

Laparoscopically assisted modified radical vaginal hysterectomy (type II) with pelvic lymphadenectomy: ultrasonic operative technique

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Summary

Objective: The aim of this study was to incorporate an ultrasonic operative laparoscopic technique to complete a type II laparoscopically-assisted modified radical vaginal hysterectomy (LARVH) and pelvic lymph node dissection (PLND) in early cervical cancer.

Methods and Materials: LARVH type II and PLND using a laparoscopic ultrasonic operative technique and conventional vaginal surgery were indicated in five cases of early cervical cancer (IA2).

Results: Complete pelvic lymphadenectomy and the laparoscopic phase of modified radical vaginal hysterectomy were successfully performed using ultrasonic instruments in all women. Uterine artery and ureteral dissection with resection of the cervicovesical fascia, cardinal and uterosacral ligaments were successful with ultrasonically activated instruments only.

Conclusion: Our initial experience with laparoscopically assisted radical vaginal hysterectomy type II confirmed that the use of a minimally invasive ultrasonic technique is feasible. Further investigations into the indications of disease where laparoscopic surgery is appropriate in the management of early cervical carcinoma are required.

Key words: Cervical cancer; Laparoscopy; Radical vaginal hysterectomy; Ultrasonic technique.

Introduction

The application of laparoscopy in the management of early cervical cancer includes the combination of laparoscopic pelvic and para-aortic lymph node dissection with a variety of surgical approaches to the removal of primary tumor [1]. These include radical vaginal (Schauta) hysterectomy [2], laparoscopically assisted radical vaginal hysterectomy [3] and laparoscopic radical hysterectomy [4].

The laparoscopic phase of laparoscopically assisted radical vaginal hysterectomy (LARVH) or laparoscopic radical hysterectomy (LRH) have usually been carried by electrosurgery, argon beam coagulator, ENDO-GIA staplers or vascular clips [3, 4].

We report a pilot study with the laparoscopic ultrasonic operative technique in early cervical cancer patients managed by laparoscopically assisted modified radical vaginal hysterectomy (LARVH-type II) and pelvic lymphadenectomy (PLND).

Material and Methods

From March 1, 2002 to January 31, 2003 five consecutive patients underwent laparoscopic pelvic lymph node dissection and type II laparoscopically assisted radical vaginal hysterectomy for early-stage cervical carcinoma (IA2). All patients submitted to the procedure underwent complete history and physical examination including magnetic resonance imaging (MRI). The average age of patients was 52 years (range 33-73 years).

Operative technique

Closed laparoscopy was performed through an umbilical incision. The telescope was inserted at the subumbilical site and one 10 mm port of entry was made suprapubically and medially. Then, two or three 5-mm ports were placed in each of the lower quadrants at the lateral edge of the rectus muscle. Pelvic cytology was obtained before beginning the dissection. The primary surgeon was on the patient's left side and operated using the left quadrant and midline ports. The 5-mm ultrasonically activated shears (LCS- K 5 or LCS-C) (Ultracission, Ethicon Endo Surgery, Johnson & Johnson Ltd., Cincinnati, OH, USA) were applied at power levels from 1 to 5 (full power). Lower power levels allowed better coagulation but slower cutting. Higher power levels allowed faster transection of relatively avascular tissue.

The round ligaments and infundibulopelvic or utero-ovarian ligaments were coagulated and dissected by laparoscopic shears. The peritoneum lateral to the infundibulopelvic ligaments was incised and the incision was continued cephalad. The peritoneum incision was then extended caudad through the round ligaments and the retroperitoneum was opened widely identifying the common, external and internal iliac vessels, and the ureters. The pararectal and paravesical spaces were opened and lymph nodes were removed from the fossa obturatoria as well as the internal, external and common iliac chain bilaterally. The uterine arteries were coagulated and cut by LCS at their origins from the hypogastric artery. The bladder flap was incised and the bladder was dissected from the cervix down to the level of the mid-vagina. The ureteral dissection lateral of the uterosacral ligament was accomplished with the blunt tip of a 5-mm irrigator. The ureteral tunnels were dissected anterior and medial to the ureters, reflecting the distal segment of the ureters laterally, allowing for removal of the uterine artery and all parametrial tissue medial to the ureters. The rectovaginal septum was dis-

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sected, isolating the uterosacral ligaments. The uterosacral and cardinal ligaments were then transected using ultrasonically activated shears, removing about 2 cm of the medial half of the ligaments. The vagina was incised from below and transected removing 2-3 centimetres of upper vagina, and the uterus was delivered through the vagina. The vaginal cuff was then closed vaginally, the pelvis was irrigated and hemostasis secured.

Adequacy of this procedure was determined by visual confirmation of a complete pelvic lymphadenectomy. Pelvic lymph nodes were counted. The adequacy of ureteral dissection was determined visually, and the parametrial and vaginal tissue was measured to assess the lateral and inferior margins.

Results

Laparoscopic and vaginal procedures were completed successfully in all patients. The average number of pelvic lymph nodes removed was 16.2 (range 12 to 21). The average parametrial width was 1.9 cm (range 1 to 2.5 cm). The average operative time was 182 minutes (range 170 to 200 min). Intraoperative average blood loss was 160 ml (range 100 to 300 ml). The average length of hospital stay was 2.4 days (range 2 to 3 days). No patient was transfused and there were no intraoperative or postoperative complications.

Discussion

We present a small group of patients with Stage IA2 cervical carcinoma treated using ultrasonic laparoscopically assisted modified radical vaginal hysterectomy and pelvic lymphadenectomy. Controversy still exists as to how to best treat patients with early stage carcinoma of the cervix. The abdominal approach remains the standard operation for radical hysterectomy. Whenever possible, we favor the combined laparovaginal approach. The advantages of laparoscopic and vaginal surgery versus laparotomy include decreased postoperative pain, shorter hospitalization, and a reduction in postoperative convalescence [5].

During laparoscopically assisted surgical staging (LASS) in uterine cancer, hemostasis and dissection can be achieved with the skilled use of electro-surgery, laser and staples [3, 4, 6-8]. In a recent literature review (Medline) we found a few reports from two institutions on the application of the harmonic scalpel and/or LCS in laparoscopic surgery in malignant female conditions. Shen *et al.* [9] used LCS for laparoscopic para-aortic lymphadenectomy in two women with cervical cancer. Holub *et al.* [10] referred to the first experience with LCS in 59 patients with endometrial and microinvasive cervical cancer. In the view of these authors, the ultrasonically activated shears were able to cut and coagulate tissue simultaneously without electrical current.

The results of our pilot study showed that the ultrasonic operative technique with LCS ensures efficient coagulation, cutting, dissection and grasping for laparoscopically assisted modified radical vaginal hysterectomy type II and pelvic lymph node dissection. The advantages include less charring and plume, better visualisation and usually less thermal injury, especially with respect to important pelvic structures such as the ureter and larger vessels.

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