

Article

Short-Term Health Outcomes of Laparoscopic Radical Cystectomy and Assessing The Immediate Post-Operative Results, Including Complication Rates, Length of Hospital Stays, and Recovery Time

Dr. Alaa Abdulmir Hasan, Dr. Ali Badan Mohsen Alkuraiti, Dr. Mohammed Hameed Jasim

1. Iraqi Ministry of Health, Karbala Medical Office, Imam Hussain Medical Teaching City, Department of Urology, Karbala, Iraq.
 2. Iraqi Ministry of Health, Karbala Medical Office, Imam Hasan Medical Teaching City, Department of Urology, Karbala, Iraq.
 3. Iraqi Ministry of Health, Karbala Medical Office, Imam Hussain Medical Teaching City, Department of Urology, Karbala, Iraq.
- * Correspondence: alaaalshattab@gmail.com , wayak1234@gmail.com , Mohammed.h.amani1981@gmail.com

Abstract: Although radical cystectomy has been shown to be effective in terms of local control and long-term disease-free survival, this procedure can be associated with high perioperative morbidity. This study specialized in evaluating clinical outcomes of patients following laparoscopic radical cystectomy by recruiting 107 patients who underwent the procedure between February 14, 2023, and October 25, 2024. Demographic data and surgical outcomes, including pain scores, hospital length of stay, mortality rates, and recovery time, were recorded, along with health-related quality of life assessments through questionnaires. The surgical outcomes revealed that the operation period was 280 ± 30 min, days to return to a regular diet averaged 4 ± 1.5 , ICU admission rate was 3.74%, length of stay ≤ 6 days was observed in 90.65% of cases, mortality occurred in 2 cases, and post-operative complications were 15.89%, while for open surgery, the operation period was 250 ± 30 min, days to return to a regular diet averaged 6.2 ± 1.5 , ICU admission was 13.08%, length of stay ≤ 6 days was 83.18%, mortality occurred in 9 cases, and post-operative complications were 20.56%. The present study demonstrated that laparoscopic radical cystectomy is the optimal surgical intervention, exhibiting favorable clinical and pathological outcomes in comparison with open surgery.

Citation: Hasan, A. A. Short-Term Health Outcomes of Laparoscopic Radical Cystectomy and Assessing The Immediate Post-Operative Results, Including Complication Rates, Length of Hospital Stays, and Recovery Time. International Journal of Health Systems and Medical Sciences 2025, 4(1), 97-104.

Received: 10th Jan 2025
Revised: 11th Jan 2025
Accepted: 24th Jan 2025
Published: 27th Feb 2025



Copyright: © 2024 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>)

Keywords: Radical Cystectomy; Laparoscopic Approach; Complications Rate; Hospitalization Duration; and Recovery Time.

1. Introduction

The increase in the number of cases of bladder cancer, as well as advances in treatment, makes this type of cancer one of the main challenges faced by the urology team. Nursing is gaining more and more prominence in this area, as it provides care and education guidelines to patients who will be operated on for this type of cancer so that they can have a faster recovery and autonomy in their own care. [1], [2]

In the United States of America, it is estimated that about 60,240 patients were diagnosed with bladder carcinoma in 2004, and about 12,710 deaths from this cause are projected [3], [4]. Radical Cystoprostatectomy is today the most effective standard treatment for patients with invasive, organ-confined, recurrent, and high-grade bladder tumors, Although the complications of open cystectomy are in the range of 25 to 35% , among which are fistulas and infections, the progress in laparoscopy has resulted in a marked decrease in morbidity and in the time of hospitalization of patients [5], [6].

Radical Cystoprostatectomy with fleo-obturator lymphadenectomy was described more than 50 years ago. However, the advantages that laparoscopy has proposed in the

field of surgery have led doctors to assimilate this technique in order to offer the patient an alternative of lower morbidity for the resolution of his disease [7], [8].

Approximately 18 million new cases of oncological disease are diagnosed worldwide every year, of which 9.4 million are men and 8.6 million are women [9]. It is estimated that by 2040, the number of new cases could rise by an additional 11 million, with men again being the majority group [10]. Urinary bladder cancer represents the tenth cause of new diagnoses, according to the latest publications of the Global Cancer Observatory reports of the World Health Organization (WHO). The latest report for 2020 shows that there were 549,393 bladder cancer diagnoses in both sexes worldwide, 197,105 new cases were diagnosed in Europe, and there were 64,966 deaths [11], [9], [12].

