REVIEW OF A SERIES OF CYSTECTOMIES IN WOMEN FOR BLADDER CANCER: COMPLICATIONS AND QUALITY OF LIFE


Summary.- OBJECTIVES: To analyze the complications and quality of life after cystectomies performed in women with bladder cancer at our hospital.

METHODS: Descriptive analysis of demographic data and early/late complications of cystectomies and urinary diversions performed in women at our hospital between 1990-2010. We also assessed quality of life using the Functional Assessment of Cancer Therapy - Bladder Cancer (FACT-BL) questionnaire and a comparison was drawn between groups of clinical variables.

RESULTS: Out of 265 cystectomies, 25 (10%) were performed in women. The predominant urinary diversion was ureterosigmoidostomy (60%), followed by cutaneous ureterostomy (16%), orthotopic ileal neo-bladder Studer pouch (12%), ileal conduit (10%) and permanent nephrostomy (4%). Mean age was 55.75 years. The most commonly occurring early complications were prolonged ileus (20%) and urinary fistula (20%). Late complications included hydronephrosis (32%) and pyelonephritis (32%). The results of quality of life questionnaires were very similar for the different types of urinary diversions, with a mean score of 104.5 out of 156 points.

CONCLUSIONS: Radical cystectomy is a high-risk procedure associated with many complications. In women, ureterosigmoidostomy may be a good choice for urinary diversion in selected patients, with a quality of life very similar to those with different urinary diversions.

Keywords: Bladder Cancer. Cystectomy in women. Quality of Life.

Resumen.- OBJETIVO: Realizar un análisis de las complicaciones y de la calidad de vida de las cistectomías por causa oncológica realizadas en mujeres en nuestro centro.

MÉTODO: Análisis descriptivo de los datos demográficos y de las complicaciones precoces y tardías de las cistectomías y derivación urinaria realizadas en nuestro centro en mujeres. Analizamos la calidad de vida mediante el cuestionario de calidad de vida FACT–BL (Functional Assessment of Cancer Therapy-Bladder Cancer) cuestionario validado para evaluación de la calidad de vida en pacientes con cáncer de vejiga.
Se realiza comparación entre grupos de las variables principales.

RESULTADOS: De un total de 265 cistectomías, 25 (9.4 %) se realizaron en mujeres. La derivación predominante fue la Ureterosigmoidostomía Cutánea 60 %, Neovejiga ileal ortotópica tipo Studer 12 %, Conducto ileal 8 % y 1 Nefrostomía permanente (4 %). La edad media: 55,75 años. Las complicaciones precoces más frecuentes fueron: ileo prolongado (20 %) y fístula urinaria (20 %). Las complicaciones tardías más frecuentes fueron: hidronefrosis (32 %) y pielonefritis (32 %). Los resultados de los cuestionarios fueron similares en los diferentes tipos de derivaciones siendo la puntuación media de 104.5 sobre 156 puntos.

CONCLUSIONES: La cistectomía radical es una cirugía de alto riesgo asociada elevado número de complicaciones. En mujeres, la Ureterosigmoidostomía puede ser una buena alternativa como derivación urinaria contínua en pacientes seleccionadas, siendo en nuestra serie su calidad de vida similar a la de las otras derivaciones.


INTRODUCTION

Bladder cancer is the 17th most frequent neoplasm in women, presenting a worse prognosis than in men.

Gold standard in the treatment of muscle invasive bladder cancer in the radical cystectomy, nevertheless there still exist controversy in the indication of the urinary diversion. In this paper we try to evaluate our experience in complications and Quality of Life (QL) of different urinary diversions performed after radical cystectomy.

We present a review cystectomies in women performed at our hospital from 1990 to 2010, we focus in the complications during surgery, post-operative complications and Quality of Life depending on the urinary diversion. With this review we try to define better the indication of de diversion after cystectomy in women.

METHODS

We carried out a retrospective review of 25 women undergoing radical cystectomy and urinary deviation due to cancer out of 265 cystectomies (9.4%) at our hospital, from 1990 to 2010 and we analyze complications and quality of life of the different diversions performed. Anterior pelvic exenteration in women was performed using the traditional technique (hysterectomy + double anexectomy + cystectomy + uretrectomy), through an open abdominal incision and associated with a bilateral ilio-obturator lymphadenectomy until the crossing of the ureter with the iliac vessels.

Data was collected regarding to demographic characteristics, clinical diagnosis, number of transurethral resections (TUR) prior to radical cystectomy, and adjuvant treatment.

