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Understanding & Embracing Micro-Invasive Glaucoma Surgery

MR. NACINOVICH: I am Mario Nacinovich and joining me to discuss the revolutions in the treatment and management of glaucoma and the promise and importance of MIGS is renowned glaucoma surgeon, Dr. Savak (Sev) Teymoorian.

DR. TEYMOORIAN: Hi. Thank you for having me. I appreciate it.

MR. NACINOVICH: Dr. Teymoorian is a Board-Certified ophthalmologist and cataract and glaucoma specialist at Harvard Eye Associates in South Orange County, California. He spent ten years at the University of California Irvine completing his education. This includes graduating from the highly selective UC Irvine MD, MBA program. After completing his internship at UC Irvine School of Medicine, Dr. Teymoorian then moved to the Midwest where he completed his ophthalmology residency program at the University of Missouri, Kansas City. He was selected the Chief Resident in his last year. He was the original contributor to the Eye Handbook, which is the most popular ophthalmic smartphone application. After his residency, he has returned to California to complete his specialized training in glaucoma at Stanford University. He has used his combined MD, MBA background to write The Essential Business Fundamentals for the Successful Eyecare Practice. We will be discussing his historic career treating and managing glaucoma patients with a focus on the emergence of MIGS in the glaucoma treatment landscape and its impact on the glaucoma treatment paradigm.

Dr. Teymoorian, welcome to the program. It is my privilege to speak with you.

DR. TEYMOORIAN: Thanks for having me. I am looking forward to talking.

MR. NACINOVICH: What is your earliest memory about the medical profession?

DR. TEYMOORIAN: I was actually really young, about three or four years old, where I fell down a flight of steps and gave myself a good nick on my chin. I ended up having to get some sutures on my chin. Early, early experience with the medical profession.

MR. NACINOVICH: Obviously, whoever administered those sutures is an influential in your life, stitching you back together, but was there somebody most influential as a child and later as you pursued your medical degree?

DR. TEYMOORIAN: Absolutely. The reason why I even went into ophthalmology, I was 12 years old, and I needed a pair of glasses. I went into get my eyes checked, and I needed glasses. My ophthalmologist was actually the most important influential person that made me decide to go into medicine and ophthalmology in general. What specifically made me decide ophthalmology over optometry was the surgical exposure that we get in ophthalmology as opposed to optometry. Ever since then, I went to med school and business school and undergrad and all those places so I can become an ophthalmologist, and here I am a few years away.

MR. NACINOVICH: Similar to that seminal moment where you were given glasses, was there a moment where you said, yes, I am all in on glaucoma.

DR. TEYMOORIAN: Not specifically. It was experiencing some of the other subspecialties that I realized glaucoma was really where I wanted to be. All that time, the revolution of glaucoma really had not been started. You can tell, there was some inkling, that a lot was going to change in the future, which it has now, with the mixed technology that we are going to talk about. That really got me excited about the field.

MR. NACINOVICH: Can you describe for the audience, knowing that there are a lot of listeners out there that are not practicing ophthalmologists, what is glaucoma? Describe it them.

DR. TEYMOORIAN: The best way to describe it is the way I would say it to my patients. I would say we are looking in the back of the eye to where the optic nerve is. That is the cable line that relays the information from the eye to the brain. The way I think about it is it

looks like a big doughnut with a doughnut hole. For people who have glaucoma for one reason or the other, their eye pressures are too high for their eyes, and it damages the nerve. What does that look like to us? That little doughnut hole becomes bigger and bigger, like someone is eating away the doughnut from the inside. If you lose enough of the doughnut or that nerve material, then there are parts in your vision you start to miss, and that is what glaucoma is. The best way we go about treating that is a combination of eye drops, laser, and surgery depending on the patient and what their needs are.

MR. NACINOVICH: Talk a little bit about glaucoma as a surgical disease.

DR. TEYMOORIAN: Really, glaucoma has been changing from a medical to a surgical disease almost like a revolution going from a reactive to a proactive disease. It used to be we did not have a lot of good options. We would wait for there to be disease and damage in the eye, and then we would treat it. We would then wait for more damage, and then we would treat more because we just did not have really good options of doing it. Now surgically we have a lot of new innovations that have come out to allow us to better and proactively treat our patients because the risks of the procedure are very low compared to some of our other options.