For its part, in Spain, bladder cancer (CV) is the fifth most frequent cause of new diagnoses after colorectal, prostate, breast, and lung cancers. In 2018, 18,268 new bladder cancer diagnoses were made in Spain, which represents 6.8% of the total. In turn, there were 5,680 deaths due to this cancer, which means that it was the sixth cause of death due to cancer [13].

During the year 2022, 1,251 new cases of bladder cancer were registered in Castilla y León, with men being the majority group compared to women (1,023 new cases). The most affected age group was the over-75s. The incidence rate registered in the community for that year was 52 new cases detected per 100,000 inhabitants [14].

2. Materials and Methods

Based on this cross-sectional study, a comparison was made on all patients who were 107 participants who underwent both procedures. The first group (n = 55) underwent laparoscopic radical cystectomy, while the second group (n = 52) underwent open radical cystectomy. As for the inclusion and exclusion criteria, the samples were included as follows: 1) male and female patients, 2) patients aged 40-70 years, 3) patients with a previous history of bladder cancer, while 1) patients aged under 40 years and over 70 years, 2) patients with previous surgeries, and 3) patients with a history of bladder cancer were excluded.

Patients were eligible for study inclusion if they had biopsy-proven clinical stage T0, Tis, Ta, T1, T2, T3, and T4 of bladder cancer and were considered candidates for ORC or LRC at the discretion of the treating surgeon. Patients independently completed the FACT-VCI questionnaire in the clinic, supported by their family or urology clinic staff, if necessary, before surgery and 2, 7, and 12 months after surgery, allowing the measurement of four domains of well-being: physical, social/family, emotional, and functional. The FACT-VCI consists of 45 items rated from 0 to 4 and presented on an ordinal Likert scale, with higher scores indicating better health-related quality of life. Baseline demographic and clinical variables of the ORC or LRC cohorts were compared using t-tests and nonparametric rank sum tests for continuous variables and chi-square tests for categorical variables [15].

3. Results

Table 1 presents the demographic characteristics of the study participants, including age distribution, gender ratio, body mass index (BMI) categories, comorbidities, ASA scores, medical history, education status, occupation status, and economic levels, providing a comprehensive overview of the patient population

Table 1: Demographic characteristics.

VARIABLES	PATIENTS, {N = 107}	PERCENTAGE, %
AGE		
40 – 50	18	16.82%
51 – 60	30	28.04%
61 – 70	59	55.14%

SEX		
MALE	78	72.9%
FEMALE	29	27.1%
BMI, {KG/M2}		
24.0 – 27.9	33	30.84%
28 – 31.9	61	57.01%
> 32.0	13	12.15%
COMORBIDITIES		
HYPERTENSION	75	70.09%
DIABETES	34	31.78%
HYPERLIPIDEMIA	40	37.38%
KIDNEY DISEASE	9	8.41%
CARDIOVASCULAR DISEASE	15	14.02%
OTHERS	6	5.61%
ASA SCORES		
2	17	15.89%
3	84	78.50%
4	6	5.61%
MEDICAL HISTORY		
PRESENT	26	24.30%
ABSENT	81	75.70%
EDUCATION STATUS		
PRIMARY	22	20.56%
SECONDARY	33	30.84%
UNIVERSITY	52	48.60%
OCCUPATION STATUS		
SINGLE	8	7.48%
MARRIED	55	51.40%
DIVORCED	29	27.10%
WIDOW	15	14.02%
ECONOMY LEVEL, \$		
< 400	35	32.71%
401 – 700	40	37.38%
701 – 1000	24	22.43%
> 1000	8	7.48%

Figure 1 presents the histological classification of bladder cancer types identified in the study population. It categorizes different tumor histologies observed in patients,

highlighting the diversity in bladder cancer pathology. Understanding the histological distribution is important for treatment planning, as different types may have varied responses to surgical interventions

