Welcome to this ORLive program presented by Baptist Health South Florida. We are so pleased you’re joining us for this live, interactive discussion of a subject affecting so many families. Today we’re talking about heart disease; specifically, mitral valve prolapse, a condition that once required open heart surgery to repair. But now, through the use of robotic technology, doctors here at Baptist Health are able to perform this surgery using minimally-invasive techniques.

Now, you know, facing this kind of surgery can be scary for any patient, which is why today we’re taking you inside the operating room to show you exactly what happens during this procedure. We’ve also assembled the esteemed panel of doctors to explain every step, from diagnosis to surgery to recovery and to answer your questions as you send them in to us via the Web. And we’ll also hear from the very patient whose surgery you’re about to see. He’s now recovered and sharing his personal experience with us. Let’s get started by meeting our doctors. We’re joined today by Baptist Health robotic cardiac surgeon, Dr. Lynn Seto; by Baptist Cardiac and Vascular Institute cardiologist, Dr. Paul Seigel; and by South Miami Heart Center interventional cardiologist, Dr. Romeo Majano. Welcome to all of you. Thank you so much for being with us.

Dr. Seto, let me begin with you. Let’s start with the most basic of questions. What is a mitral valve, and how is it supposed to function in the heart?

Well, in the heart there are four valves; and they function as one-way valves. So the mitral valve separates the left atrium and the left ventricle. When it opens, the blood flow from the lungs with oxygen rich blood into the left ventricle. The left ventricle then contracts and propels the blood forward to the body. When that happens, the mitral valve is closed so that all of the blood, or most of the blood, moves forward and none leaks back into the left atrium.

All right, so the next obvious question would be: What is a prolapse?

Well, mitral valve prolapse is when the leaflets and the supporting structure of the mitral valve are spongy and floppy; and over time they stretch out so that the valve actually flops back into the left atrium. In most patients, they don’t even know they have it. They have no symptoms, and it doesn’t cause any leakiness or regurgitation of the valve.

Well, Dr. Seigel, that brings me to your next question, “What are the symptoms if a patient has them?”

Well, again, if there is no leakage, there’s generally no symptoms. However, if you do have a leak in the valve, patients will complain of shortness of breath, easy fatigability, palpitations, and generally being tired.

So how do you specifically diagnose mitral valve prolapse?

Well, nowadays we have something called an “echocardiogram,” which is a sonogram machine that looks particularly at the heart; and that can show us if the valvular structures – we can see the valve actually prolapsing back into the left atrium, and we can gauge with that machine how much blood is actually leaking back into the left atrium.

Dr. Majano, the other two doctors have both talked about regurgitation. So how do you diagnose the difference between prolapse and prolapse with regurgitation, and why is that second function so important for patients to know about?

That’s a very important distinction to make between mitral valve prolapse and mitral valve prolapse with regurgitation. Mitral valve prolapse per se is very common in the general population, especially in women, usually will just require conservative management. On the contrary, if there is regurgitation, that is when we first intervene with medications after we identify the problem. For many years we can keep patients away from the surgeons and away from surgery until the regurgitation becomes such that the heart chambers start to enlarge.
Very quickly, tell me about some of those treatments if I do not require surgery. Medications, predominantly to lower the blood pressure. If you lower the arterial blood pressure, there will be less regurgitation; and hopefully as the years go by, that'll prevent regurgitation from getting worse. So, Dr. Majano, if I’m diagnosed with severe prolapse with regurgitation and I’m afraid of having surgery, what would my outcome be? This is the thing. Once you have severe regurgitation and the heart starts to dilate, you have a very short window of opportunity to repair the valve. Otherwise, even if you repair the valve, the damage to the heart has already happened.

So, Dr. Seto, how do you decide who would be a good candidate for this kind of surgery? Well, as Dr. Majano said, the main determinant is how leaky the valve is; and we grade it on a scale of 0 to 4, being very simple. And anything that is moderately severe or severe, grades 3 or 4+, regardless of whether you have any symptoms which you can attribute to the regurgitation, those patients should be referred for surgery. As Dr. Majano said, the earlier we get them before their heart has had to work hard and has now started to get stretched out and weakened, the better their chances are with surgery.

Well, that certainly makes sense. I think a lot of the people in our audience today may have heard of a valve replacement surgery, but why is valve repair preferred? Valve repair is the gold standard for a number of reasons. The short answer to that is with valve repair, patients live longer. If I take a set of twins and one twin has mitral valve prolapse with severe regurgitation and the other one does not, and I fixed the mitral regurgitation — repair the valve — that twin will live the same long life as the other twin with absolutely no disease. If you replace the valve, aside from the potential risks of needing to be on a blood thinner, the risks of infection, the long recovery, it has been shown that the life expectancy is shortened.

Let’s talk about some of the other benefits to doing the robotic surgery over the traditional surgery. For years, if you needed to have this kind of surgery — and correct me if I'm wrong, doctors — you had to literally open up the chest to get to the heart. Now, with robotic surgery, all that is changed.

Yes, well, the conventional incision — the so called cracking of the breast bone, the full sternotomy — is a full incision as you can see on the screen. It is necessary in some patients, but we have alternatives now. We call the support group for these patients the “zipper club,” because that’s what it looks like. But nowadays — and again, everything is individualized for each patient — but most patients are eligible for a minimally-invasive approach. And with robotic surgery, we make four small incisions, the largest of which is the size of my thumb. We actually had to put arrows on the slide because the incisions are hard to see. It’s an incredible difference.

