DISCUSSION ABOUT OPEN, LAPAROSCOPIC, AND ROBOTIC PROSTATECTOMIES
MOUNT SINAI MEDICAL CENTER
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ANNOUNCER: Today, Mount Sinai Medical Center’s leading urological experts will discuss the efficacy of open, laparoscopic, and robotic prostatectomies. This webcast will feature case video of live surgeries, utilizing the latest da Vinci prostatectomy technique. Dr. David Samadi, Chief of Robotics and Minimal Invasive Surgery, and Dr. Simon Hall, Chair of the Department of Urology, will answer your email questions during the one-hour webcast. They will also discuss the benefits of a robotic-assisted prostatectomy as it compares to open and laparoscopic surgical procedures. OR-Live makes it easy for you to learn more. Just click on the “Request Information” button on your webcast screen and open the door to informed medical care. Now, let’s join the doctors.

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SIMON J. HALL, MD: Hello and good evening. I’d like to welcome you to this live webcast from the Mount Sinai Medical Center in New York City. We have an exciting program today. My name is Dr. Simon Hall. I am the Chairman of the Department of Urology and the Director of the Deane Prostate Health and Research Center at the Mount Sinai School of Medicine and I’m joined by my colleague, Dr. David Samadi, who I will formally introduce in a few minutes. I’d first like to go over two housekeeping items. First, please keep in mind that this live webcast will be archived on the web for anyone to reference in the future. Secondly, we welcome you to email any questions that you may have so we can have an interactive program. This program is designed for both patients and urologists who are interested in learning more about robotic prostatectomies for the treatment of prostate cancer. During the program, we would like to go over the evolution of the technique from open to laparoscopic to robotic surgery. We’d like to review how the robotic prostatectomy is performed in the hands of Dr. Samadi. We will review the oncological data, which is critically important to the long term success of this procedure. We’d also like to use the robotic program at Mount Sinai as a overview of how to design a very successful program, and if time will permit us, we will review the management of continence and potency post-surgery. So in 2008, while prostate cancer remains a very controversial subject, it is obviously a very important disease. It’s the second cause of cancer death among men in the United States, of whom, one in six will be diagnosed with prostate cancer in his lifetime. So as urologists, we’re frequently faced by a newly diagnosed patient who will ask us, “Why is a prostatectomy the best treatment for me?” So, certainly we know it’s the only option which the entire prostate will be removed. It will give us the critically important information for accurate staging, grading of the cancer, and what is the status of the margins, which will give us an idea of how extensive the disease is. This is very important when we know that approximately 30 percent of the men who have surgery will have an upgrading of their Gleason score. If they’d had radiation, that information would have not been known beforehand and they would have been treated differently.

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We also know that after surgery that PSA should go to zero and the patients will have a sense of ease that their treatment was successful, as opposed to waiting two to three years...
for the PSA [tonator]. We also know that there’s no risk second malignancy with surgery. Certainly with the newer techniques, the radiation therapy, this is of concern. We also know that many men with prostate cancer have significant urinary symptoms due to enlarged prostate and a prostatectomy will also handle these coexistent problems. We also know that some men with surgery do have more locally extensive disease and they’re excellent candidates for radiation therapy, for long term control. Whereas a patient that has radiorecurrent disease, surgery in that setting is a very difficult procedure with significant morbidity. Ultimately, from a patient point of view, many men are very happy just to get the cancer out. So, ultimately when we look at what is important when we look at the outcomes of radical prostatectomy, we should look at the terms of the so-called “trifecta”. First and most importantly is the cancer control. What are the margins of disease? Secondly, the quality of life issues of urinary continence and potency. I think as we’ve moved in the field of urologic oncology from open surgery to minimally invasive surgery, and more recently to robotics for the treatment of prostate cancer, we must keep the trifecta in mind. Certainly, there are many naysayers of using minimally invasive surgery for the treatment of prostate cancer because we’ve been perhaps a little too enamored with the gimmick of using the robot or having limited bleeding and we’ve had problems with the trifecta. I think as we go forward we should realize that we need to keep the oncological principles of the procedure in mind as we go forward. So as the Chairman of the Department of Urology, I felt that the robot surgery for the treatment of prostate cancer is the future. When we wanted to build a program at Mount Sinai to mirror the ongoing clinical program that we had, looking around at who should run the program, it felt to me that the ideal candidate would be someone who is a skilled and trained in urologic oncology and open surgery with a laparoscopic background and then to robotic surgery. So we were extremely fortunate. I was very gratified as Chair of the department to recruit Dr. David Samadi to join us as the Chief of Robotics and Minimally Invasive Surgery in our department last year. Dr. Samadi is a fellowship-trained urologic oncologist. He also had further training on laparoscopy and robotics. He has performed many live surgeries, both nationally and internationally. He worked closely with Dr. Abbou in France to perform some of the first robotic prostatectomies in that country. He has proctored many, many urologists in the United States in robotic surgery and has performed over 1,400 prostatectomies to date. Dr. Samadi.

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DAVID B. SAMADI, MD: Thank you very much for that kind introduction. It’s a great privilege and honor to be here and I’d like to speak to many of our urologists out there who are interested in developing a robotic program, as well as our patients who’ve gone through this. Perhaps you can see some of the procedures and look at the data. Perhaps if you’re a newly diagnosed prostate cancer, this is a very exciting time in urology. As you can see, I am going through the journey of what has happened to me as a surgeon, at least, over the past decade, and I started by experiencing and going through the open prostatectomy and open surgical skills. Certainly, many years ago I thought this was probably the best option for the patients by removing the prostate. However, there are issues with open prostatectomy and there is an incision involved. When you have an incision and you have a retractor that’s open and stretching the muscles that are pain involved in this procedure, the blood loss was an issue. Even though we’re improving our techniques in open surgery, still many of the patients were getting transfusions and as a result there was a longer recovery. I think it’s important to keep that in mind because this is really the foundation of our science and whatever we have learned from open surgery, we have moved on to laparoscopic prostatectomy. Now, people ask what’s the rationale from going to open prostatectomy to laparoscopy. Simple, you’re making a seven-inch incision in order to remove a small walnut organ and perhaps the size of the incision is not proportionate and if you go to a keyhole surgery such as laparoscopic prostatectomy, which developed in Europe, especially in France, this would be a less invasive procedure. The surgeon stands
next to the patient and using the long rigid instruments, we were able to remove the prostate. Certainly this was a big advancement in the field of prostate surgery. I was fortunate enough to be working with the pioneer in the field, my friend and colleague Claude Abbou. However, we realized early on that since we were using one camera, there’s only a two-dimensional view and you’re losing the depth of perception. As a result, we go involved in the robotic technology.

