

Re: Pelvic exenteration

Source: <http://sci.tech-archive.net/Archive/sci.med/2006-01/msg00157.html>

- *From:* J <studras@xxxxxxxx>
 - *Date:* Fri, 13 Jan 2006 21:29:13 -0500
-

<http://www.bioline.org.br/request?cn04020>

Indian Journal of Cancer

Medknow Publications on behalf of Indian Cancer Society

ISSN: 0019-509X

Vol. 41, Num. 3, 2004, pp. 109-114

Indian Journal of Cancer, Vol. 41, No. 3, July-September, 2004, pp. 109-114

Original Article

Pelvic exenteration: A perspective from a regional cancer center in India

Pandey Durgatosh, Zaidi Shuaib, Mahajan Vikas, Kannan Ravi

Department of Surgical Oncology, Cancer Institute (WIA), Chennai

Correspondence Address: Department of Surgical Oncology, Cancer Institute (WIA), Chennai

durgatosh@xxxxxxxxxxxx

Code Number: cn04020

ABSTRACT

BACKGROUND: Pelvic exenteration is an extensive surgical procedure performed for locally advanced cancers

in the pelvis. **AIMS:** The twenty-year experience with this procedure at the Cancer Institute has been analyzed for morbidity, failure pattern and survival. **SETTINGS AND DESIGN:** The case records of all the patients who had undergone pelvic exenteration between 1981 and 2000 at Cancer Institute (WIA), Chennai were retrieved from Tumor Registry and were analyzed. **METHODS AND MATERIAL:** Forty-eight patients underwent

Pelvic Exenteration from 1981 to 2000 at the institute. Twenty-nine of them had rectal cancer, 15 had cervical cancer, 3 had bladder cancer, and 1 had ovarian cancer. There were 43 women and 5 men with a median age of 45 years. **STATISTICAL ANALYSIS:** The survival rates were calculated by Kaplan-Meier method

using EGRET statistical software package. **RESULTS:** The operative mortality and postoperative morbidity were 10.42% and 62.50% respectively. The 5-year overall survival for the patients with Ca rectum and Ca cervix were 54.2% and 77.6% respectively. All 4 patients with Ca bladder or Ca ovary survived for more than 5 years. On multivariate analysis, nodal involvement and number of positive nodes emerged as significant prognostic factors for patients with Ca rectum. Although no factor reached statistical significance for patients with Ca cervix, those with adjacent organ invasion had a trend towards poorer survival. **CONCLUSIONS:** For carefully selected locally advanced cancer in the pelvis, pelvic exenteration

may provide the opportunity of long-term survival.

KEYWORDS: Pelvic exenteration, complications, survival.

INTRODUCTION

Since the time Brunschwig described Pelvic Exenteration in 1948 for advanced cervical cancer,[1] this procedure has evolved over decades. Traditionally a multivisceral resection in the pelvis involves total extirpation of the pelvic viscera (bladder, uterus in women and rectum) with a permanent colostomy and urinary conduit. This procedure viz. total pelvic exenteration has been modified over the years to give rise to Posterior Pelvic Exenteration (resection of rectum, uterus and posterior vaginal wall) and Anterior Pelvic Exenteration (resection of bladder and uterus)[2] Another modification is Supralelevator Pelvic Exenteration, wherein the pelvic organs are excised at the level of levator muscles, preserving the lowest portion of the rectum and urogenital diaphragm.[3] Further modifications evolved with the ability to establish the bowel continuity after proctectomy so that a permanent colostomy may be avoided in Total or Posterior Pelvic Exenteration.[4] Indeed, with further refinements of the technique, a Stoma-less total pelvic exenteration has also been described with coloanal anastomosis and orthotopic neobladder construction.[5] At the same time, ultra-radical procedures like Extended Pelvic Exenteration (exenteration with sacrectomy) have also been described.[6],[7]

Most of the literature on pelvic exenteration is from the western world. There is a striking paucity of literature related to this subject from the developing countries. There has been no publication on results of pelvic exenteration from India so far.

METHODS

Forty-eight patients underwent pelvic exenteration at the Institute from 1981 to 2000. There were 43 female and 5 male patients between 24 and 75 years age with a median age of 45 years. Twenty-nine of these patients had carcinoma rectum, 15 had carcinoma cervix, 3 had carcinoma bladder and 1 had carcinoma ovary.

