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Prostatic Cryosurgery and Robotic Prostatectomy

### ROBOTIC SURGERY IN TREATING PROSTATE CANCER

You are listening to ReachMD XM, The Channel for Medical Professionals. Welcome to Medical Breakthroughs from the University of Pennsylvania Health Systems with your host North Western University Internist, Dr. Lee Freedman.

Robotic surgery for prostate cancer, what are it's pros and cons and when is it appropriate for our patients?

Joining us today to discuss prostatic cryosurgery and robotic prostatectomy is Dr. David Lee, Chief of the Division of Urology at Penn Presbyterian Medical Center and Assistant Professor of Surgery at the University of Pennsylvania School of Medicine.

**DR. LEE FREEDMAN:**

Thank you for being with us Dr. Lee.

**DR. DAVID LEE:**

Oh! thanks for having me Lee, it's real pleasure to be here.

**DR. LEE FREEDMAN:**

May be I can start as an internist taking a step back and just talking about treatment of prostate cancer in general, is there a clear benefit to surgical treatment for localized prostate cancer?

**DR. DAVID LEE:**

Yeah, that's a really good question and a lot of people debate this issue. As you know, there are lots of different treatments available for men with prostate cancer and that's both a good thing and a bad thing. The good thing is that we can tailor the treatment to our specific patients with the specific medical problems that they have, but it's a bad thing because it can create a lot of anxiety, especially in the

decision making process because there are situations where one option isn't clearly better than another option for a specific patient and so going back to your more specific question between surgery and radiation, there are I think better patients that are suited specifically for radiation as opposed to surgery, but the treatment outcomes as far as cancer control goes for the large majority of patients that we see looking at surgery versus radiation, the treatment outcomes as far as cancer control for the first 10 years is very very similar between the two and so a lot of men have difficulty choosing and so if you look at longer term outcomes, however, 15 to 20 years down the line, it does seem that surgery has better long-term outcomes that far down the road and so for the younger patients we tend more to lean towards the surgery treatment options whereas the older men who may be higher surgical risk we lean more towards the radiation because if you look at 10 years, those numbers are very very similar.

**DR. LEE FREEDMAN:**

And it may not have the longevity to benefit from the what for them might be a riskier approach.

**DR. DAVID LEE:**

That's right. You know, we almost take an actuarial type of view of the situation you know and it may seem a little bit cold sometimes, but you know as men are older when things get started and then depending on the grade of their disease, if they have a lower grade, then it may not be that important 15 years down the line.

**DR. LEE FREEDMAN:**

Is watchful waiting ever still considered?

**DR. DAVID LEE:**

Oh! it's very strongly encouraged for some patients, you know, especially if they are 75 or older and have had a heart attack in the past, then it may be likely that in those patients that a small amount of early low grade prostate cancer is not really going to affect the length of their lives so watchful waiting may actually be the preferred treatment option in those men. For a lot of men though, it really comes down to what they feel most comfortable with, if they feel like they have too much anxiety with the whole situation and they just want their prostate out, then you know surgery becomes the best treatment option for them whereas some men are too afraid of surgery and have heard lots of horror stories before about men going through radical prostatectomy that they feel more comfortable with the radiation or watchful waiting.

**DR. LEE FREEDMAN:**

And that makes very good sense.

If you are just tuning in, you are listening to Medical Breakthroughs from the University of Pennsylvania Health System on ReachMD, The Channel for Medical Professionals. I am your host, Dr. Lee Freedman, and with us today is Dr. David Lee, Chief of the Division of Urology at Penn Presbyterian Medical Center and Assistant Professor of Surgery at the University of Pennsylvania School of Medicine. We are discussing newer approaches to prostate cancer.

**DR. LEE FREEDMAN:**

So, we have got the diagnosis now, how do the newer techniques, cryosurgery and robotic surgery differ from a traditional prostatectomy. Tell us a little about that.

**DR. DAVID LEE:**

Oh sure, and maybe we better break it up into two separate sections because the two treatment options are very very different and I can touch on the prostate cryosurgery first. This is a very different type of treatment where we are using temperature as our tool and so we literally tried to freeze the prostate and so the process by which we do this is the patients go to the operating room and get put under general anesthesia and then using a system, ultrasound guided, in a very similar way that we do the prostate biopsies, small needles are placed in through the skin between the scrotum and the rectum. These are placed into the prostate under the ultrasound guidance, but these needles allow the circulation of liquid argon through the interior of the needle. This creates very very cold temperatures within the prostate and what we are looking for is a  $-40$  degree isotherm that coats the inside and up to the edge of the prostate in order to kill all of the benign and malignant prostate cells contained in that area. The great thing about freezing is that it seems to work really, really well in killing tissue, both benign and malignant. The downside for some men is the potency issue because the cavernous nerves that cause erections to occur, they live very close to the surface of the prostate and so you can imagine if we are getting a  $-40$  degree isotherm around the entire periphery of the prostate, well we have  $-30$ ,  $-20$  degrees,  $-10$ , you know extending far beyond the edge of the prostate and this is going to you know really injure the cavernous nerves so that men have a real difficult time with erections afterwards. There are longer term studies now out there following guys after prostate cryotherapy and it seems like the cancer control is really very, very close to what we would see with surgery or radiation, the continence profile seems very very good as well with less than 1% to 5% of guys having any type of urinary incontinence, but the real downside is the potency issue where it will be less than 5% or 10% of guys get their erections back sometime down the line after a prostate cryosurgery.