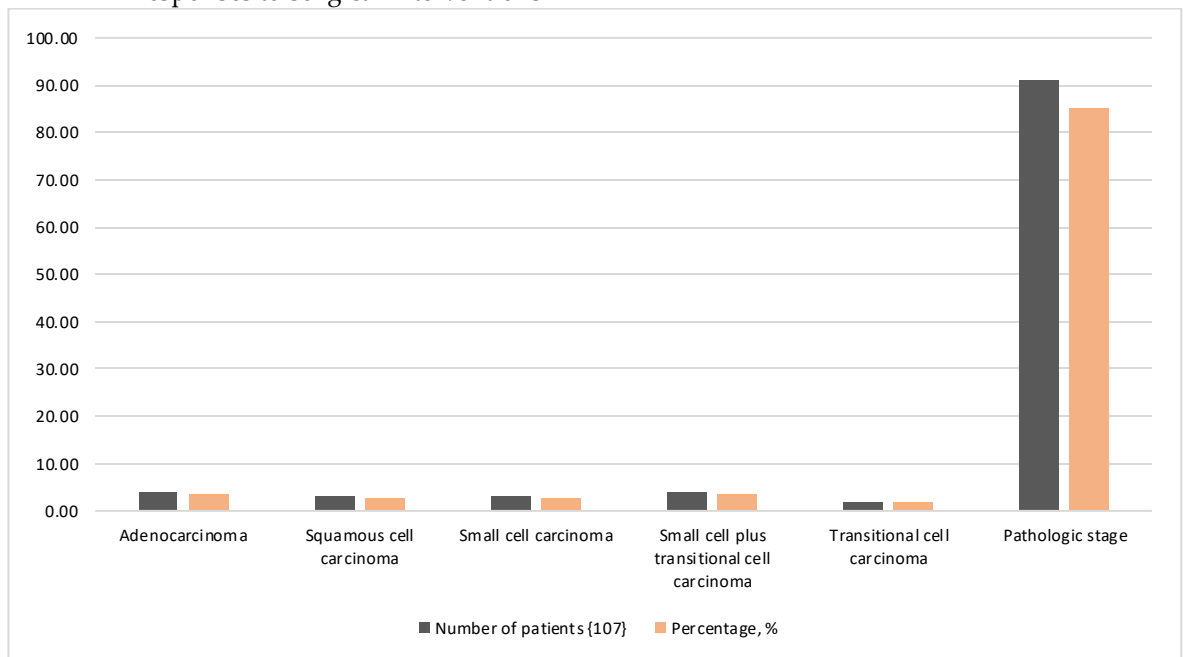


Figure 1: Identification of histology types.

Figure 2 illustrates the distribution of pathological stages among the study participants. It shows the severity levels of bladder cancer cases included in the study, ranging from early-stage tumors (T0, Tis, Ta) to advanced-stage malignancies (T3, T4). This distribution helps in evaluating the prognosis and determining the appropriate surgical and post-surgical management strategies.

