



Single-port robotic management of distal ureteral pathologies: straightforward access

Marco Oderda , Federico Lavagno, Paolo Gontero

Citation: Oderda M, Lavagno F, Gontero P. Single-port robotic management of distal ureteral pathologies: straightforward access. *Mini-invasive Surg.* 2026;10:9. <https://dx.doi.org/10.20517/2574-1225.2025.123>

Received: 6 Aug 2025
Accepted: 29 Dec 2025
Published: 18 Mar 2026

Academic Editors:
Riccardo Autorino, Juan Gómez Rivas, Richard Naspro
Copy Editor:
Pei-Yun Wang
Production Editor:
Pei-Yun Wang

Abstract

[Watch](#) a video of this article.

BRIEF EXPLANATION

The Da Vinci Single-port (SP) system, utilizing a supine anterior retroperitoneal approach (SARA)^[1], provides direct and minimally invasive access to the ureter through a 3.5 cm Gibson incision [Figure 1A and B]. Our video [Video 1] (All physicians appearing in the video have provided their informed consent for the use of their images) demonstrates the step-by-step management of three distinct distal ureteral conditions treated between January and June 2025.

The first case involves a 43-year-old woman presenting with a left uretero-vaginal fistula, a complication of hysterectomy. The distal ureter was hydronephrotic and adhered to inflammatory tissue in communication with the vaginal cavity, causing continuous urine leakage [Figure 1C]. We performed direct ureteral reimplantation following meticulous dissection and closure of the fistulous tract.

The second case involves a left double ureterocutaneostomy in an 82-year-old woman with symptomatic complete left vesicoureteral reflux in a duplex collecting system [Figure 1D] and a low-compliance bladder. No space was left for reimplantation due to contracted bladder.

The third case describes a left distal ureterectomy and ipsilateral pelvic lymphadenectomy in a 76-year-old man with a 2-cm pTaG1 urothelial carcinoma. An extraperitoneal resection of the distal ureter and bladder cuff was performed, adhering strictly to oncological principles of urothelial carcinoma. Ureteral reimplantation was achieved using a small Boari flap to ensure a tension-free anastomosis. The flexibility of the SP platform facilitated the lymphadenectomy.

Detailed baseline and perioperative features for all three cases are presented in Table 1. All procedures were performed entirely within the retroperitoneum, allowing easier management of the ureter compared to extraperitoneal laparoscopic or multiport robotic approaches [Figure 1]. The SARA technique also offered anesthetic benefits, including improved pulmonary compliance for our patients, particularly



Urology Unit, Department of Surgical Sciences, Molinette Hospital, University of Torino, Torino 10126, Italy.

Correspondence to: Prof. Marco Oderda, Urology Unit, Department of Surgical Sciences, Molinette Hospital, University of Torino, Torino 10126, Italy. E-mail: marco.oderda@unito.it