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The advantages of robotic surgery is that you would have a similar range of motion as your arms, so you would have six degrees of freedom. You can certainly sit comfortably at a distance from the patient and you would be able to do your operation, not only with the three-dimensional view, but you would have the 10 to 12 times magnification. Now the purpose of this webcast is really not to say, “Which one is really better than the other one?” I think the patients that are coming to Mount Sinai and they’re seeking our expertise, they would like to have these three surgeons in one head. They would like to see taking the experience of open surgery, bringing the laparoscopic skills, and use the technology of robotics. So it’s really the marriage of the three fields of science, skills, and technology, and that safety and security for our patients is extremely important. Here you’re looking at the video of a laparoscopic prostatectomy from years ago and you can see that you’re working in a bloodless field and certainly you can see small capillaries going to the seminal vesicle clearly. One can clip them instead of tearing them as we had in open surgery and be able to dissect the procedure. The learning curve for laparoscopic prostatectomy is very steep, as you know, Simon, and certainly many urologists in this country never really develop that skill and I really don’t think this laparoscopic prostatectomy will pan out to be the treatment of choice and as we can see, robotic surgery has become more and more common. The view of the surgery in the operating room is such that the surgeon sits at a distance from the patient. The whole operation is done entirely by myself and it’s under my control. There’s no such thing as a button that you press and the robot would go to work, so that’s important for the patients to know. The movements of the surgeon’s hands are translated to the tip of the instruments, and as a result, you can do a precise, bloodless operation. Now, we’ve learned from many open surgeons that you have to review your videos. You have to watch your skills and constantly try to improve your technique in order to be able to get to the trifecta, which is the cancer cure rate, sexual function, and quality of life that we’re looking for. I think in 2008, removing the cancer alone is not going to help our patients. You cannot possibly have a young person, and we’re seeing 40s and 50s coming to our office. They want to be cancer-free. They want to have sexual function. And they want to be continent. Unless you have the background in oncology and you bring your skills, you would have a problem. Just having the robot and being a technician is not going to cut it. So, what we’ve done as a result, you can see that the endopelvic fascia, we used to use cautery to open it. Now it’s pretty much closed and I’ll show you on the videos as a demonstration. I don’t put this suture in the dorsal venous complex any more. We certainly have moved away from using any harmonic or any cautery near the pedicles and now it’s all scissors and clips and the terminology of athermic, or without using any kind of cautery or heat near the nerves, has been achieved and has resulted in better outcome.

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I’m sorry about the cough. A little bit of allergies in New York at this time of the year. So, here is the example of the keyhole surgery and the patients always ask us about the trocars. You can see that there is no more incision and this is the access to the prostate, which is a little different. So we’re not talking about changing the principles of oncology. We’re not changing the surgery that we used to do for many years. We’re just changing the access to the prostate and we’ve seen that in kidney surgery, that has developed really well. Patients are – we put in CO2 gas in order to distend the abdomen and be able to do the surgery. We’re going to go over the videos here. As you can see, we’re going through the mobilization of the bladder, and Simon, as you recall from open surgery, this is exactly
the same kind of moves that we had by putting this sponge stick or bluntly using your fingers in order to develop this plane. The border of the resection is the vas deferens, which was shown before. It’s very clear to look at that fat in front of you. That fat stays on the rectus muscle and you have to keep the tissue on traction in order to be able to use your hook or hot scissors to do the dissections. I still use the hook because I think it gives me the right angle maneuver that we had in open surgery and it works really well, but obviously that’s the preference of the surgeon, as you can imagine. Now, the next step of the surgery is really the defatting of the endopelvic fascia. Again, goes back to the principles of open surgery. What I’m trying to get out is that we are simulating the open operation in our hands using the robotic technique. That’s very important. I’m not changing the operation, but we’re using the technology to be able to see these kind of arteries, as you can see, the accessory arteries that accidentally could have gotten into it and caused bleeding, which you can see clearly now. The left hand of the robot acts like a sponge stick that we used to have. So you can see, I can bring the prostate medially and use the hook in order to dissect the fat.

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SIMON J. HALL, MD: Certainly in this part of the procedure in open, many times this is under the pubic bone and you’re doing this blindly.

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DAVID B. SAMADI, MD: And that’s, I think, one of the advantages of having the camera in order to be able to work under the pubic bone. Again, I think taking few minutes by removing the fatty tissue over the bladder neck and over the apex of the prostate is very critical. It will help you do anastomosis and certainly it’s not going to skew the view of your apical dissection. I do a lot of blunt dissections. I think that the less cautery you use, the better off you are. The smoke factor occasionally can block your view. Here we’re looking at the superficial dorsal vein and just like we were using a DeBakey, and dissect it, you can see a similar movement.

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SIMON J. HALL, MD: But again, I would point out that you’re under the pubic bone here, so in open it would be very difficult to see this directly.

