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A Study on Radical Cystectomy with Various Types of Conduits and Complications

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Abstract

Aims: To study the patients with ileal and colon conduits after radical cystectomy in bladder carcinoma. Assess the postoperative complications and quality of life during follow up period. **Materials and methods:** It is prospective Hospital-based clinical study (oncological and functional data) in 20 patients. All patients with bladder carcinoma that underwent radical cystectomy, both genders, for urothelial and non-urothelial tumour at any age. In this study 20 patients were included; 14 patients with ileal conduit (Group-IC) and 6 patients with transverse colon conduit (Group-TVCC). The age of the patients included in this study ranged from 19 to 81 years. The average follow up of the patients included in our study was 2 years with the range of the follow up period 1-12 months. **Results:** 8 females (40%) and 12 male (60%) are present in study with male preponderance and ratio of females: Males is 2:3. In Ileal conduit approach after radical cystectomy average operative time was 4.0 hours the average blood loss was 400 ml and no intraoperative complications were observed. The average postoperative hospital stay was 16 days for patients with colon conduit and 14 days in cases with ileal conduit one (16.6%) patient who underwent colon conduit had hydronephrosis managed by nephrostomy tube insertion, no postoperative complications observed in ileal conduit. In over all cases Ileal conduit (20%) has less complication in comparison with colon conduit (33%). Ileal conduit has better scoring of satisfaction than in comparison with colon conduit. **Conclusion:** Ileal Conduit can be considered an appropriate surgical solution after RC in most patients because of the relative simplicity of the surgical technique, the acceptable complication rate, and the satisfactory postoperative QoL.

Keywords: Radical Cystectomy; Bladder carcinoma; Ileal conduit.

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Introduction

Radical cystectomy (RC) with urinary diversion remains the gold standard for invasive bladder cancer. When urinary diversion is indicated,

patient concerned information the advantages and disadvantages of different types of urinary diversion and their choices is of utmost importance for the functional outcome and patient satisfaction. There is a variety of choices for incontinent urinary diversion (ileal conduit, colonic conduit, uretero-

cutaneostomy) and continent urinary diversion. Nearly every conceivable segment of bowel has been utilized, each with its own benefits and potential shortcomings.

Colonic conduit has been more and more implemented in the patients with urologic or gynaecological malignancies and additional radiotherapy. This technique is indicated in patients with total damage of the ureters by irradiation or retroperitoneal fibrosis and in patients with recurrent urothelial tumor in a single kidney, direct anastomosis of the conduit to the renal pelvis represents an option.¹ Also in cases of recurrent urothelial tumors and a single kidney a direct anastomosis of a conduit to the renal pelvis allows direct endoscopic access to the calices and in cases in which the continent cutaneous diversion is contraindicated as inability of self-catheterization or renal insufficiency with elevated serum creatinine level. The excellent results of these, types of urinary diversion in patients with previous pelvic irradiation therapy.²

Were as in ileal conduit, (IC) the ureters are surgically resected from the bladder and a ureteroenteric anastomosis is made in order to drain the urine into a detached section of ileum at the distal small intestine, though the distal most 25 cm of terminal ileum are avoided as this is where bile salts are reabsorbed. The end of the ileum is then brought out through an opening (a stoma) in the abdominal wall. The residual small bowel is reanastomosed with the residual terminal ileum, usually seated inferior relative to the anastomosis. If the patients are >30 year, the ileal conduit (IC) has been considered the "standard" urinary diversion method for most patients submitted to RC. It is recognized as the most clinically adequate, reliable, and cost-effective solution. During the last 20 years, a variety of surgical OBS improvements have been introduced progressively into clinical practice and proposed more and more often to bladder cancer patients as the best compromise between oncologic radicality and postoperative QoL. This surely advocates for reconsidering the role of IC; therefore, the real question is whether IC should still be considered the standard urinary diversion procedure following RC.

Removal of the bladder for bladder cancer, or radical cystectomy, is a complex, potentially morbid procedure. Unlike most cancer-directed surgeries, the extirpation is followed by a reconstruction. Herein, we sought to determine in incontinent urinary diversion comparing colon and ileal conduit in radical cystectomy.

