

SURGICAL TECHNIQUE OF CONCOMITANT LAPAROSCOPICALLY ASSISTED VAGINAL HYSTERECTOMY AND LAPAROSCOPIC CHOLECYSTECTOMY

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Abstract

Background. *Laparoscopically assisted vaginal hysterectomy is one of the most frequently performed gynecologic operations, and numerous authors have demonstrated its safety and feasibility.*

Case presentation. *We practiced in some selected cases simultaneous laparoscopically assisted vaginal total hysterectomy with bilateral adnexectomy and laparoscopic cholecystectomy using 5 trocars without uterine manipulator. Previous examinations included abdominal ultrasound, cervix biopsy and CT of abdomen and pelvis.*

Our aim was to evaluate the surgical technique of our initial experiences for combined laparoscopically assisted vaginal hysterectomy and laparoscopic cholecystectomy.

Conclusions. *Laparoscopic hysterectomy had a number of advantages over the conventional technique given the underlying associated diseases, postoperative pain, rapid recovery and aesthetic benefits.*

Keywords: laparoscopically assisted vaginal hysterectomy, adnexectomy, laparoscopic cholecystectomy

Background

Since laparoscopically assisted vaginal hysterectomy (LAVH) was first introduced in 1989 by Reich et al., various forms of laparoscopic hysterectomy (LH) such as laparoscopic supracervical hysterectomy or classic intrafascial supracervical hysterectomy, LAVH, and total LH have been performed [1].

Over the last period of time, minimally invasive surgery in the field of gynecologic surgery has moved from an experimental technique to safe and feasible procedures in the hands of highly skilled specialists and to an approach that many would consider standard and preferable for the

treatment of many benign gynecological pathologies and selected early stages gynecological malignancies. The benign pathology (myomas, uterine prolapse) represent over 70% of all hysterectomies [2].

LAVH has become more widely used compared to open abdominal hysterectomy in recent years. It increases operative time but is potentially more cost effective due to reduced hospital stay. The four-port method with various port-placement systems is used in most LHs. LH without uterine manipulator is a feasible technique, which in the early stages of cervical cancer prevents tumor cell dissemination [3].

Our aim was to evaluate the surgical technique of our initial experiences for combined laparoscopically assisted vaginal hysterectomy and laparoscopic cholecystectomy.

LH has earlier recovery, less postoperative pain,

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and cosmetic advantage when compared to conventional abdominal hysterectomy. Compared with the vaginal access, laparoscopy allows concomitant interventions (appendectomy, cholecystectomy) and also provide a better anatomical view and performance of concomitant procedures such as for excision of endometriosis and a wide inspection of the peritoneal cavity in search of other pathologies [4].

Case Presentation

Our 52 years old patient, without previous abdominal surgery, was admitted to our clinic for metrorrhagia during menopause and colicky pain in the right hypochondrium. She underwent preoperative assessment that included a detailed medical history, abdomen and pelvic clinical examination, abdominal and pelvic ultrasonography and computer tomography (CT), Pap smear, and a conization of the uterine cervix with endometrial biopsy.

There was some documented moderate cardiopulmonary morbidity as relative contraindication to laparoscopic surgery, such as: high risk essential arterial hypertension stage II, permanent atrial fibrillation with medium ventricular rate, mitral valve insufficiency grade 2, tricuspid valve insufficiency grade 3, moderate secondary pulmonary hypertension, right major bundle branch block, large mitral stenosis and previous surgery for left breast cancer.

After the consultation with a senior member of the anesthesiology team we decided to operate the patient by laparoscopy, after obtaining informed consent from the patient. There was no severe cardiopulmonary disease which contraindicates laparoscopy, defined as a history of cardiac failure, myocardial infarction, unstable angina or pulmonary obstructive disease poorly controlled or contraindicating prolonged Trendelenburg position [5].

The previous cervix biopsy highlighted an evolving low to high dysplasia of the exocervix, squamous metaplasia and high dysplasia on the surface epithelium of the endocervix, chronic ulcerative cervicitis and Papilloma virus infection.

Abdominal ultrasound identified a malformation of the gallbladder with multiple hyperechoic images up to 30 mm diameter. Abdomen and pelvis CT was normal.

The patient underwent general anesthesia with endotracheal intubation. A Foley catheter was inserted to provide bladder drainage throughout the operation. With the patient in gynecological position, after the pneumoperitoneum was insufflated to a pressure of 12 to 14 mmHg, we inserted 5 trocars: 11 mm optical umbilical trocar, 11 mm suprapubic trocar, 5.5 mm in lateral border of the right rectus abdominis, 11 mm in the same position on the left side for the Ligasure forceps and 5.5 mm under the right costal margin on the medioclavicular line (Figure 1).

