

CAVEAT EMPTOR: RESISTING THE TEMPTATION

My Position on Laparoscopic and Robotic Radical Prostatectomy

by **William J. Catalona, MD**



William J. Catalona, MD ©photo by Cissy Lacks

With the advent of laparoscopic and robotic-assisted laparoscopic surgery, and with the wide-acceptance of laparoscopic gall bladder surgery, the appeal of using the technique in radical prostatectomy has been tempting to patients, with unfortunate results in more patients than with the gold-standard open radical prostatectomy.

I believe treatment of prostate cancer by removal of the prostate with laparoscopic surgery could set back by years the gains that have been achieved in the successful treatment of prostate cancer and will likely cause many patients to lose their opportunity to be cured.

This article explains why I have come to this conclusion and references three recent studies –

from Memorial Sloan Kettering Cancer Center, Harvard University, and Duke University – that compare the results from open nerve-sparing radical prostatectomy and laparoscopic and robotic radical prostatectomy.

I do not believe the robotic or laparoscopic prostatectomy is as safe a cancer operation as open radical prostatectomy.

Also, in my opinion, the robotic prostatectomy (often called the DaVinci) prostatectomy is not as effective as the traditional open prostatectomy for accomplishing the competing goals of complete removal of cancer and preserving potency and continence.

And now, three recent studies from Memorial Sloan Kettering, Harvard, and Duke show the statistical disadvantage of laparoscopic prostatectomy in follow-up on tumor recurrence, urinary incontinence, and patient satisfaction.

I have nothing against laparoscopic (or robotic) surgery for operations well suited to their application. For instance, if I had to have my gallbladder removed, I would want it done laparoscopically. The gallbladder has only an artery, vein and a duct and, in most cases, the operation involves a relatively simple removal of the gall bladder.

Nerve-Sparing Radical Prostatectomy Is More Complicated Surgery

A radical prostatectomy is a far different type of surgery. It involves not only removal of the prostate gland but also reconstruction of the urinary tract. The surgeon must carefully remove the entire prostate gland intact without damaging the adjacent neurovascular bundles that are responsible for producing erections and then reconstruct the bladder and the urethra, without creating scar tissue, so that the urine passes freely but not so freely that the patient is incontinent.

With a radical prostatectomy, the surgeon looks into the pelvis and sees the prostate gland cradled by two neurovascular bundles, one on each side. The surgeon must dissect in the exact proper tissue plane to remove the prostate from between the two neurovascular bundles without

permanently damaging the nerves or cutting into the prostate gland, or worse, leaving part of the prostate gland behind.

Outcomes

Most prostate cancer patients have similar priorities. First, they want to survive. Next they want to remain continent. Third, they want to preserve their potency. These are their main priorities, but they want all three. Urologists call it the "Trifecta". And, of course, men want to achieve it as painlessly and quickly as possible and without unpleasant side effects.

The typical prostate cancer patient today is a man who feels fine. He gets a PSA test or prostate exam and is told that he needs a biopsy. Dutifully, he has the biopsy, and to his utter shock, is told that he has prostate cancer. He doesn't know much about it so he goes to the Internet and perhaps talks to his friends. He reads a bewildering array of information and disinformation and finds that he has a disease for which treatment could leave him incontinent and impotent, and, if he does not have it adequately treated, he could die a very unpleasant death.

The diagnosis turns his world and his family's upside down. It's devastating; nobody who has not gone through it can ever fully appreciate how devastating it is.

Often, after he admits that he needs treatment, he looks for the "Easy Button" and that search leads him to options like the DaVinci prostatectomy (also watchful waiting, cryoablation, or HIFU: high-frequency ultrasound).

Claims Vs. Practice

Enthusiasts of the laparoscopic and robotic procedures claim the "robot" is "less invasive" and has a quicker recovery time.

Usually 6 one-inch incisions are made in laparoscopic (robotic) surgery; while for open surgery, one 4 to 5 inch incision is made that does not enter into the peritoneal cavity. In fact, the laparoscopic procedure is more invasive because the robot has to go through the peritoneal cavity to get to the prostate.

Going through the peritoneal cavity is associated with greater risk at the time of surgery for injury to the bowel, major blood vessels, and the ureters. It also creates a greater risk for later

intestinal obstruction from scar tissue called "adhesions".

The open procedure, now done with a 4 to 5 inch incision has similar recovery time and return to normal activity. This comparison has been demonstrated in published studies from Vanderbilt University and the University of Michigan.

With robotic or laparoscopic surgery, it is not possible to place sutures or hemostatic clips quickly to control bleeding, so in the laparoscopic and robotic procedures, rather than suturing, the prostate gland usually has to be burned out using "harmonic scalpel" or electrocautery. If the heat or electricity gets too close to the neurovascular bundles, it irreversibly "cooks" them and they never recover.

Thus, if the laparoscopic/robotic surgeon dissects too widely, the nerves get "cooked" and if the surgeon "cheats in" to spare the nerves, there is a risk of leaving part of the prostate gland behind or of cutting into the prostate, both resulting in positive (cancerous) surgical margins and therefore possibly leaving cancer behind.

With open surgery, I dissect the prostate gland from the nerves using sharp dissection with a "cold" scalpel and scissors. There is no heat or electrocautery. I can quickly suture or apply hemostatic clips to the bleeders, and the nerves can recover from the surgical trauma induced by handling them and placing sutures in them to control bleeding. These delicate, absorbable sutures later dissolve, allowing the nerves to recover.

