Mayo Clinic Podcast - Dr. Phillip Rowse - Audio for Caption ...

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SUMMARY KEYWORDS

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SPEAKERS

Dr. Philip Rowse, Narrator, Dr. Gazelka

Narrator 00:01
Coming up on Mayo Clinic Q&A:

Dr. Philip Rowse 00:04
Minimally invasive heart surgery, or robotic assisted surgery, I would define as essentially performing a standard surgical operation through smaller incisions.

Narrator 00:14
Procedures that can be performed to treat a variety of heart conditions. Compared with open heart surgery, patients generally have less pain and a faster recovery.

Dr. Philip Rowse 00:24
So there is a significant advantage in terms of getting back to work and back on your feet.

Dr. Gazelka 00:30
Welcome, everyone to Mayo Clinic Q&A. I'm Dr. Halena Gazelka, and February is American Heart Month. Advances in surgical techniques have made minimally invasive and robotic surgery an option for many heart surgery patients. Minimally invasive heart surgery is accomplished by making incisions in the right side of the chest and approaching the heart from between the ribs instead of opening the sternum or breastbone, as is done in open heart surgery. So what makes someone a candidate for minimally invasive heart surgery? Well, we have just the person to tell us today. Dr. Philip Rowse is a cardiovascular surgeon at Mayo Clinic, and he's going to share information with us. Thanks for being here today Dr. Rowse.

Dr. Philip Rowse 01:14
Thank you for having me. This is a great opportunity, and hopefully we can have a good discussion.

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Dr. Gazelka 01:19
Well, I always say that I like to learn something. And I know that I have something to learn from you because when I was a resident doing anesthesia umpteen zillion years ago, we were not doing minimally invasive heart surgery at that time. In fact, the valves and things came after that. So thanks for being here.

Dr. Philip Rowse 01:38
Yes, thank you.

Dr. Gazelka 01:40
So, Philip, just by nature, and when people think about heart surgery, it sounds awfully invasive, like a really big deal. And so what do you mean when you say minimally invasive heart surgery?

Dr. Philip Rowse 01:53
Well, I think a key thing to know is that minimally invasive heart surgery, or robotic assisted surgery, I would define as essentially performing a standard surgical operation through smaller incisions. And that's really important that individuals know that an operation is not compromised in any way, if we change the approach through small incisions, with minimally invasive or with the use of the robot. And so, I think that's the key thing to first understand is that the operation is the same if it's open, or minimally invasive.

Dr. Gazelka 02:30
So for our listeners, Philip, that might mean that they get the same procedure done, but that the healing time might be different.

Dr. Philip Rowse 02:38
Well, that's part of it. Absolutely, you know, a standard sternotomy, just an incision down the front middle, usually keeps somebody in the hospital about five days, that's pretty average. And then they recover on the order of about six weeks. And if somebody has a robotic assistant procedure, for example, let's say the mitral valve is diseased and is leaking, and that valve needs to be repaired, we can do that with the aid of a robot. And those patients in general are in the hospital about three days, and recover in about three weeks. So there is you know, a significant advantage in terms of, you know, getting back to work and back on your feet.

Dr. Gazelka 03:18
Yeah, that's wonderful. Well, minimally invasive, to me just means you don't make as big of an incision, which probably is not the complete story. But would you describe for us what the types of minimally invasive surgery include and are they all robotic?

Dr. Philip Rowse 03:34
Great question. So,no, they're not all robotic. So a minimally invasive surgery, usually from from a cardiac perspective is coming from the right side of the chest. And we can do that with smaller incisions to, you know, either repair a tricuspid valve that's diseased or a mitral valve, that's diseased. When we

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make the incisions very small, that's where the aid of the robot is very helpful. And the size of the incisions in that case are about the size of a pencil. When we do the robotic approach, there really is no bone breaking. And the degree of muscle cutting is also significantly minimized. So minimally invasive can come from the right side with a little larger incision, but not go through the breastbone. But the robot can shrink those incisions down very small and really is the ultimate, if you will, with minimally invasive surgery.

Dr. Gazelka 04:31
So Philip, I have to say that robots are a little bit of a, it sounds a little futuristic or like artificial intelligence. When I think of a robot I think of it being programmed to do something. Do surgeons still participate when a robot is involved? And is this something that will replace actually people doing surgery at some time?

Dr. Philip Rowse 04:51
Right, great question. We have cars that drive themselves nowadays. What about robots? Are they doing the surgery? And that is a really good question. So the robot when we use it, there are three arms to the robot, and, you know, with each of those arms, there's a retractor or a needle driver or forceps that can be utilized to do the procedure. And it's important to know that the the robotic arms are really an extension of the surgeons fingers. So the surgeon sits at a console, it's like a computer device and with their fingers, they manipulate those arms. And very precisely the robot replicates the surgeons finger movements. And, you know, the surgeon is performing the entire procedure with the aid of the robot. So the robot sort of commands or follows what the surgeons commands are.

