Experience with modified laparoscopic-assisted vaginal hysterectomy

Zdeněk Holub, Mats Hammar[1]

Zkušenosti s modifikovanou laparoskopicky asistovanou vaginální hysterektomií

Souhrn

Background: **Laparoskopická hysterektomie je nedávno objevenou operační technikou, považovanou za alternativní metodu k abdominální hysterektomii v léčbě benigních a maligních gynekologických onemocnění. Ve své studii jsme hodnotili zkušenosti s modifikovanou laparoskopicky asistovanou vaginální hysterektomii z pohledu bezpečnosti, dostupnosti a účinnosti tohoto přístupu.**

Metody: **Studie zahrnuje 23 konsekutivně vybraných žen s indikací k hysterektomii pro gynekologické onemocnění. Retrospektivní studie byla provedena v Nemocnici v Kladně. U všech léčených pacientek byla provedena laparoskopicky asistovaná vaginální hysterektomie jednoduchou modifikovanou metodou pouze s použitím bipolární koagulace a standardní vaginální operační techniky. Hodnotili jsme výsledky v perioperačním a postoperačním období.**

Výsledky: **Všech 23 operací bylo úspěšně dokončeno. Průměrná délka operačního výkonu byla 91 minut, průměrná hodnota krevní ztráty 200 ml. Hospitalizace trvala v průměru 6 dní. Neměli jsme žádnou závažnější komplikaci.**

Závěr: **Modifikovaná laparoskopická hysterektomie se zdá být úspěšnou procedurou, která přináší zkrácený nemocniční pobyt při všech výhodách endoskopické chirurgie a při provedení jednoduchou a nenákladnou operační technikou** *(lit. 12, tab. 3).*

Klíčová slova: laparoskopicky asistovaná vaginální hysterektomie, modifikovaná operace, doba hospitalizace, perioperačné komplikace.

Summary

Background: **Laparoscopy hysterectomy has lately been reported as an alternative to abdominal hysterectomy for the treatment of benign and malignant gynaecological conditions. It was evaluated whether modified laparoscopic-assisted vaginal hysterectomy is a safe, feasible and effective procedure.**

Methods: **The study includes twenty three consecutive women with indications for hysterectomy for a variety of gynaecological conditions. A retrospective study was undertaken at Hospital Kladno, which included all patients treated with laparoscopically-assisted vaginal hysterectomy using only diathermy and standard vaginal procedure. We evaluated differences in the peri- and postoperative outcomes.**

Results: **All 23 procedures were successfully completed. The mean operating time was 91 min, and mean blood loss was 200 ml. The median hospital stay was 6 days. There were no major complications.**

Conclusions: **The modified laparoscopic hysterectomy seems to be procedure which appears to result in a shorter hospital stay and rapid recovery. The modified operation gives the woman all benefits of endoscopic surgery which a simple and inexpansive surgical technique** *(Ref. 12, Tab. 3).*

Key words: laparoscopic-assisted vaginal hysterectomy, modified operation, hospital stay, recovery time, perioperative complications.

Praktická gynekológia, 4, 1997, č. 1.

Introduction

Laparoscopic hysterectomy is a relatively new operation technique, first described by Reich (1989). If it, can be show to be a feasible and safe procedure, it could largely replace

Department of Obstetrics and Gynaecology, County Hospital, Kladno, Czech republic, [1]Faculty of Health Sciences University of Linkoping, Sweden

Address to correspondence: Z. Holub, M.D., Department of Obstetrics and Gynaecology, County Hospital, Kladno, Czech republic

abdominal hysterectomy, the routes by which almost 90 % of hysterectomies are currently undertaken. Laparoscopically assisted vaginal hysterectomy (LAVH) has been introduced as an alternative operation to abdominal, and is thought to allow a more rapid return to normal activity (2, 3). Garry and Hercz (1995) reported their initial experience with laparoscopic-assisted hysterectomy and showed their modification during a workshop in Pardubice, Czech Republic (1996). The authors modified this technique suggesting that this laparoscopic-assisted Doderlain hysterectomy, using only technically simple laparoscopic and standard techniques, will greatly increase the appeal of this approach to gynaecologist (4). The objective of the study was to assess the feasibility, safety and advantages of a modified laparoscopic-assisted vaginal hysterectomy. We report the first Czech experience of this operation procedure.*

Subjects and methods

A retrospective study was undertaken at Hospital Kladno, which included all women treated with laparoscopically-assisted vaginal hysterectomy using only diathermy and standard vaginal procedure between October 1995 to August 1996. The study includes 23 patients undergoing LAVH for benign or malignant gynaecological conditions (Table 1). Laparoscopic hysterectomy was offered by one gynaecologist to 23 consecutive women as an alternative to the conventional abdominal approach when the size of the uterus was maximum 12 weeks of pregnancy. Indications for surgery and characteristics of women are shown in Table 1. All patients with early stage of endometrial adenocarcinoma underwent a general check with ultrasound and computer tomography. Of these 23 women, 15 had no previous surgery. Five had unsuccessful treatment of endometriosis and pelvic pain, two had undergone a laparoscopic procedure, three herniotomy, appendectomy, salpingo-oophorectomy and three women had caesarean sections.