The pathological results of the surgical specimens were also analyzed.

To analyze post-operative complications as well as the management of those we use the Clavien-Dindo (1) classification. For a better description of the methodology used for collecting complications see Appendix 1.

Quality of life was analyzed using a specific questionnaire for bladder cancer, FACT – BL (Functional Assessment of Cancer Therapy-Bladder Cancer) after surgery, which has been validated for the assessment of quality of life in cancer patients. It consists of 39 questions, of which 12 are specific to bladder cancer.

The questionnaire consists of 5 subscales: physical well-being (PWB), social/family well-being (SWB), emotional well-being (EWB), functional well-being (FWB), and a final subscale focusing specifically on bladder cancer.

Authorization was requested from owners and distributors (D. Cella Ph.D. FACIT system) for the use of the questionnaire, thus obtaining permission for using it and its version in Spanish. Patients were contacted by telephone and invited to attend. Each was individually informed of the study and, instructed on the correct completion of the questionnaire. All patients still alive at the time of the study were contacted, and the questionnaire was given to all of them for self-completion.

A descriptive analysis of demographic data and early/late complications of cystectomy and urinary diversion was completed. Kaplan-Meier survival tables were plotted, making comparisons in survival with the Log Rank test, statistically significant figures being considered as p < 0.05. The statistical analysis was completed using the SPSS 15.0 software for Windows.
RESULTS

Of the 25 cystectomies performed in women at our hospital, the predominant urinary deviation used was ureterosigmoidostomy (USG), in 15 cases (60%), followed by 4 cutaneous urostomies (16%), 3 Studer-type ileal neo-bladders (12%), 3 ileal conduits (IC) (12%) and 1 permanent nephrostomy (4%).

Peri-operative variables

Prophylactic treatment with antibiotics in 96% of patients, and thromboembolic prophylaxis in 92%. After surgery antibiotic prophylaxis was established with triple therapy (ampicillin, clidamicin and gentamicin) in 24 (96 %) patients and with double therapy (clidamicin and gentamicin) in 1 patient (4%) during 5 days and thromboembolic prophylaxis with low weight heparin until the hospital discharge in every patient. Twenty patients (80%) required blood transfusions during surgery, with a mean of 1.75 units of packed red blood cells (range 0 – 4). In the post-operative period, parenteral nutrition (PTN) was administered in 72% of patients, and an epidural catheter for analgesia in 12% of cases. Ureter catheters were fitted in 96% of patients, for a mean duration of 10 days (range 9 – 12).

During the lymphadenectomy, the average lymph nodes extracted was 6.8 (range 1 - 17)

Table I is a summary of demographic data and peri-operative variables.

Table II describes tumor stage using the TNM classification from 2009 and histological type.

There were no intra-operative complications. The most frequent immediate post-operative complications were: prolonged ileus in 5 patients

![Table I. Demographic data and peri-operative variables.](image-url)
(20%), urinary fistula in 5 patients (20%) and the most serious complication was dehiscence of the intestinal anastomosis and peritonitis in one patient (4%).

In our series, the most frequent late complications were hydronephrosis (32%) and pyelonephritis (32%).

Table III is a summary of immediate post-operative complications and Table IV of late complications.

Regarding urinary continence in patients with continent urinary diversion, in patients with ileal neo-bladder (3 patients) 10% have urinary incontinence, whereas 33.3% of the patients (5 patients) with USG have urinary continence problems remaining the rest of the patients with USG continent.

No statistical comparison was drawn between the different deviations as there were few cases. Even so, it would seem that pyelonephritis, hydronephrosis and metabolic acidosis are more common in the USG group.

There was no intra-operative mortality. The peri-operative mortality was 4% (1 patient) due to dehiscence of the intestinal anastomosis and peritonitis in one patient with IC.

Out of 25 women, 14 were still alive at the time of the study (56%), being the cause of death the

| Table II. TNM classification from 2009 and histological type. |
|------------------------|-----------------|---|
| Variable               | Frequency       | % |
| pT0                    | 5               | 17.9 |
| pT1                    | 6               | 21.4 |
| pT2a                   | 3               | 10.7 |
| pT2b                   | 1               | 3.6 |
| pT3                    | 7               | 25 |
| pT4a                   | 5               | 17.9 |
| pT4b                   | 1               | 3.6 |
| N0                     | 21              | 75 |
| N1                     | 4               | 14.3 |
| N2                     | 1               | 3.6 |
|Nx                      | 2               | 7.1 |
| M0                     | 26              | 92.9 |
| M1                     | 1               | 3.6 |
| Mx                     | 1               | 3.6 |
| Transitional cell carcinoma | 22         | 88 |
| Adenocarcinoma         | 2               | 8 |
| Squamous cell carcinoma | 1              | 4 |
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... bladder cancer in 6 cases (24%) and other causes in 5 cases (20%). With a mean follow-up period of 60 months, overall survival (OS) was 58.1%, and cancer-specific survival (CSS) was 77.1%.

