models: mice, rabbits, and pigs. For a lot of the experiments we did had some kind of surgical or procedural component. That really triggered my interest in pursuing surgery. I started talking to all the physicians I was collaborating with to sort out if I was more interested in Interventional Radiology or General Surgery. I even considered ENT, I think, at one point. Finally, after I finished my required surgery rotation during third year, the deal was sealed. I did the usual sub-internships in surgery and ended up applying to general surgery residencies after that.

Justin: Minnesota has a historically strong department of surgery, with Wangensteen, and the succeeding chairs. What was your experience like? Were there any clinical mentors that helps you on your way?

Mithun: Yes, I mostly worked with the Acute Care Surgery group at the university. It's not a very big hospital. Most of the surgical department was spread out in multiple different hospitals. Dr. Greg Beilman, who is the head of the Surgical Critical Care/Acute Care Surgery Department, I spent some time with him, scrubbed in on some total pancreatectomy auto islet transplantation cases with him, which is something that's very unique to the University of Minnesota. He definitely helped me in that regard, but I don't think there was one particular surgical mentor, it's the department as a whole, that helped me. Certainly, Dr. Selwyn Vickers was the chair at that time and he definitely helped me with my application process.

Justin: When you were on the interview trail, what was the reputation of Duke Surgery?

Mithun: Interesting question. Unfortunately, there was definitely an aura of "malignancy." There was a lot of chatter amongst the applicants about Duke being a "difficult surgical residency or challenging surgical residency," but at the same time, I don't think anyone denied that it was a very strong surgical residency with a rich history. Of course, this is Dr. Sabiston's legacy. It was definitely a very mixed picture when I came to interview here. It was a program with a strong tradition and reputation for training surgeons, but at the same time, the experience during the residency may not be all that easy.

Justin: What made you decide to come here?

Mithun: There were multiple reasons that I ended up choosing Duke. I was very clear on these when I decided to come here. One was the history and reputation of the program. I knew I couldn't go wrong in terms of being appropriately trained. I was also interested in working with some of the faculty in the biomedical engineering department because when I applied, I was thinking about doing research. Mark Dewhirst and Ashutosh Chilkoti were a couple of researchers whose papers I read a lot during my thesis. They were even working on nanoparticle design. I thought those would be good connections to make and good people to work with. Lastly, being close to the Research Triangle Park, we figured that my wife, who is an electrical engineer, would have opportunities to get a job in this area.

Justin: What year did you actually end up starting here and who was in your intern class?

Mithun: I started in 2013. Others in my intern class were David Ranney, Babatunde Yerokun, Patrick Davis, Shanna Sprinkle, Alice Wang and Mike Mulvihill.

Justin: Any good stories from intern year?

Mithun: Yes, there are stories about patient care that should not be divulged. Probably the one thing that I will remember is even before or early during intern year, all of the interns went to Shooters nightclub in Durham, and by the end of the night some of us were dancing in the cage there.

Justin: I hope there's video of that.

Mithun: I'm sure someone's got a video. [laughs]

Justin: You opted to bypass the traditional two years of research because you already had your PhD but you came in thinking you're going to do it in BME so what led to that that change in your path?

Mithun: Having a PhD in basic science, that's primarily what I was aiming to do during my two years, treating it as a postdoc. I was set up to work with one particular faculty member but somehow it ended up that he was leaving the institution and-

Justin: Who was that?

Mithun: -moving on to a better position. Dr. [Doug] Tyler, he took up the chair position at UT Galveston. That fell through, I want to say, pretty late during my second year. I can't remember the exact timeline but that triggered a little bit of PTSD from my PhD years when my first adviser left. It also made me rethink. I realized that doing any meaningful basic science in two years did not seem like a viable option. I decided that since I already had a PhD background, it would be better for me to complete surgical residency, get trained as a surgeon, and then revisit the idea of doing basic science research.

Justin: They say the second year or JAR year here is one of the more challenging components of the residency. What do you think made the second year so much more difficult than the other years now that you're a chief and have almost finished the program?

Mithun: The second year is definitely a period of growth both as a resident, or surgeon and as a person. I think the main issue is that as an intern, the expectations are very clear. You round with the team and the chief in the morning. You're given a certain set of tasks. As long as you perform those tasks and make sure the patients are safe, you generally are in the clear.

As a second year, the challenge is that now you're in this intermediate stage where people want to give you responsibility or you think you have responsibility but you're left in a situation where you don't know what you don't know. That can make it a little bit challenging. Especially when you're fielding consults, you're the first surgeon to see a patient. Your interaction with the patient and the plan you come up with in your mind sets the tone for how the patient will be taken care of.