Materials and Methods

It is Prospective Hospital-based clinical study (oncological and functional data) in 20 patients. All patients with bladder carcinoma that underwent radical cystectomy, both genders, for urothelial and non-urothelial tumor at any age who attended the department of urology. In this study 20 patients were included; 14 patients with ileal conduit (Group-IC) and 6 patients with transverse colon conduit (Group-TVCC). The age of the patients included in this study ranged from 19 to 81 years.

Group-IC: Ileal conduit conducted in

Inclusion Criteria: Patients with muscle-invasive bladder cancer or local tumor recurrence of gynaecological malignancies, Stage T2-4a bladder cancer, any N stage. M0 and any tumor grade.

Exclusion Criteria: Patient unfit for surgery, short bowel syndrome, abnormalities of the colon (Diverticle disease or stenosis), history of colorectal cancer, uncontrolled coagulation disorders, impaired renal function (serum creatinine > 1.50– 2 mg/dl). Patients with severely impaired liver function, intestinal diseases (e.g., Crohn's disease), impaired intellectual capacity, dexterity and mobility.

Group-TVCC: Transverse colon conduit indicated in

1. Patients with total damage of the lower ureter by irradiation or retroperitoneal fibrosis
2. Patients with recurrent urothelial tumor in a single kidney.
3. Direct anastomosis of the conduit to the renal pelvis.
4. The technique can also be used in patients with complete pelvic exenteration requiring urinary diversion and colostomy regarding the patient is fit for the surgery.

Ethical aspects, whether substantial or procedural, is implicated in this study. Before participants were admitted in this study, the purpose and nature of the study as well as risks were explained to them. The participants agreed that he/she understood the investigational and operative nature of this study, its inherent risks and benefits, other treatment alternatives, his/her rights to terminate participation in this study without affecting his/her rights in having proper health care in the study site, whom to contact with questions regarding the study and that he/she is freely given an informed consent to participate

in this study. The signed informed consent form is a prominent part of the participant's study records and is maintained in the same manner as other records. Detailed history and physical examination. Estimation of body mass index. Routine laboratory work-up was done. A positron emission tomography computed tomography (PET/CT) in some cases with nodal involvement Renal nuclear scanning when parenchymal damage is considered. echocardiography, evaluation of the anaesthesiological risk

Consent of the patient was taken prior to the study. Preoperatively an intravenous urography (IVU) should be performed to evaluate the upper urinary tract. An enema with water-soluble contrast medium should be done to exclude diverticula or polyps. The bowel is irrigated with Ringer's lactate solution (8 to 10 L) via a gastric tube or oral intake of 5 to 7 L of Fordtran's solution. The day before surgery, positioning of the stoma was done. The best position is in the epigastric region; the attached stoma plate was checked in sitting, lying, and standing positions of the patient.

Surgical technique

Transverse Colon conduit: Hohenfellner and Fisch 2004 (steps in review of literature).

Ileal conduit. RC with pelvic lymphadenectomy should be completed by respecting well-defined surgical steps. Radical cystectomy is done with the trial to preserve the neurovascular bundle and the external urethral sphincter if oncologically feasible. Hospital charts and physician records were reviewed to determine clinical outcomes evaluation of complications according to the new modified Clavien system.²⁵ Collection of demographic characters of the patients (age, sex, number)

The histological assessment was performed in one pathology department and was conducted according to the new 2009 TNM classification. Reporting the oncological outcome from pathological reports including tumor stage, tumor type, tumor location, tumor grade, nodal stage, nodal number, presence of metastasis, lymphovascular invasion urethral and ureteric margins. Reporting the recurrence free survival by evaluation of the follow up CT and MR reporting the overall survival by collecting the data from the local tumor registry.

Follow up visits are scheduled every month for half a year and then every 2 months thereafter.

Quality of life assessed by Questions as

Are you satisfied from this conduit?

Would you choose the same procedure again?

Would you recommend the procedure to others?

Are you content with the effects of this procedure?

Does it cause any residual discomfort related to urinary diversion?