And the support group for these patients I think we should call the “button club.” I think you’ve coined the phrase right here, right now. Let’s also talk about the recovery time. It has to be much less with this less invasive surgery.

It’s less; and again, everything is very dependent on the patient. Everybody is different; but on average, patients go home from the hospital quicker, they have less complications in the hospital, less of a risk for bleeding or a need for a blood transfusion. Infection is virtually eliminated because you go in between the ribs. You don’t spread the ribs. You don’t divide the breastbone. So there’s no chance of having a bad infection.

Well, someone who can speak directly to the recovery time is recent mitral valve patient, Mr. Melvin Mendelson. Mr. Mendelson, we thank you so much for being here today and sharing not only your personal story, but the video of your surgery which we’re about to see. Let me ask you -- take us back a few months. What were the symptoms you were experiencing when you found out you might be having some problems with your heart?

Well, I’ve had a heart murmur for about ten years; and Dr. Seigel has been taking care of it. And I went in for a six-month checkup. And he listened to my heart and he says, “It’s getting louder.” He says, “We’re going to have to do something about this sooner or later.” And then he decided to give me an echocardiogram. And the results of the echocardiogram — they decided to do a catheterization and talk about the surgery.

So what was the first thing that came into your head when Dr. Seigel said, “Mr. Mendelson, we’re going to hook you up to a robot and fix your heart.”

Well, I didn’t think much of it; I just wanted to get it over with. I figured it was the lesser of two evils. Well, we should tell everybody at home that Mr. Mendelson is a former fighter pilot, so not a lot scares you. We’re going to come back and talk to you more after we’ve had a chance to take a look at some of your surgery. Now that we all have a better understanding of the problem and how it’s treated, let’s take
our audience inside the operating room so our doctors can show us exactly how this procedure works. Let me also remind the folks at home that we’ll be taking your questions for the panel live during the course of this hour. Just click on the question box on your screen, and we’ll get to as many of your questions as we can.

Dr. Seto, let’s start with you and we’ll go right to the video; and you can tell us what we’re seeing and how you’re preparing Mr. Mendelson for the surgery.

Well, the one major difference with robotic surgery, which seems obvious, is you can’t get your hands into the heart.

Yes.

It is still open heart surgery, and we still have to place the patient on the heart-lung bypass machine. But technology has advanced so much so that we can now do these with small catheters that are inserted like IVs directly into the vein in the neck and the artery and the vein in the leg. This is Dr. Machado -- he’s our expert cardiac anesthesiologist for robotics -- and he’s threading one of these catheters, and he’s positioning it in the back of the heart so that we can give a solution that will protect the heart while we’re working.

Now, we very quickly went over the fact that you said, “while we’ve stopped the heart.” Explain for our audience what that means during the course of the surgery and how the patient is being kept alive.

Well, as I said, it is still open heart surgery. We still place the patient on the heart-lung bypass machine, which then takes over the work of the heart and the lungs.

What are we looking at now?

Right now we’re looking at a transesophageal echocardiogram with a 3D reconstruction, and Dr. Machado and I are going over again to make sure that we know what’s broke and how to fix it.

And what are we seeing there? Explain that to our audience.

What you see – the yellow and the red – is the blood leaking back through the valve into the left atrium.

Now, you look like you’re marking a map road on Mr. Mendelson’s midsection there. What is it you’re actually doing?

Well, I’m marking anatomic landmarks because I have to try in my mind to visualize through the ribcage where the heart is, so I can line up my ports and my camera to have the best visualization.

And when all is said and done, how many incisions are you actually making into your patient?

There are four incisions: one for the camera, and then three for robotic arms.

And right now the one you are preparing is for the camera itself.

This is the camera incision.

And tell me about the tool you’re using.

Oh, that’s just a coagulator so that if there’s a tiny little blood vessel that’s bleeding, we get it right away so we minimize our blood loss.

And how large of a port are you going to have to open to allow for the camera?

The camera port is the largest port, and it’s 1.8 millimeters -- again, about the size of my thumb.

That’s extraordinary. You’re going to be able to put a camera about the size of your thumb into his chest cavity and see everything you need to see to do this microscopic heart surgery?

That’s correct. Well, as I said, the technology is absolutely amazing. And the camera is a high definition, three dimensional picture of what I’m looking at; and it’s magnified ten times.

Incredible, so you actually see better through the camera than you would if you were standing over him during the surgery the old fashioned way?

Oh, yeah, a thousand times in my opinion.

Okay, tell me something about your team here because it seems like a cast of thousands in the operating room.

Well, they’re a very strong team. I’m very proud of them. The one thing about robotic heart surgery is the same thing like you’ve heard the saying, “It takes a village to raise a child.”

Right.

It takes a whole team, and everybody is looking after Mr. Mendelson right now.

Let me interrupt you for just a second. Tell me what that piece of equipment is that’s just now been inserted into his [CROSSTALK].

That’s the port through which I’m going to insert the camera. I’m going to look right now, before I make the other ports, to make sure that we’re lined up correctly.

