


Total Laparoscopic Radical Hysterectomy and Bilateral Pelvic Lymphadenectomy: Our Institutional Experience



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Abstract

Purpose To study the outcome, feasibility, morbidity and safety of total radical hysterectomy and bilateral pelvic lymphadenectomy at our institution.

Method A total of 50 patients of carcinoma cervix and endometrium according to International Federation of Gynecology and Obstetrics stage were studied. Various patients parameters, i.e. age, weight, BMI and stage of the disease, were noted. Intraoperatively mean operative time and mean blood loss was recorded. Postoperative parameters noted in the present study were lymph node yield, surgical margin and hospital stay. Patients were followed up for a period of 6 months.

Results Mean age of patients was 54.2 years (range 45–67 years). Thirty-eight patients had carcinoma cervix (24 patients had stage IB1 and 14 patients had stage IA2) and 12 patients were diagnosed to have endometrial carcinoma (eight patients had stage IB and four patients had stage II). Mean operative time recorded was 166 min (range 120–210 min) and average blood loss calculated

was 212 ml (range 150–320 ml). These patients did not require any intraoperative blood transfusion. One patient developed colovaginal fistula which was managed later with another surgery. Surgical margins of the specimen were free from tumour infiltration for all patients, and median lymph node yield was 14 (range 10–21). Mean hospital stay was 3 days. All the patients were followed up for 6 months, and all of them were recurrence-free till last follow-up.

Conclusion Total laparoscopic radical hysterectomy and bilateral pelvic lymphadenectomy was found to be effective and safe without compromising oncologic outcome with minimal morbidity in the form of colovaginal fistula in one patient.

Keywords Total laparoscopic hysterectomy · Pelvic lymphadenectomy · Cervix cancer · Endometrial cancer

Introduction

Radical hysterectomy with pelvic lymphadenectomy was developed for the treatment of cervical cancer in early 1900 [1]. Due to high morbidity related to the open surgery, laparoscopy was introduced in late twentieth century [2]. Canis et al. [2] and Nezhat et al. [3] were first to describe total laparoscopic radical hysterectomy; after this era, the procedure of laparoscopic radical hysterectomy has evolved. There are many studies worldwide which have proven its worth in terms of patient safety and feasibility of the laparoscopic procedure without compromising oncologic principles [4–8]. In developing countries where health-care facilities are fast growing, the morbidity of the procedure was compared. The aim of the current study was to evaluate our experiences at Regional Cancer Centre Pt

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Materials and Methods

A total of 50 patients of carcinoma cervix and endometrium according to International Federation of Gynaecology and Obstetrics (FIGO) stage were selected and enrolled for the study from August 2014 to August 2016 after obtaining clearance from institutional ethical committee. Various patient parameters, i.e. age, weight, BMI and stage of the disease, were noted. Preoperative MRI was done for all the patients to rule out adjacent organ involvement and non-regional lymph node metastasis. Para-aortic lymph nodes were assessed both preoperatively with MRI and intraoperatively for carcinoma endometrium and none of the patient required para-aortic nodal dissection in the current series. All the patients of carcinoma cervix underwent standard type 3 radical hysterectomy. Intraoperatively mean operative time and mean blood loss was recorded. Blood loss was calculated by deducting irrigation fluid volume from total fluid volume in the suction drain at the end of the procedure. Patients were monitored throughout the intraoperative and postoperative period for any complication. Postoperative parameters noted were lymph node yield, surgical margin status and duration of hospital stay. All the patients were followed up for a period of 6 months.

Patients were informed about the risk and complication related to the laparoscopic procedure and the need to convert the procedure to laparotomy. All the patients had standard mechanical bowel preparation and preoperative antibiotic prophylaxis and were operated under general anaesthesia. A Foleys catheter was placed in urinary bladder before the procedure was started. A 10-mm camera port at the umbilicus and a 10-mm working port at Mcburney's point were inserted. Two 5-mm ports were inserted at left midclavicular point para-rectally and left

iliac region, respectively. Surgeon stood on the right side of the patient (Fig. 1).