Out of 29 patients with rectal cancer, 12 had T3 and 17 had T4 disease at presentation. Of the 15 patients with cervical cancer, 1 had Stage IB, 2 had Stage IIA, 6 had Stage IIB, 5 had Stage IIIB, and 1 had Stage IVA (FIGO Staging) at presentation. All 3 patients with bladder cancer had T4 disease and 1 patient with ovarian cancer had Stage IIB (FIGO Staging) at presentation.

Thirty (30) patients had received radiotherapy with or without chemotherapy preoperatively. For rectal cancer, the preoperative protocol was concurrent chemoradiation (2 cycles of 5-Fluorouracil and Mitomycin B with 50 Gy external radiation at 200 cGy per fraction). The protocol for cervical cancer was a combination of intracavitary application (low or high dose rate) and external radiation (200 cGy per fraction) to a total dose of 70 Gy at point A and 66 Gy at point B. At the time of surgery, all patients had suspicion of adjacent organ involvement which led to a decision of pelvic exenteration.

Ten patients underwent total pelvic exenteration, 23 underwent posterior pelvic exenteration and 15 underwent anterior pelvic exenteration. All these patients underwent bilateral pelvic lymphadenectomy as a part of the procedure. Bowel continuity was restored in 8 patients (3 in total exenteration group and 5 in posterior exenteration group), 25 patients had permanent colostomy. Twenty five patients also had urinary conduit: transverse colon was used for urinary conduit in 14 patients, sigmoid colon in 5 patients and ileum in 6 patients. All our patients who underwent total exenteration had double stoma except 3 patients who had their bowel continuity restored and hence required only a urostomy. Additional resection was performed in 8 patients: 3 underwent total vaginectomy, 2 underwent omentectomy, one underwent hepatic metastasectomy, one underwent left hemicolectomy for synchronous colonic cancer and one underwent ileal

resection with partial cystectomy.

Postoperative adjuvant treatment was given in 17 patients. The patients of rectal cancer who had not received preoperative treatment had 6 cycles of chemotherapy (5-Fluorouracil and Leucovorin) with 50 Gy external radiation at 200 cGy per fraction. One patient of ovarian cancer had received 4 cycles of chemotherapy (Cisplatin and Cyclophosphamide) preoperatively and 4 additional cycles of same chemotherapy with 40 Gy external radiation to pelvis postoperatively.

In addition, 20 patients underwent APR (abdominoperineal resection) with posterior vaginectomy and 2 patients underwent APR with prostatectomy for rectal cancer during this period; however, they were not considered as exenterations and were excluded from the study.

STATISTICAL ANALYSIS

The survival rates were calculated by Kaplan–Meier method using EGRET statistical software package. The log–rank test was used in univariate analysis to identify the potentially important prognostic variables. The variables that showed statistical significance on univariate analysis were subjected to multivariate analysis by introducing them stepwise in Cox regression model in order to identify the independent predictors of survival. A two–tailed P–value of less than 0.05 was considered to be statistically significant.

RESULTS

Forty–eight patients underwent pelvic exenteration with a mean operating time of 6 hours (range 3 to 9 hours), mean blood loss of 1525 ml (range 500 to 4500 ml) and mean blood transfusion of 1355 ml (range 0 to 3000 ml). Five patients also required postoperative ventilatory support.

Postoperative Complications

Five patients died in the postoperative period i.e. operative mortality was 10.42%. The overall postoperative morbidity was 62.50% (30/48 patients). Six patients were re–operated. Two of the re–operations were for uretero–enteric anastomotic leaks and one each for ureteric injury, leak of colocolic anastomosis, burst abdomen and anovaginal fistula. [Table – 1] shows the morbidity profile of the patients.

Postoperative Histopathology

Three patients had no residual tumour in the operative specimen, i.e. they had a complete pathologic response to preoperative chemoradiation. The disease was confined to the organ of origin in 9 cases, there was an extra–organ spread (direct invasion beyond the organ of origin, but not invading the adjacent organ) in 13 cases and adjacent organ invasion in 23 cases. Eighteen patients had pelvic lymph nodal involvement. One patient also had hepatic metastasis.

Of the 3 pathologically complete responders, 2 had adenocarcinoma rectum (T3 at presentation) and were treated with neoadjuvant chemoradiation followed by posterior pelvic exenteration for dense suspicious adhesions with the uterus. One patient had squamous cell carcinoma cervix (FIGO Stage IIB at presentation), was treated with radiotherapy to 65 Gy and underwent anterior pelvic exenteration for residual disease which was densely adherent to the bladder. Two of these pathologically complete responders are disease free 6 and 12 years after surgery whereas one patient (carcinoma rectum) developed multiple hepatic metastases 9 months after surgery.