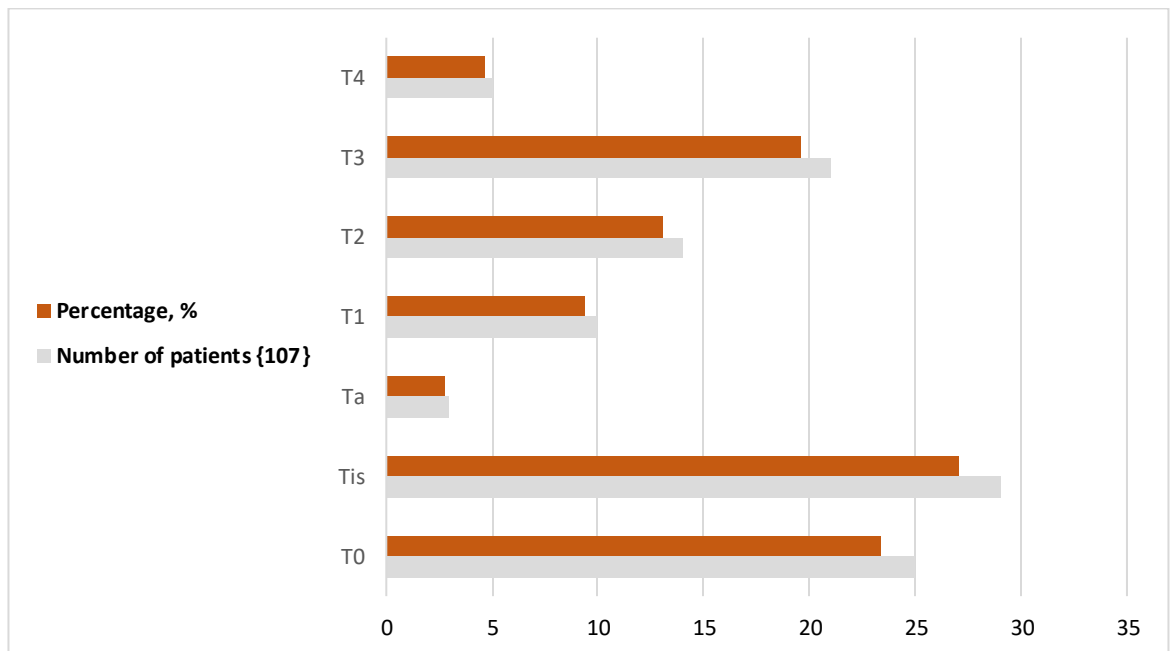


Figure 2: Distribution of pathological stages over patients.

Table 2 details the perioperative outcomes of patients undergoing laparoscopic radical cystectomy compared to open radical cystectomy. The parameters evaluated include surgery duration, estimated blood loss, the number of lymph nodes removed, ICU admission rates, urinary diversion types, length of hospital stay, mortality rates, and postoperative complications. The comparison provides insights into the effectiveness and

safety of both surgical approaches, helping to determine the optimal technique for patient recovery and postoperative care.

Table 2: Perioperative outcomes.

Variables	Laparoscopic radical cystectomy		Open radical cystectomy	
	N = 55	%	N = 52	%
Surgery period, min	280 ± 30		250 ± 30	
No. of bleeding cases	13	12.15%	18	16.82%
Estimated blood loss, mL	380 ± 40		750 ± 50	
No. of days to return to regular diet	4 ± 1.5		6.2 ± 1.5	
Lymph node yield	10.4 ± 2.3		21.2 ± 4.4	
Lymph node-positive	13	12.15%	24	22.43%
Urinary diversion				
Orthotopic ileal neobladder	3	2.8%	11	10.28%
Ileal conduit	104	97.2%	96	89.72%
ICU admission				
Yes	4	3.74%	14	13.08%
No	103	96.26%	93	86.92%
Length of stay				
≤6 days	97	90.65%	89	83.18%
> 6 days	10	9.35%	18	16.82%
Death cases	2	1.87%	9	8.41%
Postoperative complications				
Bleeding	2	1.87%	5	4.67%
Cardiac	3	2.80%	4	3.74%
Gastrointestinal	2	1.87%	3	2.80%
Genitourinary	4	3.74%	2	1.87%
Infectious	3	2.80%	2	1.87%
Pulmonary	2	1.87%	4	3.74%
Surgical	1	0.93%	2	1.87%
Satisfaction status				
Excellent	97	90.65%	88	82.24%
Good	6	5.61%	7	6.54%
Poor	4	3.74%	12	11.21%

Table 3 presents the findings of a quality-of-life assessment conducted on patients at different postoperative time intervals (2, 7, and 12 months) following either laparoscopic

or open radical cystectomy. The table assesses four main domains of well-being: physical, social/family, emotional, and functional. These results indicate the long-term impact of both surgical techniques on patient satisfaction and overall quality of life, allowing for a better understanding of recovery patterns and patient adaptation after surgery.

Table 3: A questionnaire on general health quality–life of patients following both of radical cystectomy.

