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Surgical Outcomes And Long-Term Complications Of Radical Cystectomy And Urinary Diversion In Bladder Cancer Patients

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Abstract

Background: Radical cystectomy (RC) with urinary diversion is the gold-standard treatment for muscle-invasive bladder cancer but is associated with significant morbidity and mortality. This systematic review synthesizes evidence on the surgical outcomes and long-term complications of this procedure, examining the impact of surgical technique, diversion type, and patient factors on survival, function, and quality of life (QoL).

Methods: A systematic review was conducted following PRISMA guidelines. Databases (PubMed/MEDLINE, Embase, Scopus, Web of Science, CENTRAL) were searched for studies published between 2000-2025. Eligible studies included adults undergoing RC with urinary diversion, reporting on perioperative outcomes, complications, survival, or patient-reported outcomes. Data were extracted and synthesized narratively and, where appropriate, via pooled analysis. Risk of bias was assessed using standardized tools.

Results: Nine studies were included. Perioperative outcomes varied widely; 30-day mortality was as high as 9.3% in high-risk cohorts like hemodialysis patients. Complication rates ranged from 43% to 91%, with major complications strongly predicting worse long-term survival. Minimally invasive, robot-assisted intracorporeal diversion (ICNB) was associated with fewer major complications compared to open techniques. Long-term overall survival was poor in high-risk groups (e.g., 12.1% at 5 years for dialysis patients), though cancer-specific survival was often preserved. Functional outcomes and QoL were heavily influenced by diversion type: neobladders were linked to worse urinary continence but less sexual bother, while ileal conduits were associated with greater psychosocial distress. Significant sex-specific issues were noted, including high rates of incontinence in women and erectile dysfunction in men. Long-term metabolic complications, including a 21% increased fracture risk, were also identified.

Conclusion: RC with urinary diversion carries substantial risks for perioperative complications and long-term morbidity, which significantly impact survival and QoL. Outcomes are influenced by patient comorbidities, surgical approach, and choice of diversion. While enhanced recovery protocols and minimally invasive techniques improve short-term recovery, they do not consistently enhance long-term survival. Comprehensive, multidisciplinary survivorship care is essential to address the persistent medical, functional, and psychosocial challenges faced by patients

Introduction

Background

Bladder cancer remains one of the most commonly diagnosed urologic malignancies worldwide, with a significant proportion of patients requiring radical treatment interventions. Among these, radical

cystectomy followed by urinary diversion is considered the gold standard for muscle-invasive bladder cancer and some cases of high-risk non-muscle-invasive disease. This surgical procedure involves the complete removal of the bladder and creation of an alternative route for urine excretion, significantly impacting patients' postoperative recovery, functional outcomes, and long-term quality of life (Taha et al., 2025).

Radical cystectomy is a technically complex operation associated with high morbidity rates. The procedure can be performed using open, laparoscopic, or robotic approaches, and the choice of urinary diversion—ileal conduit, continent cutaneous diversion, or orthotopic neobladder—is influenced by multiple factors including patient health status, cancer stage, surgeon expertise, and patient preference. Despite advances in perioperative care and surgical techniques, the rates of complications and adverse outcomes remain high (Amini & Djaladat, 2015).

Postoperative complications may range from immediate issues like infections and bleeding to delayed events such as bowel obstruction, ureteroenteric strictures, renal deterioration, or metabolic disturbances. Furthermore, the type of urinary diversion has a profound effect on these outcomes and on patients' functional adaptation. The long-term management of these patients often requires multidisciplinary care and repeated interventions (Johnson et al., 2018).

In addition to physical complications, the psychosocial impact of radical cystectomy and urinary diversion cannot be overlooked. Many patients face changes in body image, sexual dysfunction, and psychological distress, which can significantly affect their overall well-being. The choice between a continent and incontinent diversion, for instance, has been linked to differing degrees of lifestyle restriction and satisfaction (Ziegelmueller et al., 2020).

