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**Address for Correspondence:**Editorial Room Andalas Obstetrics and Gynecology Journal, 3<sup>rd</sup> floor of KSM of Obstetrics and Gynecology, RSUP DR. M. Djamil Padang, Jl. Perintis Kemerdekaan Padang, Sumatera Barat 25127**Website:**<http://jurnalobgin.fk.unand.ac.id/index.php/JOE>**CASE REPORT****The First Pelvic Exenteration in West Sumatera : A Case Report**Ayu Anissa Bahri <sup>1</sup>, Syamel Muhammad <sup>2</sup>*Affiliations:* 1. Obstetrics and Gynecology Department, Dr. M. Djamil Central General Hospital Padang, West Sumatera, Indonesia; 2. Sub Division of Gynecological Oncology, Obstetrics and Gynecology Department, Faculty of Medicine, Andalas University, Dr. M. Djamil Central General Hospital Padang, West Sumatera, Indonesia*Correspondence:* Ayu Annisa Bahri, email : [ayuanissabahri@gmail.com](mailto:ayuanissabahri@gmail.com), Hp:082384418241**Abstract***Introduction:* Pelvic exenteration (PE) is an ultra-radical surgical procedure introduced by Alexander Brunschwig in 1948, which a way for symptomatic palliative care in subjects with advanced gynecological malignancies that do not respond to radiation therapy, who experience subsequent complications including fistula, infection, or pain.*Objective:* The aim of this case report is to share our first experience of pelvic exenteration in patient with recurrent cervical cancer in West Sumatera.*Case Report:* We report the case of a 42-year-old woman, who was diagnosed with a progressive recurrent cervical cancer that had been treated with a radiotherapy for cervical cancer stage IIIB and adjuvant chemotherapy. The patient was planned for pelvic exenteration. Prior to surgery, patient had done several preparations such as ultrasound, CT scan, laboratory tests, urologist and colorectal surgeon consult. The patient had undergone a supralelevator pelvic exenteration by gynecologic oncologist, urologist and colorectal surgeon. The supralelevator exenteration pelvic included total hysterectomy, bilateral salpingo-oophorectomy, cystectomy, and Miles procedure. The reconstruction process included ileal conduit and colostomy.*Conclusions:* Pelvic exenteration can be done with good teamwork between gynecologic oncologist, urologist, colorectal surgeon with postoperative complications (hypoalbuminemia and low intake) can be tolerated.*Keywords:* supralelevator pelvic exenteration, cervical cancer**INTRODUCTION**

Cervical cancer are the second most common malignancy in women worldwide.<sup>1</sup> Up to 25% of women with stage IB-IIA FIGO cervical cancer may recur after initial therapy.<sup>1</sup> Often, these recurrences can be treated with radiotherapy.<sup>1</sup> However, radical surgery may offer an alternative to as a curative treatment.<sup>2</sup> Cervical cancer is an aggressive gynecologic malignancy that is usually associated with radial tumor development via intrafascial and extrafascial routes, local invasion of the surrounding viscera usually develops via a mechanism of tumor cell expansion from low-resistance tissues.<sup>3</sup> However, initially tumor development is initiated by meeting a boundary related to the anatomical component of the original tumor and its interfaces.<sup>3</sup> In this way multiple visceral involvement may be encountered from the time of initial diagnosis.<sup>3</sup> As a result, neo-adjuvant radiation therapy is required to reduce local invasion and prevent the tumor from enlarging.<sup>3</sup> However, this therapy is not always possible



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due to other comorbidities and complications associated with the tumor.<sup>3</sup> This progressive tumor growth can affect surrounding organs, in some cases involving pelvic organs, a pelvic exenteration is required.<sup>4</sup>

Pelvic exenteration (PE) is an ultra-radical surgical procedure originally performed at Ellis Cancer Center and later introduced by Alexander Brunschwig in 1948.<sup>5</sup> It is characterized by en bloc extirpation of the internal reproductive organs, pelvic peritoneum, regional lymph nodes, urinary tract. Pelvic exenteration is indicated in cases of persistent or recurrent malignancy in the pelvic region that does not respond to chemoradiotherapy, position of the tumor in the center of the pelvic cavity, and possible R0 margin on resection.<sup>6</sup> The purpose of this case report is to share our first experience of pelvic exenteration in patients with recurrent cervical cancer in West Sumatera.

