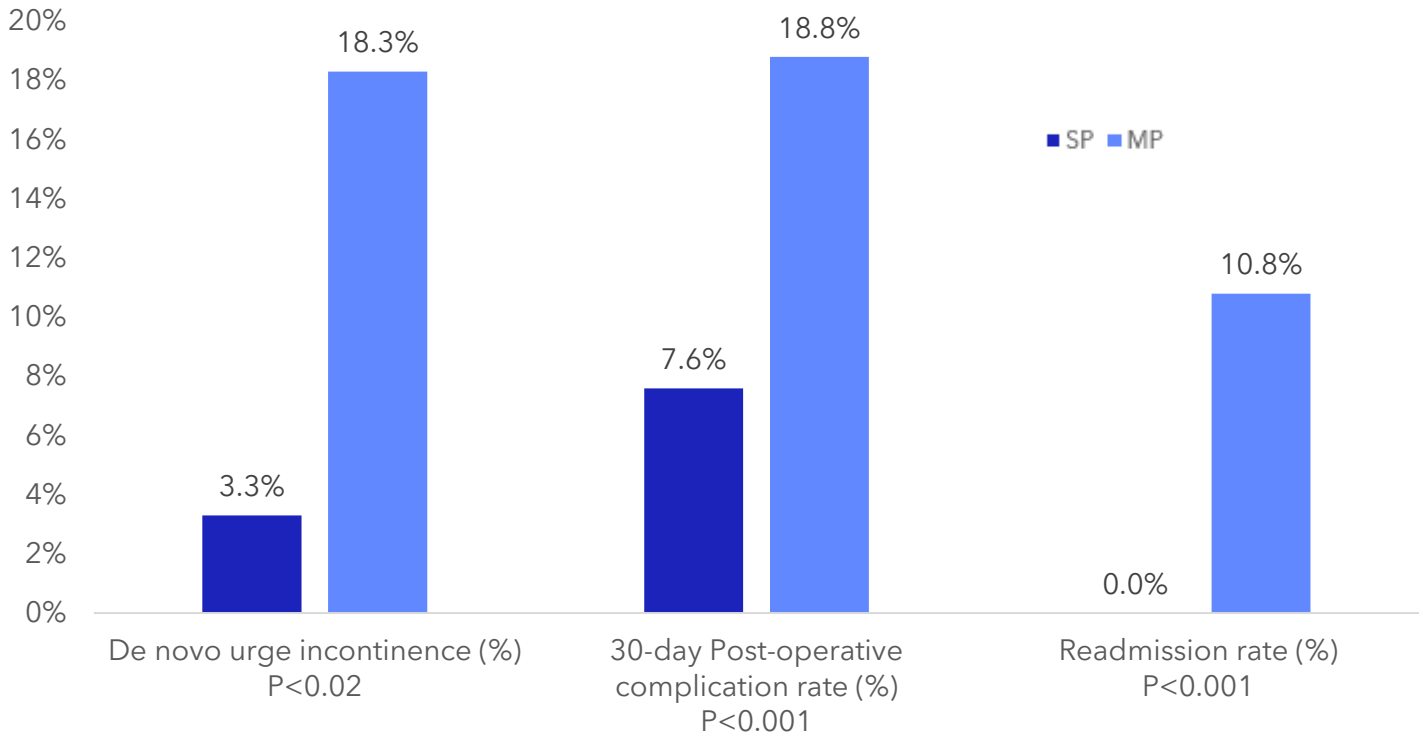
Single Port Versus Multiport Robot- assisted Simple Prostatectomy: A Multi-institutional Study From the Single-port Advanced Research Consortium (SPARC)

Simple prostatectomy with **da Vinci single port (SP) approach** results in a **reduced rate of post-operative complications/readmissions** and **improved functional outcomes** relative to a multiport (MP) approach.



Note: P-value of <0.05 was considered statistically significant

Citation
Mahmoud Abou Zeinab, Roxana Ramos, Ethan L. Ferguson, Kennedy E. Okhware, Teona Iarajuli, Samantha Wilder, Ruben S.Calvo, Jaya S. Chavali, Indu Saini, Ruth Sanchez De La Rosa, Jennifer Nguyen, Simone Crivellaro, Craig Rogers, Michael Stifelman, Mutahar Ahmed, Ketan Badani and Jihad Kaouk, Single Port vs Multiport Robot-Assisted Simple Prostatectomy: A Multi-Institutional Study from the SPARC, Urology, (2023) doi:https://doi.org/10.1016/j.urology.2023.03.022

Purpose
To compare robot-assisted simple prostatectomy intraoperative and postoperative outcomes between single-port (SP) and multiport (MP) robotic systems in a multi-institutional setting.