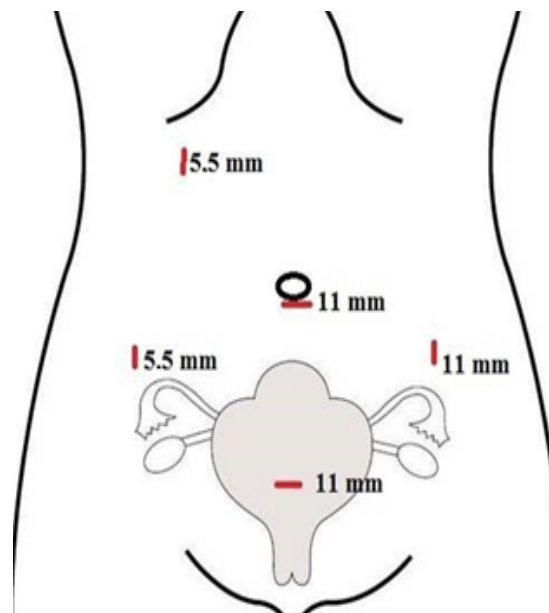


Figure 1. Position of trocars.

The patient was positioned in anti Trendelenburg position and we performed the inspection of the peritoneal cavity. The laparoscope was positioned in left side 11 mm trocar and we used for dissection the 11 mm umbilical trocar, and for the gallbladder exposure we used the 5.5 mm trocar under the right costal margin on the medioclavicular line and the 5.5 mm in lateral border of the right rectus abdominis. We started with the retrograde laparoscopic cholecystectomy (LC) and sub hepatic drainage, then the gallbladder was inserted in an endobag and abandoned near the liver. The patient was then repositioned in Trendelenburg position. We started on the left part, sectioning the adhesions between the sigmoid colon and the utero-ovarian ligament, exposing the round ligament. The uterus is maintained cranially and anteriorly, so as to be opposite the side that will be operated.

The LH, without using uterine manipulator, started with the progressive sectioning of the round ligaments, plane to plane, with the Ligasure forceps at about 3 cm from the pelvic wall. It is important to avoid the coagulation of the round ligament near the uterus because of higher bleeding. The ureters were visualized transperitoneally [6] (Figure 2).

In order to preserve the adnexa, the coagulation and section is performed proximal to the fallopian tubes and the utero-ovarian ligament. The dissection continues posteriorly on the broad ligament, taking care not to cut the uterine pedicle's vessels [7].

The visualization of a blue-gray color in the peritoneal leaflet indicates that there is an avascular structure without any anatomical elements behind.

Case Report

After cutting the posterior leaflet of the broad ligament, the adnexa remains pedunculated and the ureter is kept away, since it is mobilized along with the peritoneum. The first assistant should secure the adnexa and apply traction in a direction opposite to the lombo-ovarian ligament [8].

The peritoneum is sectioned with the Ligasure forceps to the utero-sacral ligaments. Then the uterine pedicle is treated also with Ligasure forceps. We repeated the previous steps in the same manner on both sides.

The cranial and posterior traction of the uterus was performed in order to expose the bottom of the vesical-uterine sac. With an atraumatic 5.5 mm forceps the assistant gently elevates the peritoneum with the bladder, in order to avoid lesions while dissecting the vesical-uterine space, allowing to open the vesical-vaginal plane and sectioning of the vesical-uterine ligaments [9] (Figure 3).

We used the 10 mm Ligasure forceps to coagulate the uterine pedicles, near the uterus.

After the identification of the cervix we dissected the proximal third of the vagina in the anatomical space between the bladder and vagina and performed the incision of the anterior and posterior part of the vagina with the electrocautery hook [10].

Before the loss of pneumoperitoneum, a laparoscopic Babcock forceps is inserted into the vagina to extract the uterus with the ovaries and the endobag with the gallbladder.

At this moment we ensured the hemostasis and we performed the vaginal suture with separate 0 absorbable sutures, in two layers muco-mucous and sero-serous, through the vaginal route. A laparoscopic control view was conducted after the pneumoperitoneum was recreated and we used the drainage of the Douglas space.

