Cogitare Enfermagem

REVIEW

POSTOPERATIVE COMPLICATIONS ASSOCIATED WITH PELVIC EXENTERATION IN WOMEN WITH GYNECOLOGICAL CANCER: AN INTEGRATIVE REVIEW*

HIGHLIGHTS

1. Pelvic Exenteration (PE) is a complex oncological surgery.
2. PE must be performed by means of well-established criteria.
3. Advanced-stage gynecological tumors can be approached via PE.
4. Infection stands out among the complications associated with PE.

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ABSTRACT

Objective: to identify the main complications arising from the pelvic exenteration surgery in gynecological cancer and the in-hospital death outcome after the surgical procedure. **Method:** an integrative literature review considering 23 articles published from 2012 to 2020 in the LILACS and IBECS databases. The descriptors used were the following: *genital cancer, gynecological cancer, pelvic exenteration, exenteration, postoperative complications, surgical complications* and *death*, combined by means of the AND or OR Boolean connectors. **Results:** surgical applicability was verified for cervical, uterine, ovarian, vaginal and vulvar cancer; age was associated with comorbidities (diabetes and hypertension); total pelvic exenteration was predominant; and there were high mean surgical and hospitalization times due to infections. **Contributions to the area:** this research enables improvements in the health care provided in the PE pre-, peri- and post-operative periods, as it elucidates the main problems resulting from this surgery, their stratifications and management options.

DESCRIPTORS: Neoplasms in the Female Genitals; Pelvic Exenteration; Postoperative Complications; Oncology; Comorbidity.

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INTRODUCTION

The therapeutic measures to approach gynecological cancer can vary and be combined in several ways according to staging of the disease and to the patient's clinical condition[1]. Pelvic Exenteration (PE) was described by Brunschwig in 1948 as a palliative procedure for the symptoms caused by locally advanced gynecological tumors. With the advancement in surgical techniques, PE evolved from a palliative to a curative procedure[2].

Exenterations require extensive reconstruction and surgical recovery with significant morbidity and mortality associated with them, requiring careful selection of the patient to balance the cure or symptom palliation objectives[2-3]. They also require that the patient remains in the Intensive Care Unit immediately after the surgery, in addition to rigorous monitoring. Mortality is between 1% and 16% and its causes include sepsis, thromboembolism, kidney disease and cardiopulmonary failure. Infections (19%-86%), anastomotic leaks (8%-36%), fistulas (8%-36%) and intestinal and urethral obstructions (5%-10%) are some of the most frequent morbidities[2-4].

Evaluating the postoperative complications associated with PE in gynecological cancer is indispensable for professionals caring for patients with this disease, in addition to favoring practice grounded on validated instruments. The method used by Clavien-Dindo to classify post-surgical complications was formulated in 2004 and has been used in studies to assess complications in patients subjected to several types of surgery[5].

The objective of this study was to identify the main complications arising from the PE surgery in gynecological cancer and in-hospital death after the surgical procedure as outcome.

METHOD

This is an Integrative Literature Review (ILR) that gathers, assesses and synthesizes the results of research studies on a specific theme. Development of the study included the following stages: identification of the topic and selection of the research question; definition of the inclusion and exclusion criteria; and identification, categorization, analysis, interpretation and presentation of the results[6].

The research guiding question (In women with gynecological cancer, how do PE surgeries influence the occurrence of post-surgical complications resulting in death during hospitalization?) was defined using the PICOT (Population, Intervention, Control, Outcome and Time) mnemonics, which ensured better traceability of the publications.

The study search was conducted from January to March 2020 in the following databases: National Library of Medicine National Institutes of Health (PubMed), *Literatura Latino-Americana e do Caribe em Ciências da Saúde* (LILACS) and Índice *Bibliográfico Español en Ciencias de la Salud* (IBECS). The Descriptors in Health Sciences (*Descritores em Ciências da Saúde*, DeCS) and from the MeSH database were the following: *genital cancer, gynecological cancer, pelvic exenteration, exenteration, postoperative complications, surgical complications* and *death*, combined by means of the AND or OR Boolean connectors.

