

Minimally Invasive Surgery for Prostate Cancer: A new approach from the Old World

Laparoscopic radical prostatectomy offers cancer cure with rapid recovery



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Prostate cancer is the most common cancer affecting American males and the second most frequent cause of cancer-related deaths in males. In 2007, an estimated 2,140 cases of prostate cancer will be diagnosed in Iowa, which comprises almost 15% of all cancer cases in the state. Prostate cancer will result in 350 deaths in Iowa in 2007¹. Annual screening for prostate cancer with a digital rectal exam and serum PSA is recommended for men in good health (life expectancy greater than 10 years) aged 50 to 75 years².

There is strong evidence that early detection and treatment of localized prostate cancer leads to a reduced risk of mortality in men aged 50 to 65 years. Men aged 65 to 75 years with a life expectancy greater than 10 years also benefit from early detection and treatment of localized prostate cancer although to a lesser degree^{3,4}.

Several options are available for the treatment of localized prostate cancer ranging from radiotherapy to radical prostatectomy. In choosing a course of action, men diagnosed with prostate cancer must consider the rate of cancer-free survival, the potential complications, and the quality of life following each treatment option. Radical retropubic prostatectomy (RRP) has been widely accepted as the “gold standard” for the treatment of organ-confined prostate cancer against which all other treatments are measured⁵. While RRP offers patients a high rate of cure, it can also carry significant short and long-term morbidity including urinary incontinence and erectile dysfunction. Concern over patient satisfaction and quality of life has driven the development of minimally invasive surgery for prostate cancer⁶.

The first laparoscopic radical prostatectomy (LRP) was performed in 1997 by Schuessler et al but was felt to offer no advantage over open surgery (RRP)⁷. Later that year, Drs. Guillonneau, Vallancien, and Gaston completed several LRP's successfully⁸. This group's results were superior to the results obtained during prior attempts at LRP. They were encouraged by their early successes and went on to standardize their technique. Since then LRP has been widely performed in Europe, and multiple publications have demonstrated decreased blood loss (<1% require a blood transfusion), minimal pain (with patients often requiring no post-operative IV narcotic analgesia), resumption of usual activities within days, and quick return of urinary continence and erections (often within weeks)^{8,9}. Pathologic outcomes (rate of positive margins) and short-term cancer-free survival

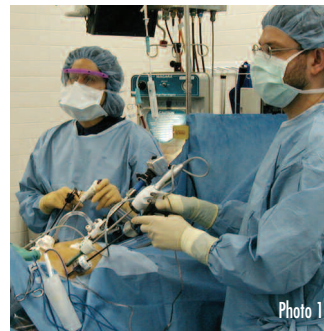
appears to be equivalent between RRP and LRP with 91.5% of patients having an undetectable PSA at 28 months^{10,11}.

Few urologists in the United States have mastered this difficult technique. Those that have can be found at centers of excellence for urologic care. These include Memorial Sloan Kettering Cancer Center, Johns Hopkins Health System, Massachusetts General Hospital, The Lahey Clinic, The Cleveland Clinic, and Washington University in St. Louis. LRP has been available at The Iowa Clinic for the last 2 years. 30 procedures have been performed to date in Des Moines and results have been comparable to those published by major European centers and also the U.S. centers mentioned above. Results of LRP at The Iowa Clinic Department of Urology are available upon request from the author.

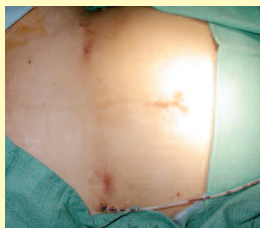
Laparoscopic radical prostatectomy can be performed at any hospital with the capability to perform basic laparoscopic procedures, such as laparoscopic cholecystectomy. Three 5mm trocars and two 10mm trocars are used to remove the prostate gland using standard laparoscopic instruments (see photo 1)¹². An (open) radical retropubic prostatectomy, by comparison, is performed through a 6"-8" muscle-splitting midline infraumbilical incision. The gentle tissue handling and magnification afforded by the laparoscopic technique allows exact dissection of the prostate gland, sparing of the nerves to the erectile bodies of the penis, and creation of a water-tight anastomosis of the urethra to the bladder neck (see photo 2). Advantages of this approach are reviewed in Table 1.