Table 1. Indications for laparoscopic hysterectomy.

	n	%
Fibroids (menorrhagia, dysmenorrhoea)	13	56.5
Endometriosis (pelvic pain, dysmenorrhoea)	5	21.7
Cervical intraepithelial neoplasia	2	8.7
Endometrial hyperplasia	1	4.3
Endometrial adenocarcinoma (Stag.IA, gr.1)	2	8.7

Operative technique

The patient was placed in the lithotomy position with the hips flexed at 45 dg.,to allow an assistent to manipulate the uterus during the procedure. The laparoscopic procedure was then performed in the described position using video-monitoring equipment.

Laparoscopic part: telescope was inserted in the subumbilicale position and a Wisap endo-vision camera attached. Two ports of entry were made suprapubically and laterally. Finally one 11 mm trocar was placed suprapubically in the midline. After the bowel had been removed from the pelvis, both uters, oviducts, ovaries and uterus were visually checked and identified prior to beginning dissection. Any adhesions between the uterus or adnexae to surrounding structures were divided with scissors after diathermy coagulation. Both round ligaments were desiccated with diathermy and cut with scissors. The anterior peritoneum of the broad ligament was dissected towards the infundibulo-pelvic ligament. We used the same procedure to transsect the infundibulo-pelvic ligament. Clips or needle suture were used only two times, whereas bipolar diathermy was effective in most cases. At his point in the operation, the bladder was dissected from the lower uterine segment with use of bipolar or monopolar diathermy and sharp dissection by scissors. After the bladder had been dissected from the lower uterine segment, careful inspection was carried out on each side to visualize the ureter and uterine artery. We did not transect the uterine artery during the laparoscopic part of the procedure.

Vaginal part: the uterus, tubes and in certain cases both ovaries were then removed vaginally after circumcising and opening the pouch of Douglas to allow division, cut and suture ligate of the uterine vessels, cardinal and uterosacral ligaments as in a conventional vaginal hysterectomy (5). The vagina was packed with gaze and an intraperitoneal Redon's catheter was left for drainage.

A final check was made by laparoscopy to control hemostasis. The vasopresin solution (0.05 % POR 8, 10–20 ml) was locally injected during the vaginal parts, after which the vaginal tissue was dissected.

*Abbreviations: LAVH – laparoscopic-assisted vaginal hysterectomy; dg.C – degree Celsius.

Table 2. Outcomes of surgery and recovery

Outcome measures	Czech's group	Garry's group
Operating time (min)	91 (50–150)	93 (63–155)
Blood loose: Estimated (ml)	200 (50–500)	–
Haemoglobin (g)	–	pre-op 13.2 post-op 12.7
Post operative hospital stay (days)	6 (5–8)	3 (2–5)
Return to work (weeks)	5 (3–8)	–

Table 3.The operative and histological findings

	Czech's group n=23	**(%)**	**Garry's group n=20**	**(%)**
Histology				
Fibroids	11	(47.6)	9	(45)
Adenomyosis	2	(8.7)	3	(15)
Endometriosis	5	(21.7)	1	(5)
Atypical endometrial hyperplasia	1	(4.3)	1	(5)
Adenocarcinoma	2	(8.7)	1	(5)
Cervical intraepithelial neoplasia	2	(8.7)	–	
Post-operative complications				
Fever	4	(17.4)	–	
Haematoma	–		1	(5)
Vaginal discharge	1	(4.3)	2	(10)
Bilateral salpingo-oophorectomy	13	(55.9)	14	(70)
Adhesiolysis	5	(21.7)	1	(5)

We evaluated and compared differences in the peri- and post-operative outcomes. The incidence in fever was recorded, indicated by a temperature of 37.5 dg.C or greater on any post-operative days. The number of post-operative days spent in hospital was recorded. Patients were contacted by letter or a private gynecologists at home to ascertain the time taken to resume normal activity, and return to work. The results in the Czech group were compared with data previously presented by Garry and Hercz (4).

Results

Laparoscopic hysterectomy was intended and completed in 23 women. The objective and histological findings in own group are shown in Table 2 together with data from Garry's and Hercz's (4). Outcomes of surgery and recovery are shown in Table 3. There were no major complications. The median operative time was 91 min versus 93 min (Garry's group) and median value for blood loss was 200 ml (range 50–500). There were four cases of postoperative fever, three due to urinary infections, and one idopathic. The women who underwent the laparoscopic procedure had a short duration of post-operative stay in hospital. Women returned to the normal activity after 2 weeks and work after five weeks.