All right, that looks like a giant drill that you would use on your car for something – not something you would use for heart surgery.
It’s not, I assure you.
So you’re inserting the camera at that point?
I’m inserting just to make sure that I have the visualization correct and we’re lined up with the heart valve so that we can see perfectly.
All right, how long does all of this part take – just the preparation to get ready to do the surgery?
Well, most of the preparation involves the special IV lines that we need to do and putting the patient to sleep. Actually making the ports is fairly quick. It takes me about five or ten minutes.
Really?
You can see my assistant down to the left of the screen – that’s Danielle. And she’s exposing the femoral artery and vein through which we’re going to attach Mr. Mendelson to the heart-lung bypass machine.
And tell me about the various ports that I’m looking at there and what’s being done right now.
Well, this is the cannula or tube that is inserted into the artery; and the blood will come back to the body through this tube.
All right, Mr. Mendelson, you doing okay?
I’m doing fine.
All right, this is the first time Mr. Mendelson has seen this video; so we just want to make sure he’s still with us here. You’re obviously going into a dark area – the chest cavity is not lit. How do you light it up so that you can see well enough to perform heart surgery?
Through the camera – you’ll see as we go through more of the operation how incredible the visualization is.
All right, explain to us what’s happening now. That looks like an octopus, but I know it’s not.
Well, that’s our robot. And we’re all prepared now, and we bring the robot in and attach it to the ports that I’ve previously placed. The first port that I’m attaching is the camera port, and then the other three are for the right and the left arms. And then the third one is for a retractor, so I can retract parts of the heart to see.
So you are – and I’m getting ahead of myself here a little bit – you are operating how many of those arms during the course of the surgery?
Four – all of them.
You are operating all four.
I operate all of it.
And what’s your team doing there? What are their responsibilities?
They’re my eyes and ears; and everybody is looking at everything during the surgery to make sure that it’s the safest possible surgery we can do.
I know someone asked earlier, “Who’s actually responsible for the health and wellbeing of the patient?”
And your answer to that was –
Everybody --- which is a little bit different than in traditional open heart surgery where the surgeon is standing at the side of the table and is basically the captain of the ship, right? In my OR, everybody – the perfusionist, the scrub nurse, the circulating nurse, the anesthesiologist – everybody is equally part of a good outcome.
Now, you said this is the same team you would use if you were doing a regular open chest surgery; however, everybody on that team, including yourself, has had to have extensive and extraordinary training to operate this robot.
Yes.
And what are you doing right now?
I am hooking the arms up so that once I go and sit down at the console, the robot will be able to manipulate the instruments however I desire it to.
Now, tell me about the console. Where are you in relation to the patient once you leave his side and go sit down to start to begin the surgery?
Well, as you’ll see, that is about five feet from the foot of the bed. So I am in the room. A lot of people wonder if I set everything up and then go and have a cup of coffee and read the newspaper, but I am actually doing the surgery with the robot’s help and there all the time.
All right, I’d like to remind our audience this is a four to five hour long surgery that’s been edited down to only thirty minutes for this Webcast. As you can see, the video’s incredible. We’re going to break away for just a minute from the operating room so that we can answer some of your questions. And we had one viewer who wrote in, “Who is –” well, we actually said who is responsible for the patient throughout
the surgery. You answered that one. If the robot malfunctions at any point during the surgery, does the surgery have to stop; or can you go back to a traditional open chest surgery?
No, the surgery does not stop. It depends what the malfunction is and what the problem is. And one of the things I always tell my patients is that it’s not important what the approach is; what is important is that you have a safe and effective operation. So if at any point in time I feel the approach is compromising that, then we will fall back to the next safeguard – whether it be a small incision on the side or an incision on the front of the chest.
We saw you using the instruments in the OR itself, but you’ve actually brought some along with you. I did.
Can you tell us what’s here so we can really see the size and how they operate?
Okay. Well, this is the instrument that I would insert through the right or the left arm port; and what’s incredible about this, aside from the small size, is that it’s made to mimic your hand. So any way I move my hand, this instrument will be able to move. It has infinite degrees of freedom.
Tell me – there are buttons on this side that the audience has not seen yet. What are you doing with those buttons?
Well, that’s -- this hooks up with a plate on the arm.
I see.
And that’s how the technology moves the arm. So as you can see, it moves pretty much any way. And when you’re operating in a space that’s maybe the size of the plum, that degree of precision and that maneuverability is invaluable.
Yes. What else is on the table?
Well, the other thing I wanted to show – because in the next part of the video, you’re going to see us looking at the valve and then actually repairing the valve. And you’re going to see me sewing the valve together.
Yes.
And when you look on the video, this needle looks like it’s huge. And I wanted you to see so you would have a sense, the magnification. This is how big this needle is. And you will see on the video it looks much, much larger
Amazing. You almost can’t see it in person. I know the camera is zoomed in.
Right.
It looks like the width of a hair. I mean it’s just tiny.
Yes, it is.
It’s tiny. All right, let’s turn our attention back to the OR where Dr. Sedo you can explain for us how the repair part of the surgery actually takes place.
Sure.
Let’s take it – what are we looking at now?
Well, now we are on the heart-lung bypass machine, and we’re opening the sac that surrounds the heart. And there we can see the heart beating.
Wow. Now, is that some fatty tissue that you’re going through there?
Everybody does have a little bit of fat around their heart – some more than others.
Right.
But, yes, that’s fatty tissue.
Now, tell me about the two arms that we’re seeing.
Well, the right arm and the left arm are the ones that I use to control the instruments. I’m moving the camera, as you can see, so that I have the view exactly where I want it to be.
So many people have wanted to know if the robot’s actually doing the surgery. It’s not preprogrammed. You’re still the brain behind the surgery.
Right. what we’re doing now – I’ll get back to that question in just one second – what we’re doing now is we are infusing the solution into the heart; and as you can see, the heart’s starting to slow down and it’s going to stop. And then once it stops, we’re able to then open the left atrium up and look at the heart valve and fix it, which is what we’re about to do now.
All right, and again, what are we looking at? I’m sorry, this is an anatomy lesson for the rest of us.
No, that’s okay. At the top of the screen, that’s the right atrium.
All right.
And where I’m pointing right now is the left atrium. And I’m just freeing it up on either side so that I can make an incision so that we have good exposure to see and repair the valve.
And tell me – you’re moving very slowly there and very diligently. What tissue are you breaking through there and why are we now seeing – [CROSSTALK]
It’s just connective tissue.
Just connective tissue.
Now I’ve entered the heart; and I apologize for the blood, but there will be some blood in the video. And that third arm that has just come in from the top is the retractor arm, which I can also control. So it’s like I have three hands.
None of the other people in the operating room are controlling any of the instruments we are seeing right now in Mr. Mendelson’s heart?
Well, that metal cannula that you see just coming in now with the holes – Danielle, the bedside assistant, is controlling.
Okay. And now what are we looking at?
We’re looking at the posterior leaflet. And you can see I just picked up – it looks like a torn piece of string.
Exactly.
It’s a torn cord. And I’m looking at the cords to the rest of the valve leaflet. And they actually look pretty healthy. They’re not too stretched out.
So the one that you picked up is the one that caused the problem – the one that’s torn.
The one that stretched and then broke.
I see.
And there’s actually another one that you’ll see in a minute.
And again, just so our audience can understand, the size of that cord that you’ve now attached to is like the size of a hair?
Maybe a little bit – but, yeah, pretty much. So now to oversimplify this, I’ve identified where the badness is.
Yes.
And we’re going to cut the badness out.
And how large of a piece of tissue would that be?
That’s probably about 2 centimeters.
And how long would this portion of the surgery take?
Well, it varies depending on how complex the disease is; but it can take anywhere from ten minutes to fifteen or twenty minutes.
Now, how do you get that piece of tissue out of the chest cavity?
There’s a small incision that the bedside surgeon or assistant is able to access.
I see.
Now, there’s the needle that I showed you. Doesn’t it look huge?
It does look huge. And tell me – now you’re actually doing the repair itself.
Well, now I’m just going to sew those leaflet edges together.
Okay. And I think we should tell our audience that the repair of the mitral valve is exactly the same – this part of the surgery is exactly the same whether you’re doing it with the robot or open chest, right?
Yes, it is exactly the same. You never compromise the operation because you want a small incision. But the other good thing about the robot I think, as you can see from the visualization, it actually enables me to do even more complex repairs.
So when you got inside Mr. Mendelson’s chest and saw the extent of the repair that was necessary, I guess you were pleased because it only looked like there was one small flap that was open.
Right; and to be honest, the repair is pretty much echo driven. So that when I review the echocardiogram with either Dr. Seigel or Dr. Majano or my cardiac robotic anesthesiologist in the operating room, I already have a good idea of what I’m going to need to do.
You do.
You usually don’t get too surprised.
Really, you can tell that from those pictures?
Yes.
That’s astounding. Tell me something about the training it takes to become efficient on this kind of robotic technology, because it seems astounding to me. I know the surgical skills are the same, but you don’t have the touch of your fingers on the patient.
Well, it’s amazing how your senses sort of pick up. So yes, you don’t have a sense of touch; but you quickly develop -- your sense of sight becomes your sense of touch.