14 patients (the 100% of the patients alive in the moment of the study) answered the Quality of life questionnaires. The mean overall score for the FACT-BL questionnaire was 104.5, out of a total of 156 points. In the general subscale of the questionnaire (FACT – G), the average score was 79.5 out of 108, and for the bladder specific subscale, 32.1 out of 48.

As regards scores obtained per deviation type, the results of the FACT-BL questionnaire were: 132 for IC, 114 for the patient with nephrostomies, 110 for neo-bladders and 107.5 for USGs. The results of the quality of life questionnaire are shown on Table IV.

DISCUSSION

In our study, we completed a retrospective analysis of the experiences in our center, the University Hospital Marqués de Valdecilla (UMV), between 1990 and 2010 of cystectomies and the urinary deviations subsequently used in female patients. The most commonly used deviation method in our series has been USG, although in recent years it has been replaced by IC. Some neo-bladders have also been used in women, although use of this technique is much more widespread in men (of the 120 neo-bladders completed in this hospital for this period 96.7% are men and 3.3% are women).

Numerous studies have shown that radical cystectomy is currently the gold standard in the treatment of bladder tumors (2, 3). This technique is a complex surgical procedure with a high morbidity rate with a major impact on the quality of life of women. In our study, we found a high rate of immediate post-operative complications, as shown in Table III. The most common complications were ileus, urinary fistula, intestinal fistula, and fever. The rate of complications was higher in women than in men, which is consistent with previous studies (4).

In conclusion, cystectomy is a complex procedure with a high morbidity rate. However, with the use of proper techniques and careful management of complications, patients can achieve a good quality of life. Further studies are needed to evaluate the long-term outcomes of these procedures in women.
bladder cancer (4). The need for urinary deviation after removal of the bladder has resulted in different reconstruction techniques which have been documented over time and can be classified as continent and incontinent (5). Nowadays the most widely used urinary diversion technique is IC. However, in recent years there has been a tendency towards reconstructing the urinary tract using orthotopic ileal neo-bladders, if there is no contraindication for their use, because is considered a more physiological urinary deviation (5, 6).

Usually neo-bladders in women are not used widely due to a belief that it was condemning women undergoing this procedure to a high risk of nocturnal urinary incontinence and urethral recurrence of the tumor (7). However, thanks to increasing knowledge of the mechanisms of continence (3,7,8) and of the risk factors behind urethral tumor recurrence in women with bladder cancer (3,7,8,9), orthotopic neo-bladders are being used more and more in women, with good clinical and oncological results (7,8,9).

The mean age of patients in our sample is 55.75 years, younger than for other studies (63 – 72 years) (4,7,10). The performance of a cystectomy over the age of 75 should be based on a rigorous assessment of pre-operative comorbidity and on ensuring a life expectancy of over 2 years, regardless of the tumor, as proposed in some studies (11).

Referring to antibiotic prophylaxis, this was not established before surgery in one patient due to a mistake in the anaesthesic room. However after surgery antibiotic prophylaxis was established with triple therapy in 24 patients and with double therapy in one due to allergy to penicillin. Thromboembolic prophylaxis was not given to 2 patients due to a mistake in the urology ward, but thromboembolic prophylaxis was set in every patient after surgery until the hospital discharge.

Concerning to post-operative complications, our first aim in this paper, radical cystectomy is known to be associated with significant morbidity with post-operative complications varying between 24-64% (10,3,14). In our study we found that the most frequently occurring complications are gastro-intestinal, in particular prolonged ileus, resolved in the majority of cases with conservative management. The percentage of urinary fistula (20%) and intestinal fistula (16%) is also high, although but with little clinical signification.

In our review, we can find a high rate of complications, this could be in relation to the number of proceedings/year performed (around 13 cystectomy/year in 20 years) considering that the EAU
Table V. Results of the quality of life questionnaires FACT-BL.