**DR. LEE FREEDMAN:**

So that's obviously a very high percentage of impotence afterwards.

**DR. DAVID LEE:**

Yeah, it is, but one of the newer aspects of prostate cryosurgery that has come out recently is the idea of focal therapy where we freeze just one small part of the prostate in an attempt to spare the nerve, but you know we have to look at this with a lot of healthy skepticism because we know that prostate cancer is a multifocal disease. It tends to pop up in several areas of the prostate and so if we freeze just a small part of the prostate, you know, in the typical patient it's likely that we leave some prostate cancer cells behind. So what's typically done is using a real thorough prostate biopsy where 30 to 50 cores of the prostate that are taken out and then mapped across the whole 3-dimensional model of the prostate, then we can figure out, you know may be in this guy where there are really small amount of prostate cancer are seen on the these biopsies, we can freeze just one small part of the prostate and hopefully spare the nerves really well while thoroughly treating this guy's prostate cancer. So you know this is going to be only a small percentage of guys who are real good candidates for this type of procedure, but you know these are things that are getting explored with focal therapy.

**DR. LEE FREEDMAN:**

Is there then after the treatment necrosis of the gland, is it something that's painful after the procedure for the patient?

**DR. DAVID LEE:**

It tends not to be as large an issue as you might think because one of the manipulations that people who are performing cryosurgery do is to put a Foley catheter in order to warm the urethra so that that part gets relatively well protected, so that sloughing and necrosis tends to be not that much of an issue. Certainly there is a lot of swelling in the prostate after the procedure and so guys do still have to have a Foley catheter and a suprapubic tube catheter in. You know the suprapubic tube is not something that we typically leave after a radical prostatectomy and so guys end up with an extra catheter, but then the Foley catheter tends to come out fairly quickly and then they have the suprapubic tube in and then the patient starts voiding trials by capping the suprapubic tube so that once the swelling in the prostate goes down enough then they can start peeing.

**DR. LEE FREEDMAN:**

Very interesting, and then the other category is the da Vinci robotic surgery.

**DR. DAVID LEE:**

This type of procedure is very similar to the traditional open radical prostatectomy. Surgeons explored the treatment of prostate cancers through a minimally invasive approach by using laparoscopy so you know laparoscopic cholecystectomy for gallbladders, why can't we use this type of technology for prostate? Well, I was lucky enough to do a fellowship with Dr. Ralph Clayman and Dr. Clayman actually did the first laparoscopic kidney removal in the world in 1990 or so. Him and another physician actually tried a small series of laparoscopic prostatectomies in the mid 1990s and they found it was just so technically difficult that they had a really hard time doing this in any less than 6-8 hours and so they wrote a paper that basically said, yeah we can do this, but it may just be taking too long where skilled open radical prostatectomists do this in 2 hours and so for keeping the patients on the table for 6-8 hours and all the benefits of a minimally invasive procedure really gone, so they thought well it's probably not worthwhile exploring all. There were a couple of other surgeons in France, Dr. and Dr. who worked very hard to develop a real reliable technique for this procedure and were able to start doing these laparoscopic prostatectomies in about 3 to 3-1/2 hours really reliably and then so lots of urologists started exploring laparoscopic prostatectomy in the late 90s to early 2000s, but it still is a technically difficult operation where you need a lot of expertise especially with the suturing which can be really technically challenging. So this is where the da Vinci robot came in. Dr. Mannie Menon at Henry Ford Hospital in Detroit, he actually asked Dr. to come from France and help him to learn how to do laparoscopic prostatectomy, but Dr. Menon who was having such a difficult time, he said why don't we take this robot which has just been introduced for cardiac surgery and see if we can use this to do the same laparoscopic prostatectomy and so the paper was the first that showed a real benefit of using the robot for this type of procedure and this has really now exploded in urology.

**DR. LEE FREEDMAN:**

Well, I want to thank my guest, Dr. David Lee from University of Pennsylvania School of Medicine who has been outlining for us the approach to prostate cancer and then some newer techniques with cryosurgery and robotic surgery, a very very interesting stuff. Thank you for listening.

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