The inclusion criteria adopted corresponded to primary studies published in full in English, Spanish and Portuguese; published between 2012 and 2020; addressing PE performance with curative or palliative purposes, exclusively for diagnoses of onco-gynecological malignancies; and which assessed post-surgical complications and post-surgical in-hospital deaths.

The exclusion criteria corresponded to secondary productions and case studies, in addition to papers addressing PE performance only targeting at exposure to surgical techniques. Consequently, 23 novel research studies were selected for the review, meeting the inclusion criteria.

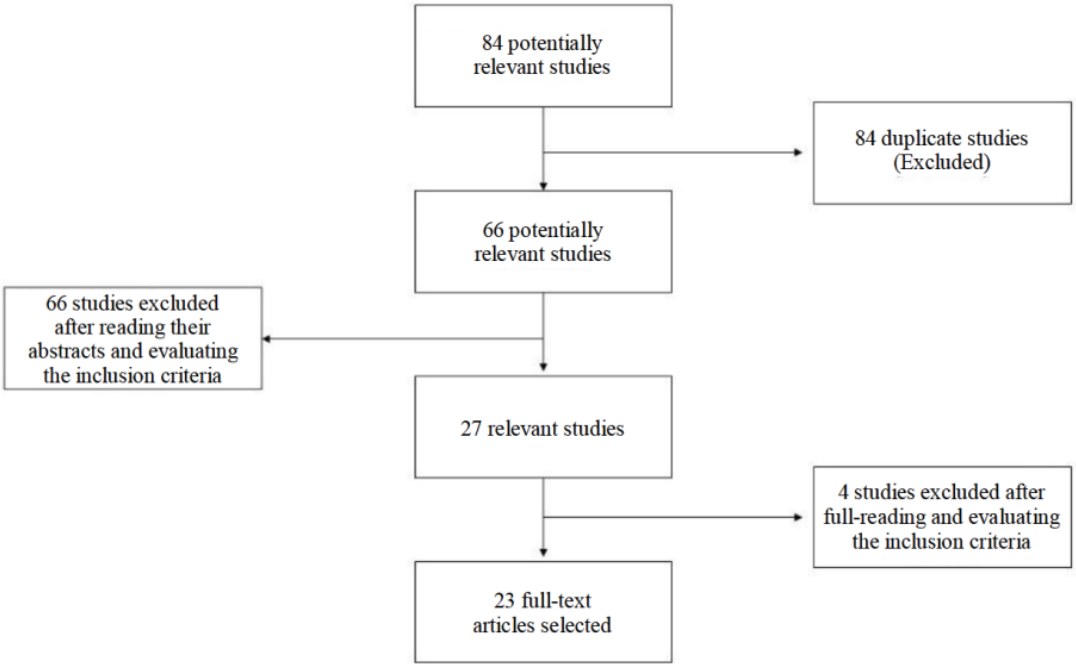

Figure 1 - Flowchart corresponding to selection of the articles for the Integrative Literature Review.

Source: Silva IA; Carneiro ICRS; Santana ME; Ferreira IP. 2020[7].

The assumptions established in national research studies were considered during data extraction and when evaluating the level of evidence of the productions[6,8]. The articles were identified by title, year, country, database, level of evidence, objectives and main results.

The Results and Discussion sections are presented in a descriptive way, grouped into semantic categories originated from saturation of the following information: clinical characterization; characterization of the surgical procedure; characterization of the post-surgical complications; and in-hospital death after PE as outcome.

RESULTS

The studies selected are presented in Chart 1.

The search showed nonexistence of publications in Brazilian journals, although two research studies (9%) were produced at the national level; six (26%) were published in the *International Journal of Gynecological Cancer* and five (22%) in *Gynecologic Oncology* (Chart 1).