**CASE REPORT**

We report the case of a 42-years-old woman who presented in our department for recurrent vaginal bleeding, pain in the lower abdominal, and weight loss. From the personal medical history we found out that she had been diagnosed with cervical cancer stage IIIB, for which she had been treated with a radiotherapy in 2020. At a follow-up of 3 months after radiotherapy, a residual cervical cancer mass was suspected, which was then planned for adjuvant chemotherapy. Adjuvant chemotherapy in patients was carried out 15 times until April 2021. Ultrasound evaluation was done with the results recurrent cervical cancer and left hydronephrosis (Figure 1). Patient planned for pelvic exenteration. Prior to surgery, patient had done several preparations such as ultrasound, CT scan, laboratory tests, urologist and colorectal surgeon consult.

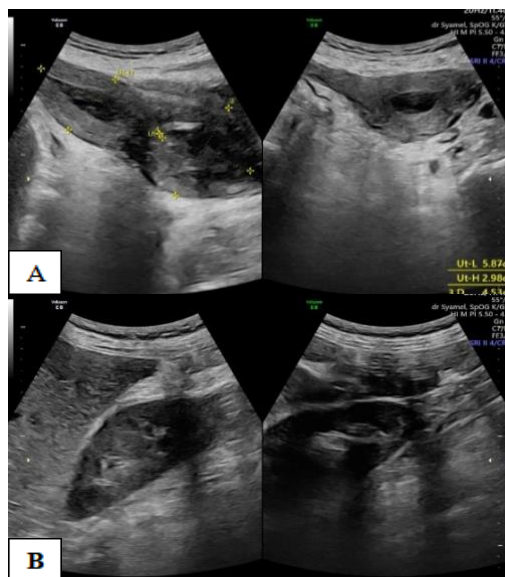


Figure 1. Abdominal Ultrasound  
(A) Recurrent cervical cancer, (B) Left hydronephrosis



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Computed tomography scan showed a recurrent cervical cancer invading to the ureterocervical junction (Figure 2).



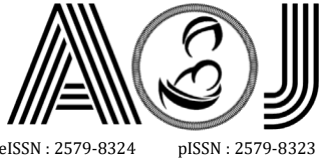
Figure 2. Computed tomography scan

After a preoperative preparation, a supralelevator pelvic exenteration was performed (Figure 3). The patient had undergone a supralelevator pelvic exenteration by gynecologic oncologist, urologist and colorectal surgeon. The supralelevator exenteration pelvic included total hysterectomy, bilateral salpingo-oophorectomy, cystectomy, and Miles procedure. The reconstruction process included ileal conduit and colostomy.

The postoperative evaluation can be assessed by acceptable fecal continence and flatus and good urinary function. Follow-up are necessary in this patient such as ultrasound, CT scan, and PET-CT to show if there is a residual mass. The patient agreed to the publication of her data and the institution where the patient had been admitted, approved the publication of the case.



Figure 3. During Operation  
(A) Supralelevator pelvic exenteration, (B) Excision of mass



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Pelvic exenteration is one of the most destructive surgical procedures in gynecological oncology and has important secondary effects on quality of life.<sup>7</sup> However, it is the only potential curative solution for patients with locally invasive cervical cancer, cervical cancer that is recurrent, or other gynecologic malignancies such as endometrial, vulvar or ovarian cancer.<sup>7</sup> Radical pelvic exenteration was originally introduced by Brunschwing as a palliative procedure for recurrent cervical cancer. Brunschwig also divides 3 categories of resection as follows:<sup>8</sup> (1). Anterior: There is already an invasion of the bladder, in this condition it is recommended to remove the entire bladder, uterus, and vagina. (2). Posterior: There is already rectal invasion, in which case it is recommended to completely remove the involved vagina, uterus, and bowel segment. (3) Total: There has been invasion of the urinary bladder and rectum, in this condition requires total removal of the bladder, vagina, uterus, and rectum.