A myoma screw was introduced into the fundus of uterus to keep it steady and manipulate it during the procedure. The procedure started with incising the peritoneum over the uterovesical fold (Fig. 2). Therefore, the plane between uterus and urinary bladder was created up to pelvic floor. The peritoneal cut was extended to round ligament on both side and round ligament clipped and divided. Ureter was visualised underneath the peritoneal fold at the level of sacral promontory and kept under vision at all times to prevent any unforeseeable injury. Peritoneum medial to infundibular ligament was incised and ureter pushed laterally and the peritoneal cut extended into the pouch of Douglas. Next step was to develop the plane between rectum and uterus by dividing two layers of Denonviller's fascia up to levator ani.

Now ureter was retracted medially and posterior leaf of broad ligament cut and pararectal space was opened lateral to ureter. Internal iliac vessel was exposed and uterine artery visualised, clipped at origin and divided (Fig. 3). The pararectal space was dissected up to levator ani. Ureter was retracted laterally and uterosacral ligament and Mackenrodt's ligament were visualised and removed as close to pelvic wall as possible. Similar step was followed on the other side as well. Urinary bladder was pushed down to include good vaginal cuff of 3 cm (Fig. 4). Paracolpos was exposed and cut as laterally as possible. Specimen was removed through vaginal stump.

Lymph node dissection was started at bifurcation of common iliac artery up to inguinal ligament. Obturator foramen was cleared above the obturator nerve up to the bifurcation of iliac vein (Fig. 5). Hemostasis was achieved and vaginal stump was closed with vicryl 2-0 from perineum. Drain was kept in the pelvic cavity. Ports were withdrawn under vision and skin sutured.



Fig. 1 Port placement for laparoscopic total radical hysterectomy at our institution

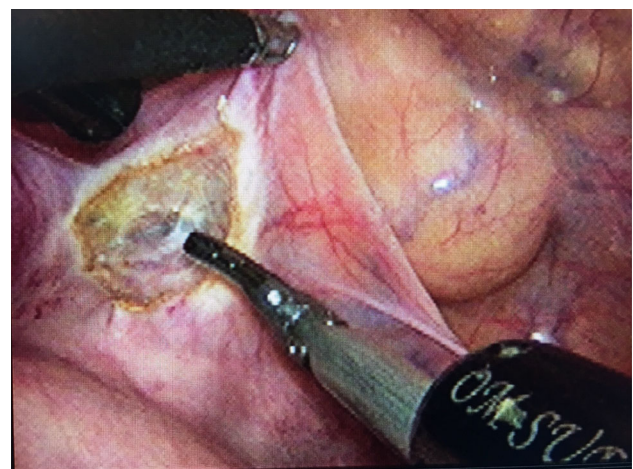


Fig. 2 Opening of the UV fold

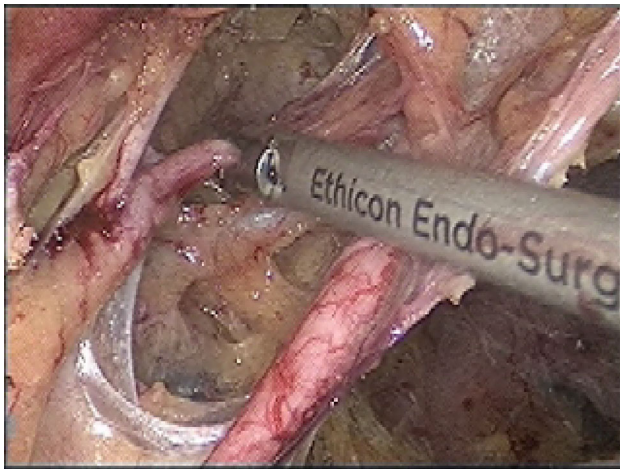


Fig. 3 Ligation of uterine artery at the origin

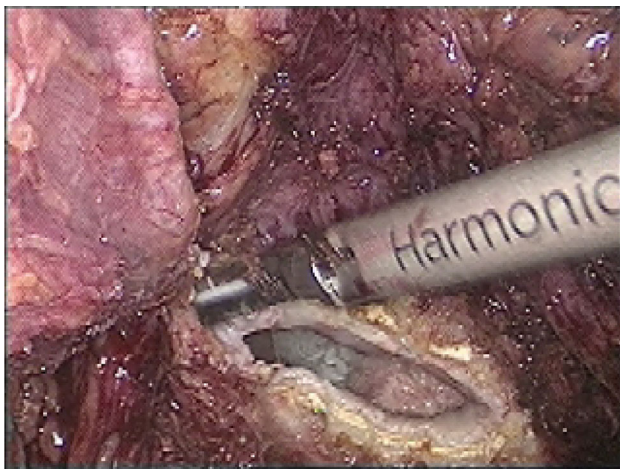


Fig. 4 Removing the radical hysterectomy specimen after taking adequate vaginal cuff margin