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DAVID B. SAMADI, MD: Exactly. One of the discussions that always comes and I’ve seen a lot of robotic surgeons struggle with this part because it’s really not clear as to where you’re going to make your dissection. I think the easiest secret to this is to have a 15 cc balloon and have your assistant, just as seen in the video, to pull on the catheter. As the catheter is being pushed, you can see the wings of the bladder will come down and clearly you can see the borders of the bladder with the prostate. If in doubt, you always want to stay on the safe side on the bladder and not the prostate obviously in order to avoid any kind of positive margin, and that’s extremely important. The worst thing that can happen is that you would end up with a bigger bladder neck which you can repair at the end of the case. The other trick that’s a little different then some of the robotic surgeons here is that I like to open up the bladder neck early. We learn from open surgery that you always go from known to unknown, so unlike many robotic surgeons where they come from lateral to medial and they would be surprised by a big median lobe, I like to see exactly what the bladder neck looks like very early on during the operation and there won’t be any surprises. The whole concept behind this operation that I do is to try to stay away from any lateral tissues as much as possible, because that’s obviously where you have most of your important structures during the surgery. We’re fortunate enough to have the support of the hospital to be able to get the da Vinci S or the latest model of the robot, and would that comes the assistant of the fourth arm, which is under my control, obviously, and we can see that by lifting up the catheter the prostate is being lifted up. [coughs] Excuse me. Why is it important to have some laparoscopic experience before you become a robotic surgeon? Because Simon, as you remember, in open surgery, one would go from apex to base and when you see an open
surgeon moving onto robotic surgery, some of the anatomical changes that has happened would be difficult for them to figure this out and that, I think, is really the big part of this. Now, I think the posterior bladder neck dissection is probably the hardest part of this operation, because a lot of times, you see surgeons moving too close to the prostate. What you want to do is to keep your scissors or your hook at the oblique 30-degree angle when you start on top. Certainly I try to stay way high on the mucosa and not come close to the urethral orifices and as you create that plane, you want to almost dive down going toward the rectum and stay away from the prostate, and the same shiny tissue that you had right over the bladder exists here. Once you do a lot of these cases, I always tell some of the visitors that it’s almost like someone has put in a track for you to follow. If you follow this shiny tissue, you’ll be able to get to the vas deferens and seminal vesicle as seen. Pay attention to the lateral tissue. Still, it’s untouched. I really don’t go close to it and certainly I think that’s probably the safest way.

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SIMON J. HALL, MD: So, how would you approach this a little bit differently in a patient that had a very enlarged median lobe?

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DAVID B. SAMADI, MD: I think one of the advantages of getting into the bladder early on and seeing the median lobe is that you can plan your surgery ahead of time by staying up and opening up just the mucosa over the median lobe. If it’s really a big size, one can put in the 0 Vicryl suture and lift it up and that will give you the kind of traction that you’re looking for in order to be able to take care of the median lobe. Similar dissections, now we’re looking at the vas deferens and seminal vesicles here. Obviously, there are all these small capillaries that follow the vas deferens, and again, we’ve gone from the clips that my assistant used to put in, now to the robotic clips that’s perfectly under my control and I can place them exactly where I would want them. You can see that the posterior Denovilier fascia is coming in view. One of the recent ideas that helps me in order to get to the tip of the seminal vesicle is not to cut the vas deferens to early. You can see while I have a chance to cut the vas deferens, I keep holding onto it because it’s going to guide me as to where the tip of the seminal vesicle is. This is critical, especially if you have very long seminal vesicle and I really don’t like to leave the tip of the seminal vesicle.

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SIMON J. HALL, MD: So again, I see here that you’re doing much like in the open technique that most of this is sharp dissection with clips where appropriate as opposed to using a lot of cautery.

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DAVID B. SAMADI, MD: I can tell you that once we get to vas deferens and seminal vesicles, the rest of the surgery is completely with cold scissors, without any cautery and one has to adapt to this technique because, as we know, any kind of cautery can damage the tissues at any point of this operation. Now, one has to be also – use your visual feedback in order not to rip the delicate seminal vesicles, and we see a lot of times either in open or laparoscopic surgery, that’s being ripped, and once you let those vessels really loose, that’s what you’re going to have. So, you may not be able to touch the tissue, but I can tell you that my visual feedback would compensate for it. You see that surgeons that have done many hundreds of these cases would even tell you that after a while you start having some tactile feedback with the robot. So moving on in the operation, we are looking at the posterior part of the prostate, or the Denovilier’s fascia. This is a live operation and for educational purposes, I’m going to demonstrate for you exactly where the right plane is.

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SIMON J. HALL, MD: So I think certainly this is, to my mind, the critical step to avoiding positive margins is whether you go from top to bottom or from apex back to the base is to get into the right plane on to the fat of the rectum, leaving Denovilier’s onto the prostate. So I think this part of the technique is critical to maintaining very low positive margin rates.
DAVID B. SAMADI, MD: Your point is absolutely well taken and what I’m trying to show here is that on the right side, we’re getting into the two layers of Denovilier’s and as you know, which has been described many years ago, there’s anterior and posterior Denovilier fascia, and I see that many robotic surgeons try to get to the right area, which I think you should try to leave that on the prostate. I think, again, sticking to the principles of oncology, using the robotic technology is the future of this operation. On the left hand, you can see the rectal fat. That was just for demonstration purposes. Now I get back into the right plane and you should be able to see the rectal fat all the way to the apex of the prostate. What’s critical here is, while you are paying attention to the surgery you may forget about the left arm and traction, slight traction, not too much, and lifting up the prostate is really the secret to getting into this right plane. My left hand is lifting up the prostate slightly. Again, if you recognize the right plane, it peels off like butter and it’s really a beautiful operation.

Now, one of the advantages of robotic surgery as we discussed before was the range of motion. You can see that I start doing some of the nerve sparing surgery posteriorly. The concept behind this new type of robotic surgery is that you’re going from inside out without opening up the endopelvic fascia. You can see that the endopelvic fascia on the right is completely closed. Those are the steps that we skipped, that we used to do, which I really don’t think it adds any more to the operation. Whereas before, we were opening up the endopelvic fascia, we’d put in the suture to the dorsal vein at the beginning. That would cause some bleeding and certainly the suture that you put in at the beginning of the case, it’s almost useless. By the time you get to the end of it, it’s either loose or it comes off and I will show you a video of it sometime during this demonstration.

SIMON J. HALL, MD: Now, it seems that in some ways you’re working in a hole, so one might be tempted to start taking down pedicles now before you’ve completed this part of the dissection. Why would you not want to take down the pedicles at this point.

