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INVITED COMMENTARY

Prostate Cancer

The past, present, and future of single-port urology?

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In this manuscript, Ju *et al.*¹ sought to compare short-term perioperative outcomes between extraperitoneal robotic single-port radical prostatectomy (epR-spRP) and extraperitoneal robotic multiport radical prostatectomy (epR-mpRP) utilizing a multi-channel laparoscopic port and the da Vinci Si robotic platform. In this comparison, several potential advantages of single-site surgery including median hospital stay, pain scores, and surgical scar cosmesis favored the spRP arm. While this study represents a relatively small sample size in both cohorts, the authors should be commended for a novel approach to executing a single-site robotic prostatectomy without the availability of the da Vinci Si platform.²

Minimizing surgical morbidity associated with radical prostatectomy has been a driving influence toward technical advancements including the utilization of robotic technology and single-site technical approaches. White *et al.*³ described their technique for single-port transperitoneal prostatectomy utilizing the da Vinci S/Si platforms in a series of 20 patients. More recently, extraperitoneal technical approaches utilizing the Si system⁴ have been described as a technical approach that may be particularly advantageous for patients with significant surgical history and concern for intra-abdominal adhesions. While these studies demonstrated the safety and feasibility of innovative surgical techniques by capitalizing on unique features of the da Vinci system, so far none of these described techniques with the Si platform have been broadly adopted in surgical practice. Several factors that have hindered widespread adoption are still valid at this time, with the most important limitation being the need for custom modifications of the robotic instrumentation and the potential for instruments arms clashing within multichannel laparoscopic ports. In the meanwhile, Intuitive Surgical has introduced two new iterations of the da Vinci system including the dedicated single-port SP system⁵ and may consider discontinuing servicing and support for the Si in the near future. This casts doubt on the adoption of custom-built single port operations with a platform that soon may be considered obsolescent.

Despite these challenges, the repurposing of existing Si platforms for single-site operations may represent an area of opportunity for innovation and development, particularly in countries that do not currently have access to robotic technology or newer platforms such as the SP system. One of the major concerns regarding robotic technology

is the additional costs associated with the purchase and maintenance of these systems⁶ and as such, using existing systems and technology rather than committing substantial upfront costs for a new system may provide a pathway to providing robotic surgery at smaller or lower volume centers. As the SP platform has not been approved in all countries, utilizing current technology with novel surgical approaches may help to bridge the gap while regulatory concerns may be addressed.

The introduction of a new surgical platform has driven a resurgence of single port operations. Whether these techniques will become a new gold standard or a niche alternative will once more depend on studies that will demonstrate whether any of the stated benefits - pain, cosmesis, and operative advantages - significantly contribute to favorable outcomes for patients as compared to traditional approaches. If we want to push the envelope with single port robotics, we need to have better evidence to justify capital investments for new robotic platforms. Studies such as this help us to better understand the potential benefits of single port surgery and continue to push the boundaries of surgical technique.

COMPETING INTERESTS

All authors declared no competing interests.

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