Well, talk about that because the camera gives you magnification that you would not normally have.

Right.

We talked about that earlier. But also, you were saying before that the robot doesn’t shake like a surgeon’s hands might shake.

No, it doesn’t shake. You can have as many Café Cubanos in the morning as you’d like, and you can go right to work.

Tell me what you’re doing now here. This seems like a lot of stitches for one repair.

It is, and we actually did edit a couple of them out. We’re sewing the valve leaflets back together – just like if you had a pair of pants that was too big and you would put a dart in it and then sew the dart together. That’s exactly what we’re doing.

Now, what is this? I have seen this video before, but I wasn’t sure what that – it looks like a piece of gauze.

This is an annuloplasty band, and what it does is it supports the repair. And the annulus is where the valve leaflets insert to, and /INAUDIBLE/ that can get stretched out also. So this is very important. There are lots of lots of different types of annuloplasty bands. This is a Cosgrove band, which I’m partial to. But it really doesn’t matter what kind, as long as you have something supporting the repair.

So is that a little of preventative medicine so that this doesn’t recur down the road?

Yes, if you do not use an annuloplasty band, that has been shown to be an independent risk factor for recurrent mitral regurgitation.

Now, does that stay forever in the body; or is it made of materials that –

It stays forever.

It does. And I know that this takes quite a bit of time. Tell me exactly what you’re doing in terms of making almost a circle around the valve area. Can you explain in more detail what’s happening here?

Well, there are many different ways to do this part of the surgery. The technique that I’m using here is a running suture. And we use three sutures. We start at the top right part, sew down to the middle of the circle; and then take a second suture and sew up to the end.

Dr. Sedo, let me ask Mr. Mendelson, “As you’re sitting here watching this surgery, what’s your response to seeing this video?

I’m just amazed. I really am.

It’s incredible, isn’t it?

And I’m glad I was sleeping. [Laughter]

I think truer words were never spoken. Dr. Sedo, I asked you before; and we really didn’t get to the answer of the question. What kind of special training do you have to have, and does your team have to have, to become proficient at this; and why is experience so important in choosing your doctor?