Dr. Gazelka 05:41
It sounds a little bit like one of those video games or things that people play on television.

Dr. Philip Rowse 05:48
Right in some respects it is, you know, what you're doing with the robotic, you know, arms, and manipulating the fingering devices very precisely replicates your movement. So it is kind of like a video game, I suppose. But, you know, very high tech and very, very sophisticated.

Dr. Gazelka 06:08
So how does this differ from having what we think of as traditional open heart surgery where we think of someone going in and having their vessels grafted or something or a valve replaced or something like that?

Dr. Philip Rowse 06:21
Great questions. So there are some key differences and I guess the most obvious one is the size of the incision. You know, if we were to do a standard open procedure, which we've done since the 1950s, it's important to know that an open heart surgery down the front middle is done every day of the week. And in many cases, that's the preferred approach. So, there's nothing wrong with a traditional open heart surgery down the front. But there are some differences in terms of the location. So we move the incision to the right side of the chest, and with the robot, they're very small. The other difference when we do robotic surgery here at Mayo, there's always two surgeons involved in the procedures. So I

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alluded to the robot and this sort of computerized device that the surgeon sits at and manipulates the robotic arms. Well, we have another surgeon at the bedside that assists those arms. And that's a key role that we always have a surgeon there. So there's some differences in terms of the number of surgeons involved in that case.

Dr. Gazelka 07:24
So clarify for us a little bit. You alluded to it a little bit earlier about what sorts of surgeries can you do through this minimally invasive technique? What would people ask about when they went to see a surgeon if it was a possibility for them?

Dr. Philip Rowse 07:39
Right, so I think the repertoire of those procedures are expanding. And the most common one that we perform at Mayo is treating mitral valve disease. And the top of the list is usually a leaking or regurgitant mitral valve. And we can approach that with the use of the robot or minimally invasive with a smaller incision without going through the breastbone. We also treat tricuspid valve disease, with either incision, the minimally invasive approach or with the use of the robot. There are some smaller tumors in the heart that we can remove with the aid of the robot. There are a variety of congenital heart defects, the most common of which would be a little hole between the chambers of the heart that needs to be patched closed. In some cases, we can do single vessel bypass surgery with the aid of the robot. And so our repertoire really is expanding, and we're becoming more comfortable with it. It's, you know, we've employed the robot at Mayo since 2008. And it's really been a great thing for both surgeons and patients.

Dr. Gazelka 08:48
Sounds amazing. Are there any characteristics of the patient's themselves that make them more or less of a candidate to be able to have a robotic surgery versus an open surgery?

Dr. Philip Rowse 08:57
That's a very good question. And with every patient that we see at Mayo that we're considering the robotic approach to, there's a very highly rigorous selective process. I hate to use that term. But we will always start with an echo test, we want to make sure that there's you know, the valve disease that we can treat with the use of the robot, and that there's not you know, multi valve disease. If there's a stenotic or blocked up aortic valve and a leaking mitral valve, well, that's a patient who should have open heart surgery down the front middle. We always do a CT scan, you know, from basically the upper chest down to the pelvis. To do robotic surgery, we still have to be on the heart lung machine, just like the open heart surgery approach down the front middle, and so we need to make sure that there's not severe disease in the peripheral vasculature, the arteries and veins in the groin and the big vein in the neck that we use to put somebody on the heart lung machine. We also want to make sure that the patient doesn't have severe coronary disease. If the heart arteries themselves are blocked up in multiple sites, and they have a leaking tricuspid valve, for example, well that's a patient that should have bypass surgery to the heart arteries and valve treatment with an open surgery. To do the operation I alluded to, we come from the right side of the chest and to do that, we have to deflate the lung on that side. And in some patients who may have very severe lung disease, we may need to do a pulmonary function test, for example, to make sure that they would be able to tolerate doing that to

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create space for the robot. And I think the other thing that's important is, you know, the the current technology with the robot is very good. But patients who are very small, or on the larger side, the use of the robotic arms are somewhat limited right now. So we do look at those factors as well.

Dr. Gazelka 10:56
Philip I remember that when the robotic surgeries first were being developed, that it took a lot longer to perform the procedures, I'm thinking primarily of urologic procedures that I was involved with at that time, as an anesthesiologist. And is it faster now to do robotic surgery? Or what are some of the benefits other than what we talked about earlier with more rapid recovery perhaps?

Dr. Philip Rowse 11:25
Yeah, great question. I think, you know, in some cases, the robot can be a little faster, but not all cases, I think they're about on par in terms of open heart procedures down the front middle. You know, we did talk about the faster recovery, the cosmesis, the early return to work. But I wouldn't say that in every case the robot is faster, I think it's about on par with open procedures.