That brings a lot of responsibility but again, it's only the second year, you were an intern last month and so mistakes are bound to happen. Learning from those mistakes and finding that sweet spot between making independent decisions, being proactive and taking care of the patient versus acknowledging your limitations, I think that's probably the hardest part of second year.

There's a lot of ICU time during second year. You're taking care of the sickest patients in the hospital. I think, unconsciously, that wears you down when you keep seeing sickest of the sick patients day in and day out. I think those are probably the biggest challenges during second year. Having said that, I think the program has made changes to ease some of the difficulties of second year and still make it a learning experience. I will say though, I think the 2222 consult month is a signature Duke residency experience, and I would not give that up nor do I think that experience should be diluted any further.

Justin: What's it been like you're now at the top of the totem pole as a chief this year?

Mithun: Being a chief, you definitely know how to navigate the system a lot easier. You know how all the services run, you can anticipate roadblocks and you know the attendings' preferences. All of that makes life a little bit easier. At the same time, you have more responsibility. The attendings do give you more autonomy in making decisions about patient care and so you just have to be wary of that and not abuse the responsibility that's given to you.

I think the attendings and our program director are definitely very supportive of us in our role as chief residents. I think we are well-prepared to take the next step of entering fellowship or going into general surgery practice, whatever the individual case might be.

Justin: When you got here as an intern, Dr. Ted Pappas was the interim chair. As you're leaving, Dr. Allan Kirk has been chair for three or four years. How do you think the program has changed since Dr. Kirk assumed the chairmanship?

Mithun: There was a very palpable change in just the whole environment of Duke Surgery after Dr. Kirk took over as chair. My co-chiefs and I, obviously, had the good fortune to work with him a little bit closer over this past year. I think probably, the biggest thing that sticks out is his grand vision for Duke Surgery. It's very clear in his mind what that vision is and it's definitely not something short term. He thinks about how to improve the system, how to improve Duke Surgery in the long term.

Along with that, with his scientific expertise and lifelong dedication to basic science research, he has very appropriately prioritized research in the department and has encouraged both the faculty and residents to pursue rigorous research activities. It can be in whatever field they're interested in. He's not invested in the idea that every surgeon or every resident has to do basic science research, which I think is refreshing for someone who's so heavily invested in basic science research.

Some of the ideas that our current residents have come up with in surgical education or even recruiting someone like you interested in history of surgery and giving you the freedom to pursue your interest in history, I think that speaks to how broad and open-minded he is about academic pursuits in general. I know, between him and our program director, they have even spent some of their own money to fund small research projects.

The other thing in, light of our recent 1 Duke Peri-Op, it's not just supporting the surgical faculty and the residents but just changing the whole culture of the operating room and the entire surgery establishment, I guess. Bringing all three sites, Duke Raleigh, Duke Regional and the Duke University Hospital, all under the same umbrella, I think that's another thing that he's done. I keep looking forward to what's next and what other incredible idea he's going to come up with. I consider myself fortunate to have worked under him.

Justin: He seems well-loved by residents and faculty here.

Mithun: Absolutely, no doubt about that.

Justin: You have been here five years and gone from being a day one intern to almost a last day chief. How do you see the program and the residency having changed over the course of your tenure?

Mithun: There's several things, especially around the time that Dr. Kirk became chairman. We had a turnover in the faculty, as would be expected any time a new chairman takes over. We did end up losing some of our senior faculty like Dr. [Brian] Clary and Dr. [Doug] Tyler and more recently Dr. [Julie] Sosa and [Sanzania] Roman to chair positions at other academic centers. It's bittersweet moments where we're losing experienced surgeons but it's good to see that they're getting positions of honor and responsibility at other academic surgical centers.

Some of the other things that have happened within the last five years, certainly the residents working at Duke Raleigh was something new. I think our intern class was the first intern class to work there along with the then-third year residents. I like to claim fame to the fact that I'm the first resident to have worked at Duke Raleigh as an intern and as a chief.

More broadly speaking, I think probably the biggest thing is the resident culture and the camaraderie of the residents -- there's been a marked shift from when I was an intern. I think the program has just progressively become more close-knit and more like a family. The distinction between a chief and an intern, while it definitely exists, is less pronounced. I think, overall, it's better for patient care and makes for a more collegial work environment.