Thank you, I’m glad you came back to that. First of all, you have to have extensive experience in mitral valve repair. It is estimated that more than half of the mitral valves that are operated on that could be repaired get replaced. A second estimate is that about 80% of the valves that are repaired get repaired by 20% of the cardiac surgeons. So it is very important to choose a surgeon that is experienced in mitral valve repair. Now, robotic surgery adds a whole new level of complexity. Actually sitting down at the robot is not that hard; I could have you doing heart surgery if that’s all it took.

Oh, that’s what you think.

But it’s coordinating everything else; and there is a steep learning curve, and it’s been estimated to be at least a hundred cases before the whole team is proficient and feels very comfortable.

So in a given week, how many of these surgeries would you do at Baptist Health?

Well, we’re just starting our program at Baptist Health. We started it in November, and we’ve done twenty-five of these cases since then. We hope to be doing a lot more.

But you have extensive experience coming from the Cleveland Clinic?

I do. I was fortunate enough to be in the right place at the right time, and was part of the team that started the robotic program at the Cleveland Clinic; and while I was there participated or did over four hundred and fifty cases.

As we watch this video I’d like to remind our audience, we are taking your questions live. So if you have any questions for our doctors or for Mr. Mendelson, our patient, please send them in via the Web; and we’ll try to get to as many of your questions as we can. So we continue this. This seems to be the most laborious part of the surgery, actually attaching this to the heart.
We used to do this with interrupted sutures. What does that mean? Where we would take a small bite, tie it; do another one, tie it; do another one, tie it. And the running technique has markedly cut down on that time. But this generally takes about twenty minutes – twenty to thirty minutes.

All right, so how long is the patient generally under anesthesia for this surgery as opposed to an open chest surgery?

It's about the same amount of time.

It is? That's interesting. But the recovery time is so much quicker with this surgery. The recovery time is quicker. Now, it depends on the experience of the surgeon and where they are in their learning curve. But right now our cross plant times, which is the time that the heart is actually stopped and not beating, are equivalent to if I did it through an open, and maybe even a little bit faster.

Now, you spoke before about how important the team is. You said it's even more important with robotic surgery. Why is that?

Well, we're using different technology; and old training for a surgeon was that the most important instrument they had was their finger. That if there was a problem, if there was bleeding or whatever, they'd be able to put their hand or their finger directly on the heart. We can't do that with robotic surgery. And we're using all kinds of special catheters and balloons to occlude the aorta. So it's very important that everybody is very well versed in the new technology, and they're watching the blood pressure in the right arm and the left arm, and there's a whole slew of things that everybody watches.

So where was this technology developed and how long has it been in use?

Well, it was actually developed in the military, believe it or not.

Really? In triage?

Well, that I don't know; but I think it has more to do with – you might know better than I, Mr. Mendelson -- with robotic spy cams and things like that.

Isn't that interesting?

But it's been – we have flirted with it for at least ten years. Dr. Chitwood did the first robotically assisted mitral valve repair in, I believe, 2000. Since then, it has -- the technology has improved. We've gotten smarter about using the technology, and it's starting to become more accepted. Still there are only a few -- it's a very small percentage of patients that have it done this way.

So again, as we're watching the surgery progress, you are operating the two arms to the right and the left; and then the third arm that comes in occasionally, that is your surgical assistant?

Yes.

And what is that arm doing?

Well, we're going to test the valve now. So we're going to fill the left ventricle up with saline. And you'll see the top part of the heart starts puffing out toward us.

Right.

And as you see, no blood is coming back, so that's a good thing.

That is a good thing, and we're going to talk more about that in just a few minutes; but let's come back -- oh, now what's happening here?

We're closing the heart up. We're starting to close --

You are closing up.

Yeah, we're finishing the operation.

So how much time would have elapsed at this point?

Usually it's about a forty-five to seventy minute cross plant time; and you're on the heart-lung bypass machine maybe two hours.

All right.

And then it's like a gourmet meal. It takes a lot of time to set everything up; and if you're like me, it takes about two seconds to eat. And then it takes some time cleaning up.

That's a very good analogy. You know, the heart muscle -- and I guess that's what we're looking at there -- Mr. Mendelson, do you mind if I ask you your age?

Seventy-seven.

Seventy-seven, I have to say your heart muscle looks very healthy and very pliable and firm. I mean, he looks like he has a healthy heart except for this one problem with the mitral valve.

Right, and it's going to get stronger.

