Point: Open Radical Prostatectomy Should Not Be Abandoned

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Morbidity

Decreased perioperative morbidity and a more precise technique are the most common reasons given to promote the robotic technique. However, although some differences in morbidity are real, some are perceptions of laparoscopic surgeons with little open prostatectomy experience. The authors believe that recovery is faster with the robotic approach; however, proponents often overstate the morbidity advantages. This is partly because significant recent improvements in open prostatectomy surgical technique, including smaller incisions and better pain management, have resulted in improved recovery.

In only a few years, robot-assisted laparoscopic radical prostatectomy (RALRP) has become a popular way to treat prostate cancer. Although the procedure has some advantages, the associated hype has caused the procedure to take on a life of its own. Although one of the authors has a practice consisting primarily of robotic prostatectomy, this article reviews the procedure objectively and highlights some situations in which traditional open radical retropubic prostatectomy (RRP) may have a treatment advantage. Much of this manuscript is based on the authors’ experience with both procedures.

Key Words

Robotic-assisted laparoscopic radical prostatectomy, prostatectomy, open radical retropubic prostatectomy, lymphadenectomy

Abstract

Robotic-assisted laparoscopic radical prostatectomy is now one of the most common ways to treat prostate cancer. Although it is undoubtedly an outstanding procedure, in many contexts the advantages of the laparoscopic approach are overstated. The authors believe that open radical prostatectomy will continue to have an important role. For example, an extensive lymphadenectomy is more easily accomplished with the open technique and may be important in staging and possibly curing patients at high risk for prostate cancer. Also, tactile sensation is a valuable asset in assessing the extent of local tumor, and this cannot yet be replicated with a robotic approach. Furthermore, obese patients, those with a history of extensive prior surgical procedures, and men with extremely large prostates may experience advantages with the open technique. Finally, the open approach has a significant advantage in terms of hospital costs. (JNCCN 2007;5:685–688)
Experts claim that long-term side effects of incontinence and impotence are decreased with the robotic approach because of improved visibility and a refined technique. However, the use of surgical loupes, which are now worn by many surgeons performing RRP, negates part of the magnification advantage. The approach to sparing the cavernosal nerves is different from the laparoscopic approach, but no data suggest that one approach is superior. The authors’ believe that the ultimate result with nerve sparing depends more on the surgeon than the tools.

The authors’ unpublished series seems to show no difference in continence and potency rates between the open and robotic approaches.

Furthermore, no reason exists to believe that continence should be better with the laparoscopic approach. Although the running anastomosis of the robotic procedure is touted as being watertight, the authors’ experience shows that most open anastomoses performed with 6 interrupted sutures are also watertight. In our opinion, technically, the evolved open techniques of a tennis racquet bladder neck reconstruction and mucosal eversion are rarely incorporated into the robotic technique. The authors believe these techniques should also be applied in robotic surgery.

Finally, debate continues about the length of indwelling catheterization. The authors remove catheters at the same time (day 8 or 9) whether the patient underwent an open or laparoscopic approach. The major downside of earlier catheter removal is an increased risk for urinary retention caused by postoperative edema.

In summary, the authors believe that the true advantages of the robotic approach are decreased blood loss with a higher postoperative hematocrit, a 1-day reduction in hospital stay, and a 1- to 2-week improvement in recovery. Potency and continence are not improved.

**Intraoperative Flexibility**

The authors believe that certain circumstances exist in which open prostatectomy should be the preferred procedure, for example, when a more extensive lymphadenectomy is needed. Accumulating evidence suggests that a more extensive lymphadenectomy is important for staging and possibly curing high-risk patients, such as those with very high prostate-specific antigen (PSA) levels (> 20 ng/mL) or high-volume high-grade disease with significant probability of nodal metastases. Dissecting lymph nodes from behind the hypogastric vein is certainly easier using the open approach. Accessing the nonobturator regions, such as the presacral region and paravesical regions, is also easier. Access to these areas is limited laparoscopically because of the cephalocaudal orientation of the robotic instruments and camera.

Tactile sensation is another advantage of the open approach, and this factor could certainly be operative in the lymphadenectomy (e.g., feeling for suspicious lymph nodes in areas remote from the classical pelvic lymphadenectomy). Tactile sensation is also important in patients at intermediate risk for extracapsular disease because of tumor parameters or the presence of a prostate nodule. In these cases, the decision for nerve sparing is often made intraoperatively based on palpation of the prostate in the region of the neurovascular bundles. Because of a precise knowledge of the location of the palpable disease, using the robotic approach the authors were able to safely spare the nerves of many patients that would not have otherwise been saved.