Currently modifications and developments to improve multivisceral surgery (pelvic exenteration) focus on reducing invasive procedures. There are several surgical techniques that can be chosen in the pelvic exenteration surgical procedure, including; minimally invasive techniques, extended lateral endopelvic resection, anterior pelvic exenteration with total vaginectomy.<sup>9</sup> Based on the results of several case reports, minimally invasive techniques using laparoscopy have been shown to achieve R0 resection margin status results, but to determine the potential effectiveness of surgery with a laparoscopic approach requires further research. Due to time and space limitations in previous studies, and in some cases the need for a mini-laparotomy for diversion of urine flow.<sup>9</sup> The laterally extended endopelvic resection (LEER) technique involves resection of some or all of the following lateral pelvic structures: m. obturator internus, m. pubococcygeus, m. iliococcygeus, m. coccygeus, internal iliac vessels, and lumbosacral nerve plexus.<sup>9</sup> The use of the LEER technique with evaluation of adjuvant chemotherapy before the procedure has been shown to reduce tumor size, while the contraindication of this technique is involvement of the sciatic nerve.<sup>8,9</sup> Anterior pelvic exenteration technique with total vaginectomy (anterior) pelvic exenteration with total vaginectomy (AETV) can be used for cases of vaginal recurrence that reaches the infralevator, so as to avoid removal of the rectum and reduce the risk of fistula formation, in addition to this technique, the results of the resection margin status are R0.<sup>9</sup> Post radiotherapy in patients with CT-Scan results showing suggestive impressions of residue cervical cancer to the ureterocervical junction region. After consulting with the urology and digestive surgery departments, it was agreed to perform pelvic exenteration on the patient. The technique used in this surgical procedure is total pelvic exenteration resection by removing all of the following organs: urinary bladder, uterus, vagina, urethra, and rectum.

The indication for PE is the first indication for primary exenteration. The term "primary" PE describes exenteration performed as initial treatment after primary diagnose.<sup>10</sup> The use of exenteration as the primary treatment for advanced gynecologic cancers has been reported by many centers around the world. Potential indications for primary exenteration are classic



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FIGO stage IVA cervical cancer affecting the bladder wall or intestinal mucosa, patients with large tumors, having tumor or therapy-associated fistula formation and such tumors, where radiation or chemotherapy is not possible. To lead to a clinical response as in soft tissue malignancies or neuroendocrine tumors. A second indication is for secondary exenteration.<sup>10</sup> Exenteration is termed “secondary” if it is performed for recurrent or persistent disease following previous radiation or chemo-radiation therapy.<sup>10</sup> Pelvic exenteration is contraindicated as for any other procedure, PE should not be considered if the status of the physical examination and disease comorbidities do not allow for major surgery. In addition, the classic contraindications for PE are the presence of distant metastases, peritoneal spread or local irritability assessed preoperatively.<sup>10</sup> Some investigators suggest that isolated distant metastases in cases of disease recurrence are not contraindications solely because metastases can be resected at the time of PE.<sup>10,19</sup>

