

Enhanced Recovery After Surgery Pathways

Role and Outcomes in the Management of Muscle Invasive Bladder Cancer



Daniel Zainfeld, MD, Ankeet Shah, MD,
Siamak Daneshmand, MD*

KEYWORDS

• Bladder cancer • Cystectomy • Enhanced recovery • ERAS • Fast track

KEY POINTS

- Radical cystectomy is an important therapeutic procedure in the management of muscle-invasive urothelial carcinoma but is accompanied by significant morbidity.
- Enhanced recovery protocols represent focused multidisciplinary care plans that aim to optimize patient outcomes through use of evidence-based interventions at all phases of care.
- In the setting of radical cystectomy, enhanced recovery after surgery (ERAS) decreases the incidence of gastrointestinal complications and shortens the length of postoperative hospitalization.
- Continued refinement of ERAS pathways and identification of meaningful interventions will allow further improvements in patient care and outcomes from radical cystectomy.

INTRODUCTION

Coordinated multidisciplinary care pathways aimed at optimizing patient recovery from complex surgeries have deservedly received significant attention in recent years. Most commonly termed enhanced recovery after surgery (ERAS) protocols, these multidisciplinary efforts to improve perioperative care across a wide spectrum of patients have been implemented within many surgical disciplines. Benefits have been most demonstrable among patients undergoing complex surgical interventions wherein multiple care teams are involved, perioperative morbidity is significant, and extended postoperative hospitalization is typical. Although often difficult to study and directly analyze, a growing body of evidence indicates that structured application of evidence-based principles and standardization of perioperative care significantly improve clinical outcomes.

Among urologic surgeons, radical cystectomy has been especially targeted for application of ERAS pathways because of the complexity of care and frequency of perioperative complications. The authors examine the history of radical cystectomy in the management of urothelial carcinoma, introduction of ERAS pathways, and reported outcomes of radical cystectomy in the setting of ERAS.

RADICAL CYSTECTOMY

Urothelial carcinoma is a common malignancy expected to account for almost 80,000 new cases of cancer in the United States in 2017.¹ Most new cases represent non-muscle-invasive disease, which is generally managed successfully through endoscopic techniques.² Even among this cohort, however, close surveillance due to high rates of recurrence and progression make bladder cancer

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Department of Urology, USC Keck/Norris Comprehensive Cancer Center, 1441 Eastlake Avenue, Suite 7416, Los Angeles, CA 90089, USA

* Corresponding author. 1441 Eastlake Avenue, Suite 7416, Los Angeles, CA 90089.

E-mail address: daneshma@med.usc.edu

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among the most costly malignancies to manage.³ For those patients with muscle-invasive disease as well as some high risk non-muscle-invasive patients, surgical excision of the bladder (radical cystectomy) remains the gold standard therapy often preceded by neoadjuvant chemotherapy.

Radical cystectomy is among the most technically demanding procedures performed by urologists. Adding complexity is the generally older age at diagnosis of many patients and significant medical comorbidities, which commonly coexist in this cohort.⁴ In addition, the recommended administration of neoadjuvant chemotherapy due to a known survival benefit among eligible patients with muscle-invasive disease exacerbates the physiologic stress of an already demanding procedure, though it is overall well tolerated.⁵ Along with excision of the bladder, concomitant urinary diversion is necessarily performed with resultant physiologic, lifestyle, body image, and psychosocial adjustments required of patients.

When performed with curative intent, however, oncologic outcomes from radical cystectomy are quite good.⁶ Indeed, recent studies indicate radical cystectomy is generally underutilized in the management of advanced urothelial carcinoma, particularly among older patients in whom concerns regarding stress and recovery from radical cystectomy may detract providers and patients alike from pursuing surgical intervention regardless of potential benefits.⁷ Therefore, methods to limit perioperative morbidity and increase patients' ability to tolerate and recover from the procedure are essential. Application of ERAS to radical cystectomy aims to address this critical need through optimization of patient care at all levels of care from the time of diagnosis to postoperative settings.

ESTABLISHED OUTCOMES FOLLOWING RADICAL CYSTECTOMY

As noted, radical cystectomy is an extremely complex procedure. Performance of radical cystectomy requires isolation and division of ureters, mobilization of the bladder, ligation of vascular pedicles, and division of the urethra while preventing tumor spillage or damage to surrounding structures, including the rectum. In addition, the prostate in men and the uterus, ovaries, fallopian tubes, and anterior vagina in women are removed en bloc. Pelvic lymph node dissection is mandatory for staging as well as for therapeutic benefit.⁸ Continent diversions, including orthotopic neobladders and continent cutaneous reservoirs, are constructed through a variety of techniques. The most commonly performed urinary diversion is

the ileal conduit, an incontinent diversion. Virtually all reconstructive options require division of small or large bowel with primary reanastomosis contributing significantly to the morbidity of these procedures.

Several large series have been published examining clinical, pathologic, and oncologic outcomes from radical cystectomy performed for bladder cancer.^{6,9,10} Although perioperative mortality is generally reported in fewer than 5% of patients, perioperative complications are extremely common. Multiple series consistently note the incidence of complications among patients undergoing radical cystectomy in the range of 30% to 60%.^{6,10,11} Length of stay is highly variable and often impacted by factors beyond clinical preparedness for discharge but generally range from 10 to 11 days. Analyses of complications related to cystectomy, such as subsequent readmissions or surgical interventions, are limited in part by the fragmentation of care between providers and institutions. This limitation is especially relevant in the comparison of historical data with contemporary practice. Indeed, the manner in which clinical follow-up is completed, recorded, and analyzed directly impacts any direct conclusions that can be made. Chappidi and colleagues¹² recently demonstrated that fragmentation of care and non-index hospitalizations may result in underestimation of 30-day and 90-day readmission rates by 18.5% and 23.0%, respectively. These underestimations very likely apply to historical series as well as more recent reports. Theoretically, appropriate history taking may mitigate contemporary underestimation of complications and readmissions; but care fragmentation remains a pertinent issue, as oncologic care is increasingly delivered regionally in high-volume centers.¹³ The authors have noted within their own prospectively maintained database that attentive monitoring of outcomes has identified more frequent low-grade complications in comparison with older patient cohorts (Daneshmand, unpublished data, 2016). Although the possibility of increasing complications must be entertained, the more probable explanation is the careful attention to data collection and monitoring that has been used in recent years. Similar results have been noted at other centers of excellence where modern reported complications may exceed those reported in historical series.¹⁴ Therefore, comparison with prior studies is difficult, yet the significant morbidity and extensive recovery period from radical cystectomy is evident, even if undercaptured. When strict definitions are used and complications are categorized by major and minor severity, the complication rates associated with radical cystectomy at

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