So you say once he has this surgery, he should be good to go the rest of his life?
Yes.
So we’re closing up the heart now, and it’s incredible to watch this and understand that those are tiny little sutures repairing the heart. All right, now that we’ve seen the repair itself and it’s completed, let’s come alive once again to take a few more questions from our audience.
And I do have one, Dr. Seigel, one for you. We’ll stay with the video until it ends. And Dr. Seigel, you can answer this question for us. One of our viewers wanted to know, “Does the patient need to go on blood thinners after the surgery?”
When you have a repair, you really don’t need to go on blood thinners unless you have a complicating arrhythmia called “atrial fibrillation.” One of the big advantages that Dr. Sedo had mentioned of the repair rather than the replacement is the fact that you don’t need to have blood thinners.
All right, and Dr. Sedo, one of our viewers wanted to know if the robotic surgery can also be used for replacement as opposed to repair.?
Yes. Yes, it can. There are lots of things that we can do with the robot, and we’re constantly looking to innovate and look for new ways to use it. We can use it for valve repair. We can use it to repair the tricuspid valve. We can use it to treat atrial fibrillation while we’re doing mitral valve repair.
So this is really the way of the world when it comes to surgery. Do all of you doctors foresee a time when almost all surgery will be done via this kind of robotic technology?
No, there is still a place – patients that have complex cardiac issues, that have valve disease and coronary artery disease, or have aneurisms, that will always be a full sternotomy as the gold standard in my opinion. But everything else is fair game.
All right, one of our viewers wanted to know why there was almost no blood with the heart surgery. Is that because the heart stopped pumping?
Well, the heart stops pumping. We have a special sump drain in there that will drain out whatever blood is there; but that’s just the way it is, I guess. I’d like to say it’s something special we do, but I don’t know that it is.
All right, I understand we have a slide – I think it shows the freeze frame of the heart so that you can – ah, here we go. Well, there is quite a bit of blood there. Do you have equal functionality with both arms of the robot?
That’s another great thing about robotic surgery, is you’re immediately ambidextrous. So if I’m trying to make a suture with my right hand and I don’t have the right angle, I just put the needle in my left hand and I get it from that direction.
Dr. Majana, one of our viewers wanted to know if a person can have mitral valve prolapse and no other problems with their heart.
That is definitely true. And we have a lot of young people that have mitral valve prolapse which we just follow as the years go by.
All right, let’s go back inside the OR one more time as, Dr. Sedo, you checked the heart already; and I think we have an opportunity to see the incision, the difference in the – there is Mr. Mendelson post-surgery. You’ve already sewn up the portals that you used; and as you said, they’re about the size of a thumbnail as opposed to what we would have been looking at with open chest surgery, which was the zipper cut that you talked about before.
So, Mr. Mendelson, now that you’ve seen the surgery, what do you think of that?
I think it’s fantastic. Amazing. How do you feel now, and how did you feel when you first came out of the surgery?
Drowsy. I went in about six in the morning, and I woke up at about ten o’clock at night.
And how long were you in the hospital?
Five days.
Only five days.
And how sore were you post-surgery?
Not very sore, honestly.
No, so you did not have to stay on expensive painkillers?
I didn’t take anything.
You didn’t take any painkillers? Doctors, is that what you expect; or do most patients take some kind of a painkiller post-surgery?
I would say most patients take some sort of painkiller post-surgery. Some people have a high tolerance to pain. I’m sure he had some painkillers early on in the hospitalization.
They may have given them to me while I was sleeping, yeah.

Now, how long before you felt completely up to speed post-surgery? How long did it take you to get your energy back?

I would say about -- I was in the hospital five days; and then when I went home I started walking and using the bicycle. I would say about ten/fifteen days.

And after that, can you compare how you feel now as you felt when you were having the problem with the mitral valve?

I have much more energy; and I do my exercises daily, which really helps. And I just feel much more relaxed, and I feel good.

Well, you look astounding.

We should ask Mr. Mendelson, “How long has it been since your surgery?”

Tomorrow will be five weeks.

That’s all; that’s incredible.

And thank you very much.

I was going to say, that’s quite a testimony. Dr. Majano, I think we have an echocardiogram showing the prolapse prior to surgery and after. If we could take a look at that and you could explain to us, please, what it is we’re looking at.

Here you see the -- it’s difficult without pointing to the structures -- but you see the ventricle contracting; and those two leaflets that you see on the left-hand side of the screen are the leaflets of the mitral valve. On the left-hand side you see a jet -- a multicolored, bright red and green jet. That is the regurgitation of the valve which you see on the left. And in the after shot, after the mitral valve repair on the right-hand side, you do not see any of that regurgitant jet, which is what we would like to see after a repair.

Yeah, boy, even a lay person can see the difference with that. And Dr. Majano, what do you expect Mr. Mendelson’s long-term prognosis to be?

To be fabulous -- you had a wonderful outcome in your repair; and, more importantly, it was minimally invasive. And now we have options that we didn’t have in this community as far as robotic heart surgery.

Well, Dr. Seigel, I wanted to ask you about that because you say you’ve been practicing medicine here in South Florida for twenty-eight years. You must have seen a whole world of difference between cardiac surgery twenty-eight years ago and what we’re seeing here today.

Yeah, I would say tremendous changes occurred in cardiac preservation during the surgery, the length of time patients are in the hospital. I mean this is, I guess, essentially the current end of the evolution because we’ve gone from two-week hospitalizations now to three-to-five-day hospitalizations.

So finally, the obvious question is, “If I or someone I love is diagnosed with mitral valve prolapse with regurgitation, the steps I should immediately take are?”

Well, you need to make sure you’re seen by a cardiologist, someone that you trust; and then listen to his advice. The one thing as a cardiologist that listens to people a lot is try and really pay attention to your symptoms. Things that you might think, “Oh, I’m just getting older,” or something like that may actually be significant. So remember them and tell them to your cardiologist.

Dr. Majano, do you have patients come in who have a lot of fear? I would think that would be common when someone is talking about operating on their heart.

Fear, hesitancy, sometimes depression is common in patients with heart illnesses. And part of our jobs as cardiologists is not just to look at the numbers -- the heart contractions measurement -- but also to look at our patients from their emotional point of view. And that’s a very important part of our jobs. And as clinical cardiologists, not heart surgeons, our other very important part of our jobs is to keep patients away from the surgeons because we actually -- yes, with medications, for many years until we don’t have an option. So that’s why it’s so important to see your doctor and follow your cardiologist’s instructions.