Regarding locus, five (22%) are from the United States; two (9%) come from Berlin and Jena (Germany) and from Bologna and Campobasso (Italy); two (9%) from Brazil; and another two (9%) are from Japan. As for year of publication, seven (30%) were published

in 2012; six (26%) in 2014; three (13%) in 2019, two (9%) in 2013 and another two (9%) in 2017. 2015, 2016 and 2018 presented only one (4%) publication each.

Regarding the research designs, 23 (100%) were retrospective studies, with only two (9%) cohort studies among them. In relation to the time to conduct the studies, four (17%) required nine years to be concluded; another four (17%) lasted three years; three (13%) required 11 years; two (9%) studies considered a 17-year time frame; and another two (9%) covered 13 years.

In relation to the sample, the highest number was 282 women[8] and the smallest sample had 10 participants[9]. The total sum of participants was 1,552, with a mean of 67.47 in each research study.

Chart 1 - Evidence corresponding to the scientific productions. Belém, Pará, Brazil. 2021.

Database/ Country/ Year/LE	Title of the publication/ Journal	Objective	Main results				
			Part. (n)/ Age (x)/ PE (n)	Cancer diagnoses (n)	Surgery time (min) (x)/ Hosp. time (d) (x)	Assessment of the complications (n)	Most frequent complications (n)/Death (n)
PubMed/ United States/ 2012/4	Anterior pelvic exenteration with total vaginectomy for recurrent or persistent genitourinary malignancies: review of surgical technique, complications, and outcome. Gynecologic Oncology[16]	To describe the surgical technique, the complications and the results after anterior PE with total vaginectomy (APETV) for recurrent or persistent genitourinary malignancies.	11/55/ APETV: 11	Cervical: 6; Uterine: 3; Vaginal: 1	648/10	Early complication: 3; Late complication: 1. Clavien-Dindo (G3-G4: 4)	Infection: 4/0
PubMed/ Brazil/ 2012/4	Prognostic factors in pelvic exenteration for gynecological malignancies. EJSO the Journal of Cancer Surgery[17]	To analyze morbidity, mortality and prognostic factors after PE.	107/56.4/ TPE: 56; APE: 31; PPE: 10	Cervical: 73; Uterine: 17; Vaginal: 10; Vulvar: 7	---/0	Early complication: 70; Late complication: 58. Only listed	Infection: 40; Surgical reapproach: 33/0
PubMed/ United States/ 2012/4	The effect of body mass index on surgical outcomes and survival following pelvic exenteration. Gynecologic Oncology[18]	To assess the preoperative Body Mass Index rates, surgical outcomes, and PE complication and/or recurrence rates.	161/54.4/ TPE: 110; APE: 35; PPE: 16	Cervical: 86; Uterine: 15; Vaginal: 38; Vulvar: 21	568/19	Early complication: 210; Late complication: 105. Only listed	Complication with vaginal reconstruction: 63; Urinary complication: 60/0