Failure patterns

Re: Pelvic exenteration

Out of the 48 operated patients, 14 developed recurrence: 10 in the rectal cancer group and 4 in the cervical cancer group. One patient developed a second malignancy in the colostoma after 10 years of surgery; it was salvaged by resection and refashioning of the stoma. Nine patients had locoregional recurrence. Out of these 9 patients, one patient who had an isolated inguinal nodal recurrence was salvaged by groin dissection. Four patients developed distant metastases. The median time to recurrence was 14 months. Only 2 out of 14 recurrences could be salvaged.

Survival analysis and Prognostic factors

For patients of Ca Rectum who underwent pelvic exenteration, the overall survival (OS) at 2 years, 3 years and 5 years were 76.5%, 61.9% and 54.2% respectively. Disease-free survival (DFS) at 2 years, 3 years and 5 years were 44.0%, 33.0% and 33.0% respectively. For patients of Ca Cervix who underwent pelvic exenteration, the overall survival (OS) at 2 years, 3 years and 5 years were 93.1%, 77.6% and 77.6% respectively. Disease-free survival (DFS) at 2 years, 3 years and 5 years were 80.4%, 73.1% and 73.1% respectively. All the 4 patients who underwent pelvic exenteration for Ca Bladder (3) or Ca Ovary (1) were alive and disease-free after 5 years. Because of the small sample size and paucity of events, meaningful statistical analysis could not be done in this subset of patients.

A number of factors were studied in univariate and multivariate analyses for their influence on the survival of the patients undergoing pelvic exenteration. These factors included nodal involvement, number of involved nodes, adjacent organ invasion, preoperative treatment, age of patient, grade of tumor, and serum CEA (for rectal cancer). In univariate analysis, lymph node involvement, number of involved nodes and adjacent organ invasion were significant factors affecting survival of patients of rectal cancer after pelvic exenteration. For patients of cervical cancer, adjacent organ invasion was the only significant factor influencing survival in univariate analysis. In multivariate analysis, adjacent organ invasion lost significance in both rectal and cervical cancer patients. [Table – 2] shows the prognostic factors for survival for patients of rectal cancer and cervical cancer after pelvic exenteration according to multivariate analysis.

DISCUSSION

Pelvic exenteration remains a formidable procedure for locally advanced pelvic cancer. The concept of metastatic inefficiency of pelvic cancer has been well explained by Weiss L.[8] Certain selected pelvic malignancies have favorable biological characteristics that allow them to grow significantly locally without having distant metastasis.[9] This fact is exploited when such a major ablative surgery is performed for locally advanced cancers of the pelvis.

Although palliative exenteration has its advocates, most authors would consider exenterative surgery only when there is a reasonable curative potential for such a procedure.[10] The procedure is associated with a significant operative morbidity and mortality. The major morbidity and mortality rates in selected series have been shown in [Table – 3].

In our series, the operative mortality was 5/48 (10.42%) and the morbidity was 30/48 (62.50%). Three out of five postoperative deaths were related to sepsis and associated multiorgan failure (because of anastomotic leak), one patient died of cardiac arrhythmia, and one died of acute renal failure. Four out of the five patients who died in the postoperative period had some medical comorbidity (in form of diabetes mellitus, ischemic heart disease, pulmonary tuberculosis or bronchial asthma). One patient, who had a postoperative mortality, also had a solitary liver metastasis along with rectal cancer and had undergone hepatic metastasectomy along with total pelvic exenteration. The high morbidity rate is also, in part, due to the fact that majority of our patients (30/48 i.e. 62.50%) had received preoperative radiotherapy with or without chemotherapy. This is in conformity with other series who have observed increased morbidity in irradiated patients.[20]

Re: Pelvic exenteration

It may seem ironic that many patients were upstaged after preoperative treatment for rectal or cervical cancer. However, we emphasize that this study is about the select group of patients who underwent pelvic exenteration and is not representative of the results of neoadjuvant chemoradiation in rectal cancer or of definitive radiotherapy in cervical cancer.

