Recovery of sexual function after radical cystectomy with orthotopic neobladder

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Abstract

Introduction and objectives: Radical cystectomy (RC) is the gold standard treatment for patients with muscle invasive bladder cancer (MIBC). After radical cystectomy with orthotopic neobladder (ON), quality of life is usually altered in terms of day-to-day activities (micturition, erectile function, physical and psychological distress due to body appearance). In this retrospective study we decided to analyze the erectile function of these patients after surgery.

Materials and Methods: In our center in the past 6 years, 1056 radical cystectomies were performed. After the oncologic outcome, quality of life represents the second most important objective of this type of major surgery. Although for a large number of patients, due to age, comorbidities and disease extension, sexual function before and after radical cystectomy is less important, in a selected group of patients this represents a very important issue. Our study included 93 male patients aged between 32 and 65 years with organ confined bladder tumors (cT1-T3aN0M0) that underwent open unilateral or bilateral nerve sparing (NS) radical cystectomy with ileal orthotopic neobladder. Median follow-up was 26 months, range between 12-71 months. The surgical technique was classical in 84 patients and anterograde in 9 patients. No prostate or seminal vesicle preservation were performed due to the high risk of recurrence which was reported in the literature. 71 patients had bilateral NS RC and 22 patients unilateral NS RC due to local extension, scar tissue after multiple TUR-BT or accidental injury of the neurovascular bundle during dissection. We evaluated the erectile function using IIIEF-5 questionnaire (SHIM) and we selected for the study only patients with more than 17 points (mild-moderate erectile dysfunction to no ED). After surgery, we evaluated the patients every 3 months during the first year. No pre or immediate postoperative ED medication was administered until the first evaluation.

Results: 21 patients (22.6%) with no ED pre-surgery reported no ED at 3 months (SHIM>22) and no medication was needed. 64 (68.8%) patients reported ED: moderate (8-11), mild moderate (12-16) or mild (17-21) according to SHIM and PDE-5 I were recommended. At 3 months all 37 (39.8%) of the patients that received the medication improved SHIM score on average with 4.8 points while for the 27 patients (29%) who didn't receive the PDE-5 I for various reasons, the average score increase was of 2.6 points. 8 (8.6%) patients reported severe postoperative ED (<11 points) and no significant response was obtained with PDE-5 I, but they responded well to intra-corporeal prostaglandin E1 injections.

Conclusions: Neurovascular bundle preservation is easy and feasible and should be performed in all radical cystectomies if there is no compromise of the oncologic outcome. Young patients with organ confined disease, potent before the operation with ON are the main beneficiaries of NS surgery in an attempt to preserve and improve the quality of life.

Key words: sexual function, radical cystectomy, orthotopic neobladder, bladder cancer

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Introduction

Standard treatment in patients with muscle invasive bladder cancer (MIBC) is radical cystectomy (RC). Regarding urinary diversions, even though orthotopic neobladder (ON) attracts a series of early and late complications, it represents the gold standard for the reconstructive part of the surgery because quality of life is higher with this type of urinary diversion. There are also no differences in terms of disease recurrence and cancer specific survival between orthotopic neobladder and ileal conduit patients. For young patients with organ confined MIBC who undergo radical cystectomy, postoperative erectile dysfunction represents a true problem. In order to preserve the quality of life, with time, different techniques of prostate sparing and nerve sparing strategies for performing radical cystectomy have emerged. But to achieve a good oncologic control, knowing the issues of prostate sparing cystectomy, in our center we only undergo nerve sparing radical cystectomy. The recoverability of sexual function after radical cystectomy has widely varied in the literature, reaching a highpoint of almost 80%. This dissimilarity may originate in the different methods used to analyze the results, and in the fluctuations of patient characteristics.

Objective

The aim of this retrospective study is to assess the erectile function in patients with organ confined disease and radical cystectomy with orthotopic neobladder.

Materials and Methods

In our center in the past 6 years, 1056 radical cystectomies were performed. After the oncologic outcome, quality of life represents the second most important objective of this type of major surgery. Although for a large number of patients, due to age, comorbidities and disease extension, sexual function before and after radical cystectomy is less important, in a selected group it represents a very important issue. Our study included 93 male patients aged between 32 and 65 years (mean age of 48.5 years), with organ confined disease (cT1-T3aN0M0) that underwent open unilateral or bilateral nerve sparing (NS) radical cystectomy with orthotopic neobladder. Median follow-up was 26 months, range between 12-71 months (see Img. 1).

Regarding etiologic factors most of our patients were smokers, 87.3%.

In terms of patient age, 43 of them were in their 6th decade of life (46.2%), 37 in the 5th decade (39.7%), 11 in the 4th decade (11.8%) and 2 very young patients in the 3rd decade (2.1%).

Being a selected group of cases, the co-morbidities found in the general cystectomy population are not observed here, in our younger patients.

Co-morbidities were mostly represented by cardiovascular problems: hypertension in 26 patients (27.9%), chronic ischemic cardiopathy in 9 patients (9.6%). Diabetes mellitus was found in 17 patients (18.2%). And a high percentage had a mild chronic pulmonary disease (25.8%, 24 cases), almost all patients being smokers.

In 3 patients (3.2%) with T2 tumors and extensive TUR-B performed in other departments, the pathological result came out showing extensive inflammatory lesions - pT0.

The pathological report showed pT1 (G3) in 12 patients (12.9%), pT2a+b in 45 patients (48.3%) and pT3a in 36 patients (38.7%). The tumor grade most representative for our study was G2 throughout 58 patients (62.3%), followed by G3 in 30 patients (32.2%).