In addition, it is more difficult to perform a lymph node dissection with laparoscopic surgery.

Other factors come into play as well. Using a robot, the surgeon has no sense of touch or tactile feedback at all. Dr. Patrick Walsh, of Johns Hopkins, says it's like trying to read Braille with chopsticks.

Also, some surgeries that start out as laparoscopic change, in the middle of the procedure, to open because of complications that can't be handled laparoscopically. The surgeon doing the operation must be trained and experienced in the open procedure for those "just in case" situations and not many surgeons are skilled and "in practice" for both approaches.

Most importantly, the robotic prostatectomy has no track record in terms of long-term cancer control. If small amounts of cancer are left behind, they may not become apparent for years.

Recent Studies

Reports from studies comparing the two procedures are just beginning to be published in medical journals, and they are relatively short-term comparisons because of the only recent development and use of robotics and laparoscopy.

I am referencing information in three important studies from Memorial Sloan Kettering (*Touijer, 2008*), Harvard (*Hu, 2008*), and Duke (*Schroeck, 2008*) in explaining my position.

Harvard Study

The Harvard Study is a comparison of men who underwent prostatectomy with one of the two procedures in the years 2003-2005; so, long term follow-up was not part of the study.

In adjusted analysis, men undergoing minimally invasive versus open radical prostatectomy were less likely to develop perioperative medical complications, such as postoperative fever, (as contrasted with surgical complications). In this study, that is the good news

The bad news is that men undergoing minimally invasive versus open radical prostatectomy had more than 3 times the odds of requiring salvage therapy within 6 months of surgery. Salvage therapy – hormone therapy or external-beam radiotherapy – is recommended for patients who have evidence of cancer recurrence after surgery if PSA levels fail to reach undetectable levels and/or for men with adverse pathology features and/or positive surgical margins.

The statistical result is that men treated with the minimally invasive procedure are three times more likely to be treated for recurrence of their prostate cancer. My concern is that this recurrence is happening because, in the attempting to retain potency and continence, 1. not all the prostate gland is removed or 2. it is cut during the laparoscopic procedure and a positive surgical margin occurs.

Also, men undergoing minimally invasive versus open radical prostatectomy were 40% more likely to develop strictures or scar tissue that negatively impact continence. This complication often requires additional surgery under anesthesia to dilate or incise the scar tissue blocking the urethra, followed by urethral catheterization for a period of time. In addition, it is common for strictures to recur and to require additional procedures

More experienced surgeons in minimally invasive radical prostatectomy have better statistics in these two areas, but as the study pointed out, the rapid adoption of laparoscopic techniques may be creating inadequate training and credentialing of some practicing surgeons. The study reported: "Paradoxically, there is no formal certification process and considerable variation exists among hospitals for attaining minimally invasive radical prostatectomy privileges; surgeons may perform the procedure after completing brief courses lasting two days or less".

The study concluded that additional research is needed to assess the impact of minimally invasive radical prostatectomy on preservation of urinary and sexual function

At the least, I want to emphasize that patients need to know the training and experience of their surgeons if they choose this technique. Of course, I say the same for patients who choose the open procedure. The experience and proven results of the surgeon are the most important considerations in predicting the outcome of the operation.

Memorial Sloan-Kettering Study

The Memorial Sloan-Kettering Cancer Center Study found results similar to those of the Harvard Study.

Laparoscopic radical prostatectomy was associated with less blood loss but, of more concern, those patients also had a higher rate of postoperative emergency room visits, readmissions to the hospital, and further surgery for complications.

In my practice, few patients require blood transfusions from another person. I believe most experienced surgeons would say the same. The idea that readmission rates after surgery were higher is of much more serious consequence.

Also, the study found that patients who underwent laparoscopic radical prostatectomy were less likely to become continent than those treated with radical retropubic prostatectomy. That result is also of more concern than whether or not a patient stayed more days in a hospital.

In a few studies including a small number of patients, potency results appeared similar with both techniques when experienced surgeons performed the operations; however, in general, potency rates have not matched the best potency rates achieved by the most experienced surgeons with open surgery.

In the above instances, it is clear which concerns are medical and quality of life issues and which concerns are financial. And even the financial ones are misleading. Certainly extra days in the hospital are not nearly the cost of emergency visits, readmissions, and treatment for recurrence.

Duke Study

The Duke study compared patient satisfaction and regret following surgery for prostate cancer. Patients who underwent a robotic prostatectomy were more than 4 times more likely to regret their decision. The authors suggested that these patients were more likely to be regretful and dissatisfied because of the higher expectations from an "innovative" procedure.

In commenting on the Duke study in her New York Times blog, Well (August 27, 2008), columnist Sara Parker-Pope commented, "The research ... is the latest to suggest that technological advances in prostate surgery haven't necessarily translated to better results for the men on which it is performed. It also adds to growing concerns that men are being misled about the real risks and benefits of robotic surgical procedures used to treat prostate cancer."

My Position

In sum, I do not believe the laparoscopic or robotic prostatectomy is as safe a cancer operation as open radical prostatectomy, and I do not believe that nerve-sparing can be as readily or safely accomplished.

For patients, the most important outcomes of radical prostatectomy are: Am I cured of my cancer? Am I continent? Can I have erections sufficient for intercourse?

The answers to these questions have been well documented for open prostatectomy with an experienced surgeon, and the results have shown that high-volume surgeons generally achieve better results.

The jury is still out with laparoscopic/robotic prostatectomy. Time will tell but, so far, much of the important evidence is not encouraging.

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