



Surgical Treatment of Prostate Cancer: What to Do?

By Paul Eckrich, MD

Abstract:

Although there is a paucity of prospective studies comparing surgical treatment of prostate cancer to other treatments, surgical treatment is usually recommended for men with a good chance for cure who have ten or more years life expectancy. Proper selection of men undergoing surgery is critical to achieve cures and minimize side effects. Laparoscopic and robotic prostatectomy have become the predominant approach for surgery despite a very slow learning curve, greater expense, and higher dissatisfaction rates compared to more traditional approaches. Outcomes using a laparoscopic or robotic approach are equivalent to open methods only after 250 to 1000 procedures. In this era of increasing medical costs, utilization of robotic and laparoscopic approaches to prostatic cancer surgery needs to be critically examined.

Discussion

The American Cancer Society estimates there will be 192,280 newly diagnosed prostate cancers and 27,360 prostate cancer deaths in the United States in 2009. This makes prostate cancer the most common non-skin cancer and the second-highest cause of cancer deaths in men in the United States. More than one in six men will develop prostate cancer in their lifetime, and one in 35 will die from it.¹

The main goal of radical prostatectomy (RP) is to cure the cancer and prevent death and morbidity from the disease. The fact that many more men will die from concurrent disease than from prostate cancer is well understood, so selection of men who will benefit from surgery is paramount. Preservation of quality of life with regards to side effects is critical, as quality of life can be seriously affected by RP.

All treatments for prostate cancer adversely affect sexual function. Nerve-sparing RP has been shown in age-adjusted studies to have no statistical difference compared to external beam radiation (ERB) or brachytherapy. Sexual function tends to remain stable after RP but can continue to deteriorate after ERB over time.² It remains controversial whether nerve-sparing RP is associated with increased cancer at the surgical margins compared to non-nerve-sparing RP. Some studies show no statistical increased margin rates while others do. In my own personal experience, I have had many individuals who were found to have tumor in the neurovascular bundle without any other evidence of capsular penetration or local spread. Nerve-sparing procedures tend to be most successful in young men with good sexual function prior to the surgery. Preservation of erectile function in older men or in men who have poor pre-operative erections has had limited success at best.

Urinary incontinence has been reported in 14 percent to 18 percent of men undergoing RP, though there is no uniform definition of incontinence.³ Incontinence is worst immediately after surgery and will improve up to one year after the procedure, with severe incontinence commonly reported at less than 5 percent for RP.

RP provides more accurate staging than needle biopsy with the latter understaging up to 30 percent of the time. Patients on active surveillance have a 52 percent to 60 percent chance of initiating treatment within five years and have the risk of disease progression, consequently increasing the potential risk of poorer outcomes. Improved staging with RP identifies patients at higher risk with more advanced disease who will need more aggressive treatment.

There are no prospective studies that definitively show a difference in active treatments. However, at least one study shows survival benefit of RP over watchful waiting.⁴ Retrospective studies have shown radical prostatectomy to have superior ten-year cancer specific survival and superior overall mortality when compared to EBR and hormone deprivation therapy (HDT). Data from the Prostate Strategic Urologic Research Endeavor (CaPSURE) looked at 8,321 men with localized prostate cancer. Survival analysis was adjusted for age, comorbidities and Cancer of the Prostate Risk Assessment score. In the study, 1,466 men died during follow-up, with 261 from prostate cancer with mean time to death at 6.8 years. Compared to RP, the risk of cancer-specific mortality for EBR was almost two times higher and more than three times higher for HDT. These differences were more pronounced with high-risk men. Outcomes for all-cause mortality showed the RP group superior to ERB and HDT.⁵

There is no specific age cut-off for performing RP. Life expectancy of eight years or less shows no advantage with

RP, EBR or brachytherapy. Urologists traditionally have recommended RP when life expectancy is greater than ten years, due to the theoretical risk of recurrence with EBT or brachytherapy. However, long-term data is lacking.

Although there is a paucity of long-term prospective studies comparing different treatment modalities, most urologists believe that surgical removal of the prostate affords the best survival in men who have ten or more years of life expectancy. Recent trends have shifted toward “minimally invasive” laparoscopic or robotic methods (LP) from the traditional radical retropubic prostatectomy (RRP) and lesser performed radical perineal prostatectomy (RPP). Up to 85 percent of radical prostatectomies are estimated to be done using minimally invasive approaches.

One assumes that with such a significant shift in surgical approaches, there must be significant benefits in survival, side effects or cost. Data comparing the three approaches shows that in experienced hands, LP is at best equivalent and does not provide improved outcomes in cures or complications and does so at increased cost.⁶⁻⁹ There is also a steep learning curve, requiring at least 250 and up to 1,000 cases before the curve levels off.^{10,11} Intuitive Surgical, who markets robotic systems, requires a physician to have done only 20 cases in order to proctor other physicians learning this approach. It has been suggested that this is far from ideal for ensuring trainee competency.¹²

The radical perineal prostatectomy was first described by Hugh Hampton Young in 1905. It is also currently the least performed approach, having fallen out of favor with the utilization of pelvic lymph node dissection, which favors the retropubic or LP approach.

