Total pelvic exenteration for locally invasive cervical tumor in an elderly patient - a case report and literature review

Nicolae Bacalbaşa¹, Irina Bălescu², Dana Tomescu³, Vladislav Braşoveanu⁴

Corresponding author:

Nicolae Bacalbaşa,
Dimitrie Racoviţă Street, no. 2,
Bucharest, Romania
E-mail: nicolae_bacalbasa@yahoo.ro

¹"Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

²"Ponderas" Hospital, Bucharest, Romania

³Fundeni Clinical Institute, Department of Anaesthesia and Critical Care III, Bucharest, Romania

⁴"Dan Setlacec" Center of Gastrointestinal Disease and Liver Transplantation
Fundeni Clinical Institute, Bucharest, Romania

ABSTRACT

Cervical cancer is an aggressive gynecologic malignancy with a high capacity of local tumor spread and involvement of the surrounding organs. In these cases multiple pelvic organ resection might be needed to obtain a good local control of the disease. Although plevic exenteration has been considered for long time as a debilitating procedure associated with unacceptable risks of postoperative complications, in the last few decades it has been recognised as a salvage therapy and the only possible chance for cure for these cases which can be safely applied in elderly patients too. We present the case of a 81 year old patient who was diagnosed with a large cervical tumor invading the urinary bladder and the rectum in whom a total pelvic exenteration was performed.

Key words: locally advanced cervical cancer, elderly patient, total pelvic exenteration

INTRODUCTION

Cervical cancer is an aggressive gynecologic malignancy which is usually associated with a radial tumor progression via intrafascial and extrafascial routes; local invasion on the surrounding viscera usually develops by mechanical permeation of the tumor cells of the low resistance tissues (1). However, initially the tumor development encounters a restriction related to the anatomic component of the originating tumor and its connections, based on the embryological development; once the tumor continues growing an invasion process of these compartmental borders appears (2). In this way multiple visceral involvement might be present even from the moment of initial diagnosis (1,3). Consequently, association of neo-adjuvant radiation therapy is needed in order to diminish the local invasion and the tumor dimensions (1,4). However, this association is not always possible due to the presence of other co-morbidities or tumor related complications.

CASE REPORT

A 81 year old patient was hospitalized in emergency for pelvic pain associated with haematuria, massive vaginal bleeding and dysuria. The local examination revealed the presence of a large cervical tumor with urinary bladder and rectal invasion while the laboratory tests revealed a significant anemic syndrome with a hemoglobin value of 7,3 g/dl while the urine analysis revealed the presence of pyuria. Preoperative MRI confirmed the presence of a locally invasive cervical tumor involving both the rectal wall and the posterior wall of the urinary bladder including the right ureteral ostium; a right grade IV ureterohydronephrosis with secondary pyonephrosis. Due to these tumor related complications per-primam surgical treatment was performed; the patient was submitted to a total pelvic exenteration (*figures 1-5*). The ureters were exteriorized by a right terminal urostomy while the left colon was exteriorized by a left terminal colostomy. The post-operative course was uneventful.

DISCUSSIONS

Pelvic exenteration was considered for long time as a debilitating procedure which is associated with unacceptable rates of postoperative complications and postoperative mortality. However, once the surgical technique and postoperative management significantly improved, the complication rate decreased and transformed pelvic exenteration into the golden standard in

Figure 2 - tumor invasion of the rectal wall

Figure 3 - tumor invasion of the right ureter with secondarily uretero-hydronephrosis

Figure 1 - intraoperative aspect after mobilization of the cervical tumor en bloc with the invaded organs: recto-sigmoidian colon and urinary bladder

Figure 4 - the final aspect after total pelvic supralelevator exenteration

Figure 5 - the specimen of total pelvic exenteration

treating locally advanced pelvic malignancies (5-10). Although initially it was considered that advanced age is a contraindication for performing such an extensive procedure (6,11), in time it was successfully implemented in elderly groups of patients too (12). This fact was also correlated to the fact that life expectancy has continually increased in the last decades, so the number of elderly patients presenting with gynecologic malignancies also encountered an augmentation (13).

