THE PELVIC EXENTERATION FOR LOCALLY ADVANCED GYNECOLOGICAL CANCERS

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SUMMARY
The ultra-radical surgery in locally advanced gynecological cancers fits in surgical interventions of pelvic exenteration. By this intervention is understood the total extirpation of the bladder, rectum, genital organs, the pelvic lymphonodules, followed by permanent colostomy and urinary diversion. The study was performed on 12 female patients with locally advanced gynecological cancers, committed and operated in the Emergency Military Hospital in Timisoara during the period between 1980 and 1997. The female patients’ selection was made by the clinical and lab exams, stage, histological gradient and associated co-morbidity. The patients with an average age of 57 years old presented cancers with primary localization in the genitalia in 58.4% of the cases and secondary localization in 44.6% of the cases. Relapses appeared in 5 patients. The framing in staging TNM was of 6 cases in the III a stage, 3 cases in the III b stage and 3 cases in the IV a stage. Depending on the localization and extent of tumor process, the pelvic exenterations were: anterior in 6 cases, posterior in 4 cases and total in 2 cases. The anterior pelvic exenterations needed urinary diversion surgery, which was of Meinz-Pouch II type in 5 cases, 1 case of the Camey II type and another case of Indiana Pouch type. The post-surgery evolution was good in 75% of the cases. The post-surgery complications were represented by the acute pielonephropathy, uretero-sigmoid fistula and a urethral stenosis, which were treated conservatively. The survival up to 2 years was of 86%, and up to 5 years was of 75%.

Key Words: advanced gynecological cancers, pelvic exenteration, urinary diversion.

EXENTERAȚIA PELVINĂ PENTRU CANCERE GINECOLOGICE LOCAL AVANSATE

Rezumat.
Chirurgia ultraradicală a cancerelor ginecologice locale avansate se încadrează în intervențiile chirurgicale de exenterație pelvină. Prin această intervenție se înțelege extirarea totală a vezicii urinară, a rectului, a organelor genitale, a limfonodulilor pelvini, urmate de colostomie permanentă și diversie urinară. Studiul a fost efectuat pe 12 paciente cu neoplasme ginecologice avansate locale, internate și operate în Spitalul Militar Timișoara în perioada 1997 - 1980. Selectia s-a efectuat pe baza examenului clinic și paraclinic, stadialitate, gradient histologic și comorbidități asociate. Pacientele cu o vârstă medie de 57 ani au prezentat cancere cu localizare principală la organele genitale în 58,4% din cazuri și localizare secundară în 44,6% din cazuri. Recidivele au fost reprezentate de 5 cazuri. Încadrarea în stadialitate TNM a fost de 6 cazuri în stadiul III a, 3 cazuri în stadiul III b și 3 în stadiul IV a. În funcție de localizarea și extinderea procesului tumoral exenterațiile pelvine au fost: anterioare în 6 cazuri, posterioare în 4 cazuri și totale în 2 cazuri. Exenterațiile pelvine anterioare și totale au necesitat operații de diversie urinară, care au fost în 5 cazuri de tipul Mainz-Pouch II, într-un caz de tipul Camey II și un caz de tipul Indiana Pouch. Evoluția postoperatorie a fost bună în 75% din cazuri. Complicațiile postoperatorii reprezentate de o pielonefrită acută, o fistulă uretosigmoidiană și o stenoză ureterală au fost tratate conservativ. Supraviețuirea până la 2 ani a fost de 86%, iar până la 5 ani de 75%.

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INTRODUCTION

The ultra radical surgery for the malign pelvic tumors regionally advanced started to develop since the year 1948, when Brunschwig described the pelvic exenteration. This intervention consists in total extirpation of the bladder, rectum, anus, genital organs, pelvic lymphnodes and some parts of the perineum, followed by permanent colostomy and urinary diversion. During the period of 60 years of evolution, this operation, defined as total pelvic exenteration, became the standard procedure in oncologic surgery. It is regularly indicated for primary cure of pelvic neoplasms locally advanced, but biologically favorable. In the last decade the pelvic exenteration was perfected and adequately modified. The selection of the patients was improved from the point of view of mortality and morbidity, during the survival rate, comparing with other medical procedures oncologic. The contraindications for pelvic exenteration include age, major co-morbidities, extra-pelvic metastases, the lymphatic obstruction or nervous obstruction with edema of inferior limbs, invasion of sacral plexus and the affixation of the tumor to the bony pelvis. Because of the improvement of functional results and the reduced mortality, some absolute contraindications became less stringent. Encouraging results were reported for sacral resection in the treatment of relapsed pelvic cancer.

The procedure for total pelvic exenteration was modified during the years and divided in anterior pelvic exenteration including the bladder resection and the resection of the annexes and the posterior pelvic exenteration including the rectum resection, the uterus resection, the resection of the annexes and the vaginal posterior wall. Other modification is represented by the pelvic exenteration above the anal lifting muscles (Supraleverat Pelvic Exenteration) in which the pelvic organs are eradicated up to the lifting muscles, preserving the inferior part of the rectum and the urogenital diaphragm. Thus, because of the ulteriir improvement of the method, the pelvic exenteration without colostomy and the creation of orthotopic neobladder appeared.

