VIDEO ARTICLE
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Robot-assisted Radical Cystectomy with Orthotopic Neobladder (Pitcher Pot): Point of Technique

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Abstract

Robot-assisted radical cystectomy with orthotopic neobladder reconstruction represents a significant advancement in the surgical management of muscle-invasive bladder carcinoma. This report presents the case of a 48-year-old male who underwent a robot-assisted radical cystectomy with an intracorporeal orthotopic neobladder of "Pitcher Pot" configuration. The "Pitcher Pot" technique, a neo-urethral modification of the ileal orthotopic neobladder, is designed to enhance urethral anastomosis and functional outcomes. The procedure was completed successfully with no intraoperative complications, and the patient exhibited satisfactory postoperative recovery, including self-voiding and improved continence. This case highlights the potential for improved quality of life and long-term functional outcomes associated with advanced surgical techniques in appropriately selected patients.

Keywords: Basic science, reconstructive urology, urooncology

Introduction

Muscle-invasive bladder carcinoma (MIBC) is a significant urological malignancy requiring prompt and effective management. Radical cystectomy with urinary diversion is the standard treatment, and orthotopic neobladder reconstruction is often preferred in younger, motivated patients due to its superior quality of life outcomes, including natural voiding patterns and better body image. The "Pitcher Pot" configuration, described by Dr. Sudhir Rawal, is a neo-urethral modification of the ileal orthotopic neobladder. This design facilitates tension-free urethral anastomosis by incorporating an additional ileal segment to create a neourethra (1). This case report details the first robotic replication of this technique, emphasising its technical feasibility and clinical outcomes.

Case Presentation

A 48-year-old male presented with painless gross haematuria for one year. Detailed evaluation, including contrast-enhanced computed tomography (CECT) of the abdomen, revealed a 4×4 cm heterogeneously enhancing mass on the right lateral wall of the urinary bladder. Histopathology from transurethral resection of the bladder tumour confirmed MIBC. Staging investigations showed no evidence of metastasis. Given the patient's younger age, creatinine clearance >60 mL/min, and motivation for orthotopic neobladder reconstruction, he underwent a robot-assisted radical cystectomy with the "Pitcher Pot" configuration.

The surgical procedure involved bilateral ureteric dissection and division, posterior, lateral, and anterior bladder dissections, deep venous complex ligation, urethral transection, bilateral standard pelvic lymph node dissection, and creation of the orthotopic neobladder using an ileal segment. The total operative time was 440 minutes, with a console time of 400 minutes and an estimated blood loss of 250 mL. Postoperative recovery was uneventful, and the patient was discharged on day 10 with stable renal function (serum creatinine: 1.0 mg/dL). Histopathology revealed pT2bN0 disease with tumour-free margins. After one month, the per-urethral catheter was removed. At three months post-surgery, the patient demonstrated satisfactory voiding function and gradual improvement in continence, using 3-4 pads per day for intermittent leakage. Informed consent is taken from the patients for the use of video recordings for scientific purposes and for publishing in scientific journals (Video 1).

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Discussion

Orthotopic neobladder reconstruction is preferred for younger patients due to its potential for better quality of life, body image, and natural voiding patterns compared to ileal conduits (2,3). The "Pitcher Pot" configuration enhances functional outcomes by enabling a tension-free urethral anastomosis (1). This case underscores the importance of patient selection, including the absence of urethral involvement and sufficient renal function, to achieve optimal outcomes (2,4).

Robotic-assisted radical cystectomy has demonstrated reduced perioperative morbidity and shorter recovery times compared to open surgery (4). The sparing of neurovascular bundles during surgery, as performed in this case, has been associated with improved continence outcomes (1,5). Studies indicate that the "Pitcher Pot" neobladder provides satisfactory long-term continence and negligible rates of clean intermittent self-catheterization (1). However, postoperative continence depends on factors such as preoperative pelvic floor muscle training and patient compliance (2,3).

In this case, the application of the "Pitcher Pot" technique robotically underscores its feasibility and clinical benefits. The patient exhibited no intraoperative complications, satisfactory postoperative recovery, and promising early functional outcomes, reinforcing the technique's viability. However, long-term follow-up is essential to evaluate continence, voiding function, and quality of life outcomes.

Conclusion

The "Pitcher Pot" configuration of the orthotopic neobladder represents a novel advancement in the surgical management of MIBC, combining technical innovation with enhanced functional outcomes. This case demonstrates the successful robotic replication of the technique, achieving favourable perioperative and short-term postoperative outcomes. Patient selection, including consideration of renal function, absence of urethral involvement, and strong patient motivation, is critical for successful outcomes. Continued research and long-term follow-up are warranted to validate these findings and further refine patient selection criteria.

Video 1.

Ethics

Informed Consent: Informed consent is taken from the patients for the use of video recordings for scientific purposes and for publishing in scientific journals.

Footnotes

Authorship Contributions

Surgical and Medical Practices: G.S., A.M., N.K.S., V.K.P., Concept: G.S., A.M., N.K.S., V.K.P., Design: G.S., A.M., N.K.S., V.K.P., Data Collection or Processing: G.S., A.M., N.K.S., V.K.P., Analysis or Interpretation: G.S., A.M., N.K.S., V.K.P., Literature Search: G.S., A.M., N.K.S., V.K.P., Writing: G.S., A.M., N.K.S., V.K.P.

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References

1. Rawal S, Bansal A, Desai MM, et al. The pitcher pot neobladder: a novel modification of orthotopic ileal neobladder reconstruction. J Urol. 2020;203:e113. [Crossref]
2. Smith AB, Raynor MC, Castle EP, et al. Quality of life and functional outcomes after radical cystectomy and urinary diversion. Urol Oncol. 2018;36:88.e1-88.e7. [Crossref]
3. Stein JP, Lieskovsky G, Cote R, et al. The orthotopic neobladder: complications and functional outcomes in 1,000 patients. J Urol. 2004;172:253-256. [Crossref]
4. Parekh DJ, Reis IM, Castle EP, Gonzalgo ML, Woods ME, Svatek RS, Weizer AZ, Konety BR, Tollefson M, Krupski TL, Smith ND, Shabsigh A, Barocas DA, Quek ML, Dash A, Kibel AS, Shemanski L, Pruthi RS, Montgomery JS, Weight CJ, Sharp DS, Chang SS, Cookson MS, Gupta GN, Gorbonos A, Uchio EM, Skinner E, Venkatramani V, Soodana-Prakash N, Kendrick K, Smith JA Jr, Thompson IM. Robot-assisted radical cystectomy versus open radical cystectomy in patients with bladder cancer (RAZOR): an open-label, randomised, phase 3, non-inferiority trial. Lancet. 2018;391:2525-2536. [Crossref]
5. Studer UE, Burkhard FC, Schumacher M, et al. Tension-free urethral anastomosis in orthotopic bladder substitution. Eur Urol. 2007;52:684-691. [Crossref]