Study design
Data were prospectively collected and retrospectively analyzed from 5 institutions from the Single-Port Advanced Research Consortium (SPARC). Patients underwent robotic-assisted simple prostatectomy (RASP) using the da Vinci Xi (Multi-port (MP), n=249) or da Vinci SP (Single-port, (n=156; n=110 transvesical & n=46 transperitoneal approach)) between Jan 2017 and October 2022. Only prostate sizes greater than 80 cc and requiring surgical intervention were included. All surgeries were completed by 6 different surgeons with at least 5 years of experience in robotic surgery.

Outcomes measured
Perioperative variables included operative time, estimated blood loss, drain placement, continuous bladder irrigation (CBI) use, complication rate as defined by Clavien-Dindo classification, hospital length of stay, inpatient morphine milligram equivalent (MME), pain score assessed using a numeric analog scale, and Foley catheter duration.

Postoperative variables included complication rate as defined by Clavien-Dindo classification, readmission rate to any health facility within 30 days after the surgery, last follow-up, PVR, IPSS, urinary quality of life, maximum flow rate, PSA, and de novo urge incontinence defined as using more than 1 pad for safety per day.

Key results

- **CBI** was used in 64.4% of MP cases and 17.3% of SP cases (P<0.001)
- SP median **length of stay** of 17.7 vs 33 hours in the MP patient cohort (P < 0.001)
- SP required less **MME** (0 mg SP vs. 8.4 mg MP, P <0.001) and fewer prescribed opioids at discharge (12% SP vs 42% MP, P < 0.001).
- Median **Foley catheter duration**: 6 and 9 days for the SP and MP groups, respectively (P <0 .001).
- There was no significant difference between the groups in the operative time, last IPSS (International Prostate Symptom Score), urinary quality of life score, maximum flow rate, or PSA.

- **Study limited** by the retrospective design and inherent selection bias, relatively small sample size, and the short median follow-up. Investigators were unable to analyze and collect all functional outcomes. All cases were done by expert SP robotic surgeons, which may limit the reproducibility of the results.

Important safety information

Surgical risks

Risks associated with radical prostatectomy include surrounding nerve damage which can lead to urinary incontinence and/or erectile dysfunction, rectal or bowel injury, urethral stricture, lymphocele, lymphedema, and bowel obstruction.

Important safety information

Serious complications may occur in any surgery, including surgery with a da Vinci system, up to and including death. Examples of serious or life-threatening complications, which may require prolonged and/or unexpected hospitalization and/or reoperation, include but are not limited to, one or more of the following: injury to tissues/organs, bleeding, infection, and internal scarring that can cause long-lasting dysfunction/pain.

Risks specific to minimally invasive surgery, including surgery with a da Vinci system, include but are not limited to, one or more of the following: temporary pain/nerve injury associated with positioning; a longer operative time, the need to convert to an open approach, or the need for additional or larger incision sites. Converting the procedure could result in a longer operative time, a longer time under anesthesia, and could lead to increased complications.

Contraindications applicable to the use of conventional endoscopic instruments also apply to the use of all da Vinci instruments.

For important safety information, including surgical risks and considerations, please also refer to www.intuitive.com/safety. For a product's intended use and/or indications for use, risks, full cautions and warnings, please refer to the associated User Manual(s).

Individual outcomes may depend on a number of factors, including but not limited to patient characteristics, disease characteristics, and/or surgeon experience.

Da Vinci Xi/X system precaution statement

The demonstration of safety and effectiveness for the representative specific procedures did not include evaluation of outcomes related to the treatment of cancer (overall survival, disease-free survival, local recurrence) or treatment of the patient's underlying disease/condition. Device usage in all surgical procedures should be guided by the clinical judgment of an adequately trained surgeon.

Da Vinci SP system

The safety and effectiveness of this device for use in the performance of general laparoscopic surgery procedures have not been established. This device is only intended to be used for single port urological procedures and for transoral otolaryngology surgical procedures in the oropharynx for benign tumors and malignant tumors classified as T1 and T2 with the da Vinci EndoWrist SP Instruments and the da Vinci SP surgical system (SP1098).