



## Life after Bladder Removal – Selecting your best urinary diversion

*A candid conversation with Alexander Kutikov MD*

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### Part I: Anatomy

Presented by



**Dr. Alexander Kutikov** is the Associate Professor of Surgical Oncology at the Fox Chase Cancer Center in Pennsylvania. He's a board-certified academic urologic surgical oncologist. They treat urologic tumors using minimally invasive, robotic, laparoscopic, and traditional surgical techniques. He's published chapters in leading textbooks, including the Definitive Chapter on Adrenal Disorders in Campbell-Walsh Urology, and has held leadership positions in both the American College of Surgeons and the American Urological Association. Dr. Kutikov has significant interest in harnessing web and mobile technology to improve patient engagement and quality of care. He's the co-founder of several ventures, and currently serves as Associate Editor of Digital Media for European Urology.



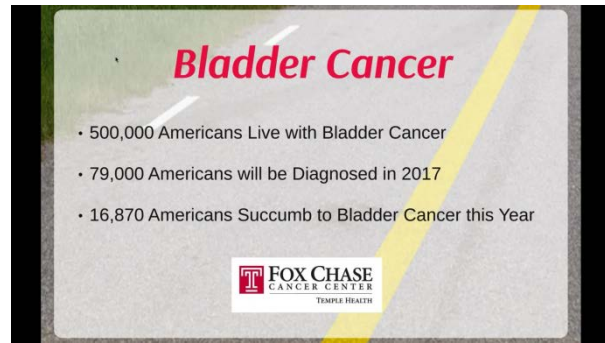
**Stephanie Chisolm:** Hello, everyone. Welcome to the Patient Webinar Series at our winter webinar series. This is Life After Bladder Removal- Selecting Your Best Urinary Diversion, candid conversation with Dr. Alexander Kutikov from Fox Chase Cancer Center. We're very thrilled that you're here.

**Dr. Kutikov:** Perfect. Stephanie, thank you so much, and what a privilege it is to participate in this webinar. I

thought I'd start with some slides, just introduction to bladder cancer as people join the webinar. Then, we'll deep dive into some of the surgical nuances and some of the trade-offs between urinary diversions. Then, we'll take some questions.

Bladder cancer is certainly a journey. There are 500,000 Americans, almost half a million Americans who live with bladder cancer. Almost 80,000 will be diagnosed with bladder cancer in 2017. Unfortunately,

despite our best efforts, over 16,000 will succumb to bladder cancer this year. We'll talk about this a little bit more, but this is really a cancer that stems from the inner lining of the bladder. For folks, whose cancer stays on the inner lining, it's a lifelong challenge. It's a disease, as we all know, that requires lifelong surveillance. It's a disease where there's always a risk of a recurring, and requires really both the physician and patients to always keep their foot on the gas, and keep a close eye on the bladder to make sure that nothing is missed as the years roll on.



Obviously, the reason why we're here is that, sometimes, bladder removal is necessary, and a urinary diversion is necessary. We'll talk about this in detail in a minute, but the biggest challenges of bladder cancer are that, still, many questions in this disease continue to be unanswered. Obviously, the patients, but the physicians as well, realize that much better treatments are urgently needed where, only this last year, have we actually moved the needle with some of the immunotherapy agents coming into the space. Otherwise, as this slide shows, over the last three decades, there's really been very little progress in bladder cancer. The mortality has been, as this SEER data show, absolutely flat, unfortunately.

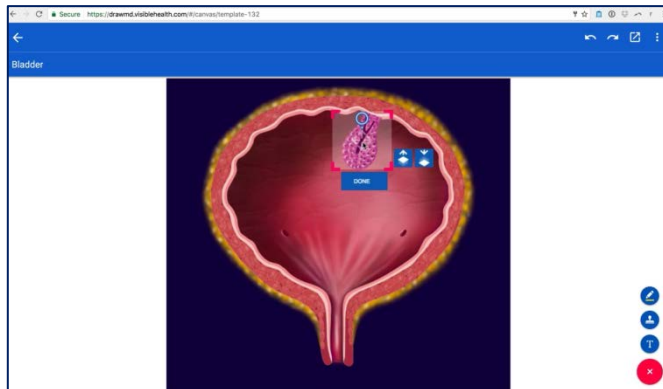
It's the fifth most common cancer, but it receives really a disproportionate small fraction of cancer research funding. I think this is a huge shout out to BCAN. This is such an important organization for both the patients, but also the physicians who treat bladder cancer. This is really a voice for everybody who's involved with this disease to provide support for the patient community, but also to help raise funds for better research, and to answer some of these critical questions that haven't been answered.