Items	LRC			ORC		
	2 Months	7 Months	12 Months	2 Months	7 Months	12 Months
Physical well-being	3.5 ± 0.02	3.5 ± 0.01	3.7 ± 0.01	2.8 ± 0.09	2.9 ± 0.03	2.9 ± 0.06
Social/family well-being	3.0 ± 0.4	3.2 ± 0.04	3.4 ± 0.1	2.6 ± 0.06	2.7 ± 0.03	2.7 ± 0.04
Emotional well-being	3.3 ± 0.08	3.5 ± 0.05	3.7 ± 0.03	2.9 ± 0.08	2.5 ± 0.01	2.6 ± 0.05
Functional well-being	3.1 ± 0.03	3.4 ± 0.09	3.8 ± 0.04	3.0 ± 0.04	2.6 ± 0.02	2.6 ± 0.04

4. Discussion

A patient's well-being-related personal satisfaction is impacted by a few variables, including the social and emotionally supportive network, the patient's overall clinical and mental status, oncological administration, preoperative disease-related side effects, individual patient qualities and concerns, and patient fulfillment with urinary redirection and perioperative results. The Reality VCI evaluates a few factors of well-being related to personal satisfaction, in this manner making it conceivable to look at changed parts of prosperity [16], [17], [18]. A significant part of the urological writing on well-being related to personal satisfaction after extremist cystectomy centers around contrasts between sorts of urinary redirection after open revolutionary cystectomy and is review in nature.

Past planned HRQoL examinations have been restricted to RARC and contrasted and authentic ORC partners. Issues with these sorts of correlations incorporate that authentic ORC partners may not reflect current ORC practice, are innately dependent upon critical determination predisposition, are review in nature, and have contrasts in the instruments used to evaluate HRQoL [19].

Presently, LRC offers potential advantages, including decreased horribleness, more limited clinic stays, quicker recuperation, and diminished need for opiate torment prescription. In any case, whether these revealed benefits convert into expected enhancements in HRQoL results has not been explored. In the ongoing examination, we looked at score changes from the benchmark at 2, 6, and 9 months between the LRC and ORC associates and tracked down no huge contrasts in actual wellbeing, social/family wellbeing, close to home wellbeing, practical wellbeing, and absolute Truth VCI scores [20].

In the wake of adapting to pertinent segment and clinical variables, HRQoL scores were viewed as comparable between the ORC and LRC approaches, with the exception of a marginally lower actual well-being score at a half year in the ORC companion. Albeit this distinction was measurably huge, the clinical pertinence of this 2.5-point contrast is not really essential. In any remaining areas, the careful methodology affected HRQoL scores at the different time focuses considered [21].

Past reports have demonstrated the way that HRQoL can require as long as a year to get back to pattern after ORC, with practical wellbeing spaces getting back to gauge solely after over a year. In our examination, we found that HRQoL scores were tantamount at the pattern and 90 days after a medical procedure. Recuperation of various areas after an oncological medical procedure relies upon the patient's variation to urinary redirection,

recuperation of every day living exercises, recuperation of gut capability, social/family emotionally supportive network, and the patient's view of their ongoing condition [22].

5. Conclusion

Based on surgical outcomes, our study observed fewer complications in patients who underwent laparoscopic radical cystectomy compared to open surgery. Although open surgery was good, laparoscopic surgery showed improved surgical parameters in terms of lower complication rates, higher patient satisfaction, and improved postoperative quality of life.