So is that part of the team approach to the treatment that you profess here at Baptist Health -- that it’s the whole patient? It’s not just the heart or the surgery or the medication, but you treat the entire patient. So part of the protocol is psychological counseling as well?

Oh, yes, and also many times I have my patients see Dr. Seto, our surgeon, even before they need heart surgery because I’d like them first of all to start asking questions before the time comes that they need their procedure -- their surgery.

So, Dr. Seto, how do you allay some of those fears? I mean, you’re obviously not showing this kind of video to every patient. And it’s wonderful that we have the technology of the Web to answer so many of these questions for people at home; but when a patient comes to you and they know they’re facing this kind of surgery, how do you make them feel comfortable with it?
Well, it’s scary. I mean I always sort of put myself in their shoes and think how would I feel if it was my husband or my mother. And, you know, you never underestimate the power of touch and the power of time. So when I see my patients, I sit with them until they have all of their questions answered, whether it takes fifteen minutes or an hour. And we have a very good support staff in the office; and we’re available to the patients twenty-four hours a day, seven days a week.

We had a question from an audience member who wanted to know if there was actually a difference in cost between the robotic surgery and the traditional surgery – to the patient? To the patient, no. No, it is billed the same as if it was a conventional mitral valve repair.

And is the mortality rate the same with the two surgeries, or is it greater when you have to open the chest?

Well, it depends; and that’s a very complicated question because there are a lot of different variables. Mitral valve surgery in general is a very safe operation. If you look at the Cleveland Clinic data, their mortality is one in one thousand patients.

My goodness.

So if you were going to introduce a new technology or change the way you’re doing an operation that has such great results to start with, you have to make sure everything is perfect.

Right.

The results are excellent. And I’ll talk about my experience when I was at the Cleveland Clinic because that’s the most recent. When I was there, we had done over four hundred and fifty patients and no mortalities.

That’s amazing. Say that again. No mortalities?

No mortalities.

Is there any other surgery that could profess that kind of record? I’ve never heard of such a thing. It’s an extraordinary record, and that also has to do with the team and the clinic and robotic surgery in general.

So Baptist Health has wooed you here, and you’re now part of this team. Dr. Majano, talk to the fact that when a patient is thinking about this kind of surgery, why should they choose Baptist Health? Why is this the place that they should come for their surgery?

Well, I think that every patient that needs a procedure should research their doctor, the institution where that procedure is going to be done. All this information is available nowadays on the Internet. Patients need to make educated decisions in conjunction with their doctor. And I must say in our environment in South Florida, both at South Miami Heart Center and at Baptist Cardiac and Vascular Institute, we really have cutting edge technology and surgeons to carry out these procedures.

Well, I’m going to pose the same question to both the doctors. Dr. Seigel, you’ve been part of this program for twenty-eight years; what sets this program apart?

Well, the thing I think we really need to understand is that what’s going on at Baptist Hospital System with the surgical program is one of extensive integration. There’s a tremendous amount of work that’s being done making sure that from the time the patient is admitted to the hospital to the time they leave the hospital, everybody knows what they’re doing. People have been segregated from the staff to only work on open heart surgery so we can make sure that the people that are expert in what they do and that the care rendered is the highest quality possible.

So, Dr. Seto, you come from another premier hospital, certainly one with a very good reputation around the country. How does this program for you compare to where you received your training?

The people -- when I was looking at different opportunities, that’s what impressed me the most about Baptist -- the people that work here, from the higher echelons of administration down to the orderlies in the operating room. Everybody cares about the patient, and everybody puts the patient first; and that isn’t always a given. I mean, high expertise and high quality, cutting-edge care at major institutions is or should be a given; but the people is not necessarily always a given.

Well, Mr. Mendelson, let me ask you about your experience. How was that hands-on people interaction for you?

Well, I can’t say enough about the doctors, the nurses, and anyone that I came in contact with in the five days that I was in the hospital. It was absolutely fabulous. And prior to going in, going through some of the interviews was just fabulous. The people were just wonderful.

Well, I’ve had some experience at Baptist Hospital myself; and I have to say it’s the only hospital I’ve ever been to where every appointment was on time. And for somebody who has to watch her watch all the
time, that meant a lot to me. We continue to get questions in from some folks at home. One of our viewers wrote, “What type of rehab needs to be done after the surgery for the patient?”

Dr. Seigel, do you want to take that one?

Yeah, there’s a fairly standard protocol for cardiac rehabilitation post open heart surgery or post heart attack. Baptist and South Miami both have very good programs. Generally, after surgery the patient is discharged to home; and after a few weeks, they’re enrolled in the program where there are trained nurses that monitor the heart rhythm and monitor their progress so they can get back to normal or actually better than their pre-functioning.

Dr. Majano, one of our viewers wanted to know if you can stop atrial fibrillation with this kind of surgery – during this kind of surgery?

Well, actually one of the reasons that we fix mitral valves is in patients whose heart starts to dilate; and one of the consequences of that dilatation of the chambers of the heart are arrhythmias like atrial fibrillation. So, yes, by fixing the mitral valve, many times we are able to diminish the amount of atrial fibrillation or eliminate these arrhythmias.

Dr. Seto – I’m sorry, go ahead.

And in some patients, depending on how long they’ve had the atrial fibrillation and how large their heart has gotten, we can add a very simple procedure called a “maze procedure,” which is a fancy way of saying we take a probe that’s very, very, very cold and we freeze parts of the heart. And if they haven’t had atrial fibrillation for a long time and if their heart is not too dilated, the chances of getting them back into a regular rhythm and maintaining that are very good.