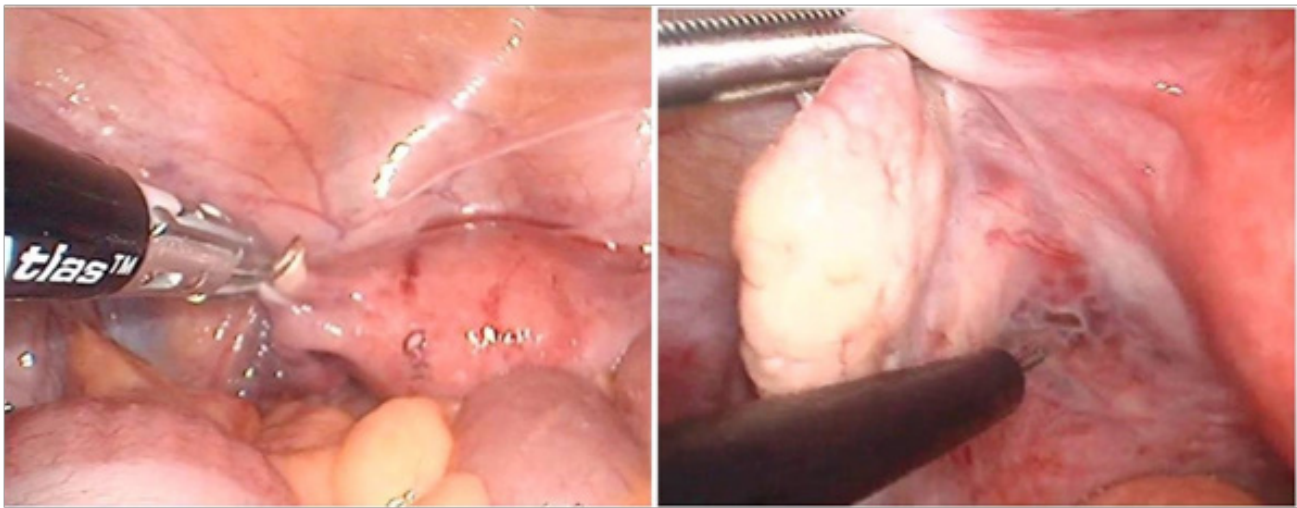


Figure 2. Sectioning left round ligament with Ligasure forceps and the visualization of a blue-gray color in the peritoneal peritoneum.

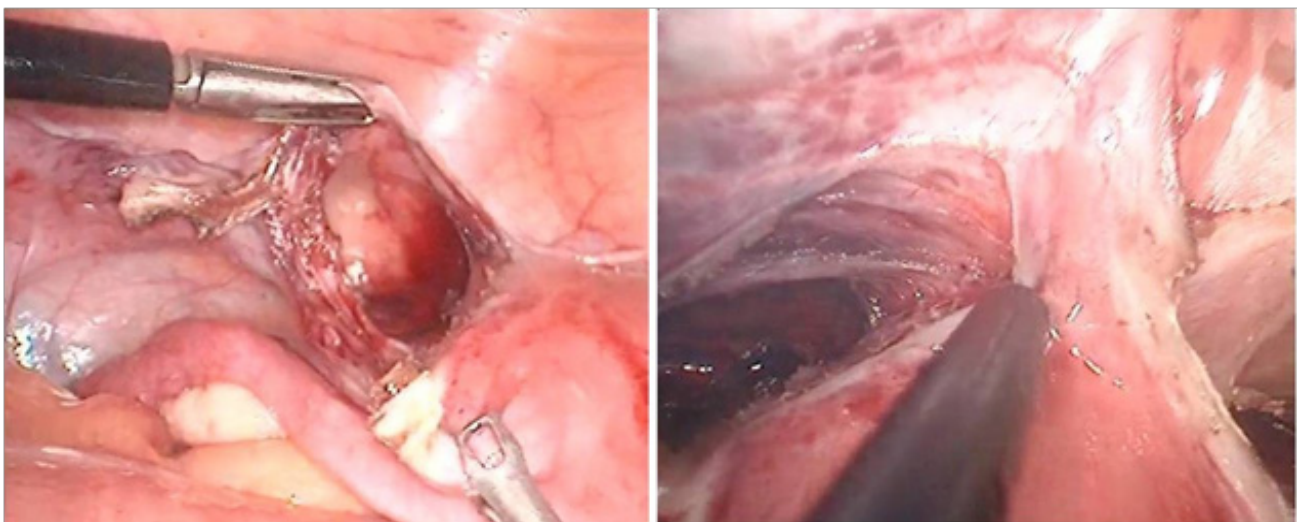


Figure 3. Dissection and opening of the broad left ligament and dissection of the vesico-vaginal plane.

