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Pelvic Exenteration Surgery: Experience of a Tertiary Cancer Institution in South India

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Abstract: ***Background: Pelvic Exenteration (PE) is an ultra-radical surgical procedure. It is commonly indicated in cases of persistent or recurrent malignancy in the pelvic region post chemoradiation for tumor confined to the central pelvic region with a possible curative intent of R0 resectability. Methods & materials: It is a retrospective study. 27 femalepatients with advanced pelvic organ malignancies or recurrent carcinoma post chemoradiotherapy(CRT)who underwent treatment at Tamilnadu Government Multi SuperSpeciality Hospital, Madras Medical College, Chennai were chosenfor the study. Later the inoperable cases were excluded from the study and only those who underwent pelvic exenteration surgery(19cases) were selected and details were collected from the Medical Records Department and analysed. Results: In our studymost of the patients were Carcinoma Cervix (63%). Majority of the cases underwent Anterior Pelvic Exenteration(13). All operable cases were found to have to have very minimal peri-op complications (except one urine leak). Discussion: Our study shows that most common indication for PE was Carcinoma cervix post CRT who underwent Anterior Pelvic Exenteration followed by Ileal Conduit reconstruction and had minimal peri-operative complications. Conclusion: Though Pelvic Exenteration is a very uncommonly done ultra radical procedure, we demonstrated that PEs can be performed safely with minimal complications.***

Keywords: Pelvic Exenteration, Perioperative outcomes.

1. Introduction

In this modern era where multimodality treatment and organ restoration are used as treatment for various cancers, Pelvic Exenteration (PE)is a very uncommon ultra-radical surgical procedure. It was primarily performed at Ellis Fischel Cancer Centre and later clearly explained by Brunschwig in 1948 with purely a palliative intent(1). Many studies are going on describing the role of pelvic exenteration as a curative treatment for pelvic or perinealtumors(2). There are three types of PEs – Anterior PE(APE), Posterior PE(PPE), Total PE(TPE). Each type is divided intoexenteration phase and reconstruction phase. The exenteration phase targets clear pathologic margins and the reconstructive phase aims to restoration of urinary, faecal diversion with minimal compromise of pelvic floor(3).

It is characterised by the en bloc extirpation of the internal pelvic organs, pelvic peritoneum, regional lymph nodes, anal canal, distal colon and rectum, bladder and inferior ureters(4,5). Persistent and recurrent malignant cases post chemoradiotherapy, tumor confined to central pelvic region withpossibleresectability to R0 margins are indicated for this Pelvic exenteration(6).The main aim of this study was to assess the peri-operative outcomes in pelvic exenteration surgery in our Institution.

2. Methods & Materials

It is a retrospective study conducted during the period 2015 to 2018. 27 patients who underwent treatment at Tamilnadu Government Multi SuperSpeciality Hospital, Madras Medical College, Chennaiwith advanced pelvic organ malignancies or recurrent carcinoma post chemoradiotherapy(CRT) were included for the study. Later the inoperable cases were excluded from the study and only those who underwent pelvic exenteration surgery(19cases) were selected.The details were collected from the medical records department and analysed.

Operative details: Under General anaesthesia, the patient was placed in lithotomy position. Then the abdomen and peritoneum were cleaned and draped. A midline incision was made and abdomen was opened in layers. A complete exploration of the peritoneal cavity and retroperitoneal spaces was implemented(7). Following this the sigmoid colon and/or ureters were completely mobilized and divided. Then, the organs to be removed were mobilized. For anterior exenterations, it includes the bladder, vagina, uterus or prostate/seminal vesicles cervix and adnexae. For posterior exenterations, it includes the rectosigmoid colon, vagina, uterus cervix and adnexae. Total exenteration removes all of the above mentioned tissues. The appropriate organs were mobilized en-bloc by blunt dissection, clamp-cut-tie sequences and/or electrosurgical devices to relevant vascular supplies and suspensory attachments(8). An elliptical

perineal incision was made and infralevator resection of the external genitalia and/or anus was undertaken as indicated by diseases extent. Individualized urinary diversion and faecal diversion were then performed.

Reconstruction procedure for the patients who underwent anterior pelvic exenteration was ileal conduit. Posterior pelvic exenteration procedure was followed by sigmoid colostomy. Total pelvic exenteration was followed by wet colostomy(9).

3. Results

Among the total 27 patients, 8 were inoperable. Pelvic side wall fixity intraoperatively was the common indication for inoperability. Inoperable patients were excluded. The peri-operative outcomes of 19patients in the age group 27 to 75yrs are included in the study. All were female patients.Most of the cases were carcinoma cervix post chemoradiation therapy(53%). The distribution of the cases is shown in Fig: 1. Among them 13 patients underwent Anterior Pelvic Exenteration, 2 patients had Posterior Pelvic Exenteration and 4 patients had Total Pelvic Exenteration(Fig:2).Post-operative complication was noted in one patient(urine leak). The distribution of upfront and recurrent cases included in the study is shown in Fig:3. Theduration of the surgery, Per operative blood loss, ICU stay, post-op stay are given in Table:1

Table 1: Mean of per-op and post-op outcomes

SNo	Per,post-operative outcomes	Mean
1.	Surgery duration (120-160mins)	140 mins
2.	Blood loss (120-400ml)	250 ml
3.	ICU stay (2-7days)	3days
4.	Post-op stay(5-31days)	10days
5.	Post-op Complication(urine leak)	1case