Pelvic lymphadenectomy should be performed in men at high risk for nodal disease and has been shown to offer a survival benefit.¹³ Whether pelvic lymph node dissection in men with low risk has benefit remains controversial. Lymph node dissection is associated with increased cost and risks of lymphocele formation, deep venous thrombosis, scrotal and distal extremity edema. Omitting pelvic lymphadenectomy has been suggested in patients with a less than 3 percent to 5 percent chance of nodal disease.¹⁴ With the trend toward lower stage/grade cancers, the majority of men presenting with prostate cancer would not need pelvic lymph node dissection, eliminating that disadvantage of the RPP.

RPP has equivalent outcomes and complications to RRP and LP. RPP has the advantages of a minimally invasive procedure with respect to blood loss, complications, hospitalization and time to full activity. It does it at substantially less cost than LP.^{9,15-18} This difference is even more pronounced if one factors in the cost of pelvic lymphadenectomy.

In this era of increasing costs and the need for cost containment, utilization of limited resources must be critically examined. Assuming equivalence in outcomes and complications of the various surgical approaches, we must be sure we are getting the most for our health care dollar. LP has at best equivalent outcomes to RRP and RPP at significantly higher costs and has 4.4 times the dissatisfaction rate of RRP.¹⁹ LP also has a very steep learning curve. LP

still does not have improved outcomes when the learning curve has been met. Can we financially justify LP over the more traditional approaches?

In determining who will benefit from any surgical approach and which approach to use, one must consider the plethora of incomplete and conflicting data. Until better served, we must practice the art more so than the science of medicine.

REFERENCES

1. Jemal A, Siegel R, Ward E. Cancer Statistics 2009. *A Cancer Journal for Clinicians*. 2009; 59(4):225-227.
2. Miller DC, et al. Long-term outcomes among localized prostate cancer survivors: Health related quality of life changed after radical prostatectomy, extreme radiation and brachytherapy. *The Journal of Clinical Oncology*. 2005;23:2772-2780.
3. Penson DF, et al. Prostate Cancer: Epidemiology and health related quality of life. *Urology* 2008; 72:S3-S11
4. Bill-Axelsson A, et al. Radical prostatectomy vs watchful waiting in localized prostate cancer: The Scandinavian Prostate Cancer Group – 4 randomized trial. *J Natl Cancer Inst*. 2008; 100: 1144-1154.
5. Cooperberg M, Vickers A, Broeing J, Carroll P. Prostate cancer mortality outcomes following surgery, radiation therapy, or androgen deprivation therapy for prostate cancer: A risk adjusted analysis of a large, multicenter cohort. *The Journal of Urology*. 2009;181(4):455.
6. Lepor H. Status of radical prostatectomy in 2009: Is there medical evidence to justify the Robotic Approach. *Reviews in Urology*. 2009;11(2):61-70.
7. Hu J, et al. Comparative effectiveness of minimally invasive vs open radical prostatectomy. *Jama*. 2009;302(14):1557-1564.
8. Dahl D, et al. A prospective study of symptom distress and return to base line function after open vs laparoscopic radical prostatectomy. *Journal of Urology*. 2009;182(3):956-965.
9. Mouraviev V, et al. Financial comparative analogs of minimally invasive surgery to open surgery for localized prostate cancer: A single institution experience. *Urology*. 2007;69(2):311-314.
10. Herrell SD, et al. Robotic assisted laparoscopic prostatectomy: What is the learning curve? *Urology*. 2005;66(5):105-107.
11. Vickers AJ, et al. The surgical learning curve for laparoscopic radical prostatectomy: a retrospective cohort study. *Lancet Oncology*. 2009;10:475.
12. Zorn KC. Training, credentialing, proctoring and medical legal risks of robotic urological surgery: Recommendations of the Society of Urological Robotic Surgeons. *Journal of Urology*. 2009;182(3):1126-1132
13. Wasper M, et al. The role of pelvic lymphadenectomy for prostate cancer – therapeutic? *The Journal of Urology*. 2008;179(2):408-413.
14. Meng M, et al. When is pelvic lymph node dissection necessary before Radical Prostatectomy? A decision analyzed. *The Journal of Urology*. 2000;164(4):1235.
15. Hu J, et al. Patterns of care for radical prostatectomy in the United States from 2003 to 2005. *Journal of Urology*. 2008;180:1969-1974.
16. May M, et al. Radical retropubic vs radical perineal prostatectomy: A comparison of relative benefits in four urban hospitals. *Urological Nursing*. 2007;27(6):519-527.
17. Boczek J, et al. Radical perineal prostatectomy in obese patients. *Urology*. 2003;9:467-469.
18. Harris M. Radical perineal prostatectomy: Cost-efficient, outcome effective, minimally invasive prostate cancer management. *European Urology*. 2003;44:303-308.
19. Schroek FR, et al. Satisfaction and regret after open retropubic or robot-assisted laparoscopic radical prostatectomy. *European Urology*. 2008;54:785.



Donald Habbe, MD
 James Frost, MD
 Victoria Herr, MD
 Jeffrey Schleusener, MD
 Susan Eliason, MD
 Kimberly Goble, MD

Anatomic & Clinical Pathology | Cytopathology | Hematopathology | Dermatopathology | Forensic Pathology

2805 5th Street, PO Box 238
 Rapid City, SD 57709-0238
 (605) 343-2267 | (877) 254-6522 | www.clinlab.com

Serving the Black Hills Region for over 40 years!