DAVID B. SAMADI, MD: I think you can, but what I like to do is, when you start coming down from the pedicle towards the capsule of the prostate, you can take a different type of slope, so if you really go way down, and that’s one of the reasons why I don’t like to put in the bulldog or certainly put any clamps there. You may be affecting the neurovascular bundle there. So by dissecting some of the neurovascular bundle posteriorly, I would mark it for myself, so it’s almost half of the neurovascular bundle is spared posteriorly and the other half is antegrade and retrograde and that has worked out really well. Certainly, the concept of interfascial nerve sparing and fascial and extrafascial, while it’s important to design that look at it during the operation, a lot of this work comes from the preparation before the operations. Now you’re looking at the right side of the prostate, the base of the prostate. You can see that part of the pedicle is taken using the clips. By this time during the case, Simon, you’re looking at probably like 10 to 15 cc blood loss. If you don’t have the blood in the field, you can see well. If you can see well, you have absolutely no business to have your hands there. That’s going to block your view and it’s going to affect your surgery. Again, the nerve sparing is done from inside out. This is a new concept and you can see that the accessory artery which we see in about four percent of the patients, it’s completely spared, which will affect the sexual function and I think it’s important to have that blood flow to the penile tissue. Now, again you can see the two layers here. It’s important to stay close to the capsule of the prostate. Why is it that we were not able to do this during open surgery? Because by the time you would get to this point, if you would start doing this, you would get into a lot of peripheral vessels. You would have a lot of back bleeding from the dorsal venous complex that you have in control, and certainly in open surgery this would not have been a good option. Again, we are working on the right side of the prostate, moving along to the apical tissue and you can see the typical big veins that you recall from
open surgery at one o'clock or eleven o'clock that always gives us a hard time during the dissection.

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SIMON J. HALL, MD: So I think again – I think to remind everyone that this is under the pubic bone, so during the open technique, much of this is blunt dissection without any visualization that you have here, so sometimes getting into one of these veins early can give some quite difficult bleeding to control and take time out of the operation.

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DAVID B. SAMADI, MD: Now, I want to take you through this because this could be confusing to even some of the robotic surgeons. You can see the accessory artery to the right side. The endopelvic fascia is completely closed. We’ve taken the neurovascular bundle completely from the capsule of the prostate and I can see that these veins would give me a hard time, so I would leave them alone for now. Some of the questions that patients will ask us and we almost cover this, but the issue of the tactile feedback. I hear that many surgeons will say that, "I have to have my hands there and without my hands I won’t be able to do an oncological case." I can tell you that over the many years in the past decade, the disease have changed. This is not the same prostate cancer that we’ve seen many decades ago. Now we are finding about 75 to 80 percent of our patients with T1c, or no nodules, or no firmness. So while open surgery was important during the operation, I think a lot of us, maybe are the nature or the species of habits and we don’t want to really look at the future. When we moved onto laparoscopic surgery, we stayed away from the tactile feedback and we started using the Cavermap. So we went from the feel and touch to our hearing sense as to where the nerves are and where the sensitive tissues are to finally robotic surgery where we’re using our visual feedback by being able to bring the prostate so close to our eyes and know this, the small capillaries as you saw in the video, and be able to do a very accurate operation in a bloodless field. This is a very important concept that I think a lot of patients and surgeons need to know. This is demonstrated on a patient who had an anterior nodule. You can see the growth specimen of it and on top at almost like eleven o’clock, you can see a big nodule. I was able to see this and be able to follow the capsule and there was really absolutely no need to have my hands there to be able to touch this and you’re not leaving any cancer behind. If the tip of my fingers were that sensitive that I could detect the cancer, they would call us a miracle man and that is really not the case. They may call us a “robodoc” but not a miracle man yet. Okay, so moving onto the video here on the left side now, what I’m trying to show you and it’s important. I think the time for showing some videos that is always less blood loss, fast recovery is gone. I think we need to bring our oncological principles along with the technology that we have.

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So what is the concern right here that I am showing you? This is a patient that had a high volume at the left meat of the surgery and you can see the texture of the tissue is changing. I can see some yellow color and it’s not peeling off nicely. I would basically make a mental note of this area and we’ll come back to it and I will tell you how to manage this and take care of this area. This is a patient that – now again, a lot of this comes in with your pre-op planning. While it’s important to really see the important part and some of the suspicious tissue that we saw, a lot of times you’d like to prepare yourself as a surgeon and custom made your surgery for that particular operation. What’s exciting about prostate surgery is that there’s no prostate that’s the same. Every one of them have their own challenging part, and I think in high-volume disease, certainly getting an endorectal MRI to prepare yourself whether you’re going to spare their nerve or not. If you have a Gleason 8 or high risk prostate cancer, certainly that’s important to know whether you’re going to save the nerve or not. This is a typical endorectal MRI and you can see there’s a large volume of disease, with a big nodule that’s coming into the neurovascular bundle. In this particular patient, I don’t think it’s a good idea to save the nerve for the purpose of leaving any cancer behind. So I don’t think that’s really the right way. What we’ve done at Mount Sinai Medical
Center is that I work closely without our colleagues in plastic surgery and orthopedics and we are able to harvest a piece of nerve ahead of time, right before the surgery. In case we have to remove the nerve, we are able to implant the surro nerve during the operation and that has helped our surgery. Again, this is another endorectal MRI, where there is a big volume of cancer on the left side and we will see how this will pan out during the operation. What’s interesting about this surgery, and you’ll see it again. This is the same operation as the patient that had suspicious tissue. Look at the tiny bulge or tissue that’s coming out of the capsule of the prostate right there and – tissues like this can be seen ahead of time and you need to prepare yourself with endorectal MRI, with digital rectal exam, so there won’t be any surprises in the operating room, and I really don’t think you should just decide in the surgery that you’re going to take the nerve wide, which is going to affect someone’s sexual function. So you can see the margin of the capsule of the prostate. This is the extra bulge of the tissue is clearly seen. One can lift that up to make sure that you are not leaving any tissue behind. There’s no rupture of the capsule at this point. This is just an extra tissue that is just bulging out and we’re able to control it without any difficulty.