The PE procedure is classified into radical resection or extended radical resection. Radical resection is defined as a resection that is performed without the need for removal of other pelvic organs. Extended radical resection involves at least one adjacent pelvic organ, bony structure, or major blood vessel.<sup>8,20</sup> The standard steps of this procedure are described below.<sup>11</sup> (1) Abdominal Approach and Exploration, this procedure usually starts with the abdominal phase (anterior phase) for pelvic dissection and then moves to the sacral phase (posterior phase) for perineal or sacral resection. Midline laparotomy is used to enter the abdominal cavity, followed by adhesiolysis.<sup>11</sup> The absence of undefined preoperative intra-abdominal metastatic disease must be confirmed at that time.<sup>10</sup> Because R0 resection is the goal of surgery and undiagnosed peritoneal or visceral metastases often cannot be resected, definitive surgery should be avoided in this case.<sup>11</sup> When making the incision, the surgeon must be careful not to injure the inferior epigastric artery to maintain blood supply to the rectus muscle, which can later be used as a myocutaneous flap. The caecum and small bowel are mobilized to facilitate approach to the pelvis, as well as ureteral dissection. The small intestine is usually attached to a previous surgical surface, presacral area, or recurrent tumor. If the small intestine is attached to a recurrent tumor, it must be resected en bloc to achieve curative resection.<sup>11</sup> (2). Identification of the ureter, the ureter is often located medially in patients who have previously undergone surgery. Preoperative placement of a ureteral stent is helpful in finding and avoiding unwanted damage to the ureter. The course of the distal pelvic ureter is confirmed by sharp dissection, and its association with the tumor can be identified by inspection and palpation. If one or both ureters are involved, the surgeon may try to reimplant it into the bladder or rebuild the ileal or colonic tract with a radical cystectomy. If the decision is made to proceed with radical cystectomy, the ureter is not transected until later in the procedure. If there is no evidence of ureteral involvement, unilateral or bilateral ureterolysis is performed from the pelvic brim to the bladder.<sup>11</sup> (3). In the vascular approach, vascular exposure often requires the surgeon to mobilize the lower aorta and vena cava, in addition to the iliac arteries and veins. First, the internal iliac artery and its branches are ligated and divide distally into posterior branches of the superior gluteal artery.<sup>14,17</sup>



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Based on the study of Jalloul et al., the most common complications that arise after pelvic exenteration surgery are wound healing problems (about 55% of cases), urostomy complications, and abscesses. The main causes of pelvic exenteration requiring surgical intervention were wound dehiscence and postoperative hydronephrosis (8.5% each).<sup>11, 18</sup> Other complications were also obtained from the cohort study of Glane et al.<sup>12</sup>, namely small bowel obstruction (10.6%), symptomatic ileus (4.3%), and complications due to urinary diversion, according to the study of Petruzzello A et al., urinary complications and infections accounted for 75% of the overall causes of morbidity and mortality in post-pelvic exenteration patients.<sup>13</sup> The final prognosis of post-pelvic exenteration patients is influenced by several factors. Based on the study of Lewandowska A et al., the most influential on the long-term prognosis of post pelvic exenteration patients is the achievement of resection margin status R0.<sup>14</sup> This tumor-free resection edge is very beneficial for patient survival, based on another study by Bacalbasa N et al., showed that postoperative patients Pelvic exenteration that achieves R0 resection margin status has a survival rate of more than 3 years in 50% of gynecologic malignancies and 73% of cervical cancer cases.<sup>15,16</sup>

**CONCLUSION**

Pelvic exenteration can be done with good teamwork between gynecologic oncologist, urologist, colorectal surgeon with postoperative complications (hypoalbuminemia and low intake) can be tolerated.

**REFERENCES**

1. Düzgüner S, Zengin T, Taşçı T, Turan T, Boran N, Tulunay G, Köse M. Long-term survival after total pelvic exenteration in a patient with recurrent cervical carcinoma: A case report. 2013, 186-188
2. Marnitz S, Köhler C, Müller M, Behrens K, Hasenbein K, Schneider A. Indications for primary and secondary exenterations in patients with cervical cancer. *Gynecol Oncol.* 2016, 103:1023-30.
3. Bacalbasa N, Balescu I, Tomescu D, Barosveanu V. Total pelvic exenteration for locally invasive cervical tumor in an elderly patient - a case report and literature review. *J. Transl. Med. Res.* 2015, 1(20):38-41.
4. Maharaj R, Sookdeo D, Fortuné M, Akhileshc M, *et al.* Pelvic exenteration case series: A single surgeon's experience at one institution in Trinidad and Tobago. *Elsevier: International Journal of Surgery Case Report* 34. 2017, 4-10.
5. R. Maharaj et al. Pelvic exenteration case series: A single surgeon's experience at one institution in Trinidad and Tobago. *International Journal of Surgery Case Reports* 34. 2017, 4-10.
6. Kaur M, Joniau S, D'Hoore A, Vergote I. Indications, techniques and outcomes for pelvic exenteration in gynecological malignancy. *Lippincot William.* 2014. Vol.6