In locally advanced gynecological cancers, all these types of pelvic exenteration can be practiced, depending on the localization and neoplastic extension.

MATERIAL AND METHOD

The study was performed on 12 female patients, who were hospitalized an operated in the Emergency Military Hospital Timisoara between 1997 and 2008. These female patients represent 13.6% from the total of female patients committed for gynecological cancers during this period. The selection of the patients was realized by clinical and lab exams, stage of disease and histological gradient, and associated co-morbidities, the life expectation over 2 years, with the patient’s personal consent.

RESULTS

The female patients selected for the pelvic exenteration for locally advanced gynecological cancers, with no distant metastases, had the age between 35 and 76 years old, with an average of 57 years old (table 1).

Table 1: The age of the female patients selected for the pelvic exenteration

<table>
<thead>
<tr>
<th>Age decade</th>
<th>Number of cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 – 45 years</td>
<td>2</td>
<td>16.7</td>
</tr>
<tr>
<td>46 – 55 years</td>
<td>3</td>
<td>25.0</td>
</tr>
<tr>
<td>56 – 65 years</td>
<td>3</td>
<td>25.0</td>
</tr>
<tr>
<td>66 – 75 years</td>
<td>4</td>
<td>33.3</td>
</tr>
</tbody>
</table>

The cancers had a primary localization in the genital organs in 7 cases (58.4%) and a secondary localization in 5 cases (41.6%).

There were 5 cases of relapsed gynecological cancers (41.6%)(table 2)

The relapse of neoplasms appeared after 4 year from operated ovarian cancer in one case (8.3%) and after a uterine cervix cancer in other 4 cases (33.3%). The relapses affected the bladder and the rectum in 2 cases (16.7%), bladder and ureters in other case (8.3%), the stump of the vagina in one case (8.3%) and ureters in another one (8.3%). Two of the female patients presented recto-vaginal fistulas (16.7%).

Table 2: Malign tumors with genital localization:

<table>
<thead>
<tr>
<th>Type of malignant tumors</th>
<th>Number of cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary tumors</td>
<td>7</td>
<td>58.3</td>
</tr>
<tr>
<td>Relapsed tumors</td>
<td>5</td>
<td>41.7</td>
</tr>
</tbody>
</table>

The staging of the operated tumor is based on a clinical examination and on a pre-operational lab exploration fitting in stage III a in 6 cases (50%), in III b in 3 cases (25%) and in stage IV in 3 cases (25%) (table 3).
parameters’ thickness is neoplastic and how much is inflammatory.

Some of the cases clinically noted as belonging to the 3rd stage, were actually 2nd stage cases. In 6 cases (50%) submitted to the pre-operative irradiation, the conversion of an advanced stage from a less advanced one could be obtained. The harshness of the parameter developed favorably, becoming more elastic. The 3rd and 4th stages present a diversity of forms, out of which some can be surgically treated with a radical intention.

Depending on the location and range of the malignant tumoral process, there were performed anterior pelvic exenterations in 6 cases, total posterior pelvic exenterations in 4 cases and total exenterations in 2 cases (table 4).

The anterior pelvic exenteration was indicated for: uterine cervix cancer extended to the urinary bladder in 3 cases (25%), the bladder cancer extended to the uterus and to the vagina in 2 cases (8.3%), pelvic relapse after operated uterine cervix cancer in 2 cases (16.7%).

The following surgery techniques were performed in the case of anterior pelvic exenteration:

- Total hysterectomy with double anexectomy + total cystectomy in 2 cases (16.7%) - Wertheim post-hysterectomy proximal excision of the uterine cervix + total cystectomy in 2 cases (16.7%)
- Wertheim post-hysterectomy total excision of the uterine cervix + total cystourotomy in 1 case (8.3%)
- Total hysterectomy with double anexectomy + partial cystectomy with the re-implantation of the left ureter in the remaining bladder in 1 case (8.3%).

The indications of the posterior pelvic exenteration were uterine cervix cancers with extension and rectum invasion in 2 cases (16.7%) and the ano-rectal cancers invading the genitalia in 2 cases (16.7%).

The surgical interventions performed within the posterior pelvic exenteration consisted in:

- Total hysterectomy with double anexectomy + posterior excision of uterine cervix + Miles rectum amputation + terminal left iliac colostomy, definitive – 2 cases (16.7%);
- Posterior excision of uterine cervix + Hartman post-surgery amputation of remaining rectum + anal lifting muscles resection + definitive left iliac colostomy 2 cases (16.7%).