There's definitely been an increased emphasis on training residents. The program has made multiple changes vis-à-vis Wednesday morning conferences, teaching conferences, the establishment of the SEAL Lab and all the different things they do in SEAL Lab. Especially, I guess, some of the work they do with the lab year residents who, even though they're spending time doing research, do maintain some continuity with their operative skills. It was definitely sweet to get a new surgical resident lounge compared to the beloved old bunker. Small things like Dr. Kirk doing walk arounds on Thursday and seeing patients with us and teaching us right at the bedside, it's definitely something that I cherish.

I've noticed the junior residents get to operate more, which certainly wasn't the case a few years back. The VA system has improved, surprisingly so. The VA experience has definitely become a lot better for the residents.

Justin: Who's taken charge of the VA from a general surgery standpoint?

Mithun: In terms of the faculty or-?

Justin: Which faculty member do you think has made the biggest difference in improving the experience for residents?

Mithun: I don't think there's one particular faculty member, but I think as a whole, the Duke Surgery Department has made it a point to assign more faculty members there. We have recruited faculty members to work at the VA. Dr. [Thomas] Novick and Dr. [Harvey] Moore come to mind regularly because they spend majority of their time here at the VA. But even Dr. [Paul] Mosca, Dr. [Sandhya] Lagoo, Dr. [Andrew] Barbas spend a lot of time here, doing a lot of complex cases here. Dr. [Trey] Blazer makes time to come in and staff, among other things, POSH clinic. I think there's been a concerted effort on the part of the Duke faculty to be more of a presence at the VA.

In addition, they've recruited APPs to help run the services, the general, vascular, and thoracic services. All in all, that is going to improve the residents' experience by decreasing the amount of scut work we do and helping us navigate the system a little bit better.

Justin: Other major changes that you had seen?

Mithun: I guess on a personal note, I'm interested in colorectal surgery. It's been nice to see the colorectal surgery section recruiting more faculty members

Justin: Whom did they recruit?

Mithun: Dr. Moore was recruited maybe two, three years ago. Then, they recruited Dr. [Billy] Lan, Dr. [Karen] Sherman and Dr. [Katherine] Jackson to staff our satellite hospitals, Duke Regional and Duke Raleigh. I believe Dr. Lan and Dr. Sherman were right out of fellowship, so as a colorectal surgeon in training, it's good to see that there are jobs out there. It's good to see how they started off their practice and are building their practice in the early phase of their career.

Justin: Is there anything, if you had a magic wand that you could wave to make Duke Surgery better, that you see room for improvement?

Mithun: I guess, I would say, just staying true to the vision laid out by Dr. Kirk as to being a strong academic surgical program pursuing academics and making sure that the residents' operative experience and autonomy is maintained despite the medicolegal environment that we now live in. If I had a magic wand, every resident that comes through would get NIH funding for the two years in the lab. Every chief resident would be doing the case with a junior resident with the attending sitting in the corner of the operating room. But let's be real… [chuckles]

Justin: In your residency, you and your wife had a child. What was it like to start raising a family as a clinical resident in Duke Surgery?

Mithun: I must say my wife and I were incredibly fortunate to have parents that were very willing to help us take care of our infant and now toddler. It is hard. I certainly didn't have the harder part of the equation, but it definitely helped that my parents and my wife's parents were with us helping take care of our son. Honestly, I can't imagine what we would do without them. Certainly, my wife has a full-time job and she's made

incredible sacrifices in her personal time to do well at her job as well as raise our kid. I can't thank her enough for that.

Justin: You're almost done here at Duke. Where are you going next year and how do you see your career unfolding from here?

Mithun: I'm matched into a colorectal surgery fellowship at Indiana University in Indianapolis. It's a one-year fellowship to give me additional in-depth training in colorectal surgery. I haven't quite started my job hunt yet. In many ways, I've kind of forgotten how to do that. I would love to come back and work in an academic surgical environment. Starting off, I'm just going to see what's out there and plan to be a busy colorectal surgeon so that I can quickly ramp up my practice and at the same time indulge in some specific academic pursuits.

Justin: Was there anything that we didn't cover today that you want to put on the record for posterity about your time here at Duke?

Mithun: I think the only thing I would say is the whole process, the whole residency process would have been incredibly difficult without sharing the experience with my fellow residents and certainly my co-chiefs this year. We work closely with each other. I think without supporting each other, this would have been a very different residency with a very different set of challenges. I'm just thankful for being part of such an accomplished group of residents.

Justin: Well, thank you very much for your time, Mithun.

[00:45:41] [END OF AUDIO]