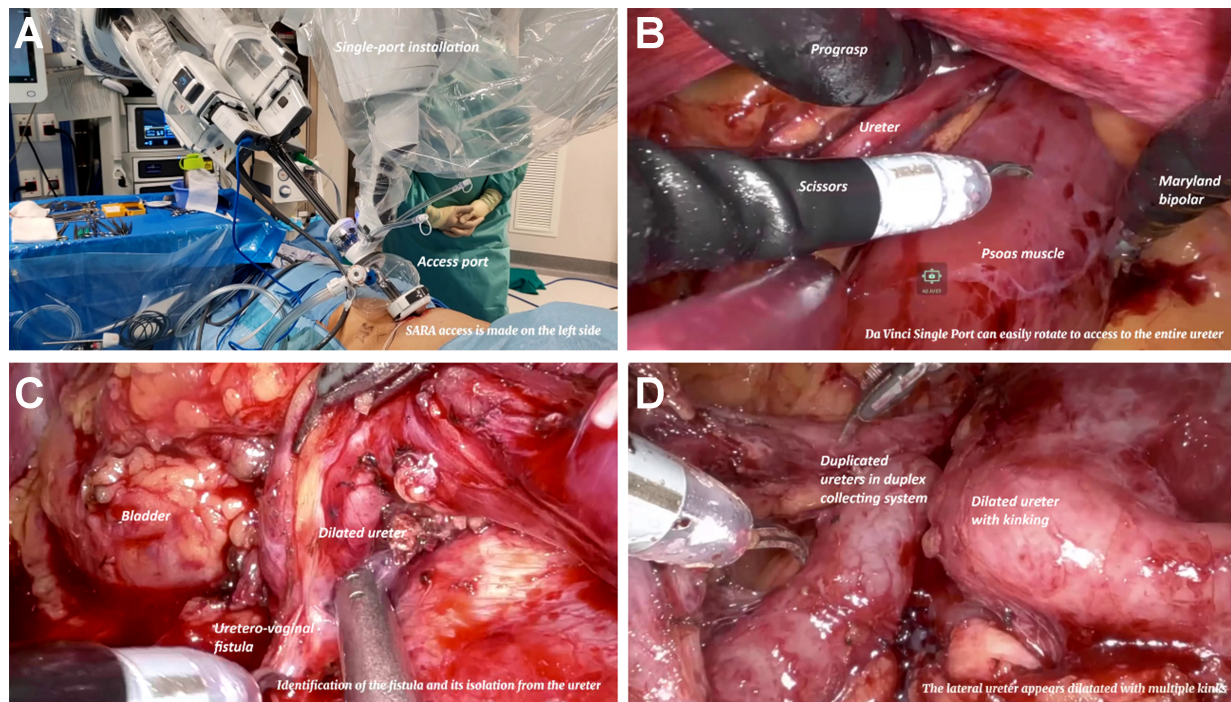


Figure 1. Straightforward access to the ureter with SP platform. (A) Docking of SP system; (B) Direct access to the ureter; (C) Hydronephrotic ureter stuck in inflammatory tissue; (D) Duplex collecting system with dilated ureters. SP: Single-port.

Table 1. Baseline and perioperative features

	Case 1	Case 2	Case 3
Pathology	Iatrogenic left uretero-vaginal fistula	Left vesicoureteral reflux in duplex collecting system and low-compliance bladder	Left 2-cm distal ureter low-grade pTa urothelial carcinoma
Procedure	Left ureteral reimplantation	Left double ureterocutaneostomy	Left distal ureterectomy with ureteral reimplantation and pelvic lymphadenectomy
Age, years	43	82	76
Sex	Female	Female	Male
BMI	25	29	22
Total operative time (min)	160	185	285
Docking time (min)	20	18	25
Console time (min)	110	130	230
Blood loss (mL)	< 50 mL	< 50 mL	< 50 mL
Air seal use	Yes	Yes	Yes
Accessory trocar	Yes	No	Yes
30-d complications	No	No	No
Postoperative opioid requirement for pain control	No	No	No
Time to return to bowel function (days)	1	1	1
Hospital stay (days)	5	3	5

BMI: Body mass index.

those with obesity^[1]. Our findings support the advantages of the SP-SARA approach compared to traditional transperitoneal access for treating distal ureteral pathologies. Furthermore, this technique may offer advantages such as shorter hospital stays, improved pain control, and superior cosmetic outcomes^[2,3].

DECLARATIONS

Authors' contributions

Conception and design of study: Oderda M, Gontero P

Data acquisition: Gontero P, Oderda M, Lavagno F

Video editing: Lavagno F

Manuscript writing: Oderda M

Supervision: Gontero P

Availability of data and materials

Anonymized clinical data are available upon request from the corresponding author.

AI and AI-assisted tools statement

Not applicable.

Financial support and sponsorship

None.

Conflicts of interest

All authors declared that there are no conflicts of interest.

Ethical approval and consent to participate

Informed consent was obtained from all subjects involved in the study.

Consent for publication

Not applicable.

Copyright

© The Author(s) 2026.

Supplementary Materials

Supplementary Materials

Please note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing content) should be directed to the corresponding author for the article.

REFERENCES

1. Pellegrino AA, Chen G, Morgantini L, Calvo RS, Crivellaro S. Simplifying retroperitoneal robotic single-port surgery: novel supine anterior retroperitoneal access. *Eur Urol.* 2023;84:223-8. DOI PubMed
2. Santarelli V, Valenzi FM, Haberal HB, et al. Current status of single port robotic-assisted reconstructive urology: a systematic review, meta-analysis and structured summary of the available literature. *J Robot Surg.* 2025;19:349. DOI PubMed PMC
3. Heo JE, Kang SK, Lee J, et al. Outcomes of single-port robotic ureteral reconstruction using the da Vinci SP® system. *Investig Clin Urol.* 2023;64:373-9. DOI PubMed PMC

Disclaimer/Publisher's Note: All statements, opinions, and data contained in this publication are solely those of the individual author(s) and contributor(s) and do not necessarily reflect those of OAE and/or the editor(s). OAE and/or the editor(s) disclaim any responsibility for harm to persons or property resulting from the use of any ideas, methods, instructions, or products mentioned in the content.



© The Author(s) 2026. Open Access This article is licensed under a Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, sharing, adaptation, distribution and reproduction in any medium or format, for any purpose, even commercially, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.