LRP differs from “Robotic/DaVinci™” prostatectomy in which the urologist/operator relies on a very costly computer telemanipulator to perform advanced laparoscopic surgery¹³.

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Post-operative appearance after LRP. The patient was discharged within 24 hours after the procedure and required no IV narcotic pain medication. The small drain seen here was removed before the patient left the hospital.



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Most patients with organ-confined prostate cancer are candidates for laparoscopic radical prostatectomy. However, morbid obesity, massively enlarged prostates and previous pelvic surgery or radiation as well as increased intracranial pressure or history of intracranial bleeding are contraindications.

In conclusion, prostate cancer will affect 1 in 6 men during their lifetime. Laparoscopic radical prostatectomy has emerged as a viable alternative to radical retropubic prostatectomy for the treatment of organ-confined prostate cancer. LRP is not only oncologically effective but offers less morbidity than RRP with a shorter convalescence, markedly decreased blood loss, and a rapid return to preoperative urinary and sexual function.

Table 1 Advantages of Laparoscopic Radical Prostatectomy

Hospital stay < 24 hours	Very small cosmetic incisions
Minimal postoperative pain (usually no IV narcotics needed)	Return of erections within weeks to months for the majority of patients
Decreased catheterization time (7 days vs. 2-3 weeks with open prostatectomy)	Cancer-free survival rates equivalent to "gold standard" open prostatectomy at 2 years
Return to full activity in 3 weeks	Low rate of complications
Return of urinary continence within weeks to months for almost all patients	Rate of blood transfusion <1% (5-10% for open prostatectomy)

For more information about Minimally Invasive Surgery for Prostate Cancer, please call our office at 515-244-8000.

Works Cited

¹2007 Statistics. American Cancer Society. Website

²The Iowa Prostate Cancer Consensus: Screening and management in men ≥ 75 years of age. Pamphlet. 2006

³Wang, Y. et al: Survival associated with treatment vs observation of localized prostate cancer in elderly men. JAMA, 296: 2683, 2007

⁴Bill-Axelsson, A. et al: Radical prostatectomy versus watchful waiting in early prostate cancer. N Engl J Med. 352: 1977, 2005

⁵Walsh, P.C., Lepor, H. and Eggleston, J.C.: Radical prostatectomy with preservation of sexual function: anatomical and pathological considerations. Prostate 4: 473, 1983

⁶Trabulsi, E.J. and Guillonau, B.: Laparoscopic radical prostatectomy. J Urol, 173: 1072, 2005

⁷Schuessler, W.W., Schulam, P.G., Clayman, R.V. et al: Laparoscopic radical prostatectomy: initial short term experience. Urology, 50: 854, 1997

⁸Guillonau, B. and Vallancien, G.: Laparoscopic radical prostatectomy: the Mantesouris experience. J Urol, 163: 418, 2000

⁹Touijer, K. and Guillonau, B.: Laparoscopic radical prostatectomy: a critical analysis of surgical quality. Eur Urol, 49: 625, 2006

¹⁰Dahl, D.M., Wenlei, H., Lazarus, R. et al: Pathologic outcome of laparoscopic and open radical prostatectomy. Urology, 68: 1253, 2006

¹¹Lein, M., Sibone, I., Mansour, R. et al: Complications, urinary continence, and oncologic outcome of 1000 laparoscopic transperitoneal radical prostatectomies-experience at Charite Hospital Berlin, Campus Mitte. Eur Urol, 50: 1278, 2006

¹²Rozet, F., Galliano, M., Cathelineau, X. et al: Extraperitoneal laparoscopic radical prostatectomy: a prospective evaluation of 600 cases. J Urol, 174: 908, 2005

¹³Guillonau, B.D.: Laparoscopic versus robotic radical prostatectomy. Natur Clin Prac Uro, 2: 60, 2005