SURGERY

Robotic prostatectomy proven to provide sexual outcome benefit

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A recent prospective, randomized study comparing the outcomes of laparoscopic and robot-assisted prostatectomy provides some of the best contemporary evidence of the superiority of the robotic procedure in terms of postoperative erectile function. A similarly high-quality comparison of robotic and open prostatectomy must now be warranted.

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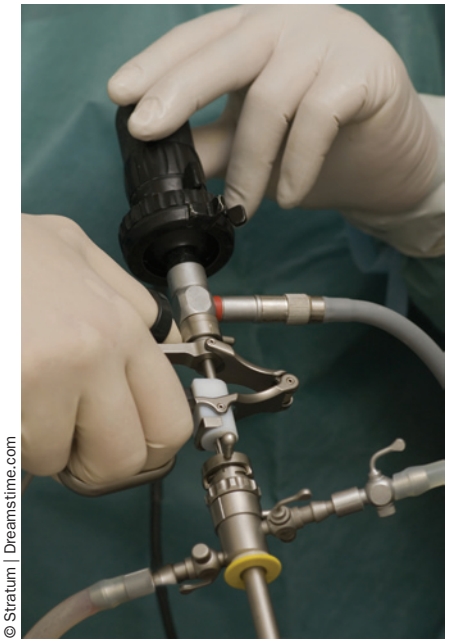
Despite the worldwide increased interest in robot-assisted prostatectomy, and the fact that the vast majority of prostatectomies are performed this way in the USA, it is notable that there are currently very few high-level, prospective, comparative studies available to guide the standard of care and to justify the added cost of this procedure. The recent study by Asimakopoulos *et al.*[1] might be the best evidence yet that the perceived benefit of using robotic instrumentation and visualization lends itself to real, demonstrable outcome advantages.

In this study, 128 consecutive patients with low-risk prostate cancer were randomized 1:1 to undergo bilateral nerve-sparing radical prostatectomy by either a purely laparoscopic or robot-assisted approach. All procedures were performed by a single surgeon highly experienced in both techniques. All patients had little to no erectile dysfunction (ED) at baseline, defined as a score ≥17 on the International Index of Erectile Function questionnaire (IIEF-6). The primary end point was erectile function at 12 months after surgery, as measured by IIEF-6 scores and Sexual Encounter Profile (SEP) questions 2 (SEP-2; "were you able to insert your penis into your partner's vagina?") and 3 (SEP-3; "did your erection last long enough to have successful intercourse?"). Secondary end points included continence, oncologic outcome and surgical complications. On-demand use of phosphodiesterase type 5 (PDE5) inhibitors was allowed, and no formal penile rehabilitation protocol was used. Patients were interviewed by phone at 1, 3, 6 and 12 months, and mailed an IIEF questionnaire at 12 months. 2 of 64 patients in the laparoscopic group and 9 of 64 in the robotic group were lost to follow-up, and were not included in the final analysis (only complete data sets were included).



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Both groups were similar with respect to surgical margin status, biochemical recurrence rate and surgical complications. The rate of complete continence, as defined by no pad usage, was superior in the robot-assisted prostatectomy group (94% versus 83%), although this finding did not quite reach statistical significance ($P = 0.07$). The mean time to continence in both groups was approximately 3 months.

The robotic approach was significantly superior to the laparoscopic approach in terms of all erectile function parameters studied. At 12 months, mean IIEF-6 score was 21.00 versus 17.77 in favor of the robot-assisted group ($P = 0.005$), with more patients in this group achieving postoperative potency (IIEF-6 score >17; 63% versus 38%, $P = 0.008$). Patients with preoperative IIEF-6 scores >26 (no ED) also fared better with the robotic procedure compared with the laparoscopic approach (mean postoperative IIEF-6 score 26.70 versus 25.25, $P = 0.001$). In addition, fewer patients in the robot-assisted group had severe ED at 12 months (8% versus 25%, $P = 0.015$). The advantage for the robotic procedure was most striking when responses to SEP-2 (capability of inserting the penis into a vagina) were compared (77% versus 32%, $P < 0.0001$), with a shorter time to achieve this milestone in this group. PDE5 usage was similar in both groups.