Table 1: Degree of satisfaction was graded as

Yes	No
Highly satisfied (+++)	Mildly dissatisfied (-)
Moderately satisfied (++)	Moderately dissatisfied (- -)
Mildly satisfied (+)	Highly dissatisfied (- - -)

The confidentiality of all participants admitted to this study is protected to the fullest extent possible. The study participants are not identifiable by name in any report or publication resulting from data collected in this study.

Statistical analysis

The statistical analysis was performed using jmp 10 (2012, SAS Institute Inc., Cary, NC, USA). For univariate analysis, the Fisher's exact/Pearson chi-square test was used for nominal data and the Student's t-test for scaled data. All p-values were two-sided with $p < 0.05$ considered to indicate statistical significance. Values are given as mean, median and standard deviation for all continuous variables or as median (range) for nonparametric variables.

Results

Between January 2016 until August 2019, 20 patients underwent Radical cystectomy and urinary diversion for bladder cancer. Of these 20 patients 6 patients under went Transverse colon conduit and 14 patients underwent ileal conduits as per requirement of patient. 8 females (40%) and 12 male (60%) are present in study with male preponderance and ratio of females: Males is 2:3

Table 2: Demographic distribution of the patients in study with radical cystectomy

Age intervals	Number of patients	Percentages (%)
<40 years	1	5
41-50 years	2	10
51-60 years	4	20
61-70 years	10	50
71-80 years	2	10
>80 years	1	5
Tumor type distribution		
Urothelial	17	

Age intervals	Number of patients	Percentages (%)
Squamous	2	
Mixed (Ur and adeno)	1	
Site of the tumor		
Lateral wall	6	
Bladder dome	2	
Bladder base	2	
Anterior wall	1	
Posterior wall	3	
Bladder-neck	2	
Trigone	1	
Ureteric orifices	2	
Perineural	1	

Age groups for cystectomy are at 61–70 years, which is most common group in study with 10 (50%) patients followed by 51–60 years, are 4 (20%). Pure urothelial bladder carcinoma was present in 17 (85%) patients, squamous cell carcinoma in 2 (10%) patients and only one patient had mixed components 1 (5%) urothelial and adenocarcinoma. Tumors were present in different regions of the bladder (side walls, bladder dome, anterior wall, trigone, bladder base, bladder-neck, posterior wall, ureteric orifices and perineural). Most common site is lateral wall 6 (30%) followed by posterior wall 3 (15%) (Table 2).

Table 3: Different tumor stages distribution in study

Tumor stage	Number of patients	Percentages
pT2a	3	15
pT2b	7	35
pT3a	3	15
pT3b	2	10
pT4a	3	15
pT4b	0	0
Associated CIS	2	10
Tumor grades		
GX	1	5
G1	1	5
G2	9	45
G2-3	4	20
G3	5	25
Nodal stage		
Nx	2	10
No	13	65
N1	2	10
N2	3	15
N3	0	0

Most of the cases in study are with pT2b 7 (35%) cases showed infiltration deep muscle invasion. All 20 cases of urothelial cancers were not metastasized

All of patients of transverse colon conduit ($n = 6$) had history of irradiation with the mean irradiation dose 51.5 Gray (Table 3).

Table 4: Operative evaluation in between both conduits

Operative Evaluation	Colon conduit	Ileal conduit
Average operative time (hrs.)	4.2	4.0
Average blood loss (ml)	420	400
Operative complications %	16.6%	-

In ileal conduit approach after radical cystectomy average operative time was 4.0 hours the average blood loss was 400 ml and No intraoperative complications were observed.

The average postoperative hospital stay was 16 days for patients with colon conduit and 14 days in cases with ileal conduit.

One (16.6%) patient who under gone colon conduit had hydronephrosis managed by nephrostomy tube insertion, no postoperative complications observed in ileal conduit.

The average follows up of the patients included in our study was 8 months with the range of the follow up period 3–12 months (Table 4).