SIMON J. HALL, MD: So, what percent of patients would estimate you’re getting the preoperative endorectal MRI?

DAVID B. SAMADI, MD: I usually get it on patients that may have high disease at apex, mid, and base. If I feel that I may run into trouble during a surgery for nerve sparing, certainly someone with a T2 or T3 disease and high risk patients are the ones. I don’t think you should apply endorectal MRI for every patient that comes in. We know that for low risk patients, certainly there’s no advantage to it. Again, I’m marking the area that I was worried about in the past and we’ll come back to it and we’ll see how we’re going to take care of this. continuing with the neurovascular bundle, again one of the points that you made before, Simon, was that I tried to spare the nerve posteriorly and with the added benefit of range of motion and the zooming mechanism that you see on the right, I can bring this nerve close to my eyes. I do most of the nerve sparing posteriorly, so when I take the pedicle, pretty much that plane is dissected and I would reduce any risk of damage to the neurovascular bundle. So, this is the apical dissection that most open surgeons, we were always concerned about it. As you know, the positive margin was always very high during the apex, so one would ask, “Why is that the case?” and it goes back to the point that you brought up before. As a open surgeon, you can never really like put your head inside someone’s abdomen and be able to do this dissection. So a lot of dissection is done blindly and in order to spare the nerve, we know from the anatomy before that right at the apex, the neurovascular bundle comes in medially and hugs the apex of the prostate. By doing this, you minimize the risk of any kind of injury when you’re cutting the urethra and you can accidentally cut it if you have not done this dissection ahead of time. Bare in mind that the endopelvic fascia on both sides is still closed. You can see that in this patient, there is another accessory artery coming in from the left side. This is seen in very rare occasions, perhaps one to two percent of our patients, and you really try to save this as much as you can and it’s not always possible, but if you can, this is part of the blood flow to the penile tissue, which will help the patients with the sexual function. What would have happened if I put the dorsal venous complex suture ahead of time? I think I would have probably caused a lot of bleeding at the beginning of the case. I think once you have one step not going well, the rest of the steps really follow. By keeping it clean, by being able to see, the detail of the surgery, I’m convinced, that the operation will be better.

Just for educational purposes, I’m putting this video from another operation where I used to put in the suture. You can see that at the end of the case, the suture is too close to the apex. It’s kind of loose and the teaching point here is that you’re not going to let the suture dictate where you are going to make your incision. You can see the proximity of the apical
tissue right there, compared to the dorsal venous complex, and you know what, at this point the dorsal venous complex is completely open. What you do is, for about 30 seconds, you increase the pressure of the abdomen to 20 millimeter or mercury. Communication with your anesthesiologist is extremely important. You want to make sure that your CO2 level is not really high. That communication in the operating room is always a very important part of this. For about 30 seconds to a minute, you would be able to increase the pressure, which would control this bleeding and you have to make sure that your assistant obviously is not using the suction in order to open up the bleeding. We’re going to go back to the same original operation that we talked about. Again, all the clips on the right side are there. The big vein that, Simon, you were concerned about at the beginning, it’s already clipped and it’s controlled. The left accessory artery is still intact and I’m trying to stay away from it. This is the part that a lot of expert in open surgery do by either passing a guide wire under the dorsal venous complex or putting your stitch under that by just cutting the dorsal venous complex cold and you can see the chambers of the venous complex. There is no bleeding solely because I just increased the pressure, again, for about 20 seconds and my assistant is not using the suction.

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SIMON J. HALL, MD: So could you again, just for those with not a lot of experience, what are the dangers of having he CO2 up at 20 or above?

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DAVID B. SAMADI, MD: I think you have to be careful not to leave it on for too long because of the risk of any kind of CO2 embolus, but I think for about 30 seconds or a minute, you’re really not doing any damage to the tissue. Now I’d like to review this urethral dissection. It’s critical again to be a skilled open surgeon and laparoscopic surgery. Bob Meyers in the past has described many different type of prostates where they can come under the urethra and one has to be really careful here that you’re not cutting into the prostate. You are trying to leave a long length of urethra, which would translate to a better continence for your patients. The dorsal venous complex is still open. Obviously, if you get into any kind of bleeding, you can suture it then. A lot of patients ask me, “How do you remove the prostate?” This is a demonstration of how you put the prostate in a plastic bad and you can see the chambers of the venous complex. There is no bleeding solely because I just increased the pressure, again, for about 20 seconds and my assistant is not using the suction.

00:39:37
SIMON J. HALL, MD: So, Dr. Samadi, we have our first question via email. I think it’s a good little juncture. The question is, “If a patient is undergoing a radical prostatectomy by a high-volume, very skilled surgeon, whether it is open or robotic, aren’t the outcomes of open versus robotic approaches essentially the same?”

00:39:52
DAVID B. SAMADI, MD: I think it’s an excellent question and I think when you compare an expert open surgeon to an expert robotic oncologist, the oncological data comes very close to each other. I think the advantage in this is really the quality of life for our patients. We’ll review over the data later on, but I think the blood loss certainly is less. Patients are staying in the hospital in a very short period of time, and I think it’s the quality of life that we’re talking about. You have to convince me today, after watching this surgery, why I have to cut someone open. Because we are simulating the same open surgery, using our robotic technique. Big prostates, big median lobes, prostates with 200 grams, can be removed without any difficulty. We’re going back to the area where I was worried about doing the surgery. You can see this tissue right over the neurovascular bundle. Again, years ago, had we seen that suspicious tissue at the beginning of the case, the decision between me and my partner was, or any other oncologist, was perhaps we should take the whole nerve in order to give the cancer cure rate, and the rate of impotence was very high. What you can see is, by the zooming mechanism of the robot, by the range of motion, you can really take millimeter of that tissue over the nerve without damaging it and our pathologists are ready
during the operation to be able to look under the microscope for this tiny millimeter of tissue to tell us whether there is any kind of prostate or prostate cancer and that's extremely important because this is how you avoid and you can reduce your positive margin by not leaving – right here, you may avoid a patient from going to have any recurrence or having radiation. Now I can tell you that the positive margin for this tissue came back as no prostate and no prostate cancer, so we were fortunate enough to be able to leave that nerve alone. Looking again at the final product, you can see that the prostate is completely removed. By this time, you have about 30 to 50 cc of blood during the surgery. The endopelvic is attached and the accessory one is there. The most surgical technique, which was used in skin cancer, is now being used here by removing the tissue as we explained. Finally, the dorsal venous complex is repaired by a 3-0 Vicryl suture, instead of the old Vicryl that can kind of like squeeze the dorsal vein and change the anatomy. Now what’s really important here is since the neurovascular bundle have been moved to the side, you’re not enclosing that or entrapping it in your suture. I think there were a few areas in open surgery or laparoscopic where we were damaging the neurovascular bundle. One was opening up the endopelvic. The other part was placing this suture during the dorsal venous complex and finally during anastomosis. So, the attention has to be really given to this and one has to be careful.