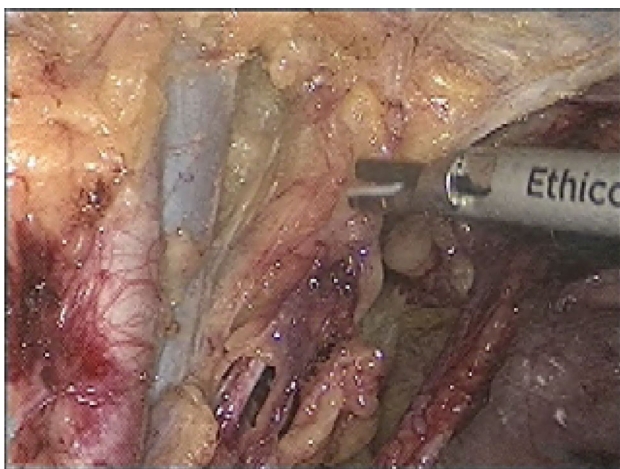


Fig. 5 Pelvic lymphadenectomy

Results

A total of 50 patients underwent laparoscopic radical hysterectomy at our institution during the above mentioned period. None of the patients needed conversion to laparotomy. Mean age of the patients was 54.2 years (range 45–67 years). The mean weight was 58.3 kg (range 45–126 kg) and mean BMI was 22.1 for the patients in the present study. A total of 38 patients had carcinoma cervix (24 patients had stage IB1 and 14 patients had stage IA2) and 12 patients had carcinoma endometrium (eight patients had stage IB and four patients had stage II). Among 38 patients of carcinoma cervix, six of them had adenocarcinoma whereas other 32 had squamous cell carcinoma.

Mean operative time recorded in our series was 166 min (range 120–210 min) which includes 175 min (range 140–210 min) for carcinoma cervix and 150 min (range 120–165 min) for carcinoma endometrium. The average blood loss calculated was 212 ml (range 150–320 ml). None of the patient required intraoperative blood transfusion. Surgical margins of the specimen were free from tumour infiltration for all the patients. Average growth size for carcinoma cervix stage IB1 was 2.34 cm (range 1.60–3.40 cm). Vaginal cuff margin of seven patients was less than 1 cm whereas rest of the patients had margin of more than 2 cm. Median lymph node yield was 14 (range 10–21). Four out of 38 patients of carcinoma cervix were shown to have microscopic parametrium involvement in pathological specimen. In our study, six patients had lymph node positive disease. Patients were shifted to surgical ICU for 24 h postoperatively and monitored intensively. Patients were started on oral diet gradually from postoperative day one and mean duration of hospital stay was three days.

Foleys catheter was removed seven days postoperatively, 11 patients developed retention of urine and required repeat catheterisation and bladder training and were managed conservatively. There were no port site complications. One patient developed colovaginal fistula diagnosed in the postoperative period. She was readmitted and investigated accordingly and another operative intervention was carried out for the same.

In our study, 14 patients of carcinoma cervix received adjuvant therapy. Adjuvant chemotherapy every 3 weekly in the form of cisplatin and 5FU infusion for three cycles along with concurrent radiation of 50 Gy was given to high-risk patients who had lymph node positive disease, microscopic parametrium involvement and close margin (margin less than 1 cm). There were eight high-risk patients in our study. Six intermediate risk patients who

had deep stromal invasion, lymphovascular invasion and growth size more than 3 cm were given adjuvant radiotherapy of 50 Gy in 28 fractions. Adjuvant radiotherapy was given to three patients of stage IB carcinoma endometrium who had intermediate and high grade endometrioid pathology and all four patients of stage II. All the patients were followed up for a period of 6 months and all of them were recurrence-free till last follow-up. Since the patients were followed up for relatively short period, calculation of long-term survival was not feasible but results are encouraging. Long-term follow-up will be presented shortly.

