

# Contemporary Referral Pattern for Robotic Prostatectomy

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## ABSTRACT

**Background and Objectives:** In spite of the current widespread application of robotic surgery in the treatment of prostate cancer, it remains unclear whether current patterns of use are based on patient benefit or driven by marketing. We sought to investigate this possibility by analyzing the source of our patient population for robot-assisted laparoscopic prostatectomy (RALP).

**Methods:** We reviewed 200 consecutive patients who underwent robotic prostatectomy by a single surgeon (RA) at our institution. The source of referral for each patient was analyzed along with individual patient characteristics to identify whether only low-risk or unusually ideal candidates were referred.

**Results:** Of the 200 patients, 90.5% were referred by a urologist with only 5.5% being referred by another urologist at our institution. Only 10 patients cited media or marketing sources as the reason for self-referral, and <10 were referred by primary care physicians or other acquaintances. This referral pattern did not change between the first and second 100 patients. Referred patients included those up to 80 years of age, up to 51kg/m<sup>2</sup> in body mass index, and up to Gleason 9 on biopsy, with 36% of those referred by urologists having some history of previous abdominal or prostate surgery.

**Conclusion:** The referral pattern for RALP at our institution may reflect a growing acceptance of robotic surgery among urologists in our region and is unlikely driven by patient-directed marketing. Additionally, urologists may also be more confident in the role of RALP as evidenced by their referral of even complex and higher-risk patients.

**Key Words:** Prostate cancer, Robotic-assisted laparoscopic prostatectomy, Motivating influences.

## INTRODUCTION

Prostate cancer is the second most common solid organ malignancy in American men. It is estimated that 192 280 men will be diagnosed with and 27 360 men will die of prostate cancer in 2009.<sup>1</sup> Increased awareness and screening has led to early detection of low-stage and low-volume disease in young, healthy men who are candidates for prostatectomy.<sup>2</sup>

With technological advances in treating prostate cancer, minimally invasive treatment options have become available, including brachytherapy, external beam radiotherapy, high-intensity focused ultrasound (HIFU), and cryotherapy.<sup>1,3</sup> Nevertheless, radical prostatectomy is still considered the gold standard for the treatment of localized prostate cancer.<sup>4</sup> Laparoscopic and robot-assisted laparoscopic prostatectomy (RALP) have been promoted as less invasive with potentially less pain and quicker recovery.<sup>1,5</sup> Regardless of the therapeutic approach, the primary objective in the treatment of prostate cancer is cure, with the secondary aim of delivering the treatment with minimal morbidity.<sup>6</sup>

Since FDA approval of the da Vinci robotic surgical system in 2000, the number of RALP procedures performed in the United States has continued to climb, with approximately 80 000 performed in 2008.<sup>7</sup> As with any new technology, purveyors of a new instrument or device develop an associated marketing strategy to accelerate adoption. Within 3 years of the first report of RALP in 2000, series including hundreds of patients appeared in the literature, reflecting individual institution's ability to regionalize care for prostate cancer by offering robotic surgery.<sup>8</sup> Many institutions have reported significant benefits of RALP over open surgery in the form of minimal morbidity, faster recovery, and in some cases better oncologic and functional outcomes.<sup>7,8</sup>

During the initial adoption of robotic surgery, challenges, such as the robotic learning curve, technical challenges

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and mechanical failures, were faced. These factors added to doubts regarding potential advantages of the robotic approach over the traditional open surgical approach. Since then, many of these stumbling blocks have been negotiated as the pioneers have perfected their techniques and passed along their refinements to a new generation of robotic surgeons emerging from their training programs already facile with robotics.

It remains difficult to assess whether current practice patterns for treating prostate cancer are evidence-based or driven by marketing. Many still feel and fear that marketing continues to fuel the adoption of robotic technology. Additionally, some have challenged the reported results of RALP by asserting that it has been inequitably applied to an "ideal" patient base with minimal disease and/or favorable prostate and abdominal anatomy, thereby biasing results in favor of RALP over those for whom only open surgery was offered.

We sought to assess acceptance of robotic technology among urologists in our community by analysis of the source of our patient population for RALP. We also analyzed preoperative patient characteristics to determine whether patients presenting for RALP were of an ideal patient base unrepresentative of the typical prostate cancer population.

## MATERIALS AND METHODS

We reviewed 200 consecutive patients who underwent robotic-assisted laparoscopic prostatectomy at The James Cancer Hospital between February and October of 2008 performed by a single surgeon (RA) whose practice is dedicated solely to robotic urologic surgery. The source of referral was recorded during scheduling for the initial office visit and by patient-reported questionnaire and kept in a deidentified, prospective database. Patients were specifically asked to report whether their presentation for RALP was due to a newspaper, radio, or magazine advertisement or article, information found on the Internet, referral by a family member or friend including previous patients, or referral by another physician (with specification of the physician). Preoperative patient characteristics including demographic data, history of previous abdominal surgery, PSA, and biopsy pathology were also recorded prospectively as was postoperative pathology.