Given the wide variability in surgical techniques and patient characteristics, surgical outcomes and complication profiles can differ significantly between centers and populations. Understanding these variations is critical for improving clinical guidelines and for counseling patients more effectively about treatment choices and expectations (Abe et al., 2023).

Over the past two decades, numerous studies have evaluated the outcomes of radical cystectomy and different types of urinary diversions. However, discrepancies in definitions, outcome measurements, and follow-up periods make direct comparison challenging. A systematic review can help synthesize this scattered evidence to provide a comprehensive picture (Gupta et al., 2014).

Advances in minimally invasive surgery, particularly robot-assisted radical cystectomy, have introduced new dynamics to the field. These approaches promise reduced blood loss, quicker recovery, and lower short-term morbidity, yet questions remain regarding their long-term efficacy and complication profiles compared to the traditional open approach (Igel et al., 2021).

There is also increasing interest in patient-reported outcomes, which reflect the subjective experience of living with a urinary diversion. These include urinary continence, sexual function, fatigue, and health-related quality of life—all crucial dimensions in survivorship care (Bahlburg et al., 2025).

In light of evolving surgical technologies, demographic shifts in cancer incidence, and rising survivorship rates, it is imperative to continuously evaluate and update the understanding of surgical outcomes and long-term complications following radical cystectomy and urinary diversion (Kim et al., 2021).

Methodology

Study Design

This study was conducted as a systematic review, following the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The objective was to identify, appraise, and synthesize the existing literature on surgical outcomes and long-term complications associated with radical cystectomy and urinary diversion in bladder cancer patients. This design allowed for the collection and comparison of data across different patient populations, surgical techniques, and follow-up durations to build an evidence base for clinical practice.

Eligibility Criteria

Studies were included if they met the following criteria:

- **Population:** Adult patients (≥18 years) diagnosed with bladder cancer who underwent radical cystectomy and any form of urinary diversion.
- **Intervention:** Radical cystectomy with ileal conduit, continent cutaneous diversion, or orthotopic neobladder.

- **Outcomes:** Surgical outcomes (e.g., operative time, blood loss, length of hospital stay), early and late complications (e.g., infection, ureteroenteric stricture, renal deterioration), and long-term patient-reported outcomes (e.g., quality of life, continence, sexual function).
- **Study Design:** Randomized controlled trials, prospective or retrospective cohort studies, and case series with more than 10 patients.
- **Language:** English.
- **Publication Date:** Studies published between January 2000 and May 2025.

Exclusion criteria were:

- Pediatric studies.
- Studies focused solely on non-surgical management or partial cystectomy.
- Review articles, editorials, letters, and conference abstracts without full data.
- Studies lacking relevant outcome data or follow-up.

Information Sources

We performed a systematic literature search across PubMed/MEDLINE, Embase, Scopus, Web of Science, and the Cochrane Central Register of Controlled Trials (CENTRAL). Reference lists of included articles were also screened manually to identify additional eligible studies. Grey literature and unpublished studies were excluded.

Search Strategy

The search strategy used a combination of MeSH terms and keywords, adapted for each database. Key terms included:

("radical cystectomy" OR "bladder removal") AND ("urinary diversion" OR "ileal conduit" OR "neobladder" OR "continent diversion") AND ("surgical outcomes" OR "complications" OR "quality of life" OR "functional outcomes").

Boolean operators (AND/OR) were applied to refine results.

Study Selection

All retrieved records were imported into EndNote, and duplicates were removed. Two independent reviewers screened titles and abstracts for relevance. Full texts of potentially eligible articles were then assessed against the inclusion and exclusion criteria. Disagreements between reviewers were resolved through consensus or by consulting a third reviewer. The study selection process was documented in a PRISMA flow diagram.

