

New Trends in the Surgical Management of Invasive Bladder Cancer



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KEYWORDS

- Robotic-assisted radical cystectomy • Lymph node dissection • Surgical trends
- Centralization • ERAS

KEY POINTS

- Use of robotic-assisted radical cystectomy has increased steadily during past decade, with comparable short-term surgical quality metrics and functional and complication outcomes compared with open radical cystectomy. Ongoing randomized trials are needed to demonstrate durable oncologic efficacy and equivalence to open surgery.
- Bilateral dissection of the primary pelvic lymph node drainage system is a critical part of the surgical approach; however, the proximal extent of the dissection is currently being evaluated in phase III trials.
- Enhanced recovery after surgery protocols show tremendous potential in the perioperative management of patients undergoing radical cystectomy, reducing complications and length of hospital stay through targeted interventions aimed at ensuring that patients' medical status is optimized before surgery and that they return to baseline function as soon as possible postoperatively.
- Alvimopan has been shown in randomized controlled trials to provide quicker return of gastrointestinal function.
- Improved perioperative morbidity and mortality are seen with centralization of radical cystectomy in high-volume centers and with high-volume surgeons.

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INTRODUCTION

Radical cystectomy with bilateral pelvic lymph node dissection (PLND) and urinary diversion is the gold standard for management of clinical stage T2 through 4a bladder cancer that is not metastatic and for non-muscle-invasive high-grade urothelial carcinoma that is refractory to intravesical therapy, and for palliation in patients with severe local symptoms.¹⁻⁴ Open radical cystectomy (ORC) has been the mainstay of curative treatment for decades, with modifications including nerve-sparing continent urinary diversion and proximal extent of PLND. During the preceding 30 years, 5-year trends in relative survival of bladder cancer have only improved marginally, from 72% in 1975 through 1977 to 80% in 2003 through 2009.⁵ Although survival rates have not shifted dramatically, complication rates have improved but remain high, with rates up to 60% and prolonged hospital stays still common.^{4,5} Thus, novel technology, techniques, and management strategies have continually been sought to improve surgical outcomes after radical cystectomy.

This article discusses several modifications in surgical care. First, traditional ORC is performed via an open, infraumbilical midline incision. Surgeons continue to innovate and lengths of stay have steadily decreased. However, the introduction of robotic-assisted radical cystectomy (RARC) offers the hope of a less morbid surgical approach.⁶⁻⁸ Although uptake has not been as rapid as robotic-assisted laparoscopic prostatectomy (RALP), it is increasingly being used.⁷ Second, extended PLND was introduced. Although strong evidence exists for the benefit of bilateral PLND, the relative extent of lymphadenectomy, standard versus extended, is currently under investigation. Third, enhanced recovery after surgery (ERAS) protocols have emerged, with initial evidence from colorectal surgery showing tremendous potential in the perioperative management of patients undergoing radical cystectomy. Studies suggest that these protocols have reduced complications and length of hospital stay through targeted interventions aimed at ensuring that patients' medical status is optimized before surgery and that they return to baseline function as soon as possible postoperatively. Fourth, level I evidence supports the use of alvimopan for earlier return of bowel function, and this agent is commonly incorporated within an ERAS protocol. Finally, the benefits of radical cystectomy centralization in high-volume surgical centers are reviewed.

ROBOTIC-ASSISTED LAPAROSCOPIC CYSTECTOMY

Although laparoscopic cystectomy was first reported in the literature in the early 90s, it was not widely embraced because of the high technical skill required.⁹ The robotic platform, however, provides the benefits of a magnified 3-dimensional image; the ability to use an EndoWrist, which allows superior motion over laparoscopic instruments; and a more ergonomic position that effectively makes minimally invasive radical cystectomy a viable alternative for surgeons with advanced laparoscopic and robotic experience. Potential benefits include reduced blood loss, fewer transfusions, lower narcotic requirements, quicker return of bowel function, shortened length of stay and improved cosmesis.^{8,10-12} These perceived advantages are offset by longer operative times and a lack of tactile feedback, which is typically a mainstay of ORC in determining resectability and the presence of extravesical disease.¹³ Furthermore, in a value-based purchasing environment, cost must be accounted for in the evaluation of the relative advantages and disadvantages associated with these 2 approaches. In addition, RARC may be limited in patients with multiple prior abdominal surgeries or in those who cannot tolerate the pneumoperitoneum or steep Trendelenburg position required because of body habitus or comorbidities.

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