The operative time was 125 minutes from the Calot triangle dissection to the vaginal cuff suture. There were no intra or postoperative complications. The patient received prophylactic antibiotherapy after the intervention and had antithrombotic prophylaxis with low-molecular-weight heparin for 1 week beginning from the day of surgery and then with oral anticoagulants and painkillers. The postoperative evolution was uneventful with treatment. The patient was discharged at 7 days after the surgical intervention.

The histopathology examination result was “in situ” cervix carcinoma with intraglandular extension, without micro invasion aspects, but with the presence of a breast cancer metastasis and chronic ulcerative lithiasic cholecystitis.

Discussion

The complications directly related to laparoscopic access include the lesions caused by the insertion of the Veress needle and the trocars (bleeding, intestinal lesion), those related to pneumoperitoneum, incisional hernia of the orifices of the trocars, and the need to convert to conventional surgery. The complications of LH are the same as in case of the conventional hysterectomy [11].

The VALUE and eVALuate study found that the LH doubled the risk of operative complications compared with abdominal hysterectomy. The eVALuate study also compared abdominal hysterectomy (laparoscopic or conventional) and a vaginal hysterectomy, and observed that laparoscopy permitted a higher detection of unexpected pathologies such myomas, endometriosis, and adhesions, when compared with vaginal or abdominal access. The study confirmed some advantages of laparoscopy such as less pain, shorter hospitalization, a faster post-operative recovery, and a better short-term quality of life when compared with laparotomy. Downsides included longer surgical time and a higher rate of urinary tract lesions [12,13].

In literature, a meta-analysis, found that LH caused a higher risk of lesions of the bladder and ureters compared with conventional hysterectomy. LH was associated with fewer infections, fewer episodes of fever, less blood loss and a smaller drop of hemoglobin values when compared with conventional hysterectomy. When comparing a vaginal and abdominal hysterectomy the meta-analysis found the same risks. There was no difference in the frequency of fistulas, urinary or sexual dysfunction, when comparing the route of access for the hysterectomy. There wasn't differences in blood loss, the occurrence of pelvic hematoma, vaginal vault infection, urinary tract infection, or thromboembolic events [14].

A study of Donnez et al., including 3190 LH has showed that there is no increase in frequency of major complications during LHs performed by surgeons that passed over the learning curve of the procedure. No

difference was found in the frequency of ureteral lesions after vaginal hysterectomy (0.33%) and LH (0.25%). Bladder lesions occur in 0.44% of women who underwent a vaginal hysterectomy and in 0.31% of those who underwent an LH [15].

One study that reviewed 7286 hysterectomies regarding the frequency of the dehiscence of the vaginal wall revealed a percentage of 4.93% after total LHs, 0.29% in case of vaginal hysterectomies, and 0.12% after abdominal hysterectomies. LH also had a decreased postoperative adhesion formation [16].

The American College of Obstetricians and Gynecologists Committee Opinion listed in 2005 the indications for the use of LAVH: adhesiolysis, endometriosis treatment, treatment of leiomyomas, ligation of the infundibulum-pelvic ligaments to facilitate the excision of ovaries, and the evaluation of the abdominopelvic cavity before the hysterectomy [17].

Korolija et al. have reported that quality of life improves earlier after laparoscopic than open surgery for a number of conditions including cholelithiasis and uterine disorders that require hysterectomy [18].

A review of 11662 patients has found that LC and LH are associated with statistically significantly lower risks for infections in comparison to conventional surgery [19].

We must remark our particular surgical solution using a concomitant laparoscopically assisted vaginal hysterectomy and laparoscopic cholecystectomy, in that way avoiding a conventional repeated and prolonged surgery, which would have had possible important complications in a patient with many associated diseases. This procedure reduced the length of surgery, hospital stay, and recovery time as well as pain and complications, and represents a major advancement in women's health care.

The LAVH should be considered as a specific surgical approach with its own distinctive indications, in case of vaginal hysterectomy, with expected adhesions or endometriosis hindering vaginal surgery or planned accompanying adnexal surgery [20].

Conclusions

Concomitant laparoscopic assisted vaginal hysterectomy and cholecystectomy, in selected cases, had a series of advantages to the conventional surgery regarding the possibility of exploring the abdominal and pelvic cavity, the associated comorbidities, postoperative pain, quick recovery and the esthetic advantages.

Apart from the benefit to the patient it also appears to be cost effective both to the patients and to the hospital services because it decreases the morbidity and hospital stay.

Using new technologies for sealing the vessels in laparoscopic hysterectomy and in laparoscopic cholecystectomy seems to be a time saving technique and can be safely used in a single session surgery.

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