Discussion

Laparoscopic hysterectomy has lately been reported as an alternative to abdominal hysterectomy for the treatment of benign and malignant gynaecological conditions (3). Laparoscopic-assisted vaginal hysterectomy includes a spectrum of procedures ranging from a simple laparoscopic procedure followed by vaginal hysterectomy, to hysterectomy performed on the whole by the laparoscopic technique. Chapron et al. describe three types of LAVH, according to the level of dissection:

1. Type I, where only the adnexal and round ligaments are divided.

2. Type II, where the vesicouterine ligament and uterine vessels are divides, as well.
3. Type III, which also includes dissection of the cervix and initial opening of the vagina (6).

The primary aim of an LAVH is to convert an abdominal approach to a vaginal procedure. Semm has described how to secure the vascular pedicles with laparoscopic sutures (7). Other authors used the Endo GIA stapler, which is quick and effective, but technically it was not possible to secure the vessels with device, and the method is unfortunately expansive (8). Garry reported that the bipolar diathermy was effective in this situation, and this has been the experience of other surgeons (9). Our initial experience with simple laparoscopic technique modified according to Garry is comparable to his. Chapron and Dubuisson described the simple technique of bipolar coagulation during total laparoscopic hysterectomy. The bipolar coagulation system was successfully used in the following operation phases: bipolar coagulation followd by section of the adnexal pedicles, dissection of the vesicouterine space, bipolar coagulation and section of the uterine pedicles, cervicovaginal pedicles and uterosacral ligaments. They used a airly low approach to the uterine pedicle, opposite the uterine isthmus, just above the point where uterine artery forms a loop before running up along the edge of the uterus. This low approach to the uterine artery means that the anterior and posterior layers of the broad ligament must be incised beforehand, after preliminary preventive bipolar coagulation. The incisions run up to the vesico-uterine space in the anterior layer. The uterine pedicle is then dissected freeing it from all overlapping attachments. In order to achieve correct hemostasis, the tissue must have whitened for 1–1.5 cm before the vessels are sectioned. In their experience of 150 total laparoscopic hysterectomies, they observed no secondary bleeding complications (10).

The mode and approach to the uterine artery is probably one of the most controversial points of technique during laparoscopic hysterectomy. In our opinion the uterine vessels should not be transsected during the laparoscopic procedure in the following cases: large uterus, varicose uterine veins, atypic branches of uterine vessels, where it is much safer to transect the uterine pedicle from below. In addition, the need for laparotomy should always be discussed. The patient should always be made aware that vaginal procedure may be impossible and have to be turned into a laparotomy. The many recent studies have shown laparoscopic-assisted vaginal hysterectomy to be a safe and effective procedure (3, 4, 5, 11, 12). The more rapid recovery and return to work are two advantages with LAVH although we found longer time than in other Western studies (3, 5). After conventional abdominal or vaginal hysterectomy the median stay in our hospital is usually between 8–10 days. Possible reasons for the differences are related to other social and cultural behavior. We have found a greater incidence of fever in the Czechs group compares to previous studies. Hunter et al. described 8 % incidence in fever following laparoscopic hysterectomy compared with the 32,3 % following abdominal hysterectomy. Possible reasons for the low incidence after laparoscopic hysterectomy are that the staplers avoid leaving necrotic tissue distal to the transfixed pedicles, and pelvic collections should be rare because hemostasis is checked laparoscopically (3). The comparison of incidence in fever is difficult due to different modes of investigation. Temperatures over 37.5 dg.C were used as definition by Raju et al. while other authors considered fever to be temperature of 38 dg.C or greater on any two post-operative days (3, 5). We had too few cases to allow an accurate assessment of febrile morbidity following LAVH. The rather high incidence of temperatures above 37.5 dg.C was probably caused by the fact that we did not use antibiotic prophylactic cover.

The easiest parts of laparoscopic hysterectomy are the division of the round ligaments, reflection of the bladder, and security the infundibulo-pelvic or utero-ovarian ligaments and ovarian vessels (4). In our opinion the mode of conventional vaginal approach with circumcising and opening the pouch of Douglas allows better division, cut and suture ligate of the uterine vessels and supporting ligaments, this is in accordance with Raju et al. who described this vaginal procedure and had very good experience with themselves (5). In the Doderlain hysterectomy only an anterior colpotomy is performed and large leiomyoma can become difficult to remove. The conventional vaginal approach allows better as well as careful extraction of the uterus with for example endometrial adenocarcinoma. We advocate altogether with Garry and Hercz, the use of short, simple, reusable trocars, electrosurgery techniques for laparoscopic tissue division, and haemostasis suture materials for the vaginal component of the procedure.