I'll walk you through a consultation that a lot of my patients have heard when they get diagnosed with bladder cancer. Off with that, we'll use that as jumping-off points to discuss some of the nuances of urinary diversions, and some of the trade-offs, and decision making, and, again, answering questions that people want answered.

Bladder cancer is a malignancy that really stems from the inner lining of the urinary tract. As we all know, it stems from the urothelium, and these tumors can grow quite large, but there are a couple of descriptors of these tumors that we pay close attention to. One is grade. Under the microscope, what we want to know when we see a patient with a bladder tumor is whether they have a high grade or low grade disease. In the past, there had been three gradings, a grading system that involved one, two and three, but over a decade ago, that was phased out. In modern pathology, it reports this as high or low grade. Obviously, high grade is a bit more risky than low grade.

The other aspect of bladder tumor that is very important is how deep does it go into the wall of the bladder. As you can see this white ribbon right here, that's the lamina propria. Once the tumor invades that area, that tumor is staged as a T1 tumor. That's technically called an invasive tumor. That's a tumor

that's broke in through the lining, the inner lining of the bladder. For T1 patients, they face a set of challenges of their own. Once a patient has a T1 disease, they have to be watched very, very carefully.



For instance, it is an absolute must that if a T1 tumor is identified that the tumor bed is resected because over 25% of the time, there's a residual tumor, but in a large proportion of patients, there's actually tumor that goes deeper than T1. It goes into the muscular. It's penetrating to the muscle of the bladder, and it is obviously very, very important to make sure that that's not missed. Very important, absolute standard of

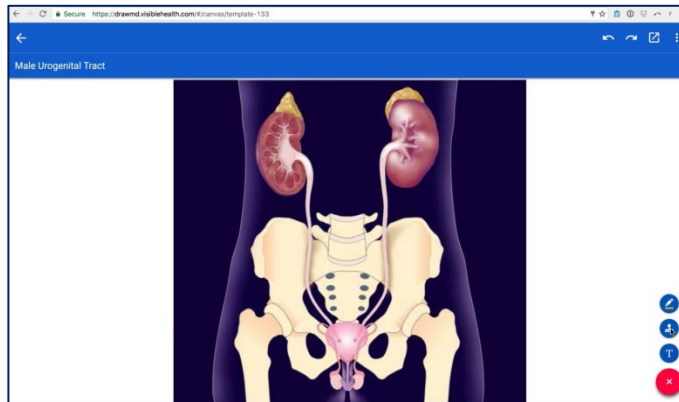
care is if a patient has a T1 tumor for this surgeon to come in again with this resectoscope, which is shown here, to re-resect that tumor.

In patients who have muscle invasive disease, and I'd like to just go here, in patients whose tumors involve the detrusor muscle, the deep muscle of the bladder, bladder removal is recommended. This is beyond the topic of this talk, but most of us strongly recommend neoadjuvant chemotherapy, which means chemotherapy before removal of the bladder.

There's various reasons for that, but the main reason is that for tumors that involve the deeper layers of the bladder, there's a risk that some of the cells have spread beyond the bladder, and have gone into the lymph nodes, or somewhere else, and there is level one evidence, which is the highest evidence we're going to have in medicine that there is a benefit to giving chemotherapy prior to surgery in those patients in order to improve patients' outcomes. At many large centers who treat bladder cancer, we really strongly believe that chemotherapy, when possible, is important to give before bladder cancer surgery.

Now, for patients with smaller tumors for when somebody really believes that their whole tumor was resected, there are some physicians who are advising to go directly to surgery, but still, most of us believe that our staging, the way we can really identify patients whose tumors go deeply, is just imperfect. If we do have muscle invasion, in general, if the patient is healthy, I really strongly recommend that they consider neoadjuvant chemotherapy. Why neoadjuvant? Because bladder cancer surgery is a surgery that is usually associated with quite a lengthy recovery, and sometimes, it's very, very difficult for patients to receive chemotherapy after surgery, which is an adjuvant setting.