Discussion

Despite the fact that open radical surgery is stated as gold standard for early cervical cancer, over the period of time laparoscopic radical hysterectomy has proven its worth. It has now been performed at various centres as their first choice for early carcinoma cervix and endometrium [9–12]. Major advantages of laparoscopic procedure are less postoperative pain, shorter hospital stay and shorter recovery time [13]. As far as intraoperative period is concerned major advantages are 10–15 times magnification and better access to deeper areas of pelvic cavity which leads to better visualisation of anatomical structure leading to lesser complication. Although there is a learning curve in laparoscopy yet in the experienced hands it has superior results [14].

Our study showed results comparable to the literature available worldwide and in some aspects it showed superior results. Pomel et al. [15] performed laparoscopic radical hysterectomy in 50 patients and recorded mean operative time of 258 min, mean blood loss was 200 ml, mean lymph node yield of 13.2 and hospital stay of 7.5 days. The long hospital stay compared to present study which was 3 days can be attributed to high postoperative complication rate. He experienced postoperative complications in 12 (24%) patients.

Ramirez et al. [16] published his experience of 20 patients of laparoscopic radical hysterectomy at M D Anderson Cancer Centre. In his study, mean lymph node yield was 13 and average blood loss was 200 ml but mean operative time was 332.5 min. He attributed the large operative time to procedures performed like lymphatic mapping, frozen cold knife care and ovarian transposition. One patient needed blood transfusion and two patients suffered long-term complications. In our study, 11 patients (22%) had bladder dysfunction and one patient (2%) developed major complication in the form of colovaginal fistula which is comparable as stated in the literature.

Antonio et al. [17] published his experience of 20 cases of carcinoma cervix operated with laparoscopic radical hysterectomy with mean hospital stay of 5 days, blood loss of 400 ml and mean lymph node harvested was 19.1. He performed this procedure with a mean time duration of 285 min. Two of his patients needed blood transfusion. 11% of his patients had bladder dysfunction which is comparable to the present study.

Major problem with pelvic surgery is blood loss and high rate of transfusion due to difficult dissection deep in the pelvis near all the vital structures. Many studies earlier have shown that likelihood of perioperative blood transfusion in open radical hysterectomy and lymphadenectomy surgery ranges from 40 to 80% [18–20]. With the advent of better instruments like ligasure, bipolar electrocoagulation and harmonic scalpels and better experience of the surgeon the need for blood transfusion has gradually reduced. In our study, average blood loss was 212 ml and none of the patients required perioperative blood transfusion.

Putambekar et al. [21] in his study of 248 patients of laparoscopic radical hysterectomy showed that average blood loss was 200 ml, mean lymph node yield was 20.4, mean operative time was 88 min and hospital stay was 3.4 days. Yong et al. [22] in his study of 295 cases showed that average blood loss was 230 ml, mean operative time was 162 min and mean hospital stay was 10.3 days. He had a major postoperative complication rate of 10.8%.

There are many studies worldwide which have proven that laparoscopic total radical hysterectomy is superior to open radical hysterectomy [23–25]. Zakashansky et al. [23] showed that there was lesser mean blood loss (520 vs 200 ml), better mean lymph node retrieval (31 vs 21.8) and better hospital stay (3.8 vs 5.6 days) in laparoscopic procedure than open but mean operative time was more for laparoscopic procedure (318.5 vs 242.5 min). Frumovitz et al. [24] also compared laparoscopic radical hysterectomy and abdominal radical hysterectomy and found blood loss, need for transfusion and hospital stay was better with laparoscopic procedure. Mean blood loss was 548 ml for abdominal whereas it was 319 ml for laparoscopic procedure. 15% of patients operated with abdominal approach needed blood transfusion but only 11% patients in laparoscopic procedure. Hospital stay was 2 days for laparoscopic and 5 days for abdominal procedure. Lymph node yield was 14 in laparoscopic versus 19 in abdominal and mean operative time was similar in both the procedures (344 min in laparoscopic vs 307 min in abdominal). Postoperative infections were 53% and more common in abdominal procedures than laparoscopic procedure which was 18%.

Conclusion

Today laparoscopic radical hysterectomy a regular surgery performed worldwide. With more experienced surgeon the morbidity of the procedure is within acceptable limits and less than open counterpart maintaining the same oncologic outcome. We have concluded in our experience that hospital stay, pain and patients satisfaction were better. Morbidity and major surgical complications were less and early recovery enabled the patient to go for timely postoperative adjuvant treatment.

Compliance with Ethical Standards

Conflict of interest None.

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