Table 5: Biochemical evaluation and complications during the follow up period

Parameters	Colon conduit	Ileal conduit
Creatinine mg/dl	1.7 ± 0.2	1.6 ± 0.3
Na ⁺ meq/l	141 ± 2.3	140 ± 3.4
K ⁺ meq/l	4.3 ± 1.6	4.2 ± 1.9
Cl ⁻	102 ± 2.3	102 ± 2.3
HCO ₃ ⁻ meq/l	21 ± 2.1	23 ± 1.9
PH	7.31 ± 0.08	7.27 ± 0.02
Folic acid	6.8 ± 0.9	6.7 ± 0.8
Total protein	5.0 ± 1.0	4.7 ± 0.9

Biochemical evaluation of the patients in regard to the serum Creatinine, Sodium, Potassium, Bicarbonate and PH. Serum Creatinine levels remained at the preoperative level in all patients. Therapy for metabolic acidosis was not required in all patients. In 2 cases creatinine was above normal and managed conservatively. Hypoproteinemia is observed in all the cases in study (Table 5).

Table 6: Complications during the follow up period

Complications during the follow up period	Colon conduit	Ileal conduit
Kidney Stone formation	1 (16.6%)	-
Hydronephrosis	-	-

Complications during the follow up period	Colon conduit	Ileal conduit
Ureteral stricture	-	-
Deterioration of renal function	-	-
Metabolic disturbance	1 (16.6%)	
Recent urinary tract infection		
Diarrhoea	-	-
Outlet -stenosis	-	1 (10%)
Bone symptoms	-	-
Recent urinary tract infections	1 (16.6%)	1 (10%)
Parastomal hernia	-	1(10%)
Priapism	-	1(10%)

In over all cases ileal conduit (20%) has less complication in comparison with colon conduit (33%), one case of kidney stone caused due to hypercalcemia in colon conduit managed by endoscopic fragmentation and extraction. Hyperchloremic metabolic acidosis in 1 patient in colon conduit (16.6%) involves the use of alkalinizing agents and/or blockers of chloride transport. Oral sodium bicarbonate is effective in restoring normal acid/base status, but intestinal gas formation can be a problem, and the dose is not easily predictable. Alternatively, sodium citrate is given. Sodium supplements may increase blood pressure or may cause fluid retention and pulmonary edema in patients at risk.

Recent urinary tract infections are common in both surgeries managed by culture and antibiotic coverage. Parastomal hernia is observed in ileal conduit diversion exhibiting radiographic or

clinical signs treated by mesh placement. Priapism is observed in Ileal conduit with 1 (10%) (Table 6).

Quality of life

A short form Quality of life questionnaire adopted for brief estimation of patient’s satisfaction with the transverse colon diversion. The questionnaire was done partially by person to person contact, partially by sending a litter to the patients.

A short form Quality of life questionnaire adopted for brief estimation of patient’s satisfaction with Radical Cystectomy The questionnaire was done partially by person to person contact, partially by sending a litter to the patients.

1. Are you satisfied from this procedure? (Given Table at materials and methods)
2. Would you choose the same procedure again?
3. Would you recommend the procedure to others?
4. Are you content with the effects of this procedure?
5. Does it cause any residual discomfort related to urinary diversion?

(pain, discomfort, diahrea, excessive flatus)

For question, No. 1: The answer of the patients showed that from the patients of transverse colon conduit; 67% are highly satisfied from the operation; 16.6% are satisfied; 16.6% are mildly unsatisfied. From patients with ileal conduit; 71.4% are highly satisfied from the operation; 14.2% are satisfied; 7% are mildly satisfied and 7% are mildly unsatisfied.

