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RARC Pasadena Consensus Panel – Editorial
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Robotic Radical Cystectomy: So Far, So Good—What Next?

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This month's issue of *European Urology* contains a set of four papers reflecting the proceedings of an ad hoc, private consensus conference on robot-assisted radical cystectomy (RARC) [1–4], held in our hometown of Pasadena in southern California. These four papers review the literature covering various aspects of RARC and provide some technical insights and suggestions for best practices. In aggregate, although the literature already contains meta-analyses and systematic reviews on this topic, this consensus is a welcome addition. The authors are commended for their initiative and industry in collating information on what has transpired to date.

In the two systematic analyses [1,2], the authors conclude that despite its relatively short track record, RARC is as good as the more established open radical cystectomy (ORC) procedure in terms of oncologic and perioperative outcomes and morbidity. RARC is superior in terms of less blood loss and lower transfusion rates, but it takes longer and costs more.

The paper on technical recommendations has certain limitations [3]. Various technical issues are presented in a superficial manner, and the overall presentation lacks clarity. A serious robotic surgeon hoping to embark on RARC will need to consult more detailed original papers. The authors' statement that "over the past 10 yr, RARC has pushed accepted standards of open radical cystectomy" is unclear and seems like a stretch; a more accurate statement would be that RARC can reliably duplicate open surgery from a technical perspective. The authors suggest that we routinely assess each elderly patient with bladder cancer for "preexisting cardiovascular/pulmonary disease that is compromised with positioning," but how we would do that remains unmentioned. Practically speaking, we have never required such a preoperative guarantee, in our experience.

The authors recognize that a thorough lymphadenectomy (LND) is "one of the most important oncologic components of the procedure and the most technical and time-intensive portions of the operation" [3]. Yet, they provide no technical recommendations of true substance. Scarce, if any, mention is made of at least nine important technical aspects of LND: (1) the *split and roll* technique, (2) the importance of meticulous presciatic dissection posterolateral to the common or internal iliac artery or vein (in the so-called fossa of Marseilles), (3) the retrocolic technique for dissecting the left common iliac nodal packet posterior to the descending mesocolon, (4) the importance of dissecting posterior to the obturator nerve to excise perivesical lymphatic tissues, (5) LND after neoadjuvant chemotherapy in which the nodal tissue maybe densely adherent to the iliac vessels, (6) the technical caveats of LND for patients with severe aortoiliac atherosclerotic disease to minimize chances of inadvertent arterial plaque fracture, (7) caveats to guard against possible local cancer cell spillage by not cutting into an enlarged lymph node, (8) early specimen bagging, and (9) clip-ligating lymphatics from Cloquet's node to minimize lymphorrea or lymphocele. The initial paper on robotic high-extended LND, which describes some of these details, is not referenced [5].

Some comments in the paper are sweeping [3]. To say that performing the bowel work extracorporeally and the uretero- or urethroileal anastomoses intracorporeally "provides all the same benefits of the intracorporeal neobladder without the inconvenience of performing all the bowel work intracorporeally" is inaccurate and is not supported by the literature. The section on technical aspects of bowel surgery has serious omissions and does not read well. The authors fail to advise the reader that as long as surgical principles are

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maintained, there are many ways to "skin a cat." The so-called Marionette and Ligaloop band (Braun Dexon, Spangenberg, Germany) techniques may be two ways to handle bowel robotically; however, for expeditious and efficient bowel work, it is abundantly clear that neither technique is at all necessary. In our experience with nearly 150 intracorporeal diversions (ileal conduit, orthotopic neobladder) at the University of Southern California (USC), we use neither.

To state that "the most common technique for intracorporeal neobladder" is the one they reference is incorrect [3]; the statement is based on the experience of only one institution. Furthermore, the described technique achieves only a U-shaped, not a truly globularized, neobladder; it is a geometric impossibility to create a truly globularized double-folded neobladder with the technique they espouse. In addition, the authors fail to present details of the USC technique for robotic intracorporeal orthotopic neobladder, which does truly create a double-folded globularized neobladder *completely identical* to the open surgical technique [6,7]. With the USC technique, the posterior plate is created and then rotated 90°; only then is the urethroileal anastomosis performed, followed by a true double folding over, resulting in a globularized neobladder, akin to open surgery [6,7].

The paper on best practices is well written and provides general suggestions that may be of benefit for the interested surgeon [4].

History informs the future. Minimally invasive surgery (MIS) respectfully stands on the shoulders of open surgical pioneers. In 1992, the initial report on laparoscopic cystectomy opened the door and got MIS into the room for radical cystectomy (RC) [8]; in the early 2000s, the initial reports of laparoscopic, completely intracorporeal ileal conduit and orthotopic neobladder then got MIS a seat at the RC table [9,10]. The robotic technology has advanced laparoscopic capabilities to a whole new level. RARC is developing strongly [11,12]. In the United States, its use has increased 21-fold, from 0.6% in 2004 to 12.8% in 2010 [13]. At USC, the use of RARC has increased from 4% in 2009 to 45% in 2013. Minimally invasive cystectomy has excellent nodal counts, negative surgical margin rates, and 5- and 10-yr oncologic outcomes [14,15] without increased complications. Urinary diversion is also increasingly being performed intracorporeally. We commend the collective authorship of these four papers for their long-standing dedication to advancing the field.

For RARC to provide true and lasting value, what must happen next? We believe five changes are needed. First, streamline operative-time efficiency [16] to decrease time and costs. Second, demonstrate complete fidelity to established surgical principles across all robotic intracorporeal diversion options. Third, document parity of functional outcomes of orthotopic neobladder with ORC (urodynamics, continence, potency, quality of life). Fourth, conduct a randomized prospective trial of open versus completely intracorporeal robotic RC. Fifth, eliminate the use of bowel in both the development [17] and subsequent robotic implantation [18] of off-the-shelf bioengineered neourinary reservoirs, thereby lowering the morbidity of all RC surgery. All of this work is now under way.

Conflicts of interest: The authors have nothing to disclose.

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