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Pelvic exenteration case series: A single surgeon's experience at one institution in Trinidad and Tobago



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ABSTRACT

INTRODUCTION: Pelvic exenteration (PE) is an ultra-radical surgical procedure characterized by the en bloc resection of the pelvic organs.

METHODS: In this case series, we report retrospectively on four patients who underwent PE in Trinidad and Tobago from 2012 to 2016. One male patient had rectal cancer while one each of three women had cervical, colon, or rectal cancer.

RESULTS: Early postoperative complications (≤ 30 days) occurred in all patients, while late complications (> 30 days) occurred in one patient (Grade 1 – Clavien-Dindo classification). Disease recurrence occurred in 50% of patients, and the median overall survival was 8 months (range, 4–15 months).

DISCUSSION: There are many inherent challenges to conducting such major procedures in developing countries, including inadequate blood product supplies, intensive care unit beds, and pre- and post-operative support services. With increased surgical capacity and support infrastructure, hospitals in these regions would be equipped to perform PEs with better outcomes.

CONCLUSION: This case series adds to existing data on the feasibility of performing PE in developing countries. We demonstrate that PE can be performed without major postoperative complications in a resource-limited hospital. To the best of our knowledge, this is the first case series that describes PE in the Caribbean.

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1. Introduction

Pelvic exenteration (PE) is an ultra-radical surgical procedure that was initially performed at the Ellis Fischel Cancer Center and later described by Brunschwig in 1948 [1,2]. It is characterized by the en bloc extirpation of the internal reproductive organs, pelvic peritoneum, regional lymph nodes, anal canal, distal colon and rectum, bladder, and inferior ureters. Pelvic exenteration is indicated in cases of persistent or recurrent malignancy in the pelvic

region post chemoradiation, tumor confinement to the central pelvic region, and possible resectability to R0 margins.

Public exenteration is rarely performed in developing countries. A literature search in PubMed/Medline and EMBASE databases using the search topics “pelvic exenteration” and “Africa” and/or “developing countries” and/or “Latin America” and/or “South America” and/or “Central America” and/or “low income countries” and/or “Caribbean” retrieved 16 citations. To the best of our knowledge, this is the first case series that describes PEs in the Caribbean. We report on all PEs carried out at the Eric Williams Medical Sciences Complex (EWMSC), Champ Fleurs, Trinidad and Tobago as performed by a single surgeon. This case report was prepared according to the Process Guidelines, which provide a framework for reporting surgical case series [3].

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Table 1
Patient demographics.

Patient no.	Gender	Ancestry	Age (years)	BMI	Family history of cancer	Alcohol/smoking history
1	Female	Indian	45	13.7	Father: Throat CA, Breast CA Mother: Breast CA	None
2	Female	African	52	31.6	None	None
3	Male	Indian	51	16.9	None	Smoker: 80 pack years Alcohol: Heavy
4	Female	Indian	65	15.4	None	None

BMI, body mass index; CA, cancer.

Table 2
Preoperative indications.

Patient no.	Preoperative diagnosis	Preoperative co-morbidities	Preoperative complications	Preoperative surgical history	nCRT
1	Uterine leiomyomata, locally advanced stage 4 cervical CA (left side ureter and rectovaginal fistula invasion)	Hypertension	Pelvic and rectal bleeding, constipation, constant pain (lower abdomen, lower back, limbs), bilateral hand swelling, persistent anemia, obstruction of left nephrostomy tube due to atrophic left kidney, scoliosis, pelvic passage of urine and stool	Myomectomy, partial hysterectomy, radical total abdominal hysterectomy with bilateral salpingo-oophorectomy, left and right nephrostomy	6 weeks Taxol and Gemcitabine, 6 weeks radiation
2	Colon CA eventually invading the bladder	None	Severe constipation, abdominal pain, infection post colonoscopy	Partial colectomy	1 week chemotherapy, 1 week radiation
3	Rectal CA eventually invading the bladder, prostate, and right hepatic lobe	Anemia	Change in bowel movements associated with perineal pain, tenesmus, melena, constipation, post radiation difficulty urinating	None	6 cycles Xelox and Avastin, 20 fractions radiation
4	Rectal CA stage IV with vaginal invasion, rectovaginal fistula	Type 2 diabetes mellitus	Vaginal bleeding, constipation, anemia	Hysterectomy and ileostomy	4 cycles chemotherapy, 1 cycle radiation

nCRT, neoadjuvant chemoradiotherapy.

2. Materials and methods

This case series involved retrospective review of PE cases performed at a public tertiary teaching hospital in Trinidad and Tobago from 2012 to 2016 by a single general surgeon with subspecialty training in surgical oncology.

3. Results

Patient demographics, family history of cancer, behavioral characteristics, preoperative indications, and pre- and postoperative complications are described in Table 1, Table 2, and Table 3, respectively. Preoperative computed tomography (CT) images are shown in Fig. 1. Elements of the operative procedure have been reported previously [4] and will be briefly reviewed here. In general, there are three types of PEs: anterior exenteration, posterior exenteration, and total or radical exenteration. Each type is divided into two phases: the exenterative phase, which aims to achieve clear pathologic margins, and the reconstructive phase, which aims to optimize functional outcomes by creating an ileal conduit, reinforcing the pelvic floor, and restoring bowel continuity. In each case, the patient was placed in the lithotomy position and the abdomen and perineum were cleaned and draped. Following a midline incision, the abdomen was opened in layers. A thorough exploration of the peritoneal cavity and retroperitoneal spaces was executed, including opening the retroperitoneal spaces and developing them all the way to the pelvic floor. Next, the sigmoid colon and/or

ureters were completely mobilized and divided. Then, the organs to be removed were mobilized. For anterior exenterations, these can potentially include the bladder, vagina, uterus or prostate/seminal vesicles, cervix, and adnexae. For posterior exenterations, these can potentially include the rectosigmoid colon, vagina, uterus or prostate/seminal vesicles, cervix, and adnexae. Finally, total or radical exenterations removed all of the listed tissues. The appropriate organs were mobilized en-bloc by utilizing sharp and blunt dissection, clamp-cut-tie sequences, and/or electro-surgical devices to address the relevant vascular supplies and suspensory attachments. After that, an elliptical perineal incision was made and infralevator resection of the external genitalia and/or anus was undertaken as indicated by disease extent. Individualized urinary diversion and vaginal and/or perineal reconstruction were then performed. To complete the procedure, a Jackson-Pratt closed suction drain was sutured in to the perineum. Selected intraoperative and specimen images are shown in Fig. 2.

All four patients had a PE with colostomy, ileal conduit, urinary diversion, and R0 margins. Patients 1, 2, and 4 were N0, while patient 3 was positive for lymph node metastasis. The postoperative complications graded by the Clavien-Dindo [5] classification and summarized in Table 3 show that none of the patients had major complications (>grade 3) in the late postoperative period. The long term oncologic outcomes are summarized in Table 4. With a median follow-up of eight months (range 4–15 months), two patients remain alive with no sign of recurrence.

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