PubMed/ Belgium/ 2012/4	Pelvic exenterations for gynecological malignancies: a study of 36 cases. International Journal of Gynecological Cancer[9]	To assess the surgical outcomes, survival and morbidity associated with PE.	36/57/TPE: 27; APE: 5; PPE: 3	Cervical: 18; Uterine: 9; Ovarian: 1; Vaginal: 8	390/25	Early complication: 28; Late complication: 18. CTCAE (G1-G2: 12; G3-G4: 27)	Infection: 18; Urinary complication: 17/0
PubMed/ France/ 2012/4	Comparison of morbidity and survival between primary and interval cytoreductive surgery in patients after modified posterior pelvic exenteration for advanced ovarian cancer. International Journal of Gynecological Cancer[8]	To evaluate the morbidity of modified posterior PE (MPPE) at the time of primary and interval cytoreductive surgeries after neoadjuvant chemotherapy.	63/58/MPPE: 63	Ovarian: 63	447/14	Clavien-Dindo and MSKCC (G1-G2: 51; G3-G4: 41)	Infection: 60; Intestinal complication: 9; Rehospitalization: 9/0
PubMed/ Switzerland/ 2012/4	Indications and long-term clinical outcomes in 282 patients with pelvic exenteration for advanced or recurrent cervical cancer. Gynecologic Oncology[13]	To summarize the PE clinical experience as a treatment for cervical cancer, focusing on the indications and results in patients from specific groups.	282/50/TPE: 262; APE: 14; PPE: 6	Cervical: 282	---/---	Only listed	Fistulas: 42; Infection: 20; Anastomosis-related problems: 21/14
PubMed/ Korea/ 2012/4	Pelvic exenteration for recurrent cervical cancer: ten-year experience at National Cancer Center in Korea. Journal of Gynecological Oncology[19]	To assess survival and morbidity after PE for the curative treatment of recurrent cervical cancer.	61/61/TPE: 42; APE: 17; PPE: 2	Cervical: 61	600/34.3	Early complication: 13; Late complication: 25. Only listed	Fistula: 15; Infection: 6; Intestinal complication: 6; Complication with vaginal reconstruction: 6/0

PubMed/ Sweden/ 2013/4	Pelvic exenteration for recurrent gynecologic malignancy: a study of 28 consecutive patients at a single institution. International Journal of Gynecological Cancer[4]	To assess the results in patients subjected to PE surgeries for recurrent gynecological malignancies.	28/61/TPE: 11; APE: 2; PPE: 15	Cervical: 10; Uterine: 4; Ovarian: 5; Vaginal: 5; Vulvar: 1	455/22	Early complication: 41; Late complication: 24. Clavien-Dindo (G1-G2: 45; G3-G4: 18; G5: 2)	Infection: 28; Intestinal complication: 4/2
PubMed/ Thailand/ 2013/4	Characteristics of gynecologic oncology patients in King Chulalongkorn Memorial Hospital - complications and outcome of pelvic exenteration. Asian Pacific Journal of Cancer Prevention[20]	To assess the characteristics of the patients, the surgical procedure, the outcomes and the complications.	13/52/TPE: 9; APE: 1; PPE: 3	Cervical: 5; Ovarian: 7; Vulvar: 1	532/35	Only listed	Infection: 8; Fistula: 2/0
PubMed/ Germany and Italy/ 2014/4	Morbidity after pelvic exenteration for gynecological malignancies: a retrospective multicentric study of 230 patients. International Journal of Gynecological Cancer[7]	To assess postoperative morbidity and mortality in patients subjected to PE for primary or recurrent gynecological malignancies.	230/54/TPE: 131; APE: 68; PPE: 31	Cervical: 177; Uterine: 28; Vaginal: 9; Vulvar: 16	446/24	MSKCC (G1-G2: 146; G3-G4: 49; G5: 7)	Infection: 66; Dehiscence: 60/7
PubMed/ Germany and Italy/ 2014/4	Pelvic exenteration for recurrent endometrial adenocarcinoma: a retrospective multi-institutional study about 21 patients. International Journal of Gynecological Cancer[21]	To assess long-term morbidity and mortality and survival in patients subjected to PE with a curative intention for endometrial adenocarcinoma recurrence over a decade.	21/66/TPE: 10; APE: 6; PPE: 5	Uterine: 21	382/22	Only listed	Infection: 7; Dehiscence: 5/0

