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Review – Bladder Cancer

ICUD-EAU International Consultation on Bladder Cancer 2012: Urinary Diversion

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Abstract

Context: A summary of the 2nd International Consultation on Bladder Cancer recommendations on the reconstructive options after radical cystectomy (RC), their outcomes, and their complications.
Objective: To review the literature regarding indications, surgical details, postoperative care, complications, functional outcomes, as well as quality-of-life measures of patients with different forms of urinary diversion (UD).
Evidence acquisition: An English-language literature review of data published between 1970 and 2012 on patients with UD following RC for bladder cancer was undertaken. No randomized controlled studies comparing conduit diversion with neobladder or continent cutaneous diversion have been performed. Consequently, almost all studies used in this report are of level 3 evidence. Therefore, the recommendations given here are grade C only, meaning expert opinion delivered without a formal analysis.
Evidence synthesis: Indications and patient selection criteria have significantly changed over the past 2 decades. Renal function impairment is primarily caused by obstruction. Complications such as stone formation, urine outflow, and obstruction at any level must be recognized early and treated. In patients with orthotopic bladder substitution, daytime and nocturnal continence is achieved in 85–90% and 60–80%, respectively. Continence is inferior in elderly patients with orthotopic reconstruction. Urinary retention remains significant in female patients, ranging from 7% to 50%.
Conclusions: RC and subsequent UD have been assessed as the most difficult surgical procedure in urology. Significant disparity on how the surgical complications were reported makes it impossible to compare postoperative morbidity results. Complications rates overall following RC and UD are significant, and when strict reporting criteria are incorporated, they are much higher than previously published. Fortunately, most complications are minor (Clavien grade 1 or 2). Complications can occur up to 20 yr after

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surgery, emphasizing the need for lifelong monitoring. Evidence suggests an association between surgical volume and outcome in RC; the challenge of optimum care for elderly patients with comorbidities is best mastered at high-volume hospitals by high-volume surgeons. Preoperative patient information, patient selection, surgical techniques, and careful postoperative follow-up are the cornerstones to achieve good long-term results.

1. Introduction

Radical cystectomy (RC) and urinary diversion (UD) are the most difficult open, laparoscopic, or robotic procedures in urology, more so if the UD is performed totally intracorporeally. However, RC remains the best treatment option for patients with invasive bladder cancer (BCa) [1]. Any form of UD has its specific problems. In experienced hands and with regular long-term follow-up, serious complications can be avoided and excellent long-term results can be achieved. In this context, surgeons must continue to refine their surgical technique of RC and UD to provide the utmost safety for the patient [2,3].

We discuss the 2nd International Consultation on Bladder Cancer recommendations on the reconstructive options after RC due to BCa, the criteria for selection of the most appropriate procedure, and the outcomes and complications associated with the available UD options.

2. Evidence acquisition

We performed a literature review primarily focused from 1970 to 2012 to find relevant papers on UD following RC with restrictions to English-language publications. The evolution of continent UD fell into this time span. Meaningful long-term follow-up of UD has occurred for longer than 20 yr. The literature is replete with reports on modifications of original techniques of continent UD. However, most appeared only once in the literature. For orthotopic bladder substitution (OBS), just two types stood the test of time for continent cutaneous UD.

Search terms included *bladder cancer, urinary diversion, conduit, continent cutaneous diversion, ureterosigmoidostomy, palliative diversion, orthotopic bladder substitute, neobladder, urinary reconstruction, radical cystectomy, cystoprostatectomy, anterior pelvic exenteration, urethral recurrence, continence, hypercontinence, functional results*, and *complications*.

3. Evidence synthesis

Most publications were based on retrospective single institutional experiences with nonstandardized reporting of complications and varying duration of follow-up. Randomized prospective studies evaluating urinary diversions are sparse. As such, most of the data presented is of level 3 or 4 evidence. Due to these limitations, this review provides suggestions based on everyday clinical practice in addition to evidence-based medical recommendations. Most of the committee members disclosed surgical volume, number of RCs, and types of UD used at their institutions during the given periods of time (Table 1).

Table 1 – Numbers and types of urinary diversions (percentage) performed by the authors/institutions

	No. of RCs	Period	Neobladder	Cont cut.	Conduit	UC/TUUC	Anal	No diversion/Unknown	Others
Ann Arbor	643	1995–2004	45.1	1.4	53.5	–	–	–	–
	962	2000–2009	40.0	2.0	58.0	–	–	0.9	–
Bern	611	1985–1999	51.5	1.5	42.5	1.6	2.5	–	0.4
	708	2000–2010	51.0	8.0	39.0	1.5	0.5	–	0.1
Kassel	765	1994–2010	30.2	6.8	60.5	0.7	2.0	0.1	–
Los Angeles	1359	1971–2001	51.6	25.8	22.3	–	–	–	0.3
	1012	2000–2010	74.2	5.3	20.2	–	–	0.3	–
Lund	119	2000–2004	28.6	31.1	40.3	–	–	–	–
	134	2004–2009	6.0	30.6	63.4	–	–	–	–
Mainz	335	1968–1980	–	–	55.0	–	45	–	–
	593	1981–1990	2.0	33	41.0	–	15	–	9
	982	1991–2000	6.0	39	41.0	–	12	–	2
	1023	2001–2010	15.0	24	53.0	–	4	–	4
Mansoura	3157	1980–2004	39.1	3.5	34.4	–	23.1	–	–
Norwich	246	2002–2009	10.6		89.4	–	–	–	–
Swedish Registry	158	1997	19.0	19	55.0	–	–	7	–
	221	2003	17.0	12	70.0	–	–	1	–
	208	2006	9.0	6	80.0	–	–	5	–
	229	2008	15.0	4	81.0	–	–	–	–
Ulm	1613	1986–2009	66.0	0.4	22.0	10.0	1.3	0.2	–
Vanderbilt	789	2000–2007	35.5	0.4	63.5	–	0.1	–	0.5
Total	15 867		38.0	10.4	42.2	1.2	7.5	0.1	0.8

RC = radical cystectomy; Cont cut. = continent cutaneous (diversion); UC/TUUC = cutaneous ureterostomy/transureteroureterocutaneostomy.