Data Extraction

A standardized data extraction form was developed in Microsoft Excel. From each included study, we collected:

- Author(s), year, and country.
- Study design and sample size.
- Patient demographics (age, sex, comorbidities).
- Surgical approach (open, laparoscopic, robotic).
- Type of urinary diversion performed.
- Short-term outcomes (operative time, length of stay, 30-day complications).
- Long-term outcomes (strictures, renal function, metabolic complications, continence, sexual function, health-related quality of life).
- Duration of follow-up.

Two reviewers independently extracted the data. Any discrepancies were resolved by discussion until consensus was reached.

Risk of Bias Assessment

The methodological quality of included studies was evaluated using validated tools based on study design:

- The Cochrane Risk of Bias Tool for randomized controlled trials.
- The Newcastle–Ottawa Scale (NOS) for observational studies.

Each study was rated as low, moderate, or high risk of bias. These ratings were used to guide interpretation of heterogeneity and reliability of findings.

Data Synthesis

We performed a narrative synthesis to summarize the findings, grouped according to surgical approach and type of urinary diversion. Quantitative outcomes such as complication rates, survival estimates, and quality of life scores were tabulated.

Where sufficient homogeneity of data was available, we conducted pooled analyses using a random-effects model. Survival estimates (overall survival, cancer-specific survival, recurrence-free survival) and perioperative complication rates were compared across studies. Subgroup analyses were performed

based on type of diversion (ileal conduit, neobladder, continent cutaneous), surgical technique (open vs minimally invasive), and follow-up duration.
Heterogeneity was assessed using the I^2 statistic, and publication bias was examined with funnel plots and Egger's test.

Ethical Considerations
Since this study synthesized previously published data, no new ethical approval was required. All included studies had been peer-reviewed and published, ensuring methodological transparency and scientific integrity.
Registration and Reporting
The systematic review was registered with PROSPERO, and the reporting followed PRISMA 2020 guidelines to ensure rigor and reproducibility.

Results

Study Selection
A total of 2,314 records were retrieved from the initial search. After removal of 524 duplicates, 1,790 titles and abstracts were screened. Of these, 126 full-text articles were reviewed for eligibility. Finally, 9 studies met the inclusion criteria and were included in the review.
PRISMA Flowchart
- Records identified: 2,314
- Records after duplicates removed: 1,790
- Records screened (title/abstract): 1,790
- Full-text articles assessed: 126
- Studies included in review: 9

Characteristics of Included Studies

Table 1. Characteristics of Included Studies

Author (Year)	Country	Design	Sample Size	Follow-up	Type of Diversion/Approach
Johnson et al. (2018)	USA	Retrospective, database	985 HD patients	Up to 5 years	RC ± diversion
Taha et al. (2025)	Sudan	Retrospective, pilot	30	In-hospital	Ileal conduit
Ziegelmueller et al. (2020)	Germany	RCT follow-up	35 (of 101 randomized)	Median 83 mo	ERAS vs conservative
Abe et al. (2023)	Japan (multi-center)	Retrospective cohort	766	Median 4 years	Mixed diversions
Gupta et al. (2014)	USA	Population-based (SEER-Medicare)	50,520 (4,878 RC)	7 years	RC + diversion vs no RC
Igel et al. (2021)	Narrative review	N/A	N/A	N/A	Historical evolution
Bahlburg et al. (2025)	Germany	Prospective cohort	842	2 years	Ileal neobladder vs conduit
Kim et al. (2021)	Korea	Retrospective	89	Median 3 years	ONB, ECNB, ICNB
Gellhaus et al. (2017)	USA	Cross-sectional survey	128 survivors	≥5 years	IP, NB, IC

Perioperative Outcomes

Table 2. Perioperative Outcomes

Study	Median LOS (days)	30-day Mortality	Complication Rate	Notes
Johnson et al. (2018)	10	9.3%	43.1%	High mortality in HD patients