PubMed/ United States/ 2014 /4	Pelvic exenteration: impact of age on surgical and oncologic outcomes. Gynecologic Oncology[15]	To assess if preoperative age affects the surgical results, the complication rates and/ or recurrence in women subjected to PE.	161/55/TPE: 103; APE: 35; PPE: 23	Cervical: 86; Uterine: 15; Vaginal: 38; Vulvar: 21	562/19	Early complication: 210; Late complication: 105. Only listed	Complication with vaginal reconstruction: 63; Urinary complication: 60/0
PubMed/ United States/ 2014/4	Should pelvic exenteration for symptomatic relief in gynaecology malignancies be offered? Archives of Gynecology and Obstetrics[22]	To review exenterative treatments and surgeries performed with a palliative intention, and to assess their role in relapsed gynecological malignancies.	18/54/TPE: 9; APE: 5; PPE: 4	Cervical: 12; Uterine: 1; Vulvar: 5	570/24	Transoperative complication: 1: Early complication: 15. Clavien-Dindo (G1-G2: 6; G3-G4: 10)	Surgical reapproach: 10; Infection: 4/0
PubMed/ Brazil/ 2014 /4	Surgical results of pelvic exenteration in the treatment of gynecologic cancer. World Journal of Surgical Oncology[23]	To assess the PE surgical results and complications in the treatment of gynecologic malignancies and to compare the complications related to the surgery associated with different types of exenteration.	28/55/TPE: 14; APE: 7; PPE: 7	Cervical: 18; Uterine: 3; Ovarian: 6; Vaginal: 1	269/9	Clavien-Dindo (G1-G2: 6; G3-G4: 6; G5: 4)	Fistula: 16; Infection: 7; Surgical reapproach: 7/0
PubMed/ Japan/ 2014 /4	Clinical outcome of pelvic exenteration in patients with advanced or recurrent uterine cervical cancer. International Journal of Clinical Oncology[24]	To evaluate patients subjected to PE and to determine the clinical condition and characteristics associated with the result and survival.	12/46/TPE: 3; APE: 8; PPE: 1	Cervical: 12	491/65	Only listed	Infection: 5; Intestinal complication: 5; Complication with vaginal reconstruction: 3/0
PubMed/ Bolivia /2015/4	Pelvic Exenteration in Gynecologic Cancer: La Paz University Hospital Experience. International Journal of Gynecological Cancer[14]	To establish the most favorable cases for PE by reviewing the institutional experience.	10/54/TPE: 8; APE: 1; PPE: 1	Cervical: 3; Uterine: 2; Ovarian: 1; Vaginal: 2; Vulvar: 1	545/26	Only listed	Infection: 15; Surgical reapproach: 8; Complication with vaginal reconstruction: 8/1

PubMed/ Taiwan/ 2016/4	Posterior pelvic exenteration and retrograde total hysterectomy in patients with locally advanced ovarian cancer: Clinical and functional outcome. Journal of Obstetrics and Gynaecology[25]	To evaluate clinical outcomes and postoperative quality of life in patients locally affected by advanced ovarian cancer and subjected to posterior PE with Hudson-Delle Piane radical retrograde hysterectomy.	22/65/PPE: 22	Ovarian: 22	520/13	Transoperative complication: 14: Early complication: 18. Clavien-Dindo (G1-G2: 15; G3-G4: 21)	Surgical reapproach: 14; Blood-related complication: 9/0
PubMed/ Czech Republic/ 2017/4	Modified posterior pelvic exenteration for advanced ovarian malignancies: a single-institution study of 35 cases. Acta Obstetricia et Gynecologica Scandinavica[26]	To investigate the possible benefits of a complete cytoreduction in patients with advanced ovarian cancer and concomitant rectal invasion, as well as the morbidity associated with radical surgery.	35/61/MPPE: 35	Ovarian: 35	283/---	Early complication: 34; Late complication: 9; Transoperative complication: 10. Clavien-Dindo (G1-G2: 26; G3-G4: 13)	Blood-related complication: 16; Infection: 14/0
PubMed/ Argentina/ 2017/4	Exenteración *pélvica para neoplasias ginecológicas:* Complicaciones postoperatorias y resultados oncológicos. Actas Urológicas Españolas[27]	To assess complications, morbidity and oncological results of PE as a treatment for gynecological tumors.	35/53.8/TPE: 15; APE: 20	Cervical: 23; Uterine: 5; Ovarian: 1; Vaginal: 5; Vulvar: 1	322/3	Early complication: 29; Late complication: 32. Clavien-Dindo (G1-G2: 25; G3-G4: 6)	Infection: 24; Urinary complication: 15/0
PubMed/ United States/ 2018/4	Prediction of short-term surgical complications in women undergoing pelvic exenteration for gynecological malignancies. Gynecologic Oncology[28]	To assess the preoperative predictors of severe surgical complications at 30 days.	138/61.9/ TPE: 45; APE: 52; PPE: 41	Cervical: 51; Uterine: 38; Vaginal: 18; Vulvar: 21; Others: 10	---/---	Early complication: 137. Accordion Severity Grading (G1-G2: 100; G3-G4: 37)	Surgical reapproach: 57; Rehospitalization: 25; Urinary complication: 15/3