## RESULTS

Of 200 consecutive patients, 181 were referred by their diagnosing urologist (90.5%). Of these, only 11 patients

were diagnosed and referred by urologists at the same institution as the RALP surgeon. Only 10 patients (5%) cited any media source as the reason for presentation for RALP, and only 3 patients (1.5%) were referred by their primary care physician rather than their urologist. The remaining 6 patients (3%) indicated that they were referred by a family member or friend. When comparing the first 100 patients in the group with the second 100, no difference was found in the proportion of referrals from each source (90 vs. 91 by urologist, 5 vs. 5 by media, 2 vs. 1 by primary care physician, and 3 vs. 3 by family/friend).

The mean patient age was 60.5 years (range, 41 to 80) with mean body mass index (BMI) of 30kg/m<sup>2</sup> (range, 19 to 51). The median preoperative Gleason score was 7 (range, 6 to 9), and the mean PSA was 7.36ng/mL (range, 0.76 to 114.5). The mean gland size was 55.61g (range, 25.5 to 151.7). Of the 200 patients, 148 (74%) had T2 disease on final pathology with a mean tumor volume of 17.7% (<5% to 60%), and 52 (26%) patients had T3 disease with a mean of 41.2% (range, 10% to 90%) tumor volume.

Of the patients specifically referred by an urologist, the mean patient BMI was 36kg/m<sup>2</sup> (range, 21–51). Among these patients, 36% had a history of previous abdominal or prostate surgery for benign hyperplasia, and their mean prostate size was 54.5g (range, 34.4 to 148.1).

At this time, we lack comparison between university and nonuniversity settings on referral patterns for RALP, because nonuniversity practices do not typically compile such databases of their prostatectomy patients.

## DISCUSSION

As treatments for prostate cancer have evolved and become more numerous, health-related quality of life outcomes have become increasingly important in guiding treatment choices for men with early disease. Although both surgery and radiation therapy may have substantial effects on psychosocial and functional wellbeing,<sup>9–15</sup> some have suggested that men undergoing prostatectomy have better mental health, fewer emotional problems, more vitality and higher social function compared with men choosing radiation or watchful waiting.<sup>15</sup> If indeed RALP can further improve upon this with less blood loss, need for transfusion, postoperative pain, and hospital stay,<sup>16–20</sup> these benefits may be a strong compeller towards RALP.

Currently, no other center performing RALP has reported on referral patterns and the nature of cases being referred. Palmer et al<sup>21</sup> reported on the source of referral for those

undergoing RALP at our institution during the first year after a robotic program was established (FY2006) by a since relocated surgeon. During that period, only 55% of patients had been referred by another physician (of any specialty), while 90% of the patients in our current study were referred specifically by urologists.

We believe this finding suggests acceptance of RALP as a mode of surgical treatment for patients with prostate cancer. During the same time period when these procedures were performed, <1% of all prostatectomies performed at our institution were performed in open fashion by other surgeons. In fact, during the short period of time when RALP was not offered at our institution (after relocation of the previous RALP surgeon), referrals for prostatectomy to our institution declined by more than 90%, reflecting again that urologists were preferentially referring for RALP in particular and not for open prostatectomy or prostate cancer treatment in general.

One limitation of this retrospective study is that the reason for referrals was not recorded along with the source and does not completely exclude the possibility that marketing remains a motivating factor. Although we believe that the resurrection of our RALP program and continued success reflects a belief in RALP by urologists in our region rather than marketing to patients or their families, it is possible that these same urologists are referring patients because they have demanded RALP after exposure to some marketing campaign. It should be noted that during this period our institution did not market robotic surgery in any way other than mailing announcements regarding the new robotic surgeon to physicians in the region.

Based on the information available, quantitation or assessment of how advertising influences referral patterns across regions where advertising is likely more prevalent would be valuable but is lacking at this point.

Also, although we have anecdotally had few patients who were self-referred because their diagnosing urologist refused to refer them for RALP, it has been much more common in our experience that patients were unaware of RALP until it was discussed with the referring urologist. Further evidence corroborating our belief is the complexity of patients referred, as not only does this reflect increased confidence in RALP among referring urologists, but these complex patients could easily have been denied referral and told that they were not candidates for RALP due to anatomic concerns or cancer severity.

## CONCLUSION

Based on our findings, the referral pattern for RALP at our institution may reflect a growing acceptance of robotic surgery among urologists in our region, because the vast majority of patients presenting for RALP presented due to urologist referral and not due to marketing or “word-of-mouth.” Additionally, urologists referred even complex and higher-risk patients for RALP, potentially reflecting increased comfort with RALP as a treatment modality for all patients who are candidates for prostatectomy.

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