For the sake of uniformity, we have classified the histopathologic analysis of the specimen as no tumor (pathologic complete response), organ-confined, extra-organ spread (direct invasion beyond the organ of origin, but not invading the adjacent organ), and adjacent-organ invasion. The nodal status was also analyzed. Three patients had pathologic complete response to preoperative chemoradiation. However, the presently available imaging modalities (including endoscopic ultrasound) are inaccurate in predicting a pathologic complete response. The surgeon's ability to differentiate an inflammatory adhesion from a malignant one intraoperatively is notoriously inaccurate.[2] The administration of radiotherapy preoperatively obscures the difference further. This may explain the pathologic involvement of adjacent organ in only 23 patients out of the 48 who underwent pelvic exenteration.

Recurrence rates after exenteration vary between 38% and 48% in various series and are usually locoregional.[21],[22],[23] In our present series, the recurrence rate following pelvic exenteration was 14/48 (29%). Ten out of 29 (34%) of patients with rectal cancer and four out of 15 (26%) of patients with cervical cancer who underwent the procedure recurred. None of the 3 patients with bladder cancer or the one with ovarian cancer have recurred after 5 years. The pattern of failure was locoregional in 9 (64.28%), distant metastases in 4 (28.57%) and stomal recurrence (second primary) in 1 patient (7.14%).

The 5-year disease-free survival and overall survival for the patients with rectal cancer after pelvic exenteration in the present series were 33.0% and 54.2% respectively. The corresponding figures for patients with cervical cancer were 73.1% and 77.6% respectively. This survival data compares favorably with the other reports in the literature [Table – 4].

In patients with rectal cancer who undergo exenteration, the prognostic factors influencing survival and local recurrence are lymph node status, local extent of the disease, and primary or recurrent presentation.[10] In patients of cervical cancer who undergo exenteration, short disease-free interval after radiation, large tumor size, lymphatic invasion, lymph node involvement, and pelvic sidewall invasion increase local recurrence and decrease overall survival.[27] Promising results have been reported with preoperative and intraoperative radiotherapy combined with surgical resection of advanced pelvic tumors.[28] Based on age, previous chemoradiation and S-phase fraction, Meterissian et al have developed a prognostic index to identify high- and low-risk patients and predict their survival (20% and 65% respectively).[24]

In our series, by multivariate analysis according to the Cox proportional hazard model, lymph node involvement and the number of involved nodes were the only independent factors influencing the survival of rectal cancer patients after pelvic exenteration. Among the patients with cervical cancer who underwent pelvic exenteration, no factor reached statistical significance in influencing the survival. However, adjacent organ invasion showed a trend towards decreased survival.

The outcome of pelvic exenteration performed for recurrent pelvic malignancies has been seen to be worse than that performed for primary disease.[17],[29] All the 29 patients of rectal cancer in the present series underwent pelvic exenteration for primary disease; 15 of them had received preoperative chemoradiation as a part of the multimodality treatment plan. On the contrary, all the 15 patients of cervical cancer underwent exenteration for recurrent disease after definitive radiotherapy. Hence, the prognostic implication of primary versus recurrent disease could not be studied in our series. Also, while the presence of enlarged pelvic nodes was not a contraindication for exenteration for rectal cancer, the

Re: Pelvic exenteration

patients of cervical cancer with obvious pelvic lymphadenopathy were not considered for exenteration. This fact could explain why lymph node involvement was not a significant prognostic factor for our patients of cervical cancer who underwent pelvic exenteration.

Finally, it must be emphasized that the economic and psychosocial impact of pelvic exenteration is tremendous. This becomes even more important in the context of a developing country where there is lack of health insurance cover and psychosocial support organizations are few. Poverty and illiteracy combined with the relative lack of social support organizations and insurance cover make it difficult for the patients after exenteration to be optimally rehabilitated. These issues are of particular importance while discussing the option of exenteration with the patient.

CONCLUSION

In the era of multimodality approach and organ preservation in the treatment of cancer, pelvic exenteration has become an uncommonly performed procedure. However, for carefully selected patients with locally advanced non–metastatic pelvic cancers, it may provide the only opportunity of long–term survival.

REFERENCES

- **References:**

- ◆ **Pelvic exenteration**

- ◆ *From: J*

- Prev by Date: **Re: inguinal hernia**

- Next by Date: **Proof "Medicine" is Witchcraft and condemned in the Holy Scriptures.**

- Previous by thread: **Re: Pelvic exenteration**

- Next by thread: **Advice**

- Index(es):

- ◆ **Date**

- ◆ **Thread**