The total pelvic resection that was made in 2 cases was indicated in one of them for uterine cervix cancer which invaded the urinary bladder and rectum and the other one for the massive relapse of the pelvic tumor after operated uterine cervix cancer, with invaded the bladder, the vagina, the rectum and the bony pelvis.

Total pelvic exenteration was performed by:

- total hysterectomy with double anexectomy + rectum resection + total cystectomy in 1 case;
- total hysterectomy with double anexectomy + total cystectomy + rectum amputation + left iliac colostomy in 1 case;

The total and anterior pelvic exenterations required surgery for urinary diversion. This was performed in tubular sigma in continuity in 5 cases, in one of them from the tubular isolated ileal loop, from the detubed ascendant ileocaecum in another and a re-implantation of ureter in the remaining bladder in the last case (table 5).

The urinary diversion in Mainz-Pouch manner II it was used in 5 cases of anterior pelvic exenteration with total cystectomy. The urinary reservoir was created from the sigmoid loop in prolongation, detubed to create low pressure. In the case of total pelvic exenteration, the urinary diversion was performed with a detubed ileum (Camey II) in one case, and in another case by creation of a neobladder from the ascendant ileocaecum (Indiana Pouch).

Post-surgery, the evolution was favorable in 75 % of the cases. The post-surgery complications are represented by acute pielonephritis, uretro-sigmoid fistula and an urethral stenosis that were treated consecutively. Pielonephritis responded positively to the therapy with antibiotics of wide spectrum, the
uretrot-sigmoid fistula spontaneously closed by drain in the fixed point, and finally the ureteral stenosis was solved by endoscopy.

The survival after the pelvic exenterations was of 86% up to 2 years and 75% up to 5 years.

**DISCUSSIONS**

The radical surgery of pelvic exenteration must be performed cautiously because it is especially shocking and it implies high post-surgery mortality, determined especially by complications in urinary tract. The long survival rate is determined by the improvement and accomplishment of the urinary diversion and by the oncological radicality. A progress in this area has been obtained by performing some continent neobladder from the detubed intestine.

The anterior pelvic exenteration performed in 6 cases was possible in the cases where the neoplastic lesions allow to obtain an anterior space between bladder and ureter and pubic articulation and to obtain a posterior space by separating the rectum from the uterus and vagina, thus allowing the tumor block isolation and resection together with the invaded organs with surrounding lympho-ganglionar tissue. If the tumoral invasion is present only in I\textsuperscript{st} lymphonodular station (the external lymphonodules, the internal ones and the shutters), and the invasion of the II\textsuperscript{nd} and III\textsuperscript{rd} station have not been confirmed at the hystopathologic exam, we had the certainty that we have performed a radical surgery. If the invasion interests the superior stations, the radicality is uncertain because these lymphonodules are spread in regions where they are difficult to be removed surgically. When the lymphonodules adhere to the vein walls as the external iliac vein or the hypogastric vein, the resection the vein and of the lymphonodules in block is performed.

The posterior pelvic exenteration after an intra-operative check-in including tumoral process extention at uterus, vagina, rectum superior hemorrhoidal and inferior mesenteric stations, distance metastasises. The radical surgery imposes in almost all of the cases the amputation of the rectum and definitive left iliac colostomy.

The total pelvic exenteration was made especially for the relapsed pelvic cancers of uterine cervix invading the rectum, vagina and bladder (2 cases). The operability of these extended pelvic tumor was appreciated upon the oncological safety limit biopsies and the absence of distant metastasises. The total pelvic exenterations leave a pelvic gap and/or a perineal gap. In our cases these defects were covered with a musculocutaneous pedicled graft from the abdominal muscle in one case and with omental pedicled graft and synthetic prosthesis appliance in the other.

The continent urinary diversions were made in 7 cases (58.3%) of pelvic exenterations that had a fundamental importance in the post-surgery evolution and especially in the long term survival rate. From the 5 sigmoid ureteroneocystoplasties performed by the Mainz-Pouch II manner, one presented a post-operatory ascendant acute pielo-nephropathy and one presented a uretrot-sigmoid fistula. Both cases were solved conservatorily without late complications. An urethral stenosis was observed and solved endoscopically, the other two cases with Camey II and Indiana Pouch procedures evolved favorable, with transitory incontinences, especially in the post-operatory period.

The long term survival after pelvic exenterations was acceptable, 75% at 5 years, and the quality of life was satisfactory.

**CONCLUSIONS**

1. The radical surgical interventions, like pelvic exenterations, have indications in locally advanced gynecological and biologically favorable cancers.
2. The correct selection of the female patients and an adequate surgery technique allow long survival rates in comparison with other radical oncological procedures.
3. Posterior and total anterior exenterations are performed depending on the location and extent of the malign tumor.

4. The total anterior exenterations are accompanied by urinary diversion surgery, that play a main role in the post-operatory evolution.

5. The pelvic exenterations are complex surgical interventions, which must be performed in specialized centers, by competent surgeons with experience in the general oncological surgery and vascular, urologic and gynecologic surgery.

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