Re-establishing the Role of Robot-assisted Radical Cystectomy

After the 2020 EAU Muscle-invasive and Metastatic Bladder Cancer Guideline Panel Recommendations

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Platinum Opinion

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Every year, the European Association of Urology (EAU) guideline panels make huge efforts to provide updated guidelines for the urology community that are essential to the improvement of routine clinical practice [1].

We have read with great interest the 2020 updated version of the guidelines on muscle-invasive and metastatic bladder cancer (MIBC) [2] and we would like to commend the panel for their monumental work. This being said, we were surprised to note that the panel defined open radical cystectomy (ORC) as the best surgical approach for MIBC patients [2]. Robot-assisted radical cystectomy (RARC) was introduced into clinical practice more than 17 yr ago, when Menon and colleagues’ pioneered the field and described the technique [3]. 4 yr after the da Vinci Surgical System was approved by the US Food and Drug Administration [4].

Since then, there have been continuous efforts to examine the surgical safety, the oncological and functional efficacy, and the cost-effectiveness of RARC compared to the previous standard of care of ORC. Following the initial small, single-center case series [3,5], a large consortium was formed to prospectively enroll and monitor patients undergoing RARC in tertiary care centers [6–8]. Subsequently, updated data were published by this multi-institutional collaboration showing that RARC was safe and possibly advantageous in terms of in-hospital length of stay and perioperative transfusions. Along with these retrospective and nonrandomized data, five prospective randomized clinical trials (RCTs) [9–13] involving a total of 541 participants compared RARC and ORC in attempts to identify the technique of choice for radical cystectomy. Individual and pooled results [14,15] from these RCTs confirmed that RARC and ORC are similar in terms of oncological control (ie, time to recurrence), rates of positive margins, nodal yields, major complications (ie, Clavien-Dindo grades 3–5), and quality of

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life after surgery. An initial concern about aberrant local recurrence patterns and peritoneal carcinomatosis after RARC [16] has been rebutted [17] and conclusively refuted by these RCT data [14]; equally, this has just not been an issue in the worldwide RARC experience. Besides these similar findings, RARC probably results in lower blood loss and may lead to a shorter hospital stay and a lower rate of minor complications (Clavien grades 1 and 2) compared to ORC. Furthermore, preliminary data also suggest that the RARC approach is not negatively affected by neoadjuvant treatments, including both chemotherapy and immunotherapy [18–22]. Here, RARC showed similar rates of perioperative complications and noninferior surgical safety when compared to the open approach [23]. In addition, the feasibility of RARC was demonstrated in octogenarians and surgically complex patients [24,25]. Finally, from a surgical standpoint, RARC may reduce the learning curve, allowing faster training of experienced surgeons, who are claimed to be the main trigger for improving surgical safety and surgical outcomes [26–29]. Furthermore, RARC also seems to be favored from an ergonomic perspective for the urologist and the team members. Taking these points together and given the lack of clear superiority of one approach over the other, it should be concluded that RARC cannot be qualified as the standard of care for the surgical treatment of bladder cancer, but neither can the opposite be the case.

The robotic approach has gained in popularity, with patients increasingly requesting to be treated with RARC given its advantages such as the minimally invasive nature and shorter hospital stay and postoperative recovery. A recent study comparing trends in the use of RARC and ORC across tertiary-care teaching institutions in Europe and North America found that RARC has become the procedure more commonly performed among contemporary patients, with an increase from 29% in 2006–2008 to 54% in 2015–2018, while ORC decreased from 71% in 2006–2008 to 46% in 2015–2018 (p < 0.001) [30].

The pros and cons of a robotic versus an open approach have also been assessed for other urological malignances. Robot-assisted radical prostatectomy and robot-assisted partial nephrectomy have proved to be noninferior in terms of surgical safety with similar postoperative rates of complications compared their open counterparts. Only one RCT comparing open versus robotic radical prostatectomy was published [31], and a few nonrandomized studies compared robotic and open partial nephrectomy [32]. Nevertheless, neither the prostate cancer [33] nor the kidney cancer [34] EUA Guideline Panels tipped the balance towards one or other technique, leaving informed patients with the choice of their preferred approach, as long as the choice is made between surgeons with similar experience in the two techniques.

We respectfully suggest that the MIBC Guidelines Panel statements that ORC is the “current best practice” and that RARC is “feasible but still investigational” do not reflect the real-life scenario or the contemporary literature. Available level 1A evidence proves that RARC and ORC can both be offered to patients as there are no significant perioperative, postoperative, or long-term functional or oncological outcome differences, similar to the situation for prostate and kidney surgery. The evidence supporting RARC (five RCTs) is indeed much more robust than the evidence available for robotic radical prostatectomy (one RCT) or robotic partial nephrectomy (only retrospective evidence), yet nobody would argue about the contemporary role of robotic surgery in the latter two scenarios. We agree that RARC is still not performed in every center and is mainly centralized in tertiary care teaching institutions. This is mainly because RARC is an expensive procedure, primarily owing to the cost of the robot, which therefore is not available everywhere. In addition, radical cystectomy is a complex surgical procedure with high complication rates [22,23] regardless of the approach chosen (RARC vs ORC). As a consequence, radical cystectomy, whether ORC or RARC, should be performed only in high-volume centers where, as noted, a robotic platform is commonly available and used on a daily basis.

In conclusion, we believe that on the basis of the contemporary evidence and the worldwide trend towards increasing adoption of RARC, the MIBC Guidelines Panel should reconsider the recommendation suggesting ORC as the first choice for surgical management of bladder cancer. We believe that the surgeon’s understanding of the disease process, technical skills, and overall experience should be the main deciding factors when choosing between RARC and ORC.

Conflicts of interest: The authors have nothing to disclose.

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