Incredible. Here’s another question from a viewer, “Can you use the robot for a heart transplant?” I think I know the answer to that one.

Not yet, but who knows what’s on the horizon?

I think it would be hard to get the heart through one of those tiny probes that you’ve been using here. How many heart surgeons are actually using the robot in the United States? I think you spoke to this before, but perhaps our viewer missed that answer.

I don’t know the actual number. There are a handful – maybe two handfuls worth of high volume, high experience programs doing robotic cardiac surgery. The number is growing, but it is not anywhere where it could be.

So the beauty of this for people who live here in South Florida, is this is cutting-edge technology in your backyard. You don’t to travel to another city and another hospital and worry about your family having to stay in hotels to come visit you. So this is really a wonderful progression in heart surgery that has now made its way to South Florida.

Yeah, I believe there are only one or two other surgeons in Florida itself that are active robotic surgeons. Now, are their plans to train more surgeons in robotic heart surgery to join Baptist Health?

I don’t know the answer to that right now. What we’re trying to do is to establish the program. And to do that it’s important – remember, I had talked about that hundred case learning curve. I’m over the learning curve, but a lot of my team members aren’t. So it’s very important to magnify and intensify the experience so that it’s undiluted for those team members. Once we get to a truly high-volume center, then I’m sure we’ll need another surgeon trained.

Mr. Mendelson, did you do a lot of research on the Web before you had your surgery?

No, I didn’t.

You didn’t. So you trusted your doctors.

I listened to my cardiologist.

And you already had an established relationship with Dr. Seigel prior to this.

Yes, I did; and he told me that Dr. Seto was absolutely outstanding.

All right. Is that usually the case, doctors; or do many of your patients now with the advent of the Internet and all of us having this information at our fingertips, do you find that your patients are more educated or is a little information dangerous sometimes?

It varies. I think that some patients use a lot of information very wisely; and actually it’s very useful for them to learn about their procedures, then make a decision. Sometimes also that research can misguide them, and that’s why it’s important always to discuss these issues with your cardiologist or primary care doctor.

And Dr. Seigel, fear is really the enemy with this; isn’t it? I mean, people if they have the full range of information and they feel positive going into the surgery, certainly the outcome would be more positive; don’t you think?
Yeah, fear is a big issue. I mean, when you think about it, I can sit in my exam room and talk to somebody and tell them, “Well, we’re going to open your chest and stop your heart and sew up your valve,” and they go, “What? What are you doing to me?”

Right.

And for us who are in the field, it’s become a run-of-the-mill and routine kind of thing. But just to digress for one second back to the Internet, I find it’s been actually helping me a lot more because patients – although there is some bad information out on the Internet, there’s a lot of good information. And I personally spend a lot of time talking with my patients and making sure they’re educated, so it just kind of augments what I do.

Dr. Sedo, perhaps a couple of our viewers didn’t see the entire surgical procedure. We had a question about the instruments on the table. Can you talk more about what we’re seeing at this end of the table which you haven’t talked about yet?

Sure. Well, we had a lot of information to cover; so we had to skip over some things. We had talked about the different approaches to mitral valve repair; and we talked about the conventional sternotomy; and then we went right to the robotic approach. In between that, there are different options for minimally invasive surgery but without using the robot. That can be a partial sternotomy, where you only divide the top half of the breastbone; or a thoracotomy, which is an incision on the side of your chest. The problem with the thoracotomy – while there is less pain, there is less need for a blood transfusion, less infection, the incision is small. You do not have the benefit of the robotic camera and that amazing visualization of the valve structure. So you’re looking at the heart through a long, dark hole, through a small incision; and conventional instruments don’t fit through that incision -- you can’t get there from here. So we use these long-shafted instruments which have no maneuverability and are sort of like long chopsticks.

Oh, my gosh.

So any tremor that you have here – you can be rock steady here – but at the end, it’s like this. So it’s very difficult technically.

Show us again on the heart while we get that shot.

It’s very difficult technically. You have to be very proficient at it.

And it seems like you’re going in blind. How do you actually see what you’re doing?

Well, the surgeon needs to wear a headlight; and the visualization is not as optimal as with robotics. And even more important, nobody else in the operating room can see what you’re doing. So your assistant has a hard time helping you, and it can be a problem.

So you’ve really show us how the technology has – or the science even – has progressed over the years. Five years ago, you were being cut “from stern to stem” as they say. Perhaps three years ago you might be using this minimally invasive technique. And now, you’re down to this once again, which is hooked up to the robot and these tiny sutures; and it’s almost all done electronically.

Well, to be a believer, all you have to do is look at the results.

Amen to that. And that smile – I don't know if you could see Mr. Mendelson, but he’s got a big smile on his face and so happy to be here. And your family must be thrilled as well that this just all went so beautifully for you.

Absolutely.

Well, we couldn’t be happier. And I guess because of time, we’re going to leave it right there. So much good information in the past hour from our doctors: Seigel, Majano, and Seto. We thank all of you; and of course we thank you, Mr. Mendelson, so much for sharing your story with us.

My pleasure.

By the way, if you missed any part of our Webcast, it’s now available on baptisthealth.net or orlive.com. We thank you again for joining us, and we hope to see you again soon, right here on the Web. Bye-bye.

Thank you for watching this ORLive program presented by Baptist Health South Florida. Watch and learn. This is ORLive.