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7. Sardain H, Lavoue V, Redpath M, Bertheui N, Foucher F, Leveque J. Curative pelvic exenteration for recurrent cervical carcinoma in the era of concurrent chemotherapy and radiation therapy. A systematic review. *EJSO - European Journal of Surgical Oncology*, WB Saunders. 2015, 41 (8), pp.975-985.
8. Kaur M, Joniau S, D'Hoore A, Vergote I. Indications, techniques and outcomes for pelvic exenteration in gynecological malignancy. *Curr Opin Oncol*. 2014, 26(5):514–520.
9. Fleisch C, Rein D and Janni W. The place of pelvic exenteration as a cytoreductive procedure in advanced gynaecologic malignancies. Department of Obstetrics and Gynaecology, Heinrich-Heine-University, Düsseldorf. *Cytoreductive Surgery in Gynecologic Oncology: A Multidisciplinary Approach*. 2010, 179-200
10. Kim J. Pelvic Exenteration: Surgical Approach. *Journal of Korean Society Coloproctology*. Division of Colorectal Surgery, Department of Surgery, Korea University College of Medicine, Seoul, Korea. 2012, 286-293.
11. Jalloul RJ, Nick AM, Munsell MF, Westin SN, Ramirez PT, Frumovitz M, Soliman PT. The influence of surgeon volume on outcomes after pelvic exenteration for a gynecologic cancer. *J Gynecol Oncol*. 2018, 29:e68.
12. Ter Glane L, Hegele A, Wagner U, Boekhoff J. Pelvic exenteration for recurrent or advanced gynecologic malignancies – Analysis of outcome and complications. *Gynecologic Oncology Reports* 36. 2021. 100757.
13. Petruzzello et al. Surgical results of pelvic exenteration in the treatment of gynecologic cancer. *World Journal of Surgical Oncology* 2014, 12:279.
14. Lewandowska A, Szubert S, Koper K, Koper A, Cwynar G, Whicerek L. Analysis of long-term outcomes in 44 patients following pelvic exenteration due to cervical cancer. *World Journal of Surgical Oncology*. 2020, 18:234.
15. Bacalbasa N, Balescu, Vilcu M, Dima S, Brezean I. The Impact of the Preoperative Status on the Short-term Outcomes After Exenteration and Pelvic Reconstruction. *In Vivo*. 2019, 33(6), 2147–2152.
16. Diver E, Rauh-Hain J, del Carmen M. Total Pelvic Exenteration for Gynecologic Malignancies. *International Journal of Surgical Oncology*. 2012;2012:1-9.
17. Lampe B, Luengas-Würzinger V, Weitz J, Roth S, Rawert F, Schuler E et al. Opportunities and Limitations of Pelvic Exenteration Surgery. *Cancers*. 2021;13(24):6162.
18. Unal E. Complications of Pelvic Exenteration Encountered by both Surgical Oncologists and Anesthesiologists. *Anaesthesia & Critical Care Medicine Journal*. 2019;4(3).
19. Aslim E, Chew M, Chew G, Lee L. Urological outcomes following pelvic exenteration for advanced pelvic cancer are not inferior to those following radical cystectomy. *ANZ Journal of Surgery*. 2018;88(9):896-900.
20. Brown K, Solomon M, Koh C. Pelvic Exenteration Surgery: The Evolution of Radical Surgical Techniques for Advanced and Recurrent Pelvic Malignancy. *Diseases of the Colon & Rectum*. 2017;60(7):745-754.