MR. NACINOVICH: In your definition, treatment should be interventional in nature.

DR. TEYMOORIAN: That is the paradigm shift that we are experiencing right now, going from a reactive to a proactive disease. Absolutely.

MR. NACINOVICH: How has glaucoma management overall changed and treatment evolved since you first started practicing? Take us way back.

DR. TEYMOORIAN: Of course. If you think back, glaucoma used to be diagnosed when a patient is like 50 or 55. Average life expectancy would be about 70 years old. You had 15 years of management you had to do. At that point, you could live with some eyedrops and big surgery and nothing in the middle. The fact of the matter is glaucoma has changed, and our abilities to take care of our patients have changed. We want to do better every day. Now life expectancy is 80, 82 years old. Patients are coming in earlier because they have a family history of glaucoma, and we have better technology to diagnose glaucoma. We are diagnosing them when they are 40 or 45, and they are living to 80 or 82. That 15 years of management became 35 years of management. To successfully treat our patients, we have to change the way we think, and that is where the revolution and evolution of glaucoma has occurred, again going from a reactive to a proactive disease.

MR. NACINOVICH: What are the current challenges right now in managing patients and then treating their glaucoma?

DR. TEYMOORIAN: Sure. The biggest challenges are we still fall back on pharmacological therapy with eyedrops, and compliance is a major issue for one reason or the other, whether it is access to care or cost or abilities to put in. The good news here is again we have most of these new interventions and mixed procedure that we are using in out patients. A lot of it has to be with coverage issues of finding the right patients based upon indication. It is a little frustrating. You have devices that are out there that are available, just not quite yet able to use them in practice based upon other restrictions, which have nothing to do with medicine but more a practical part of business.

MR. NACINOVICH: Let us talk a little bit about the lifespan of patients. You are now treating for almost 40 years. How has that changed the management approach?

DR. TEYMOORIAN: We have to change the way we think about it philosophically because we used to be able to manage patients for 15 years with some eyedrops and with surgery. As patients live longer, we want to maintain their high quality of life, so we have to think about other ways of intervening earlier without there being damage. This includes surgical procedures that have low risk but good reward.

MR. NACINOVICH: For those of you just joining us, this is Mario Nacinovich on ReachMD, and we are Talking Healthcare. I am with Dr. Sev Teymoorian, a Board-Certified ophthalmologist, a true expert in the latest advances in glaucoma management and treatment. We spoke earlier about the historical challenges with glaucoma and how he has progressed in his career to this point. Now we would like to shift to discuss a little bit more about specific advancements in the surgical management and treatment of glaucoma. You are clearly one of the world-renowned leaders in terms of MIGS, having frequently performed many of these types of procedures. What is the definition of MIGS?

DR. TEYMOORIAN: That is when you think about the surgical interventions that we are using that are high benefit low risk, minimally invasive glaucoma procedures. There are a couple of pillars that they need to stand on. Number one, because it is a glaucoma surgery, it has to bring the eye pressure down. Number two, you have to have a quick recovery. Patients want good quality of life. Number three, it has to not interrupt other parts of the eye where if you need to do bigger glaucoma surgery, you can still do that. If you are able to meet those pillars, then you meet the qualifications of a mixed procedure, so minimally invasive glaucoma surgery, that is high reward

low risk.

MR. NACINOVICH: Consensus around what patients will respond best to what surgical treatments is one of the biggest conference topics at every conference. Tell us a little bit about what your thoughts are in terms of patient selection, and which are the most appropriate for some of these mixed procedures.

DR. TEYMOORIAN: Absolutely. The problem we reach with glaucoma is it is really an umbrella term for over 40 different types that all funnel into one. We would love to cookie-cutter things and say, hey, if you have one patient, this happens. You go to A or you go to B or to C or to D. The fact of the matter is you cannot do that. Each glaucoma patient is their own unique puzzle that you have to put together. In certain instances, you have to go to part B first, and in certain instances, you have to go to part A first. The answer is, it depends. Sometimes that can drive a lot of people crazy because we cannot give definitive answers. You have to understand that glaucoma is a gray disease. It is not black or white. It just depends on the situation of the patient. That situation can change year to year even with the same patient. The consensus would be here, you want to do a surgical intervention for a patient who is not desperately in need of bringing their eye pressure down because if a patient really needs that kind of pressure reduction, you should still resort to gold-standard surgery that have higher risk because you need higher rewards for them. Patients that are early in disease, ocular hypertensive patients, all the way to moderate disease would be perfect fit for MIGS. It just depends on which MIGS would be appropriate for that particular patient.