The authors deliver a high-quality study designed to directly address the question of the superiority of the robotic approach, and the findings are noteworthy. However, a real weakness is that many more patients treated with robot-assisted prostatectomy were lost to follow-up. Successful patients tend to respond to the request for data, and unsuccessful patients often seek help elsewhere and don't return a questionnaire. This concern was addressed by pointing out that, even when counting these excluded patients as failures and the laparoscopic patients as successes, penile insertion at 12 months remained significantly better following the robot-assisted procedure. I would suspect that the IIEF-6 differences might not have remained significant if all data had been obtained from all patients. Furthermore, penile insertion (SEP-2) is not a validated measure of sexual performance

and satisfaction, and is perhaps the least useful tool used to measure sexual function. SEP-3—although again not validated, but more useful as it at least measures completion of intercourse—is not mentioned. We are left to assume that the SEP-3 data showed no difference under any accounting method.

> “...robotic prostatectomy has technical advantages that do translate into real, demonstrable outcome benefits...”

Nevertheless, this study provides perhaps the highest quality data yet presented addressing the outcome that inherently concerns most men—their subsequent sexual function. In the USA, where robotic prostatectomy is the most popular approach, open radical prostatectomy is rapidly fading, and <1% of prostatectomies are performed purely laparoscopically, a similar comparison between the robotic and open approach is conspicuously nonexistent. Unlike laparoscopic surgeons, high-volume surgeons who have clearly exceeded the robotic learning curve rarely continue to regularly perform open prostatectomies. No high-volume surgeons have yet subjected themselves to a definitive prospective study, and with no standardized reporting of outcomes, no true comparison can be made. Designing a definitive concurrent, prospective study that is well controlled for not only physical characteristics but spousal interest, socioeconomics and penile rehabilitation, would be simple. Unfortunately, in the high-stakes game of prostate cancer treatment in the USA, there seems to be simply too much to lose for any two prominent open or robotic surgeons to risk such a comparison.

Several recent reviews have cited this lack of high-quality prospective data and, therefore, the lack of a clear advantage for RALP.[2,3] This mirrors the considerable zeal with which open surgeons have been critical of robotics since its introduction, yet many of these originally valid concerns have been addressed: early claims that recovery time was not reduced have been negated;[4] operative times are not prolonged in experienced hands;[5] oncologic outcomes and margin rates have been shown to be a function of experience and do not suffer from lack of tactile feedback;[6] and complication rates are at least equal to the open approach, with significant superiority with regard to blood loss, rates of transfusion and bladder neck contracture.[7,8] In addition, it has recently been suggested that robot-assisted prostatectomy may be superior in terms of recovery of stretched penile length, a surrogate marker for future return of sexual function; however, stretched penile length is an indirect measurement, and only scratches the surface in the pursuit of uncovering the “holy grail” of erectile function after prostatectomy.[9]

This study has at least invalidated the grouping of laparoscopic and robot-assisted prostatectomy as equivalent under the title ‘minimally invasive’.[2] Until a similar high-quality comparison of open prostatectomy and RALP is performed, this study can stand as rare—if not unique—contemporary evidence amongst all three approaches that robotic prostatectomy has technical advantages that do translate into real, demonstrable outcome benefits beyond those that laparoscopic prostatectomy can provide. Now we all must insist that a similar, robotic-versus-open comparison be done once and for all.

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Competing interests
The author declares associations with the following companies: Spectrum Pharmaceuticals, Timm Medical Technologies, Vivus. See the article online for full details of the relationships.

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PROSTATE CANCER

Searching for bone metastases—how, when and why?

Fred Saad

Bone metastases from prostate cancer are detected with staging bone scans. New research supports existing guidelines on the appropriate referral criteria for bone scans and shows that a specific subgroup of patients with prostate cancer who are at low risk of bone metastases do not require a staging bone scan.

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The presence of bone metastases in patients with newly-diagnosed prostate cancer precludes these patients from the possibility of cure. Ruling out the presence of bone metastases is, therefore, essential before initiating therapy with curative intent. Screening all patients for bone metastases is costly and probably unnecessary. Knowing when bone scans can safely be omitted in newly-diagnosed patients is both useful for the health-care system and for reassuring patients. Findings from numerous retrospective studies have, for several years, suggested that patients with low (<10–20 ng/ml) serum PSA levels are at low risk of bone metastases.[1] Based on the available evidence, European Association of Urology (EAU) and National Comprehensive