PubMed/ Japan /2019/4	Pelvic Exenteration as Potential Cure and Symptom Relief in Advanced and Recurrent Gynaecological Cancer[29]	To evaluate PE to determine validity of the evolutions.	13/53/TPE: 7; APE: 4; PPE: 2	Cervical: 8; Uterine: 3; Vaginal: 1; Vulvar: 1.	625/52.5	Clavien-Dindo (G1-G2: 6; G3: 5)	Infection: 6; Dehiscence: 3; Ileus: 2/0
PubMed/ Germany /2019/4	Pelvic exenteration as ultimate ratio for gynecologic cancers: single-center analyses of 37 cases[30]	To report the institutional experience in PE of the Obstetrics and Gynecology department at the Ulm University Hospital.	37/60/TPE: 10; APE: 17; PPE: 6; LEER: 4	Cervical: 22; Uterine: 6; Vulvar: 9.	510/21	Only listed	Infection: 6; Surgical reapproach: 6; Fistula: 5/0
PubMed/ Italy/2019/4	Minimally Invasive Pelvic Exenteration for Gynecologic Malignancies: A Multi-Institutional Case Series and Review of the Literature[31]	To assess the viability and efficacy of Minimally-Invasive PE (MIPE) in a series of multi-institutional Italian cases of women with gynecological cancer and a literature review.	23/64/TPE: 5; APE: 18	Cervical: 10; Uterine: 9; Vaginal: 3; Urothelial: 1	540/10	Early complication: 10; Late complication: 13. Clavien-Dindo (G1-G2: 1; G3: 6)	Urinary complication: 6; Infection: 4; Intestinal complication: 3/0

Source: Research protocol: LE: Level of Evidence; Part. (n): Number of participants studied in each publication; Age (x): Mean age of the research subjects; Diagnoses (n): Number of diagnoses surveyed in each research study; PE (n): Number of exenteration procedures performed per publication; TPE: Total PE; APE: Anterior PE; PPE: Posterior PE; Surgery time (min) (x): Mean time to perform the surgeries, computed in minutes; Hosp. time (d) (x): Mean hospitalization time, computed in days; Assessment of the complications (n): Discrimination of the methods to assess the complications; Most frequent complications (n): Most frequent complications in each publication, with their respective number of occurrences in the subjects; Death (n): Number of deaths recorded after performing the PE surgeries, still during hospitalization; (---): Data not measured; LEER: Laterally Extended Endopelvic Resection.

DISCUSSION

The studies were categorized into four areas, emphasizing the main findings to synthesize them, directing the results to knowledge about the profile of the major complications resulting from pelvic exenteration surgeries in gynecological cancer to promote practice grounded on scientific knowledge.

Clinical characterization

The publications have variables in common such as age, characteristics of the tumors, classification of the type of surgical procedure used, and complications arising from the PE surgeries. The mean age was 56±10 years old, although it should not be considered individually as a determinant for selection. However, aging is associated with comorbidities, which can contraindicate the surgery when they are not controlled[11].