I’m introducing you, the minimal invasive robotic technique, or MIRT, which is the method for 2008 robotic technique, and the concept behind this is the less you do, the better off you are and the better the quality of surgery is going to be for your patients. Now, you may not be able to see the neurovascular bundle like the way we were used to, but I can show you internally, that’s where they are. That’s where the track of your nerves are and again, while I don’t open up the endopelvic fascia anymore, I’m just doing this for demonstration purposes and to show you that by opening up the endopelvic fascia, you’re not really changing or adding anything to our operation. Okay, so as we zoom in here you can see that you can visually see the neurovascular bundle. As we dissect a little more, I think most open surgeons are used to seeing the whole tract by having this endopelvic fascia open. Again, the less you do in this area, the less you manipulate this nerve, the less chance. Clearly, Simon, as you can see, the neurovascular bundle is coming in view. There you have it. For the sake of time, I’m going to move through the reconstruction of the bladder neck. My suggestion is that the posterior bladder neck, which is what we always did, is the way to go. For a while, we were doing an anterior bladder neck, but I really don’t think the continence rate was as good. But here, the tennis racket method and by closing the bladder neck would give us the continence mechanism that we were looking for. This is a 2-0 Vicryl stitch in a running fashion, for the posterior reconstruction of bladder neck.

SIMON J. HALL, MD: So, how tight do you try to make the bladder neck?

DAVID B. SAMADI, MD: Well, you really don’t want to make it to tight and certainly the magnification sometimes can fool you. It’s a very interesting point because you don’t want to leave it to open, which would result to some stress incontinence, so I always take an extra stitch. There has been a lot of discussions about which one of these steps really would add to a better continence. In our series, in our hand, the long urethral stump and the posterior reconstruction of bladder neck is really what has given us the best continence mechanism and the early gain of urinary control. There has been a lot of discussions about the bone anchor or the Rocco stitch. I think while the Rocco stitch is a good concept, at least in our series of randomized groups, we have not been able to see a statistical advantage to this. The bone anchor, I think it has a lot to do with lifting of the dorsal venous complex to expose the urethra and not really involve the continence. The anastomosis done, as you can see in the cartoon, with the double layer 3-0 monocryl with the nut in between. I use the white suture. These are two different colors. I use the white
suture for the anterior anastomosis and I like the color blue against red. It’s much better for the posterior reconstructions, and you have to be really, again, gently bring the bladder to the urethra. Obviously you don’t want to do this under tension and one can bring the pressure in the abdomen from fifteen to ten or five and bring it together. You can see the long length of urethra there and you can finish up your surgery by the anterior anastomosis. Now, look at the needle that I use. I still have stayed all these years with the UR6, which was a comfort level and the needle that we were using. I like to use the curve of the needle in order to finish the anastomosis. This will avoid any wide take with any other needle that might affect the neurovascular bundle. You can see the accessory artery to the left that’s still intact. You can bring the bladder to the urethra. Now, just as a summary, when you talk about robotic prostate surgery, this is really what I want you to remember. I want you to remember the rule of ones. This is the number one treatment option for prostate cancer in 2008. The surgery takes about an hour to an hour and a half in our hands and I truly believe that having the background in open surgery and laparoscopic has helped us with this. patients stay at the hospital one day. The catheter stays for about a week and the recovery is one month. Within a month to six weeks, you would know exactly where you stand with your cancer. There is no bigger joy as a surgeon to look at your patient and say, “You are cured. Your PSA is undetectable and you can move on.” You’re dealing with the spouses and partners of people that are hit with anxiety of the word cancer, and now we can see that oncologically, in the hands of experienced robotic surgeons, with the background that we talk about, the outcome is as good as open and laparoscopy.

SIMON J. HALL, MD: So, we’re actually getting a lot of questions now, so there’s a lot of questions that have a common theme. So, what are the patients who can’t have a robotic prostatectomy? Specifically obesity, prior surgery of the abdomen. So I think we’ve had three questions on that, so could you just answer that question at this point?