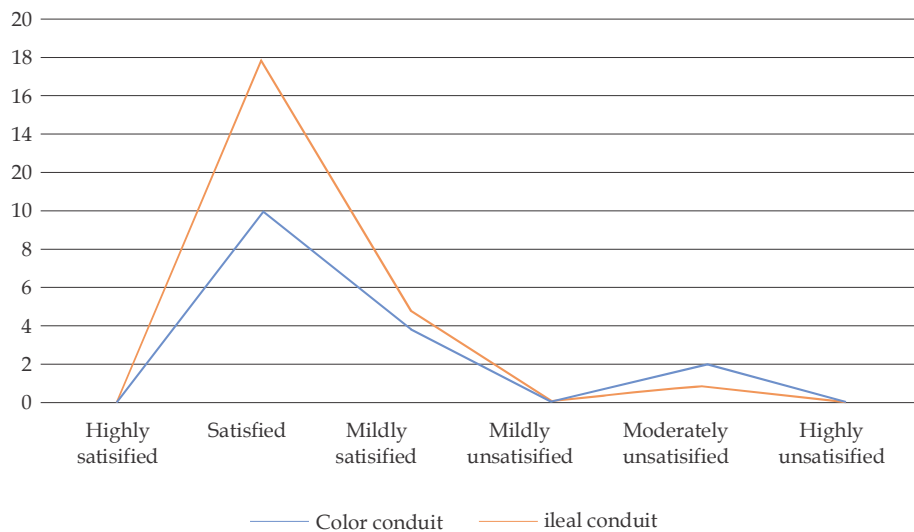


Fig. 1: Degree of satisfaction in the both groups after radical cystectomy

For question, No. 2: 90% (18 patients) of patients responded that they would choose the procedure again.

For the question No. 3: 85% of the patients responded that they would recommend the procedure to the others with the same indication.

For the question No. 4: 95% of the patients responded that they are content with the effects of the procedure.

For the question No. 5: 85% of patients responded that they have no residual discomfort related to the urinary diversion.

Ileal conduit has better scoring of satisfaction than in comparison with colon conduit

After a follow, up of 6 months one patient (3.3%) had sudden death (the cause was not known).

Discussion

The incidence rate of urothelial cancer has been rising over the last 60 to 70 years, but the rate of rise has recently decreased significantly and in some geographic areas has leveled off (Parkin, 2008). Unfortunately, the incidence rate is rising the fastest in underdeveloped countries where industrialization has led to carcinogenic exposure.³ Globally, the incidence rate of bladder cancer has been increasing, but because of smoking cessation programs, at a slower rate over the last decade.

According to a recent report by the Urologic Diseases in America Project, among 27,494 patients submitted to RC between 2001 and 2005 from the Nationwide Inpatient Sample, 4539 (16.5%) underwent a continent urinary diversion and 22,955 (83.5%) underwent an IC.⁴ Interestingly, a significant trend towards the more liberal use of the IC during the last few years has been registered in some US contexts.

In our study Age groups for cystectomy are at 61–70 years. which is most common group in study with 10 (50%) patients followed by 51–60 years. are 4(20%). Mean age of the patients in Sherwani Afak study was 57.7 years which was consistent with the studies by Cengiz et al. 58.2 years.^{5,6} The mean age of the patients in all the three groups was comparable.

In present study 8 females (40%) and 12 male (60%) are present in study with male preponderance and ratio of females: Males is 2:3. Two large series from different parts of the country have looked into the epidemiological aspects of bladder cancer.

Gupta et al.⁶⁵ study male to female ratio was 8.6:1. sex ratio male to female was 4.8 to 1. Sherwani Afak included 28 males (93.3%) and 2 females which was comparable with studies conducted by Cengiz et al 94.8% males and 5.2% females.^{5,6} First, the difference in the incidence of smoking among Indian males and females is much more prominent (74% vs. 22%) than in the west. Second, the incidence of bladder cancer per se is much more predominant in Indian males (8.9:1).

In present study, Pure urothelial bladder carcinoma was present in 17 (85%) patients, squamous cell carcinoma in 2 (10%) patients and only one patient had mixed components (1.5%) urothelial and adenocarcinoma. Aliramaji A et al.⁷ study showed more than 98% of bladder cancers are from epithelial origin, among which 92% of them is a transitional type.