MR. NACINOVICH: Let us advance in the discussion and specifically focus on devices more broadly. A lot of devices in this category, a lot of different surgical opportunities. What are the different types of devices that are readily available here in the U.S. and surgically available to you in your institution and FDA approved?

DR. TEYMOORIAN: Just to show you how much of it has evolved, since I have done my fellowship, there are 12 new procedures we can do, all of which we have to learn on the fly. The best way to think about it here is you can take all these technologies and put them into three different bins depending on where their target tissue is. The first bin, which is probably where most of these procedures will be falling into would be trabecular bypass or Schlemm's canal procedures where you are taking the natural flow of aqueous from the anterior chamber to Schlemm's canal. For some reason it is clogged, and you are bypassing the natural flow. That is what is normal in the eye. That is where most of these interventions fall into.

The next bin would be suprachoroidal or superciliary procedures that divert the aqueous from the anterior chamber to the suprachoroidal space. The third one would be diverting fluid from that anterior chamber to the subcon space. Each of these different anatomical sites have different interventions that are involved, and they rank from ratios of good benefits to lower risk as we move forward.

MR. NACINOVICH: How do you make that decision, and what are the current MIGS that you are using in your practice?

DR. TEYMOORIAN: Again, I hate to be vague on it, the answer is a lot of it depends on the patient. Really we would ideally try to start early on with trabecular bypass, Schlemm's canal procedures, because those are the ones with the best benefits to risk ratio. Generally you do those in addition to cataract surgery. The good news here is as patients are living longer and longer, it is not a question of Hey, Mrs. Smith, when you have a cataract or if you ever have a cataract, we will take care of it. It is when you have a cataract, we are going to take care of it. Since cataract surgery has become such good results over time, instead of waiting for the cataract to get bad, we use it earlier in the paradigm. The question is how is that connected, cataract surgery and glaucoma? Cataract surgery for most people, when you take the cataract out, it brings your pressure down a few points. Even if it does not do that, it primes the eye for bigger surgery later on. Really, think about cataract surgery as first-line glaucoma surgery now. Then we incorporate that into the algorithm of the patient.

MR. NACINOVICH: Let us talk a little bit about the impact of MIGS on glaucoma management and the treatment paradigm. Obviously this has changed the game in a lot of ways. First talk a little bit about how you talk about it with the patients and talk about how it has changed your approach. Obviously it depends. It sounds like it is the prescription of the day for the specific patient, but how do you present it to the patient as an option?

DR. TEYMOORIAN: You just be honest with them and say what is exciting going on in our field is that we have interventions where we can use in you besides eyedrop therapy that can get your eye pressure down and free to do well. It used to be we did not have these good options. We had really big surgery, risky surgery to do, which we could do if needed, but not ideal for everyone. Most people do not need bigger surgeries, but they do need help with their pressure reduction. Now we have a gamut of operations or procedures that we can use for particular patients that are low risk that are applicable to you. It is a really good target area that we have where we can really benefit people and their quality of life.

MR. NACINOVICH: We have made incredible advancements in terms of technology. We have made incredible advancements in terms of being able to have patients in compliance because their pressures are now down due to these surgical advances. What are the current unmet needs currently in the treatment of glaucoma?

DR. TEYMOORIAN: Still trying to figure out really where the data is and how all these procedures fall together. There used to be not a lot of innovation in glaucoma. We talked about the same gold-standard procedures, and we had a lot of studies, and we had a lot of time to talk about that. As I mentioned before, there are 12 new interventions since I did my fellowship that we have basically incorporated through. The question is how do they all fit together and in what order? Is one superior to the other? Is there one that should be done before the other one? This is where the unmet need is. We have all these options. The question is how to put them together. The best way I would think about it here is when a patient comes in, they would originally be able to pick between a cheese or a pepperoni pizza. It is one or the other. Now we have all of the toppings. The question is which toppings go together. A Hawaiian pizza is very unique, and some people like it. Sometimes you can mix other ingredients that do not go so well. We are trying to figure out what goes well.