DAVID B. SAMADI, MD: Well, that’s a very good point and what’s important is that anyone that would be a candidate for an open surgery would be a good candidate for robotic prostatectomy in our hands. Obviously, like what I said, you have to know your patients, you have to preplan, and no surprises in the operating room. I’m going to go over some of the challenging cases and review it in a minute, Simon. A lot of people would ask us, “How can you make the transition and really perform six to seven hundred cases within 13 months?” and the key a successful robotic program is not just the surgeon. I can’t take all the credit for myself, as much as I would like to, but you need to have the support of the hospital, from the CEO to administration, to the chief of urology that would create an environment that you can stay focused. You have to go through the expertise and training. You obviously need to have the team. These are the guys that are working extremely hard and there a few people that are not in this picture and I would like to thank this opportunity to thank every one of them. What we have at Mount Sinai is coverage. There are people involved before the surgery. There is a team in the operating room that are always with me and there is a team that will take care of the afterwards. To me as a surgeon, that’s extremely important. I want to give you the comfortable environment that would be cured of cancer and with a dedicated staff that we have. As you can see, the volume has grown rapidly. This is our volume over the past few years and the estimated number in 2008, it’s going to be a little over 600. I can tell you that I performed the surgeries from the beginning to the end myself. A lot of my patients have read about my background. There is a moral and ethical bond that goes between myself and the patients. When you come to Mount Sinai, you can be assured that I’m there from making the incision to finishing up your surgery and you’re coming for the expertise and that’s a very important point for people to know. Now, going back to your question, Simon, we’ve seen a lot of patients and complex cases coming in among this 1,400 cases. Certainly patients with previous midline abdominal incisions, patients who have had colon resections, that’s when you’re laparoscopic skills
comes very handy and it’s important. We know that patients with laparoscopic hernia repair with mesh would make the open surgery almost impossible. The trick to this is really to stay below the mesh and dive down over the prostate and be able to avoid that. For patients who have had previously TURPs, microwaves, and TUNAs, you have to play it safe, so what I do is I put in two Double-J stents before the operation in order to protect them and you can remove them at the end. Large median lobes, large prostates, certainly patients who have had radiations in the past. We’ve performed radiation failure using this technique and there has been a case of robotic surgery where the surgeon spent six hours and was not able to perform the operation, came in for a second opinion. I was able to go back in, these are complex cases, and was able to remove the prostate in a Jehovah’s Witness, that the blood loss was very critical, and he’s done very well, and certainly obese patients, I like to keep it with a body mass index of 35 to 38 and we’ll have a little discussion about that.

SIMON J. HALL, MD: So in general, to sum up, there’s really across the board nothing that will completely rule out a patient. It’s on a case-by-case situation.

DAVID B. SAMADI, MD: Exactly right and I think you have to individualize the care of every patient and assess them way ahead of time so there won’t be any surprises. Here, you can see the demographic of our patients, the blood loss. You can see that it’s only a few tablespoons. Patients again are staying the hospital a few hours or a day. When you compare, this is a study that compared the open laparoscopic and robotic surgery and you can see the operating room time is much less at Sinai, partly again, by having the same team in the operating room, same surgeon, same robot. It’s almost having your own baseball team. It’s interesting. Everyone is in their positions, knowing what their duties are and that’s why I can do the whole operation completely without any difficulty.

SIMON J. HALL, MD: Well, I can just make a comment. A lot of people ask me, “Well, Dr. Samadi says he can do it in less than two hours and does that include before the robot? Is it only after the robot is engaged and when the robot leaves and there’s still some other work to do?” Absolutely not. I think no question having the two hours includes start to finish when the patient goes to sleep until they’re woken up. So, ultimately, for those of you thinking of starting out to do this, you really need a good team to really make this successful.

DAVID B. SAMADI, MD: That’s a very excellent point. You don’t want to be left alone without having people in the operating room that know exactly what you need. From the circulators, to scrub techs, to the anesthesiologists, that really understand the surgery. The blood loss we discussed, that’s minimum. You can see that while our open surgeons have been pushing the limit, and I think that’s a really great advantage of robotics that has brought our open surgeons to look at their techniques and modify that. Most robotic surgeries are home within a day. Most of the pathology that we see are pT2s, and about 15 percent of the patients are pT3 disease. The overall margins at Mount Sinai is 6.6 percent, with a T2 margins of 2.6 and I think there’s a very fine line between looking at you margins and sparing the neurovascular bundles and the quality of life of the patients as shown in this slide. The positive margins can be very tricky and I’ve seen a lot of patients ask me, “Well, tell us about your positive margin.” A lot of it has to do with your histological analysis in your hospital. Most importantly, it’s really your surgical technique and my advice is to look at your videos. Go back and find out where you made the mistakes and constantly improve on your techniques, which is what we have today after hundreds of these discussions. This is an example an extensive positive margin. This is the type of patient that you like to follow very closely because there is about 20 to 30 percent chance of recurrence, as opposed to the focal positive margin, which is mostly iatrogenic and it’s artifact and you can see here, this type of patients, typically they may have one to two percent chance of recurrence and
the behavior of this is really almost like a negative margin. Complication rates have been extremely low and minor, urinary tract infections or urinary retentions. This is again partly because I don’t trust my patients with anyone except myself. I’m there from the beginning to the end and if you are participating the whole time, you’re going to have a low, and I certainly don’t believe in running two or three rooms and going from room to room and spend 15 minutes in every operation, and I think that’s really a big part of having a low complication rate. The very important concept is that when you remove the prostate, you may be going in with Gleason 6, but you may be coming out after the surgery with Gleason 7, and that’s something that a lot of patients don’t know. When they talk to me about seed implant or radiation, what I tell them is that there’s a 30 percent chance that your Gleason score could be – or you may a more aggressive disease. By removing the prostate, you will get vast and immense information about the type of cancer you have, your margins, and certainly the volume of the cancer that you have in the prostate. This is again someone who had a preoperative before the surgery, Gleason 6 and ended up having a Gleason 7 after the operation.

SIMON J. HALL, MD: So, I think we only have about five minutes left, so we’ve got quite a few questions, so I think for sake of time, I have a few questions. So one question is, it’s concerning the S version of the robot, so, in your eyes do you think is that an improvement and would it be a mistake to have the procedure done with the old type of robot with someone who is an experienced surgeon.

DAVID B. SAMADI, MD: I think if you are a skilled robotic surgeon and you’re using the old robot, certainly there is nothing wrong with it, but the extra fourth arm would minimize the assistance and your scrub tech or anyone that would be holding the seminal vesicles, it would minimize their role. So it would give the surgeon more control of the surgery. One of the advantages of the da Vinci S is that you have the zooming mechanism and it’s definitely high definition. Does it make a huge difference? I think when it comes to some of the tissues that you saw where I was worried about it and you can bring the tissue really close to yourself. In a high definition camera, that can make a difference. For that particular person, Simon, between you and I, that’s a big difference.