REFERENCES

- [1] R. Siegel, D. Naishadham, and A. Jemal, "Cancer statistics, 2013," *CA*, vol. 63, pp. 11–30, 2013.
- [2] A. Lopez-Beltran, "Bladder cancer: clinical and pathological profile," *Scand. J. Urol. Nephrol. Suppl.*, no. 218, pp. 95–109, 2008.
- [3] C. Huang *et al.*, "Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China," *The lancet*, vol. 395, no. 10223, pp. 497–506, 2020.
- [4] A. Shabsigh, R. Korets, K. C. Vora, and others, "Defining early morbidity of radical cystectomy for patients with bladder cancer using a standardized reporting methodology," *Eur. Urol.*, vol. 55, pp. 164–174, 2009.
- [5] G. P. Haber, S. Crouzet, and I. S. Gill, "Laparoscopic and robotic-assisted radical cystectomy for bladder cancer: a critical analysis," *Eur. Urol.*, vol. 54, pp. 54–62, 2008.
- [6] G. P. Haber, S. C. Campbell, J. R. Jr. Colombo, and others, "Perioperative outcomes with laparoscopic radical cystectomy: 'pure laparoscopic' and 'open-assisted laparoscopic' approaches," *Urology*, vol. 70, pp. 910–915, 2007.
- [7] R. E. Taylor *et al.*, "Outcome for patients with metastatic (M2–3) medulloblastoma treated with SIOP/UKCCSG PNET-3 chemotherapy," *Eur. J. Cancer*, vol. 41, no. 5, pp. 727–734, 2005.
- [8] J. J. Leow, S. W. Reese, W. Jiang, and others, "Propensity-matched comparison of morbidity and costs of open and robot-assisted radical cystectomies: a contemporary population-based analysis in the United States," *Eur. Urol.*, 2014.
- [9] M. Menon, A. K. Hemal, A. Tewari, and others, "Nerve-sparing robot-assisted radical cystoprostatectomy and urinary diversion," *BJU Int.*, vol. 92, pp. 232–236, 2003.
- [10] A. F. Fergany and I. S. Gill, "Laparoscopic radical cystectomy," *Urol. Clin. North Am.*, vol. 35, pp. 455–466, viii–ix, 2008.
- [11] J. L. Wright and M. P. Porter, "Quality-of-life assessment in patients with bladder cancer," *Nat. Clin. Pract. Urol.*, vol. 4, pp. 147–154, 2007.
- [12] E. W. Gerharz, A. Mansson, S. Hunt, E. C. Skinner, and W. Mansson, "Quality of life after cystectomy and urinary diversion: an evidence-based analysis," *J. Urol.*, vol. 174, pp. 1729–1736, 2005.
- [13] H. Kim, "Comparative analysis of Google Meet and Slack in fostering student interaction in virtual learning," *Asian J. Digit. Educ.*, vol. 8, no. 3, pp. 23–41, 2022.
- [14] A. Smith, R. Kurpad, A. Lal, M. Nielsen, E. M. Wallen, and R. S. Pruthi, "Cost analysis of robotic versus open radical cystectomy for bladder cancer," *J. Urol.*, vol. 183, pp. 505–509, 2010.
- [15] J. Nix, A. Smith, R. Kurpad, M. E. Nielsen, E. M. Wallen, and R. S. Pruthi, "Prospective randomized controlled trial of robotic versus open radical cystectomy for bladder cancer: perioperative and pathologic results," *Eur. Urol.*, vol. 57, pp. 196–201, 2010.
- [16] N. R. Styn, J. S. Montgomery, D. P. Wood, and others, "Matched comparison of robotic-assisted and open radical cystectomy," *Urology*, vol. 79, pp. 1303–1309, 2012.
- [17] Z. A. Dotan, K. Kavanagh, O. Yossepowitch, and others, "Positive surgical margins in soft tissue following radical cystectomy for bladder cancer and cancer-specific survival," *J. Urol.*, vol. 178, pp. 2308–2312, 2007.
- [18] H. W. Herr, J. R. Faulkner, H. B. Grossman, and others, "Surgical factors influence bladder cancer outcomes: a cooperative group report," *J. Clin. Oncol.*, vol. 22, pp. 2781–2789, 2004.
- [19] V. Allareddy, J. Kennedy, M. M. West, and B. R. Konety, "Quality of life in long-term survivors of bladder cancer," *Cancer*, vol. 106, pp. 2355–2362, 2006.

-
- [20] E. Kikuchi, Y. Horiguchi, J. Nakashima, and others, "Assessment of long-term quality of life using the FACT-BL questionnaire in patients with an ileal conduit, continent reservoir, or orthotopic neobladder," *Jpn. J. Clin. Oncol.*, vol. 36, pp. 712–716, 2006.
- [21] M. Metcalfe, E. Estey, N. E. Jacobsen, D. Voaklander, and A. S. Fairey, "Association between urinary diversion and quality of life after radical cystectomy," *Can. J. Urol.*, vol. 20, pp. 6626–6631, 2013.
- [22] T. M. Koppie, A. J. Vickers, K. Vora, G. Dalbagni, and B. H. Bochner, "Standardization of pelvic lymphadenectomy performed at radical cystectomy: can we establish a minimum number of lymph nodes that should be removed?," *Cancer*, vol. 107, pp. 2368–2374, 2006.