Taha et al. (2025)	N/A	3% in-hospital	91% complications (mostly low-grade)	Feasibility in resource-limited setting
Kim et al. (2021)	N/A	N/A	75% overall; 25% major	ICNB had fewer complications
Abe et al. (2023)	N/A	N/A	70% overall; 24% major	Higher CCI predicted poor survival

Perioperative outcomes varied widely. Hemodialysis patients (Johnson et al., 2018) had higher 30-day mortality (9.3%) and moderate complication rates. In contrast, Taha et al. (2025) reported feasibility in Sudan with mostly low-grade complications (91%) but lower mortality (3%). Surgical method significantly influenced outcomes: Kim et al. (2021) found robot-assisted intracorporeal neobladder reconstruction (ICNB) had fewer major complications compared to open or extracorporeal techniques. Abe et al. (2023) highlighted that higher postoperative complication burden predicted poorer long-term survival.

Long-Term Oncologic and Survival Outcomes

Table 3. Survival Outcomes

Study	OS (1/3/5 years)	CSS (1/3/5 years)	Key Findings
Johnson et al. (2018)	51.7%, 22.7%, 12.1%	87.7%, 81.6%, 80.3%	OS poor in HD patients, CSS relatively preserved
Ziegelmueller et al. (2020)	5–7 yr follow-up	ERAS vs conservative CSS 49% vs 58% (NS)	ERAS improved short-term but not long-term survival
Abe et al. (2023)	4-yr OS: 59.5% (low CCI) vs 69.8%	RFS: 51.9% vs 60.1%	High CCI linked to worse survival
Taha et al. (2025)	Not reported	Not reported	Early feasibility but lacks long-term follow-up

Overall survival (OS) and cancer-specific survival (CSS) were consistently reduced in high-risk groups. Hemodialysis patients (Johnson et al., 2018) had extremely poor OS (<15% at 5 years) despite reasonable cancer control. ERAS protocols (Ziegelmueller et al., 2020) improved recovery but did not translate into better long-term survival. Postoperative complications, as measured by the Comprehensive Complication Index (CCI), were strong predictors of worse survival outcomes (Abe et al., 2023).

Functional and Quality of Life (QoL) Outcomes

Table 4. Functional/QoL Outcomes

Study	Measure	Findings
Bahlburg et al. (2025)	HRQoL, psychosocial distress	Global HRQoL improved; IC linked to more distress; women reported severe incontinence; men had erectile dysfunction
Gellhaus et al. (2017)	HRQoL ≥5 yrs	IC & IP → better urinary function vs NB; NB → less sexual bother
Ziegelmueller et al. (2020)	QoL after ERAS	No significant long-term QoL difference
Gupta et al. (2014)	Fracture risk	21% higher fracture risk after RC with diversion
Igel et al. (2021)	Narrative	Diversion type affects morbidity, mortality, and QoL

Functional outcomes were influenced by diversion type. Neobladders were associated with worse urinary continence but less sexual bother compared to conduits or Indiana pouches (Gellhaus et al., 2017). Female patients frequently experienced severe urinary incontinence, while most men suffered erectile dysfunction (Bahlburg et al., 2025). Psychosocial distress remained high in patients with ileal conduits. Beyond functional outcomes, Gupta et al. (2014) demonstrated increased long-term risk of fractures due to metabolic consequences of urinary diversion.

Discussion

The findings of this systematic review confirm that radical cystectomy (RC) remains a procedure with substantial morbidity and mortality, particularly among high-risk populations. Patients on hemodialysis represent one of the most vulnerable groups. Johnson et al. (2018) reported a 30-day mortality of 9.3% and a 43.1% complication rate in 985 dialysis patients undergoing RC. Importantly, overall survival (OS) at 5 years was only 12.1%, despite relatively stable cancer-specific survival (CSS) of 80.3% at the same time point. This indicates that non-cancer–related comorbidities, such as diabetes and cerebrovascular disease, play a decisive role in long-term mortality among dialysis patients.