I just wanted to talk about the anatomy here because I think it's actually quite confusing. This picture is the image that a lot of us are familiar with from grade school. This is what the internal organs look like. This is the peritoneum. This is the bowel sac. The bladder, and the kidneys, and the ureters, and the lymph nodes of the bladder drains. They live in the retroperitoneum. They live behind the bowel sac. Roughly, it looks like this.

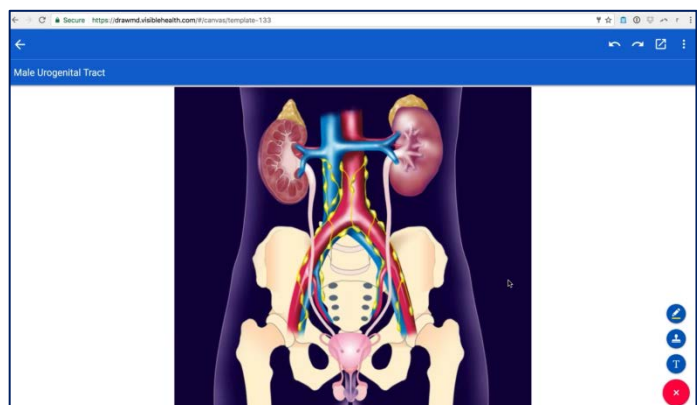


This is a male patient. We'll show this. Then, I'll definitely go through what happens in women patients because I think that it's very difficult to sometimes understand some of the changes in the anatomy, and we'll go through that in a minute, but in male patients, the bladder is removed together with the prostate.

In addition to removal of the bladder, it is important to remove these lymph nodes,

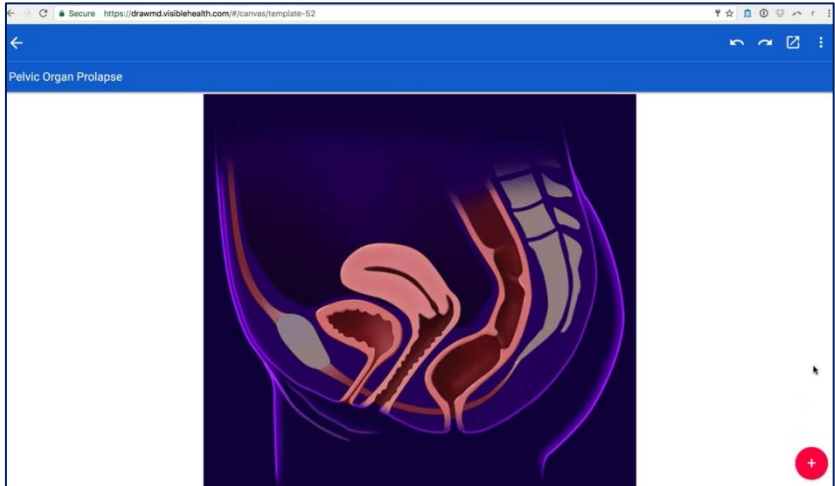
these lymph nodes that live in the retroperitoneum. It's important to do a thorough lymph node dissection because it serves a couple of purposes. It allows one to know exactly where we stand, how advance the disease is, but it's also sometimes therapeutic. In some patients with just a few lymph nodes being involved, we know that some folks are cured by just removing those lymph nodes. The bladder, and the prostate, and the lymph nodes are removed.

Now, when the bladder and the prostate are removed, the ureters, the tubes that run from the kidneys down to the bladder, obviously, needs to be directed somewhere to bring the urine out of the body. We're going to return to this image, but that's the core of the stalk is the urinary diversion, the options that patients have when the bladder needs to be removed. I wanted to be sure that I go through some more details about what this removal looks like.



I'm going to go and show images of a female pelvis to really illustrate some of the anatomy there. In women, the removal of the bladder and the urethra is associated with the removal of the anterior vagina, and the uterus, and the ovaries, and the fallopian tube. Now, a lot of women who come to cystectomy, to bladder surgery, their uterus and ovaries have already been removed in a different point in their life for other reasons, but generally, those organs are removed along with the bladder.