In a study conducted with 161 women, although age was a determinant in the incidence of comorbidities such as diabetes mellitus and systemic arterial hypertension, this factor does not imply higher frequencies of postoperative complications in aged women[11].

In relation to the characteristics of the tumors in 1,545 participants, the most frequently diagnosed cancer was cervical with 963 (62%), followed by uterine with 179 (12%), ovarian with 141 (9%) vaginal with 139 (9%) and vulvar with 105 (7%). The histopathological types were evaluated in 744 women, with prevalence of the squamous cell carcinoma type in 358 (48%).

Various types of onco-gynecological conditions can be treated by means of exenteration surgeries, depending on the disease staging evidenced, the patient's clinical condition, and previous consent to undergo the surgery[8,12,21].

PE can be appropriate for patients with advanced or recurrent primary tumors that cannot be treated with radiotherapy. Complete resection with no evidence of residual disease has been associated with better results with a five-year survival rate of 74% against 21% when complete resectability is not possible[2,18].

The occurrence of vulvar cancer (105 [7%]) was quite limited when compared to the cervical and uterine cancer diagnoses, being more frequent in aged patients. The outcome for an exenterative course of action arises from the absence of routine outpatient gynecological monitoring. Regarding the women from the young age group, they predominantly present cervical cancer diagnoses[11].

In cervical cancer cases, PE has been used for centrally recurrent carcinoma and for adenocarcinoma, with well-documented cure potential and survival rates varying from 16% to 60%. It is directly correlated to complete tumor resection, evidencing that resectability is established as a key aspect of preoperative planning[2].

Most of the recurrent uterine tumors spread beyond the pelvis, making PE an appropriate intervention for only a selected group of patients with recurrent uterine malignancies[2,9-10,19]. Women with ovarian cancer are susceptible to the dissemination of malignant cells inside the abdomen, and are seldom candidates for PE[1-2,20].

A retrospective study analyzed 35 cases of patients with ovarian cancer that were subjected to modified posterior PE with a curative purpose. The survival analysis in relation to residual disease confirmed an optimistic prognosis in patients with optimal resection, with a mean disease-free survival period of 33.6 months in R0 patients, 19.6 months in R1 patients, and 14.3 months in R2 patients. There were post-surgical complications in 83% of the patients, with early complications as the most frequent (65.7%). More severe complications (Grades III and IV) were evidenced in 37.7% of the patients. There were no cases of surgery-associated mortality[23].

The PE indications are recurrent in cases of necrosis secondary to the radiotherapy treatment, including hemorrhages due to tumor invasion and fistulas[12,22,29-31]

Characterization of the surgical procedure

The profile of the surgical procedures was well characterized, with six surgical techniques standing out: Total PE (TPE), Posterior PE (PPE), Anterior PE (APE), Anterior PE with Total Vaginectomy (APETV), Modified Posterior PE (MPPE), and Laterally Extended Endopelvic Resection (LEER).

It is worth noting the prevalence of TPE, which was performed in 877 (57%) patients, with a mean of 38 procedures per study[9]; followed by APE, performed in 346 (22%) women, with a mean of 15 procedures per study; and by PPE, performed in 198 (13%) patients, with a mean of nine procedures per study.

Performing urinary and/or intestinal diversions is crucial to preserve survival of patients with gynecological cancer. In all 23 studies, 411 (51%) corresponded to the incontinent type, ileal conduit subtype, with high incidence of containment pouches for urinary diversion, by means of the Indiana, Miami and Mainz techniques, with 71 (9%). Intestinal diversions were observed in 419 citations, by means of the Hartman Colostomy techniques and with a frequency of 235 (56%), followed by colorectal anastomosis with 129 (31%).