All the patients in Sherwani Afak study (100%) had histologically proved transitional cell carcinoma (TCC) on trans-urethral biopsies which was consistent with studies conducted by Cengiz et al. 100% TCC.^{5,6} In this study, by investing the frequency of smoking in the case group, it is resulted that smoking cigarettes definitely increases 4.86 times the risk of bladder cancer. While in the references, the risk of bladder cancer are 2 times more in smokers than others. These results indicate that the effect of smoking on the incidence of bladder cancer is more in our region. In a study by Asgari et al. (2004) conducted in Tehran, from the patients with bladder cancer, 68% were smokers while 23% patients in the control group were smokers, and it is stated that cigarette smoking will increase 3.8 times the risk of bladder cancer.⁸ Ramesh Chinnasamy et al. showed TCC is the most common histological variety, seen in 90% of patients with Bladder cancers.⁹

In present study, most of the cases in study are with pT2b 7 (35%) cases showed infiltration deep muscle invasion. In Sjöström et al. study in Sweden, Dobbs and et al. study in America and Gupta and et al. study in India the most frequent stage was Ta and then T1, T2 which was in line with our study results.¹⁰

All 20 cases of urothelial cancers are not metastasized in present study. Mary E. Charlton showed that attempting to examine size of metastasis in the regional lymph nodes size using the CS LN variable prior to 2010 cases and using the new SSF2 that captures size of the largest metastasis in the lymph nodes in cases diagnosed in 2010 and after, it appears that many of those classified as N2 prior to 2010 were likely done so due to multiple

nodes rather than having a single node 2 to 5 cm in size.¹¹

Tumor occurred in different regions of the bladder (side walls, bladder dome, anterior wall, trigone, bladder base, bladder-neck, posterior wall, ureteric orifices and perineural). most site is side wall 6 (30%) followed by posterior wall 3 (15%).

In ileal conduit approach after radical cystectomy average operative time was 6.1 hours the average blood loss was 400 ml and no intraoperative complications were observed. No intraoperative complications were observed. The average postoperative hospital stay was 16 days for patients with colon conduit and 14 days in cases with ileal conduit. Ahlering TE et al. average operative time and blood loss for cystectomy and ileal conduit were 5 hours 27 minutes and 1,290 cc versus 5 hours 30 minutes and 1,201 cc for the colon conduit group.¹² Paulos Yohannes et al. operative time was 10 hours for ileal conduit patients required no rehospitalizations or revisions, the Indiana pouch group had 4 rehospitalizations and no revisions.¹³

Davis PA et al. showed greater blood loss 4.5 hrs with 1000 ml of blood loss (median, 1000 vs 700 ml; $P < .001$) and longer operation duration (median, 270 vs 225 minutes; $p < .001$) were encountered in the colon group. Conduit ischemia developed in 5 patients (0.5%) in the stomach group, 3 of whom underwent successful staged reconstruction with colon.¹⁴ One patient (2.4%) in the colon group was found to have conduit ischemia and died. Fredrik Liedberg showed average blood loss in patient 560 ml to 3000 ml during RC, indicating that this type of surgery often leads to considerable loss of blood and, consequently, to transfusions. Blood transfusions are associated with major complications and with high total hospital costs for RC.¹⁵

The average postoperative hospital stay was 16 days for patients with colon conduit and 14 days in cases with ileal conduit. Cristian Udovicich showed prolonged length of stay (LOS; >14 days), Gorin et al. in the USA state of Maryland. For length of stay and blood transfusion, there were varied results for medium-volume hospitals and low-volume hospitals when compared to high-volume hospitals.¹⁶ There was a significantly lower rate of prolonged length of stay in the low-volume hospitals group, whilst a higher rate was found for medium-volume hospitals. The medium-volume hospitals group had a higher blood transfusion requirement (OR 1.38, $p = 0.03$) than the low-volume hospitals group (OR 1.18, $p = 0.43$ on univariate analysis). For length of stay, most studies have reported an

inverse relationship. A higher staff ratio of nurses and urology trainees have been shown to have a lower rate of in-hospital mortality and decreased length of stay.

One (16.6%) patient who under gone colon conduit had hydronephrosis managed by nephrostomy tube insertion, no postoperative complications observed in ileal conduit. Sherwani Afak showed early complications as 46.2% patients in the Ileal conduit group comparable to our and other studies reported in other studies range from 31.8%.⁵

In our study Biochemical evaluation of the patients in regard to the serum Creatinine, Sodium, Potassium, Bicarbonate and PH. Serum Creatinine levels remained at the preoperative level in all patients. Therapy for metabolic acidosis was not required in all patients. There is no set percentage on how many patients will develop a metabolic complication following a urinary diversion as the presentation and onset of a metabolic complication differ greatly on the patient's compensatory mechanisms themselves.