In order to demonstrate this hypothesis, Matthews et al included in their study 63 females with age over 65 years submitted to pelvic exenteration for advanced pelvic malignancies and the results were compared with a similar cohort of 363 patients younger than 65 years who were diagnosed with similar pathologies and were submitted to similar surgical procedures. An important point of the study was the one that it was conducted over a large period of time, including three decades (60's, 70's and 80's) so the authors also demonstrated the evolution in terms of outcomes over each decade. The main indications requiring pelvic exenteration were cervical cancer (38 cases) and vaginal cancer (11 cases). Total pelvic exenteration was performed in 68% of cases, anterior exenteration was performed in 21% of cases while posterior exenteration was the treatment of choice in the other 11% of cases. The remnant pelvic cavity was managed by omental transfer in 81% of cases in 46% a neo-vagina was reconstructed by using a gracilis flap. The early postoperative mortality rate was 11,1% while 5 year overall survival was 46%. In contrast, in the cohort including patients younger than

65 years the early postoperative mortality rate was 8% while the reported rate of 5 year overall survival was 45%. The same study concluded that postoperative rates of death significantly decreased over each decade included in the study (mortality rate was 29% for the patients submitted to surgery in the 60's and decreased up to 9% for cases surgically treated in the 80's. Another important aspect demonstrated by Matthews's study was the one that the proportion of elderly patients submitted to pelvic exenteration constantly increased over each decade in part, sustaining in this way the idea that there is a proportional relationship between the life expectancy and the number of patients diagnosed with advanced malignancies (12).

In a more recent study conducted by Huang et al the age impact on surgical and oncologic outcome was studied on 161 patients submitted to pelvic exenteration. The patients were classified according to their age in three groups: young: ≤ 50 years, middle: 51–64 years, and senior: ≥ 65 years. In the young group 58 patients were included, in the middle group there were 62 cases while 41 patients were categorised as being part of the senior group. Patients included in the young and middle group were submitted to pelvic exenteration mainly for cervical cancer (82,8%) while cases included in the senior group reported vulvo-vaginal cancer as the main indication for exenteration (70,7%). The indications for pelvic exenteration comprised primary tumors (10,6%), recurrent tumors (77%) or persistent tumors (12,4%) of the cervix, vulva, vagina, and uterus. When analyzing associated co-morbidities, arterial hypertension, higher levels of seric creatinine and pulmonary diseases were more often seen in elderly group ($p=0,0001$, $p=0,0004$ and $p=0,004$ respectively) while in regards with diabetes there were no significant differences. Younger patients reported a shorter time between tumor diagnosis and surgery but this fact was not statistically significant when compared to middle or advanced age groups. Among the entire cohort, the most frequently performed surgical procedure was pelvic exenteration in 68,3% of cases followed by anterior exenteration (21,7% of cases) and posterior exenteration (9,94% of cases). Younger patients reported a longer time of surgery when compared with middle and senior patients (10,1 hours versus 9,5 and 8,5 hours, $p=0,0089$), while when it comes to hospitalization stay and blood transfusion there were no significant differences between the three groups. When evaluating the reconstructive procedures, continent urinary conduits and creation of neovagina were more often chosen to be performed in younger patients. The reported intra-operative complications were similar

between the groups ($p=0,713$). Neither early nor late postoperative complication rates did not significantly varied between the three subgroups. The overall incidence of post-operative complications for the three age groups was 89.7%, 87.1%, and 87.8% respectively with no significant differences between groups ($p=0.8863$), the most frequently seen complications being acute related to the urostomy (39.0% of cases) or wound separation (in 31.0% of patients). Although a higher rate of recurrence was seen in younger women when compared to middle and senior groups (68.4% versus 46.7%, and 42%) , the time to recurrence was longer in younger patients. However, time to death did not significantly vary between the three groups. The authors concluded that advanced chronological age should no longer be a contraindication for pelvic exenteration while both surgical and oncological outcomes seem not to be influenced by a more advanced age (14).

When it comes to the possibility of association of neo-adjuvant radiation therapy in an elderly patient in order to decrease local tumoral invasion most studies concluded that chronological age should not impede radiotherapy. Geriatric patients seem to well tolerate irradiation and to report similar rates of response to the younger cases (15,16). Although the hypothesis that in elderly patients more efficient results might be seen after radiotherapy due to the reduction of the capacity of some DNA-repair enzymes was raised, clinicians should keep in mind the aspect that in elderly cases more frequent complications such as atherosclerotic damage, hydro-electrolitic disorders or other acute toxicity syndromes might develop (17). However, in our case radiation therapy was formally excluded due to the presence of tumor related complications such as hematuria and pyonephrosis.