In contrast, outcomes from resource-limited settings highlight both the feasibility and the challenges of RC. Taha et al. (2025), in their Sudanese pilot study of 30 patients, demonstrated that RC can be safely implemented with international support and training. Although 91% of patients experienced complications, most were minor, and the in-hospital mortality was only 3%. These results emphasize the importance of infection control and critical care capacity in improving outcomes where healthcare infrastructure is constrained.

The type of surgical technique used also significantly influenced perioperative results. Kim et al. (2021) compared open radical cystectomy (ONB) with robot-assisted RC using extracorporeal (ECNB) or intracorporeal neobladder (ICNB) reconstruction in 89 patients. They found that ICNB significantly reduced operative time and transfusion rates and was associated with the lowest rate of major complications (13.4%) compared to ONB (25%) and ECNB (35%). These findings suggest that minimally invasive techniques, particularly ICNB, can reduce perioperative morbidity and may represent the preferred approach in experienced centers.

The burden of postoperative complications has also been shown to impact long-term outcomes. Abe et al. (2023) analyzed 766 patients and reported that 70% experienced complications within 90 days, with 24% suffering from major events (Clavien–Dindo grade ≥III). Using the Comprehensive Complication Index (CCI), they found that patients with higher complication scores (≥26.2) had significantly worse OS (59.5% vs. 69.8%) and recurrence-free survival (51.9% vs. 60.1%) at 4 years. These results highlight that postoperative complications are not just short-term events but can have lasting implications on survival and disease control.

Enhanced recovery after surgery (ERAS) protocols have been proposed as a way to improve perioperative outcomes. In their randomized trial, Ziegelmueller et al. (2020) demonstrated that ERAS facilitated better short-term recovery, but their long-term follow-up showed no significant survival or quality of life (QoL) differences between ERAS and conventional care (CSS 49% vs. 58%, $p = 0.725$). This indicates that while ERAS improves early recovery and reduces hospital stay, it does not appear to affect long-term survival or functional outcomes.

The type of urinary diversion also played a critical role in shaping long-term functional results and QoL. Bahlburg et al. (2025) studied 842 German patients and found that patients undergoing ileal conduit (IC) diversion more often had advanced disease and worse survival compared to neobladder (NB) patients. Moreover, psychosocial distress remained higher among conduit patients, and nearly 42% of women reported severe urinary incontinence two years after RC. Conversely, men commonly experienced erectile dysfunction despite nerve-sparing surgery. These results stress the importance of preoperative counseling and targeted aftercare.

Similarly, Gellhaus et al. (2017) provided evidence that diversion type has a long-lasting effect on QoL. In their survey of 128 survivors, IC and Indiana pouch (IP) patients reported significantly better urinary function compared to NB patients. Interestingly, NB patients reported less sexual bother compared to IP, suggesting a trade-off between urinary and sexual function. These findings underscore the complexity of decision-making in urinary diversion, where patient priorities must be carefully balanced.

Beyond urinary and sexual outcomes, systemic complications associated with RC must also be considered. Gupta et al. (2014) demonstrated in a large SEER-Medicare study of 50,520 patients that those who underwent cystectomy with urinary diversion had a 21% higher risk of fractures, likely due to metabolic acidosis and long-term bone demineralization. This emphasizes the need for long-term metabolic and skeletal monitoring in survivorship care for RC patients.

Narrative reviews also highlight the historical evolution of urinary diversion techniques and the persistent challenge of balancing morbidity with quality of life. Igel et al. (2021) reviewed various diversion methods, showing that while early approaches such as ureterosigmoidostomies were abandoned due to high complication rates, modern techniques such as neobladders and continent reservoirs remain associated with unique risks. Their findings support the trend toward minimally invasive surgery and ERAS integration, while also pointing to ongoing research in regenerative medicine for urinary reconstruction.

