Robotic-Assisted Radical Prostatectomy: Who Is Benefiting?

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How should oncologists advise patients about the best surgical approach to use to treat their prostate cancer? Quite simply, it is the surgeon, not the approach. The self-fulfilling prophecy about surgery is that the best surgeons tend to do the most surgeries, so an easy metric is volume.

The first robotic-assisted laparoscopic radical prostatectomy (RALP) was performed in 2001, and in less than 10 years it has been claimed that 80% of all radical prostatectomies are performed using this approach. How did this happen? There are, I believe, two reasons. First, there is only one commercially available robotic system, developed and manufactured by one company, Intuitive Surgical, which enjoys (and exploits) this pure monopoly. Intuitive not only sets the price for the robot itself, but it is also the sole source of service and replacement equipment. To recapitalize the large, upfront expense and offset the cost of the annual service contract, hospitals and surgeons embarked on unprecedented marketing campaigns, often described as “unseemly.” Men with prostate cancer were told about this wonderful new device that would do a better job of curing their cancer, and leave them closer to their baseline continence and sexual functioning, all with less pain, less risk of complications, and quicker recovery.[1] Fear of being left behind rapidly drove those without robots to purchase them and join the promotional bandwagon: physician and institutional web sites linked directly to Intuitive’s high-quality surgical animations and testimonials, touting results as if they were as reproducible as going to Jiffy-Lube. Surgeons offering only open radical prostatectomy (ORP) quickly saw the threat to their practices and faced a choice: adopt the robotic approach or stop doing prostatectomies. The oft-quoted “no one switches back to open surgery after learning the robotic approach” is largely true because in most regions open surgeons can’t compete.

One potential benefit of competition is the elimination of low-volume surgery and the centralization of excellence. Although this has occurred with RALP, it is in conflict with a market seeking to sell as many devices as possible. In this business model, fear of technical inadequacy is the central tenet. Using logic akin to that of state lottery systems (“you have to play to win”), hospitals feel forced to buy robots to attract patients—but then, to cover costs, they must attract patients in numbers that will never be attained. Even at a high-volume academic hospital like mine, RALP is performed at a loss of $4,013 per case.[2] Given the number of robots and robotic surgeons, the number of prostate cancers necessary for all these physicians to become competent, let alone excellent, surgeons is far greater than the number of prostate cancers available. Despite the growing evidence for active surveillance in the initial management of low-risk prostate cancer, there has been an increase in the use of RALP—most strikingly in the elderly—in pursuit of the numbers.[3] Second, radical prostatectomy by any approach is among the most difficult operations to master: wide variability in outcomes is one of its distinguishing features. The promise that a new approach, the robot, will produce both better and less variable results has been appealing. Unfortunately, the robot has not delivered. While it is easy to remove a malignancy in which margins of normal intervening tissues are abundant, there is no such real estate in the male pelvis. As a result, positive margin rates with radical prostatectomy have ranged from 10% to 50%—a 5-fold difference in an oncologic outcome.[4] Most prostate cancer recurrences occur more than 2 years after surgery, underscoring the meaninglessness of the “trifecta” at 1 year. This latency of disease failure allows surgeons who regularly leave disease behind to do so without knowing it for years; it also allows them to claim equivalent or superior cancer outcomes with the new approach when follow-up is limited. Remarkably, surgeons performing RALP knowingly leave disease behind all the time: pelvic lymph node dissections are performed five times less frequently by robotic surgeons than by those using an open approach, and this difference is independent of risk stratification.[5] The promise of RALP to provide improved continence and potency has not been realized. In a survey of a random sample of Medicare recipients (with an astounding 86% response rate—they obviously had something to say), a third of both ORP and RALP patients said they were experiencing a
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 moderate to big problem with continence, and nearly 90% of both groups of patients reported
difficulty with sexual function.[6] Although sexual problems were deemed equally bad by both ORP
and RALP patients, there was a nonsignificant trend toward worse continence outcomes with RALP
(odds ratio, 1.41; 95% confidence interval [CI], 0.97–2.05). One of the great disappointments of RALP
has been the inability to leverage its alleged technical advances—of improved magnification,
reduction of tremor, and reduced blood loss—into better oncologic or functional outcomes.
Why do I still only perform ORP? The goal of surgery is to cure prostate cancer: in my hands, ORP is
much better than any published result for RALP. In a cohort of 2391 ORP patients from my practice
(932 at risk at 60 months), the biochemical recurrence–free survival rate at 5 years was 93.3% (95%
CI, 92.0–94.6). Contrast these results with an 84% 5-year actuarial biochemical recurrence–free
survival in 2766 RALP patients from the center that pioneered the robotic technique; in the words of
the authors reporting the statistics, “these interim results are unexpectedly low.”[7] For me to
change from ORP to RALP to maintain a practice has not only been unnecessary, it would be
unethical.

How should oncologists advise patients about the best surgical approach to use to treat their
prostate cancer? Quite simply, it is the surgeon, not the approach. The self-fulfilling prophecy about
surgery is that the best surgeons tend to do the most surgeries, so an easy metric is volume. In
major metropolitan areas, the bar should be at least 100 cases per year or a life-time experience of
more than 1000. Things that are measured invariably improve: surgeons should be able to quote
their own statistics and very specifically. In addition, these factors must be considered together with
surgeons’ roles as oncologic caregivers: surgery occurs in a day; cancer survivorship occurs for the
balance of a lifetime. The ideal surgeon is not only technically gifted and busy, but sees his or her
own patients in follow-up, and can provide meaningful postoperative guidance and care based on an
up-to-date understanding of local and systemic adjuvant prostate cancer treatments. Surgeons
should manage the disease, not a device.

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versus open retropubic radical prostatectomy among a nationwide random sample of Medicare-age


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