CONCLUSIONS

Chronological age is no longer a contraindication for major surgical procedures such as pelvic exenteration especially now when the life expectancy and secondarily the number of senior patients diagnosed with advanced malignancies has encountered a constant increase. Although general comorbidities such as cardiac disease, pulmonary dysfunctions or renal dysfunctions might be

more often seen in elderly, an adequate post-operative management seems to provide to these patients similar outcomes to younger cases. When it comes to the role of neo-adjuvant oncologic treatment including radiation therapy, it should be applied after a close examination of the general and biological status of the patient.

REFERENCES

- Hockel M, Kahn T, Eienkel J, Manthey N, Braumann UD, Hildebrandt G, et al. Local spread of cervical cancer revisited: a clinical and pathological pattern analysis. *Gynecol Oncol*. 2010 Jun;117(3):401-8. doi: 10.1016/j.ygyno.2010.02.014. Epub 2010 Mar 16.
- Hockel M, Horn LC, Manthey N, Braumann UD, Wolf U, Teichmann G, et al. Resection of the embryologically defined uterovaginal (Möllerian) compartment and pelvic control in patients with cervical cancer: a prospective analysis. *Lancet Oncol*. 2009 Jul;10(7):683-92. doi: 10.1016/S1470-2045(09)70100-7. Epub 2009 May 29.
- Querleu D1, Morrow CP. Classification of radical hysterectomy. *Lancet Oncol*. 2008 Mar;9(3):297-303. doi: 10.1016/S1470-2045(08)70074-3.
- Waggoner SE. Cervical Cancer. *Lancet* 28-6-2003;361(9376):2217-25.
- Averette HE, Lichtinger M, Sevin BU, Girtanner RE. Pelvic exenteration: a 15-year experience in a general metropolitan hospital. *Am J Obstet Gynecol*. 1984 Sep 15;150(2):179-84.
- Rodriguez Cuevas H, Torres A, de la Garza M, Hernandez D, Herrera L. Pelvic exenteration for carcinoma of the cervix: analysis of 252 cases. *J Surg Oncol*. 1988 Jun;38(2):121-5.
- Shingleton HM, Soong SJ, Gelder MS, Hatch KD, Baker VV, Austin JM Jr. Clinical and histopathologic factors predicting recurrence and survival after pelvic exenteration for cancer of the cervix. *Obstet Gynecol*. 1989 Jun; 73(6):1027-34.
- Ingiulla W, Cosmi EV. Pelvic exenteration for advanced carcinoma of the cervix. Some reflections on 241 cases. *Am J Obstet Gynecol*. 1967 Dec 15;99(8):1083-6.
- Magrina JF1, Stanhope CR, Weaver AL. Pelvic exenterations: supravaginal, infravaginal, and with vulvectomy. *Gynecol Oncol*. 1997 Jan;64(1):130-5.
- Berek JS1, Howe C, Lagasse LD, Hacker NF. Pelvic exenteration for recurrent gynecologic malignancy: survival and morbidity analysis of the 45-year experience at UCLA. *Gynecol Oncol*. 2005 Oct;99(1):153-9.
- Taliedo OE. Pelvic exenteration--Medical College of Georgia experience. *Gynecol Oncol*. 1985 Oct;22(2):181-8.
- Matthews CM, Morris M, Burke TW, Gershenson DM, Wharton JT, Rutledge FN. Pelvic exenteration in the elderly patient. *Obstet Gynecol*. 1992 May; 79(5 (Pt 1):773-7.
- Vital statistics of the United States, life tables. Vol 2 section 6. Hyattsville, Maryland: United States Department of Health and Human Services, National Center for Health statistics 1990.
- Huang M, Iglesias DA, Westin SN, Fellman B, Urbauer D, Schmeier KM, et al. Pelvic exenteration: impact of age on surgical and oncologic outcomes. *Gynecol Oncol*. 2014 Jan;132(1):114-8. doi: 10.1016/j.ygyno.2013.11.014. Epub 2013 Nov 18.
- Sakurai H, Mitsuhashi N, Takahashi M, Yamakawa M, Akimoto T, Hayakawa K, et al. Radiation therapy for elderly patient with squamous cell carcinoma of the uterine cervix. *Gynecol Oncol*. 2000 Apr;77(1):116-20.
- Carreca I, Balducci L, Extermann M. Cancer in the older person. *Cancer Treat Rev*. 2005 Aug;31(5):380-402.
- Geinitz H, Zimmermann FB, Molls M. Radiotherapy of the elderly patient. Radiotherapy tolerance and results in older patients. *Strahlenther Onkol*. 1999 Mar;175(3):119-27. German