MR. NACINOVICH: Let us talk about best possible outcomes. I am a patient. I am sitting in front of you. How are you defining success and managing those expectations?

DR. TEYMOORIAN: I think it still comes down to being able to bring the eye pressure down and keeping it there. That is the number one priority in any glaucoma patient because we do not want the disease to progress. Then if we can improve quality of life, such as bringing medication dosing down on the patient, is the cherry on top at that point. It still comes down to bringing the pressure down. If you do not do that, it does not matter.

MR. NACINOVICH: For the audience here, if you are an optometrist and you are listening, how can you be part of the care team? How can you be part of the conversation when referring patients on? Should they be naming MIGS as a potential opportunity and a procedure?

DR. TEYMOORIAN: Absolutely. They are the first contact with our patients, and generally they are the ones still seeing the patients afterwards too. There is a whole continuity of care. Their integration and involvement into our care is vital. Them opening the discussion for surgical interventions, again more proactively as opposed to reactively, significantly changes our discussion when they get into the exam lane with me. They are already thinking about what procedures are available and how we can do this better as opposed to waiting until they are losing vision and how do we just respond that way.

MR. NACINOVICH: How about the general ophthalmologist? What is our message to them?

DR. TEYMOORIAN: Just be aware that there are a lot of new advances. Again, it is a paradigm shift of not being reactive but being proactive. Do not wait for there to be active damage. We can actually do a better job before that, so we never have to do the bigger glaucoma surgeries at the end.

MR. NACINOVICH: For glaucoma surgeons that have held back and have not been early adopters to these vast new technologies that are available to them or for the individual surgeon that is doing combined procedures, both glaucoma and cataract, what would you say to them? What do they need to think about? How do they need to begin to look into performing more of these procedures using MIGS?

DR. TEYMOORIAN: It can be overwhelming because there are a lot of new products all at once. Try to figure them out or think of them in the three different bins that we talked about, trabecular bypass, suprachoroidal, and subconjunctival procedures. Pick one in each category, whatever is available, and really try to master that. Otherwise, you are going to be overwhelmed with your options. If you do one and you like it, you continue doing it. if you do one and you realize it is not what I want, then you can investigate more as to why you are not going quite as well and see if there is another option that would work for your patients.

MR. NACINOVICH: You live a life that has been dedicated to your profession. I know that we have engaged each other in training of residents and fellows. This is certainly an area of your expertise. You have also advanced the business practices in eyecare with your advanced degree in business. What are your closing comments to this audience?

DR. TEYMOORIAN: It is an exciting field both in glaucoma and in business depending on how you want to think about it. It is amazing how much innovation is out there, but it is a process just like anything else. One step at a time. Hopefully being able to take our patients on that journey to really good functional vision throughout their lives.

MR. NACINOVICH: Your success depends on your investment in yourself, and clearly Dr. Teymoorian has made an investment in his career by focusing on his patients, focusing on being the best that he can be in terms of being on the cutting edge of all things that are involved in glaucoma management and treatment paradigms. I think Dr. Teymoorian this is a great way to round off our discussion. We have been discussing all the shifts in management and treatment of glaucoma, the importance of MIGS in combatting this progressive and highly burdensome disease. We have discussed a lot about patients and managing expectations and sharing that really the next course of management depends on so many different factors.

I do want to thank my guest, Dr. Teymoorian, for joining me on Talking Healthcare. It was certainly great to have you on this program. Thank you for sharing your thoughts, your personal history. Certainly on behalf of all of us, thank you for your dedication in treating and

managing glaucoma. It is a lifetime of treatment, and you have certainly been dedicated to your patients as well as to all of us in sharing your thoughts and educating all of us. I am sure your own personal patients have benefitted tremendously from your wisdom and certainly your eagerness to offer them the latest and greatest technological advances for their disease.

DR. TEYMOORIAN: Thank you again for having me. I appreciate it, and I look forward to seeing what we can all create together.

MR. NACINOVICH: I am Mario Nacinovich. To access this episode and others in ophthalmology, I invite you to visit ReachMD.com where you can be part of the knowledge. Thank you for listening to this episode of Talking Healthcare.