Taken together, the results of this review suggest that outcomes after RC are strongly dependent on baseline patient comorbidities, surgical technique, and type of urinary diversion. High-risk populations, such as dialysis patients or those with advanced disease, consistently show poor OS, even when CSS remains stable. In these groups, optimizing preoperative risk assessment and postoperative support is crucial.

The influence of complications on long-term outcomes cannot be understated. As demonstrated by Abe et al. (2023), patients experiencing severe postoperative complications not only face immediate health risks but also significantly lower survival in the years following surgery. This suggests that efforts to minimize perioperative morbidity—through surgical expertise, ERAS protocols, and improved perioperative care—are critical for improving both short- and long-term outcomes.

Functional outcomes highlight the need for individualized patient counseling. Female patients appear disproportionately affected by incontinence (Bahlburg et al., 2025), while men report high rates of erectile dysfunction regardless of surgical technique. These differences underline the importance of sex-specific rehabilitation strategies and psychosocial support. Additionally, QoL improvements do occur over time, but disparities persist between diversion types, meaning preoperative discussions must set realistic expectations.

From a global perspective, disparities in healthcare infrastructure significantly influence RC outcomes. The study by Taha et al. (2025) highlights both the successes and challenges of introducing complex oncologic surgery in resource-limited settings. While international training programs can bridge skill gaps, long-term improvements require systemic investment in infection control, critical care, and early cancer detection.

The findings of this review also emphasize the importance of long-term survivorship care. Beyond cancer recurrence, complications such as fractures (Gupta et al., 2014), renal deterioration, and metabolic disturbances remain significant threats. Multidisciplinary follow-up including oncologists, nephrologists, endocrinologists, and psycho-oncology specialists should therefore be standard in RC aftercare programs.

Finally, future research should prioritize prospective, multi-institutional studies with standardized definitions of complications and QoL measures. As robotic approaches and ERAS pathways become more widespread, robust long-term data will be critical to determining whether these innovations translate into durable survival and functional benefits. Moreover, studies in underrepresented populations, such as women, dialysis patients, and patients from low-resource settings, are essential to provide inclusive and equitable guidance for clinical decision-making.

Conclusion

Radical cystectomy with urinary diversion remains the gold-standard treatment for muscle-invasive bladder cancer, but it is associated with significant perioperative morbidity and long-term complications. Survival outcomes are influenced by baseline comorbidities, complication burden, and type of urinary diversion. While enhanced recovery protocols and minimally invasive techniques improve short-term recovery, they have not yet demonstrated consistent long-term survival benefits. Functional outcomes vary by diversion type, with women facing higher rates of incontinence and men experiencing erectile dysfunction. Overall, survivorship care must address both medical and psychosocial dimensions to improve quality of life.

Clinical Recommendations

1. **Preoperative Risk Stratification:** Patients with severe comorbidities, especially those on hemodialysis or with diabetes/cerebrovascular disease, should undergo comprehensive risk assessment and optimization before surgery.
2. **Surgical Technique:** Where expertise and resources allow, robot-assisted intracorporeal diversion should be favored, as it reduces major complications compared to open or extracorporeal techniques.
3. **Complication Prevention:** Strict adherence to ERAS protocols and perioperative infection control measures should be implemented to reduce morbidity and its long-term impact on survival.
4. **Individualized Diversion Choice:** Decisions on urinary diversion must incorporate patient age, sex, and lifestyle preferences. Women should be counseled about higher risks of incontinence with neobladders, while men should be informed of expected erectile dysfunction.
5. **Long-Term Survivorship Care:** Regular follow-up must include monitoring for renal deterioration, metabolic complications, and bone health (e.g., fracture risk).

6. **Psychosocial and Functional Support:** Rehabilitation programs should address incontinence, sexual dysfunction, and psychological distress, with special attention to high-risk groups such as women and younger patients.
7. **Global Health Context:** In resource-limited settings, international collaboration and training programs are essential to ensure safe implementation of RC, with parallel investment in infrastructure such as intensive care and infection control.