In conclusion, we feel that modified laparoscopic-assisted vaginal hysterectomy is a successful combination of laparoscopic and vaginal procedure allowing shorter hospital stay of patients and more rapid return to normal activities and work.*

*Acknowlledgement
I would like to thank Dr. Mats Hammar from the Faculty of Health Sciences University of Linkoping for his helpful assistance in the preparation of the manuscript.

References

1. Reich H., De Caprio J., Mc Glynn F.: Laparoscopic hysterectomy. J. Gynaecol. Surg., 1989, č. 5, s. 213–216.

2. Vessey M.P., Villard-Mac Kintosh I., Mc Pherson K. et al.: The epidemiology of hysterectomy findings in a large cohort study. Brit. J. Obstet. Gynaecol., 99, 1992, s. 402–407.

3. Hunter R.W., Mc Cartney A.J.: Can laparoscopic-assisted hysterectomy safety replace abdominal hysterectomy. Brit. J. Obstet. Gynaecol., 100, 1993, s. 932–934.

4. Garry R., Hercz P.: Initial experience with laparoscopic-assisted Doderlain hysterectomy . Brit. J. Obstet. Gynaecol., 102, 1995, s. 307–310.

5. Raju K.S., Auld B.J.: A randomized prospective study of laparoscopic vaginal hysterectomy versus abdominal hysterectomy. Brit. J. Obstet. Gynaecol., 101, 1994, s. 1068–1071.

6. Chapron C., Mage G., Pouly J.L., Bruhat M.A. et al.: Hysterectomie percoeliscopique pour pathologies benignes. Techniques operatoires. Encycl. Med. Chir., 1993, s. 41–515.

7. Semm K.: Hysterectomy via laparotomy or pelviscope. A new CASH method without colpotomy. Geburtshilfe und Frauenhielkunde, 1991, 51, s. 996–1003.

8. Ewen S.P., Sutton Ch.J.G.: Initial experience with supracervical laparoscopic hysterectomy and removal of the cervical transplantation zone. Brit. J. Obstet. Gynaecol., 101, 1994, s. 225–228.

9. Garry R.: Laparoscopic alternatives to laparotomy: A new approach to gynaecological surgery. Bit. J. Obstet. Gynaecol., 99, 1992, s. 629–632.

10. Chapron C., Dubuisson J.B.: Total laparoscopic hysterectomy for benign uterine pathologies with resuable instruments: a safe, reproducible and cost-effective procedure. Gynaecological Endoscopy, 1995, s. 9–14.

11. Smith M.L.: The operative evaluation. Auto Suture Eastern Europe Inc., 1992, s. 3–4.

12. Phipps J.H., John M., Nayak S.: Comparison of laparoscopically assisted vaginal hysterectomy and salpingo-oophorectomy with conventional abdominal hysterectomy and bilateral salpingo-oophorectomy. Brit. J. Obstet. Gynaecol., 100, 1993, s. 698–700.

Do redakcie došlo 20.12.1996.

POZVÁNKA

Slovenská lekárska spoločnosť, Slovenská gynekologicko-pôrodnícka spoločnosť a I. gynekologicko-pôrodnícka klinika LFUK a FN v Bratislave

Vás pozývajú na

V. BÁRDOŠOV MEMORIÁL : GESTAČNÁ TROFOBLASTOVÁ CHOROBA,

ktorý sa bude konať 5. marca 1997 v Ambrovej posluchárni I. gynekologicko-pôrodníckej kliniky LFUK a FN na Zochovej ulici 7 v Bratislave

Program
Slávnostná časť
Valent M.: Primár MUDr. Ladislav Hraško - 80-ročný.
Bertold T.: MUDr. Ladislav Košecký - 65-ročný.
Borovský M.: Spomienka na profesora Augustína Bárdoša.
Odborná časť
Korbeľ M., Danihel Ľ., Vojtaššák J., Šufliarsky J.: Štyri roky činnosti Centra pre trofoblastovú chorobu SR.
Danihel Ľ., Porubský J., Böhmer D. et al.: Cytológia štruktúr trofoblastu.
Danihel Ľ., Porubský J., Korbeľ M. et al.: Využitie imunohistochémie v diagnostike štruktúr trofoblastu.
Vojtaššák J., Böhmer D., Repiská V. et al.: Genómové mutácie a gestačná trofoblastová choroba.
Repiská V., Vojtaššák J., Böhmer D. et al.: Analýza gestačnej trofoblastovej choroby na úrovni DNA.
Korbeč M., Nižňanská Z., Maršík L. et al.: Sonografická diagnostika gestačnej trofoblastovej choroby.
Šufliarsky J., Koza I., Ilavská I. et al.: Liečba malígnych foriem gestačnej trofoblastovej choroby.