Now, here, this picture shows a plane between the bladder and the anterior, which is the front wall of the vagina, which is right here. In reality, these are very intimately related, and this plane is difficult to develop. Now, especially for younger women, a lot of us do vaginal sparing approaches, but, in general, the anterior vagina, this wall of the vagina is removed along with the bladder. The rest of the vaginal cuff is closed.



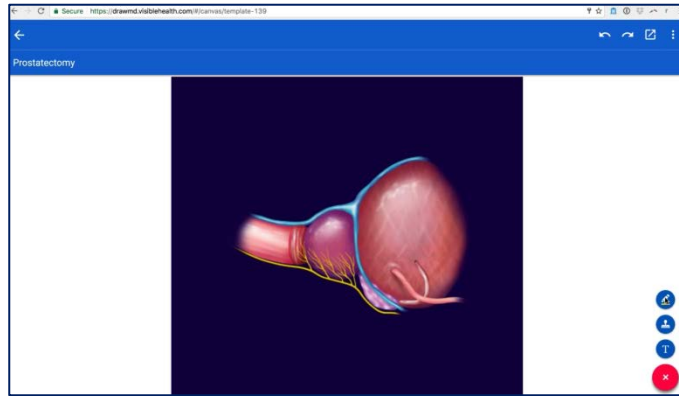
What women need to know, important to understand is that the vagina can be shortened and narrowed in this process, and there can be some dyspareunia or some pain with intercourse after the surgery. That's something to discuss with your surgeon, especially if you hope to be sexually active after cystectomy. It's certainly possible. Many women are

sexually active, but it's something that's important to discuss. Again, for the propagation, there are sparing approaches where you can spare this wall of the vagina, but you got to make sure that there's no bulky tumor in this part of the bladder where you're going to compromise the oncologic outcome here.

I want to go and jump back to the male pelvis, and show some of the anatomy that's related to the male pelvis. I showed you a coronal, which is a picture looking from the front before. This is a picture looking from the side. The feet are this way, and the head is this way. This is the bladder, this is the prostate, and this is the urethra.

Let me just show you this, the rectum. The rectum sits underneath like this, underneath this whole anatomy. This is what we'll call a sagittal view. This is looking from the side. When the bladder is removed, as you can see, the prostate and the bladder are intimately related to each other, and the bladder is removed along with the prostate, along with the seminal vesicles here.

Now, there's a couple of things to show here. I'm going to push a button. Here, the bladder and the prostate were removed. Now, these nerves here, these nerves are nerves that are responsible for innervation of the erectile bodies of the penis, and they're responsible for erection. One thing to understand for men undergoing cystectomy is that this sensation nerve, the nerve that provides sensation to the penis, is not harmed. People still have sensation. The things like an orgasm, that's



actually in one's brain. People can still be intimate, although, generally, erections are severely compromised with the surgery. When we do a prostatectomy and we remove the prostate, we can spare some of these nerves, and that can regain erectile function after prostatectomy.

After cystectomy, it's possible too, and there are certainly techniques to spare nerves, but they're just not as effective because the

nerves basically lay out on the sides of the bladder, and it's much easier to compromise them with this surgery. There are many techniques or many options for men after bladder surgery to regain erection, anything from injections to even a penile prosthesis down the road. One thing to understand is that the sensation nerve is preserved, and people can be intimate after the surgery. Now, this is the urethra. In some men where there's invasion of bladder cancer into the prostate, sometimes, the urethra needs to be removed as well, a little beyond the topic of this talk, but, in general, this is spared.

Now, I'm going to go back to this image here. This is, obviously, a picture of the retroperitoneum of a woman. I'm going to use this to illustrate the urinary diversion options. I'm going to push a button in here. The pelvic structures, including the bladder, were removed. Now, the ureters need to be connected to a urinary diversion in order to get the urine out of the patient's body.

Now, I'm going to go back to this image here. Remember, this is the bowel and the bowel sac. Just to walk you through the gastrointestinal tract, this is the stomach. This is the small bowel. The first part of the small bowel is called the duodenum. Then, this is the small bowel. The last part of the small bowel is called the ileum. The ileum connects to the large bowel, which is the colon. I'm going to talk about this part of the small bowel, which is the ileum, which we use for a lot of our urinary diversions. When we talk about Indiana pouches, I'm going to talk about the colon, and specifically the right colon, which is this portion of the bowel.