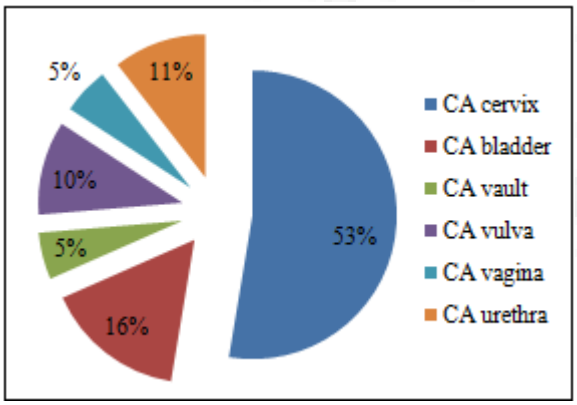

Figure 1: Distribution of the sites of cancer

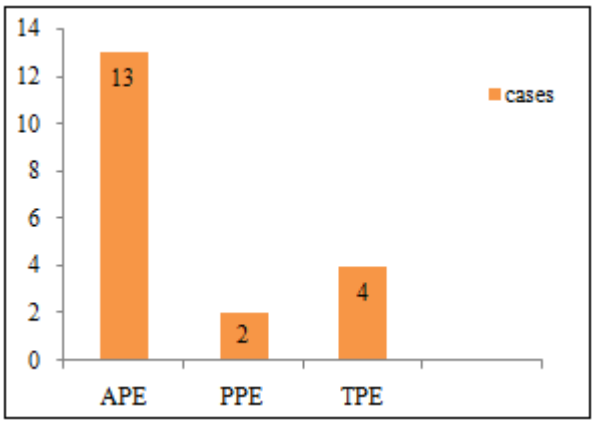

Figure 2: Distribution of the type of surgery performed.

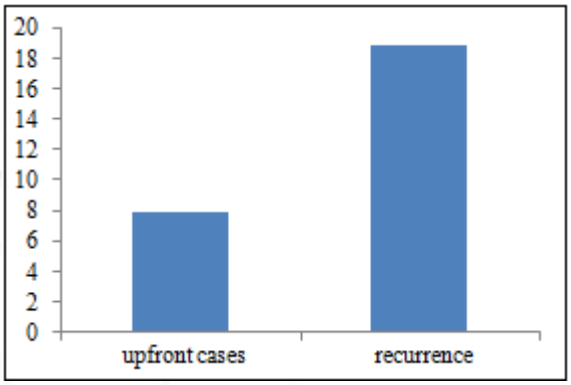

Figure 3: Distribution of the upfront cases and recurrent cases

Thus our study shows that most of the patients were Carcinoma Cervix post Chemoradiotherapy who underwent anterior pelvic exenteration followed by ileal conduit with minimal peri operative complications. No peri-operative mortality was noticed.

4. Discussion

Our hospital is a tertiary referral cancer centre in Chennai, South India, where many malignancies are diagnosed and treated every day. Pelvic exenterationis the only possibly curative intervention for patients with advanced and recurrent pelvic cancers especially recurrent cervical cancer after nonsurgical treatment modalities(Radiotherapy and Chemotherapy)(9). Other conditions arelocally advanced bladder and rectal carcinoma(10). Rare indications areprimary ovarian cancer in which bladder and rectal resection is needed to achieve free margins for optimalcytoreduction and uterine cancer presenting as locally advanced or recurrent neoplasm in which pelvic irradiation was done as part of the primary treatment and subsequently a radical surgery is necessary for a curative treatment.

Our study included 19 female patients, among which most of them were carcinoma cervix post chemoradiation therapy(53%).Maximum cases underwent anterior pelvic exenteration(13 cases) and remaining cases were PPE(2cases) and TPE(4cases). All surgeries were done with minimal peri-operative complications except one(urine leak). The study shows similar results to the study done by Ravi Maharaj et al in 2017.He has made a note of his

experiences in pelvic exenteration surgery done in his institution at Trinidad (11). Pandey et al followed up 48 patients who underwent PE in Cancer Institute (WIA), Chennai during the period 1981 to 2000 and found that for carefully selected locally advanced cancer in the pelvis, pelvic exenteration may provide the opportunity of long survival(12).In a retrospective analysis of 28 patients by Andrea P et al at Brazil during the period 2008 to 20011 postoperative urinary and infectious complications accounted for the common perioperative morbidity(13). Promising results have been reported with preoperative and intraoperative radiotherapy combined with surgical resection of advanced pelvic tumors.

The main purpose of this retrospective study was to analyse peri-operative outcome of pelvic exenteration. We do not report survival analysis, given the lack of follow-up time to date. The major limitations of our study are its retrospective nature of analysis and limited number of patients. Most of the reports based on pelvic exenteration showed such limitations. Till date only one study has analysed surgical and survival outcomes of the procedure. This could be possibly because of the rarity of this procedure.

5. Conclusion

In this age of advancement in treatment approach like multimodality approach and organ preservation for malignancies, pelvic exenteration has become a rarelydone procedure. Nevertheless, for carefully selected patients with locally advanced non-metastatic pelvic cancers, it is the only opportunity for long-term survival.While the number of cases in our series limits survival statistics assessment, we demonstrated that Pelvic Exenteration can be performed safely with minimal complications with careful case selection.

6. Conflicts of Interest

Nil

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