Twenty (87%) publications addressed surgical time as a useful parameter to analyze the patients, and 18 (78%) addressed hospitalization time after performing PE due to gynecological tumors. The mean time required to perform the surgical procedure was 485 minutes, ranging from a minimum of 269[23] to a maximum of 648[12]. Extended surgical times are associated with the surgical technical abilities of the professionals involved and with local neoplastic involvement[12].

The mean hospitalization time was 24 days[24], with a maximum of 65 days[25], justified by the postoperative complications related to paralytic ileus and intestinal anastomosis leaks, observed in three patients.

Characterization of the post-surgical complications

The classification instruments used were the Clavien-Dindo Classification Scale (10 [43%]), the MSKCC System (two [9%[), CTCAE (one [4%]) and the Accordion Severity Grading System (one [4%])[8].

Nearly 1,233 complication episodes were classified by means of the time criteria. Of these, 818 (66%) occurred early in time, 390 (32%) were late, and 25 (2%) complications were notified in the transoperative period. 693 (63%) notifications of problems comprised between grades G1 and G2 were observed, as well as 240 (35%) between G3 and G4; and the most severe complications (G5) were present in 13 (2%) notifications.

The most incident complications observed after performing PE surgeries secondary to gynecological cancer were infections, with abdominal and pelvic abscesses standing out. The urinary complications can be related to events such as problems performing the urinary diversion and occurrence of renal failure. The intestinal complications were mainly related to the creation of diversions, although some problems related to anastomosis patency were also notified.

Suture dehiscence was reported 176 times (10%), which may explain the high number of surgical reapproaches. The fistulas (7%) were the result of the illness process itself and of the involvement of multiple pelvic organs, as well as to the complication secondary to the surgery. It was possible to observe respiratory, cardiac and blood-related complications in participants who stayed many days in the hospital environment. Rehospitalization (post-surgical complication) was found in 34 (2%) cases.

The mean surgery time was 446 (95-970) minutes, 39 minutes below the expected mean value, and the hospitalization median was 24 (7-210) days. The rate of complications was 49 (21.3%) cases. Seven (3%) perioperative deaths were recorded at 30 days. The surgery was performed with tumor-free resection margins (R0) in 166 (72.2%) patients. The overall mortality rates were 75%, 57.6%, 55.6% and 53.6% for vulvar, cervical, vaginal and endometrial cancer, respectively[8].

In-hospital death after PE as outcome

A total of 27 deaths were detected in this research series[8], a factor that can be analyzed considering the large sample of patients (n=282) and their collective pathological profile: advanced or recurrent cervical cancer and already subjected to 212 previous surgeries.

Post-surgical morbidities are determinants in the outcome of in-hospital death. The authors verify this fact when detecting high occurrence of post-surgical infections (n=20), fistulas (n=42), anastomosis leak (n=21) and thrombosis (n=10) in their sample[8]. The outcomes other than in-hospital death (n=13) were recorded in four different productions reporting 379 post-surgical complications, with infections standing out (n=109)[4,10,22,29].

Consequently, an integrated multiprofessional team is of fundamental importance for success of the procedure, contributing to reducing adverse events and deaths.

CONCLUSION

The PE technique represents a challenge for care management by the multiprofessional team due to the complexity of the pathologies eligible for the surgical act. Therefore, this review achieved the objectives outlined when highlighting the main complications arising from the procedure and the outcome of premature death in the hospital environment. It was evident that infectious complications are still the most incident ones despite the pharmacotherapeutic advances, a fact that can be explained by radicality of the procedure. The need to conduct new studies to discuss mortality after PE is noted, considering its association with the total number of post-surgical complications evidenced.

Observation and management of post-PE complications should be priorities for the care team, with the objective of rapidly reversing the harmful effects. For this, the use of classification tools should be a common practice in the hospital environment, always applied and rethought considering the institutional particularities and those of the assisted clientele, aiming at their better dissemination and feasibility in the professional scope.

The study brings about a number of contributions for Nursing, in the sense of improving the health care provided in the PE pre-, peri- and post-operative periods.

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