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<tr>
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<th>PWB (0-28)</th>
<th>SWB (0-28)</th>
<th>EWB (0-24)</th>
<th>FWB (0-28)</th>
<th>FACT-G (0-108)</th>
<th>Bladder specific (0-48)</th>
<th>FACT-BL (0-156)</th>
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<tr>
<td>USG 2000</td>
<td>15</td>
<td>21</td>
<td>24</td>
<td>22</td>
<td>82</td>
<td>35</td>
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<td>USG 2003</td>
<td>28</td>
<td>24</td>
<td>23</td>
<td>16</td>
<td>91</td>
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<td>USG 2004</td>
<td>25</td>
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<td>USG 2004</td>
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<td>USG 2007</td>
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<td>USG 2008</td>
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<td>Total USG</td>
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<td>BRICKER 2008</td>
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In our study, the most commonly used urinary diversion in women was USG, while in the majority of series the most common technique is IC (5,6). USG was first documented by Simon in 1852, and later improved by Coffey in 1911. It was the predominant technique until the 1950s. Today it continues to be used, but it plays a more limited role due to the inherent complications associated with this type of diversion, such as ureteral reflux, ureterointestinal stenosis, pyelonephritis.

There is considerable variability when reporting postoperative complications, observing studies where a standardized method is used we find a larger number of complications than in those where they are not used (13). Given the advantages of standardized methods in order to compare the results with other series, the Clavien – Dindo classification is recommended for compiling complication data (16).

In order to compare the results with other series, the Clavien – Dindo classification is recommended for compiling complication data (16).

hyperchloremic acidosis, hypokalemic nephropathy, formation of calculi, renal failure and the development of malignancies (colonic adenocarcinoma) at the site of ureterointestinal anastomosis. However, many of these problems are not exclusive to USG and also occur in other urinary diversion techniques (17).

Referring to the second aim in our paper, it has been proved that USG is a technique for creating continent urinary diversion and maintaining esthetics as it does not require external stomas (17, 18).

Little is known about the impact in the quality of life in patients with bladder neoplasms undergoing different treatment options. In order to study this aspect in women, we distributed the FACT-BL questionnaire, validated for bladder cancer patients.

After radical cystectomy, quality of life worsens, but not drastically, the most affected aspects of life being sexual relations and urine control (19, 20). In our series we also found the lowers scores in this fields.

In principle, the majority of authors believed that continent deviations presented better quality of life than incontinent ones, but it has been observed that there are no real differences between the different deviation types (19, 21). What has been observed is that patients undergoing IC presented a greater deterioration in their body image, while those with neo-bladder-type continent deviations report less urine control (19, 21), not been possible to perform comparisons between this diversions due to de low number of patients in this 2 groups.

The results obtained in our study from the quality of life questionnaires are similar to those obtained in other studies (21, 22), as are the results regarding different urinary deviations. The predominant deviation in our series is USG, with the quality of life of these patients being reported as similar to that of patients with other urinary deviations (21, 22).

There are some limitations in our study, it is a retrospective series with a long period of time. In addition, we have a short number of patients without option of comparing between groups. Another aspect is the low number of lymph nodes extracted during the lymphadenectomy, what can be explained because lymph nodes specimens were not send separately despite performing a ilio-obturator lymphadenectomy until the crossing of the ureter with the iliac vessels and due to the variability of pathologist in the histological analysis during the extend time period. In our sample, we do not have any pre-operative quality of life data available, as it is a retrospective series, and the FACT-BL test is subsequent, but this would have been the ideal way to compare both situations (pre- and post-cystectomy). This is already being done with every patient were a radical cystectomy is performed.

CONCLUSIONS

In women with radical cystectomy due to bladder cancer, USG could be a good alternative as a continent urinary diversion in selected patients with good quality of life results, always specifying possible complications and consequences during the follow up.

In our series, patients with cystectomy alive at the moment of the study have similar quality of life in all the groups with different urinary diversions and presents results similar to those found in other studies.

APPENDIX 1

In every case, complications were collected retrospectively by the revision of the medical record being written down by the medical staff in charge of the follow up of the patients. We consider intra-operative complications those occurring during the surgery and immediate complications those occurring within 30 days of surgery. Prolonged ileus was defined as the intolerance of oral feeding 7 days after surgery, and prolonged fever the one that lasted more than 3 days. Other complications were: urinary fistula, intestinal fistula, evisceration, dehiscence of the intestinal anastomosis. We also analyze late complications appearing during the follow up as: pyelonephritis, hydronephrosis, asymptomatic positive urine culture, eventration, ureter stenosis and metabolic acidosis.

REFERENCES AND RECOMMENDED READINGS

(*of special interest, **of outstanding interest)