Even though the recent guidelines divide patients in high and low risk patients, our study being a retrospective one we kept the old risk stratification.

We encountered positive lymph nodes in 9 patients (9.6%).

The most encountered ASA score was ASA 2. (See Table No. 1 below)

### Table No. 1 Patient characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Number</th>
<th>Percent</th>
</tr>
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<tbody>
<tr>
<td>3rd decade (age)</td>
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<td>4th decade (age)</td>
<td>11</td>
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<td>5th decade (age)</td>
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</tr>
<tr>
<td>6th decade (age)</td>
<td>43</td>
<td>46.2%</td>
</tr>
<tr>
<td>Co-morbidities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>26</td>
<td>27.9%</td>
</tr>
<tr>
<td>CIC (Chronic Ischemic Cardiopathy)</td>
<td>9</td>
<td>9.6%</td>
</tr>
<tr>
<td>DM (Diabetes Mellitus)</td>
<td>17</td>
<td>18.2%</td>
</tr>
<tr>
<td>Chronic Pulmonary Disease</td>
<td>24</td>
<td>25.8%</td>
</tr>
</tbody>
</table>
The surgical technique was classical in 84 patients and anterograde in 9 patients according to the surgeon’s preference.

No prostate or seminal vesicle preservation were performed due to the high risk of cancer recurrence which was reported in the literature. A standard pelvic lymph node dissection was made until the ureters crossing but in some patients we chose extended or even supra-extended lymph node dissection due to macroscopic node enlargement (see Img. 2).

71 patients had bilateral NS (76.3%) RC and 22 patients unilateral NS RC due to local extension, scar tissue after multiple TUR-BT or accidental injury of the neurovascular bundle during dissection.

After the radical cystectomy was performed (see Img. 3), an ileal orthotopic neobladder was created with the Camey II modified technique in 83 cases and Studer technique in 10 cases.

The Camey II orthotopic ileal neobladder is a modification of the original Camey technique where the neobladder is constructed from a simple segment of ileum anastomosed to the ureters and urethra. The modification includes de-tubularization and folding of the ileum to eliminate the peristaltic activity and to lower the pressure inside the pouch. A total of 50 cm of ileum is isolated, a long enough piece able to reach the urethra in a tension-free manner (see Img. 4).

After the integrity of the bowel is restored, the mesenteric trap is closed and the isolated portion of ileum is opened along the anti-mesenteric border for the entire length. The medial borders of the U are sutured together with a running absorbable suture (see Img. 5).

A fingertip opening is made in the preselected area for the ileo-urethral anastomosis, the entire ileal plate is brought down to the pelvis, and the urethral anastomosis is performed using 6 sutures of PDS 4/0 (see Img. 6).

Folding the ileal side and suturing it on the anterior opening with a running absorbable suture completes the pouch. The anterior face of neo-bladder is fixed to the pubis symphysis with one or two absorbable sutures in an effort to reduce tension.
We evaluated the erectile function using IIEF-5 questionnaire (SHIM). The IIEF-5 was used as a screening instrument for the presence and severity of pre and postoperative ED in conjunction with the clinical assessment. The score is a sum of the responses to five questions, and it ranges from 1 to 25. A score of 20 or higher indicates a normal degree of erectile functioning. Low scores (10 or less) indicate a severe ED. In our study we selected only patients with more than 17 points at the preoperative evaluation (mild-moderate erectile dysfunction to no ED). After surgery, we checked the patients every 3 months during the first year. No pre or immediate postoperative ED medication was administered until the first follow-up.

Results

Median operating time was 310 minutes (280-340 minutes), median blood loss was 520 ml (300-940 ml), mean hospital stay was 16.4 days, time to regained bowel function was 4.1 days.

21 patients (22.6%) with no ED pre-surgery reported no ED at 3 months (SHIM>22) and no medication was needed. 64 (68.8%) patients reported ED: moderate (8-11), mild moderate (12-16) or mild (17-21) according to SHIM and PDE-5 inhibitors were recommended. At 3 months all 37 (39.8%) of the patients that received the medication improved SHIM score on average with 4.8 points while for the 27 patients (29%) who didn't receive the PDE-5 inhibitors for various reasons, the average score increase was of 2.6 points. 8 (8.6%) patients reported severe postoperative ED (<11 points) and no significant response was obtained with PDE-5 inhibitors, but they responded well to intra-corporeal prostaglandin E1 injections and after 12 months they started to respond to PDE-5 I.

Discussions

In recent years, radical cystectomy is recommended to more and more patients. New and more powerful imaging techniques ensure an earlier diagnosis of muscle invasive bladder cancer, so the patients are getting younger. Studies have shown the importance of early radical cystectomy in these patients, in order to achieve a good oncologic control of the disease. Same authors consider that the best quality of life is ensured with the orthotopic neobladder, making this the diversion of choice in most centers.

Neurovascular bundle preservation, when possible, must be performed in all patients, and is easier and safer to perform than in other types of oncologic surgeries (for example radical prostatectomy). This is why, when done in an anterograde fashion, we can perform an intra-fascial neurovascular bundle dissection without compromising the oncologic outcome resulting in good quality bundle preservation. In our study this technique yielded a good postoperative erectile function in 22.6% of the cases.

The first evaluation of erectile function was at three months after full recovery of the patients in terms of anemia, continence, and psychological status.
Clinical studies

Conclusions

Neurovascular bundle preservation is easy and feasible and should be performed in all radical cystectomies if there is no compromise of the oncologic outcome. Young patients with organ confined disease, potent before the operation with ON are the main beneficiaries of NS surgery in an attempt to preserve and improve the quality of life.

References