Another potency-preserving technique is that of sural nerve grafting. The authors commonly use the CaverMap nerve stimulator to localize the cavernosal nerves during this procedure. A similar nerve stimulator is not currently available for the laparoscopic approach. Robotic nerve graft placement relies solely on visually identifying the neurovascular bundle. Because the cavernosal nerve is actually a plexus of nerves, the authors believe that identifying the most nerve branches with the greatest stimulatory effect of the cavernosal tissue is important in placing the graft. However, the efficacy of sural nerve grafting is still debated.

In the authors’ experience, removing prostates over 100 cm³ in size can be challenging with the robotic technique. The large prostate is difficult to retract anteriorly in the limited space of the deep pelvis using the laparoscopic approach. The open technique allows greater force to be applied when retracting the prostate posteriorly and laterally. Although large prostates can be removed robotically, the authors believe the procedure is much easier to perform in an open fashion.

Patients who have undergone extensive prior intra-abdominal procedures can be challenging laparoscopically because of adhesions and scar formation, but limited prior procedures, such as cholecystectomies and appendectomies, are generally not an issue.
Extensive fibrosis from inflammatory processes, such as diverticulitis, ruptured appendix, or inflammatory bowel disease, can also increase the difficulty of surgery. For all of these cases, the flexibility associated with the open technique makes it the authors’ preferred procedure.

Finally, the authors believe that the open technique can be significantly easier than the robotic technique in treating obese patients. The incision can be extended for better visibility, and significant fat can be held out of the field with a sponge stick or hand. Robotic instruments are somewhat finer than open instruments and thus less amenable to manipulation of fat in obese patients. In particular, fatty lymph nodes are easier to remove through an open procedure than laparoscopically.

Cost
Many groups have evaluated the costs of open versus robotic surgery.\(^9,10\) The cost of a robotic system exceeds $1 million, with a maintenance contract of approximately $100,000. The industry has presented business models in which these costs are amortized over 200 to 300 procedures annually. However, very few hospitals are performing 300 open radical prostatectomies per year, and common sense would indicate that few hospitals will perform 300 RALRPs. In addition, disposables cost more than $1000 per case. Operating room time is at least as long for the robotic approach. The only possible cost savings are in a decreased hospital stay of approximately 1 day. Scales et al.\(^10\) estimated that more than 10 cases per week or 500 cases per year would need to be performed to reach a point where robotic prostatectomy was competitive with open prostatectomy from a hospital economic standpoint.

From a patient and employer standpoint, these excess costs may be justified by a more rapid return to normal activity and work. However, lost wages and productivity are generally of no concern from a health insurance company standpoint.

Training Issues
Finally, the authors believe that training issues will keep traditional open RRP in practice. According to the American Board of Urology, the average urologic surgeon seeking board certification performs 3 radical prostatectomies per year. Eight radical prostatectomies per year would place the surgeon in the top 10 percent by volume.\(^11\) To become proficient at the laparoscopic approach, most experts suggest that at least 50 procedures are required.\(^12,13\) Therefore, most urologists in the United States will not become proficient at this procedure.

Furthermore, even if physicians are trained, they may have difficulty sustaining an adequate case volume to maintain competency. In robotic surgery, the surgeon is not scrubbed into the procedure, but stands at a console in the corner of the room. This setup increases the importance of having a skilled assistant compared with the open approach. Staff training is important, because the role of nurses in the robotic setup is much different from other surgical procedures. The authors believe the future will include a few surgeons at major medical centers performing most of the RALRPs in this country, with several urologists still performing open radical prostatectomy, because it is the only approach to the disease they know.

Continued practice of open radical prostatectomy seems to be of value in training residents. Although this may change in the future as the robotic technique evolves, a clear need currently exists to continue training residents to be comfortable and competent with the open approach to prostate cancer surgery.

Finally, there is the issue of cancer control. The robotic procedure is relatively new. A great deal of data now being acquired will need to be intensely scrutinized as it matures. Ideally, randomized trials in which RALP and RRP could be compared would be performed, but such a trial will probably never take place, at least in the United States. Unfortunately, researchers will be left to compare series from centers of excellence and will need to glean from these whether unmatched series with 10-year follow-up information appear to provide similar long-term disease-free survival.

In short, although RALRP is a valuable advance in the treatment of prostate cancer, open radical prostatectomy remains an important part of the urologic surgical armamentarium. The authors believe that many situations exist in which the open procedure would be preferred. Therefore, training in this technique should continue.

References
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