SIMON J. HALL, MD: So, we have another question, which is a little off the subject concerning bladder cancer, so I’m actually going to take Chairman’s privilege and answer the questions. So the question is that we have a male who was diagnosed with bladder cancer. He’s been recommended to have a cystectomy and was interested in robotics and was told that he couldn’t have the robotics due to the issue of a lymphadenectomy, so I can tell you that since David came to Mount Sinai, we’ve been somewhere around 15 robotically-assisted cystectomies. The way we’ve done them is do the cystectomy and the prostatectomy robotically. If the patient has a neobladder, Dr. Samadi puts the stitches in the urethra and then I make a very small incision, higher than usual, to remove the specimen and do the extensive lymph node dissection through that small incision and we can also then make the pouch because the suture’s already in place, sew the pouch down in place. I think ultimately, certainly from this question, there’s really no reason a patient isn’t a candidate for robotically assisted cystectomy, based on the issue of lymph node dissection. Another question is after a prostate removed, what will the ejaculation be like?

DAVID B. SAMADI, MD: Well, the ejaculation will not be there and a lot of times the patients will tell me that they do ejaculate after this. I think we can talk about the [cappers] gland and some of the secretions from the peripheral glands that may be causing some of the secretions. But the bulk of ejaculation, which is part of the seminal vesicle is removed, while the orgasm you will be able to have 100 percent orgasm because that’s through the nervous system. The ejaculation will not be there and with the kind of nerve sparing that we’ve seen
here, we see especially the young patients in their 40s and 50s are able to obtain their sexual function and you’ve heard this before, but a lot of times even with the catheter, they will have the erections. So, really the take home message is stay away from the lateral tissues. The less you do, the better. This is certainly robotic prostatectomy, or open prostatectomy, may not be fore everyone. Unless you’re committed to this and unless you’re willing to spend the time and go through the learning curve and the volume, this is going to be a little challenging. Now, for the sake of time, we have a lot of slides about the continence and sexual function, which we may not be able to have the time to go through this. This will be on the archive. You’re more than welcome to go through this at your leisure time and I hope it could be helpful to you. I’m not sure if there are any other questions that you’d like to discuss.

SIMON J. HALL, MD: Well, there’s one other question that somebody asked. It’s, “How long should somebody wait after a biopsy before proceeding to surgery?”

DAVID B. SAMADI, MD: That’s another very good point. Typically, I wait about four to six weeks, partly because of the inflammation that exists between the prostate and the rectum. You want all of that to heal so you won’t be able to be fooled by getting into a wrong plane. So, six weeks is usually the time that I tell the patient to wait for all the inflammation from the prostate biopsy and some of the bleeding would resolve. We have a competent team at Mount Sinai who will take care of the sexual function as well as the urinary continence that work closely with me, and it’s really a privilege to have all of this in one setup in order to be able to take care of our patients. Again, this is going to be archived and you will be able to review on your own. I would like to again take this opportunity – one of the final comments that I’d like to make is, at Mount Sinai, what we have is the mini-fellowship for a lot of robotic surgeons that would like to come and visit. I certainly would welcome you. If you are starting the program and you’d like to bring your DVDs and we can sit together and go through this fellowship. Obviously, no one will be doing the operation, as I mentioned before. It’s all done under myself, but you can observe and we can review the surgery and the technique that we showed you and I’ll be happy to do this. All the information, as far as obtaining information, if you’re newly diagnosed prostate cancer, if you’d like to come and visit the robotic cystectomies and robotic prostatectomies, it would be a pleasure to have you.

SIMON J. HALL, MD: We have another question.

DAVID B. SAMADI, MD: Sure.

SIMON J. HALL, MD: What would be the indications for doing a pelvic lymphadenectomy and when exactly in the course of the prostatectomy would you do that procedure?

DAVID B. SAMADI, MD: I usually remove the lymph node dissections at the end of the case unless there is a really bulky lymph node at the beginning of the case. I grew up on the mentality that even if you see a microscopic positive lymph node, to remove the prostate, because debulking the prostate would cure this patient and would be able to prevent them from having the consequences of having urethral obstructions. The lymph nodes are usually removed on patients with Gleason 7 and higher. One can argue – it takes only about five to ten minutes and it’s not an issue. It’s mostly for staging purposes, not for curative. For Gleason 6, one can argue whether it should be removed or not. The rate of positive lymph node with Gleason 6 is really in one to two percent and the risk of any kind of complication by removing the lymph nodes, such as lymphoceles or nerve damage, is also about that percent, so if a patient is really asking for it, one can remove it. It doesn’t add much to the surgery and it’s really not a big issue with robotic prostatectomy.
SIMON J. HALL, MD: So, I think in the last few minutes, I think it’s time to sort of sum up, so why don’t you just take a few minutes to sum up what the ultimate basis of this program today has been. So, it’s been a great privilege and honor to come to you live here at Mount Sinai Medical Center in New York. I’d like for you to know that as a patient, when you’re coming to environment, you’re coming to a personable environment. The staff are going to hold your hands. You’re not alone. We’re going to take you from this stressful time of hearing that you have cancer to the time where your cancer is removed, having all the options ahead of you. Patients with high risk cancer, where you may need radiation, that option is available to you. I’d like to thank my colleague here, Dr. Simon Hall, for helping me with this live webcast. I’d like to thank Mount Sinai Medical Center for creating a warm home for me and certainly my family and my patients, and finally I’d like to appreciate what Intuitive Surgical has done by developing and updating the technology that in the hands of surgeons have given the quality of life that we’re all looking for. What’s the take home message? You need to be having the background in open surgery. You have to be a trained surgical oncologist. It’s important to have laparoscopic skills that would be a bridge between the open and robotic surgery. When you bring it all together and when you see the marriage of the three fields in one surgeon, I think a lot of our patients are seeking our expertise, coming from all over the world for that reason. In case you need to switch hats, we like to have that comfort. Thank you so much. Be well and have a great evening.

ANNOUNCER: Thank you for watching the live roundtable discussion webcast on robotic prostatectomy. This webcast has been brought to you by Intuitive Surgical. OR-Live makes it easy for you to learn more. Just press the “Request Information” button on your webcast screen and open the door to informed medical care.