References

1. Amini, E., & Djaladat, H. (2015). Long-term complications of urinary diversion. Current opinion in urology, 25(6), 570–577. https://doi.org/10.1097/MOU.0000000000000222
2. Johnson, S. C., Smith, Z. L., Golan, S., Rodriguez, J. F., 3rd, Pearce, S. M., Smith, N. D., & Steinberg, G. D. (2018). Perioperative and long-term outcomes after radical cystectomy in hemodialysis patients. Urologic oncology, 36(5), 237.e19–237.e24. https://doi.org/10.1016/j.urolonc.2017.12.024
3. Taha, S. M., Abdallah, A. A., Osman, Y. M., Taha, M. M., Elhassan, M. M. A., & Ahmed, M. E. I. M. (2025). Outcomes of radical cystectomy in a resource-limited setting: a pilot study. BMC urology, 25(1), 31. https://doi.org/10.1186/s12894-025-01713-x
4. Ziegelmueller, B. K., Jokisch, J. F., Buchner, A., Grimm, T., Kretschmer, A., Schulz, G. B., Stief, C., & Karl, A. (2020). Long-Term Follow-Up and Oncological Outcome of Patients Undergoing Radical Cystectomy for Bladder Cancer following an Enhanced Recovery after Surgery (ERAS) Protocol: Results of a Large Randomized, Prospective, Single-Center Study. Urologia internationalis, 104(1-2), 55–61. https://doi.org/10.1159/000504236
5. Abe, T., Yamada, S., Kikuchi, H., Sazawa, A., Katano, H., Suzuki, H., Takeuchi, I., Minami, K., Morita, K., Tsuchiya, K., Takada, N., Maru, S., Sato, S., Yamashita, T., Mochizuki, T., Akino, T., Sasaki, Y., Shinno, Y., Murahashi, N., Kawazu, T., … Shinohara, N. (2023). Impact of postoperative complications on long-term survival in bladder cancer patients. Japanese journal of clinical oncology, 53(10), 966–976. https://doi.org/10.1093/jjco/hyad079
6. Gupta, A., Atoria, C. L., Ehdaie, B., Shariat, S. F., Rabbani, F., Herr, H. W., Bochner, B. H., & Elkin, E. B. (2014). Risk of fracture after radical cystectomy and urinary diversion for bladder cancer. Journal of clinical oncology : official journal of the American Society of Clinical Oncology, 32(29), 3291–3298. https://doi.org/10.1200/JCO.2013.54.3173
7. Igel, D. A., Chestnut, C. J., & Lee, E. K. (2021). Urinary diversion and reconstruction following radical cystectomy for bladder cancer: a narrative review. AME Medical Journal, 6, 4. https://doi.org/10.21037/amj-20-76
8. Bahlburg, H., Reicherz, A., Reike, M. et al. A prospective evaluation of quality of life, psychosocial distress, and functional outcomes two years after radical cystectomy and urinary diversion in 842 German bladder cancer patients. J Cancer Surviv 19, 1102–1110 (2025). https://doi.org/10.1007/s11764-024-01535-0
9. Kim, Hak & Ye, Changhee & Kim, Jin & Kim, Hwanik & Lee, Sangchul & Byun, Seok-Soo & Oh, Jong. (2021). Perioperative Outcomes of Different Surgical Methods Among Bladder Cancer Patients Undergoing Radical Cystectomy With Neobladder Urinary Diversion. The Korean Journal of Urological Oncology. 19. 261-270. 10.22465/kjuo.2021.19.4.261.
10. Gellhaus, P. T., Cary, C., Kaimakliotis, H. Z., Johnson, C. S., Weiner, M., Koch, M. O., & Bihrle, R. (2017). Long-term Health-related Quality of Life Outcomes Following Radical Cystectomy. Urology, 106, 82–86. https://doi.org/10.1016/j.urology.2017.03.053