In over all cases Ileal conduit (20%) has less complication in comparison with colon conduit (33%), one case of kidney stone caused due to hypercalcemia, hyperchloremic metabolic acidosis in 1 patient in colon conduit (16.6%). Urinary tract infections are common in both surgeries managed by culture and antibiotic coverage. On case of Parastomal hernia in ileal conduit. No operative mortality is observed in study.

Ravi R study on Transverse colon conduit urinary diversion in patients treated with very high dose pelvic irradiation associated with a complication rate of 37% and a re-operation rate of 20%, there were no bowel or urinary anastomotic leaks. There was no operative mortality.¹⁷

Table 7: Studies in reference to our study

Reference	No. of Patients	Type and Rate of UTI
Madersbacher et al. ¹⁸	131	UTI: 30 (22.9%) Acute/recurrent pyelonephritis: 15 (11.4%) UTI with sepsis: 5 (3.8%) Recurrent UTI without overt pyelonephritis: 5 (3.8%)
Gburek et al. ¹⁹	66	Pyelonephritis: 2 (6%)
Sullivan et al. ²⁰	336	Pyelonephritis: 18 (20%)

Reference	No. of Patients	Type and Rate of UTI
Pitts and Muecke ²¹	242	Pyelonephritis: 26 (10%)
Hautmann et al. ²²	363	Pyelonephritis early (<3 mon): 27 (7.4%) Pyelonephritis late (>3 mon): 23 (6.3%)
Elmajian et al. ²³	295	UTI with sepsis: 5 (1.7%)
Arai et al. ²⁴	66	Pyelonephritis late (>3 mon): 1 (1.5%)
Our study	20	Recurrent UTI without overt pyelonephritis 2

Ileal conduit has better scoring of satisfaction than in comparison with colon conduit. A number of studies have addressed these QoL issues following radical cystectomy with various types of urinary diversions. So far, more than 30 articles have made comparisons of the impact of different types of urinary diversion on patient QoL. A major obstacle is lacking of disease-specific QoL instrument, which universally compares patients after urinary diversion. In addition, the concept of QoL differs significantly between cultures, countries, and races. Apparently, patients with orthotopic neobladders have decreased bother related to urinary leakage, stoma appliance, and better perception of body image. However, the assumption that continent urinary diversions yield superior QoL than ileal conduit diversion is not demonstrated by the results of most previous studies. In a review article, Gerharz et al. concluded that existing literature do not provide adequate evidence that continent urinary diversion is superior to conduit diversion, and they emphasized the importance of conducting further well designed studies.²⁵ Mansson et al.²⁶ investigated possible differences between Italian and Swedish men in health-related quality of life (HRQoL) after cystectomy. They did not find major differences in HRQoL. Another interesting confounding factor in reporting QoL after radical cystectomy is the role of a third party. Mansson et al.²⁶ demonstrates a neutral third party evaluation of QoL, as different findings were achieved when a study was performed and analyzed by a neutral third party as compared with the author or their institution.

Conclusion

The morbidity and mortality from radical cystectomy have diminished significantly over the last few decades. Some of this is a consequence

of improved surgical technique and better understanding of the anatomy. To a great extent, though, the improvements can be attributed to advances in perioperative care. Ileal Conduit can be considered an appropriate surgical solution after RC in most patients because of the relative simplicity of the surgical technique, the acceptable complication rate, and the satisfactory postoperative QoL. Although cancer control is always the priority, QoL and patient satisfaction have also become a more accountable endpoint. We need standard QoL measures for assessing QoL after radical cystectomy and urinary diversion. The ability of current questionnaires to identify differences of neobladder and conduit patients is limited.

This urinary diversion remains widely advisable for elderly patients and for those with compromised renal function, with severe comorbidities, or who are unfit to manage continent reservoirs. The test of time has demonstrated that the long-term reliability of this procedure strictly depends on a rigorous surgical technique.

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