Dr. Gazelka 11:52
Does it decrease, I know that if people have to go on to have subsequent heart surgery, there used to be concerned that if they'd had a sternotomy incision before or opening of their breastbone to approach the heart, that there was some risk with reentering by that same approach. Does having had a robotic surgery initially helped decrease that risk if someone needs subsequent surgery?

Dr. Philip Rowse 12:15
Yeah, that's a good question. So, you know, having had robotic surgery from the side, you know, there always is a little footprint left behind anytime you do surgery and that footprint is scar tissue. And I do think, and do believe that there is little less scarring when we come from the side. We don't fully expose the heart as you do in open heart surgery down the front middle. So, I do think, you know, if there were the need for a second intervention, you know, down the road down the front middle, then I think that that would be, perhaps minimize in terms of risk with less scarring.

Dr. Gazelka 12:52
What are other risks that individuals should be aware of if they're considering candidacy for robotic surgery?

Dr. Philip Rowse 12:59
Well, risk for robotic surgery, I think is the same for open heart surgery. You know the main risks really don't change much from that perspective. We are, you know, going through different routes to put a patient on the bypass circuit from the neck and down the groin, so there's some risks with, you know, getting access to those arteries and veins and not causing a problem there. And we do that relatively safely. We have not had any significant problems in terms of injuries to those vessels. And when we do robotic surgery, our mortality rate is far less than a half a percent, we can do it quite safely, you know, but we do go through that selective process that we talked about to carefully select patients for this approach.

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Dr. Gazelka 13:48
Philip, we talk a lot in medicine about what it is that will make someone procedurally competent. I work in pain medicine, and we have the same discussions, how many implants do you need to do, etc. If individuals are considering having robotic surgery, I would imagine that it is important to seek out a center where this is done frequently and where the surgeon has some skill and expertise in this area. Is it commonly available?

Dr. Philip Rowse 14:12
That's a good question. I think that you know, to your first point, skill and expertise is very critical I think both in traditional open surgery, as well as in, you know, robotic or minimally invasive surgery. And we'll just take, you know, mitral valve for an example. In order to transition from being an open heart surgeon to a robotic surgeon, you really have to have a robust understanding of how to do the procedure in an open fashion and that lends itself very well to translating to the use of the robot. So I think going to a center that has high volume and expertise in open approach, and robotic approach to treatment of the same valve problem is very, very important. And of course volume is very key. With mitral valve disease, we treat about 120 or more a year for the last four to five years at Mayo Clinic robotically. A part of that volume is having a cohesive team, you know, where we have dedicated anesthesiologists that they are part of the robotic team. We have dedicated cardiologists who are in the room performing the echo tests at the time of surgery, and right afterwards. As well as our you know, allied health staff, you know, in the ICU and the step down area. So, I think having a very cohesive team is is part of that whole process.

Dr. Gazelka 15:37
You know, what you said about being proficient and doing the procedure in an open fashion, maybe even before becoming a robotic surgeon sort of piqued my interest and made me think that I could imagine scenarios where you might start a robotic surgery and have to convert it to an open surgery. So obviously, you'd want a surgeon who is, I don't know how often that happens, but obviously, you'd want a surgeon who is facile in doing the technique either way.

Dr. Philip Rowse 16:01
That's right. And, you know, fortunately, we haven't had many conversions, but we have had few. And usually that's the case of, you know, an unexpected, you know, complication. Maybe we needed to explore the artery in the groin or you know, the cannulation up in the neck, you know, some unexpected event. But, but those incidences are very low.

Dr. Gazelka 16:24
How can our listeners find out more information?

Dr. Philip Rowse 16:27
That's a great question. We have a variety of ways to do that. We are on Facebook at Robot Assisted Heart Surgery-Mayo Clinic. You can find us at Twitter at Mayo Clinic Cardiac Surgery. And if you go to Mayo Clinic website and in the search bar type in robotic heart surgery, you'll find a list of other sites to see videos and link to us. And a bit archaic, you could pick up the phone and talk to any one of us.

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There's five robotic surgeons here at Mayo, and we're happy to have any conversation with the referring provider or the patient themselves, and we would be glad to make that happen.

Dr. Gazelka 17:04
Well, that's wonderful. What a fascinating conversation today. I've really enjoyed it. Thank you, Philip.

Dr. Philip Rowse 17:09
Thank you for having me.

Dr. Gazelka 17:11
Our thanks to Mayo Clinic cardiovascular surgeon, Dr. Philip Rowse, for being here with us today to discuss minimally invasive heart surgery. February is American Heart Month, and I hope that you have learned something today I know that I have. We wish everyone a wonderful day.

Narrator 17:29
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