A Retrospective and Comparative Study between Laparoscopically Assisted Vaginal Hysterectomy (LAVH) and Total Abdominal Hysterectomy (TAH)

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Objective : *To compare the results of laparoscopically assisted vaginal hysterectomy (LAVH) and total abdominal hysterectomy (TAH).*
Design : *Retrospective and comparative study.*
Setting : *Department of Obstetrics and Gynecology, Ranong Hospital.*
Subjects : *26 cases of LAVH and 63 cases of TAH who were operated on from February 1996 to September 2001.*
Material and Method : *Medical records of the patients were reviewed, by the same surgeon. The percentage and mean ± SD data were analyzed a using chi-squared test and Fisher-Exact test to find the association. A p-value of < 0.05 was regarded as significant.*
Evaluation of the outcomes : *Operative time, estimated blood loss, parenteral analgesics, postoperative hospitalization , operative complications and operative cost.*
Results : *The baselines characteristics of both groups were similar. The mean operative time for the LAVH group was 147.11 ± 19.82 minutes, and 94.90 ± 7.76 minutes for the TAH group. The mean length of postoperative hospitalization was 3.0 ± 0.95 days for the LAVH group versus 5.7 ± 0.81 days in the TAH group. There was no significant difference in the amount of estimated blood loss (369.23 ± 57.00 ml in the LAVH and 33.41 ± 51.97 ml in the TAH, p = 0.143). The LAVH group used fewer parenteral analgesics (meperidine) than the TAH group (64.42 ± 17.56 mg versus 132.14 ± 23.94 mg). The operative costs were 11,653.85 ± 1111.48 baht in the LAVH group and 6424.60 ± 555.09 baht in the TAH group. There was one bladder injury in the LAVH group but there was no complication detected in the TAH group.*
Conclusion : *There are some advantages as well as disadvantages in LAVH, compared to TAH. However, in Thailand the situation is not yet favorable; more learning experience is needed and more time to gain more confidence that LAVH is a more beneficial surgical technique.*

Keywords : *Laparoscopically assisted vaginal hysterectomy (LAVH), Total abdominal hysterectomy (TAH)*

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A number of new surgical techniques in obstetrics and gynecology emerged as international publications in1989[1] and have gradually developed as a new technique called LAVH. In Thailand, it began 10 years ago, but did not receive much attention, because most LAVH operations were almost exclusively performed in medical schools. There were many problems in developing the technical skills for LAVH to replace TAH. The author has been interested in the difference between the two techniques. Thus, through direct experience a comparative study of the outcomes was carried out from 1996 to 2001.

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Material and Method

Twenty six medical records of LAVH\and sixty three cases of TAH operated on from February 1996 to September 2001, with or without bilateral oo-phorectomy were reviewed. Both groups were performed during the same period and by the same surgeon at Ranong Provincial Hospital. The inclusion criteria for LAVH were, namely: the uterine size of the patient did not exceed that equivalent to 14 weeks of pregnancy; the patient had no cardiac or pulmonary

disease, no contraindication for gas insufflations and lithotomy position and no extensive adhesion in the pelvis. Patients had to give their inform consent before surgery. They were admitted to the hospital a day before the operation. One gram of ampicillin was given intravenously as prophylactics antibiotic approximately 1-2 hours before the operation in both groups. General anesthesia with endotracheal intubation was employed in every case; Foley's catheter was retained, and the position of the patient was supine in TAH; and in LAVH, lithotomy.

Procedure for LAVH

Fallopian tube, mesosalpinx, ovarian ligament, proper round ligament, broad ligament and uterine artery were coagulated with bipolar coagulating forceps and cut with endoscopic scissors. If the ovary was removed, the infundibulo-pelvic ligament was coagulated and cut just lateral to the ovary.

The same procedures were performed on the opposite side. Vesicouterine peritoneum was opened and the bladder was retracted downward, wet sponge was pushed upward through the vagina until a fold position of the anterior fornix was seen in the monitor, bipolar tip was used to clip the front of the vaginal vault horizontally until the wet sponge was seen. Then the posterior fornix was opened in the same procedure. Conventional vaginal hysterectomy was done later. After closing the vaginal vault, the abdominal cavity was re-inflated. All bleeding sites were coagulated and irrigated. Then all instruments were removed, carbon dioxide was released and abdominal wounds were closed with subcutaneous suturing.

TAH with or without bilateral salpingo-oophorectomy was performed by the standard technique, according to Te'Lind's[2].

The percentage and mean $\pm$ SD data were analyzed chi-squared test and Fisher Exact test were applied.

Results

The baseline characteristics of both groups were similar, Table 1. The mean ages of the LAVH versus TAH were 45.6 years and 44.3 years; the mean body weight was 56.7 kg and 58.1 kg; the mean uterine weight was 287.6 g and 290.3 g.

The operative time was presented is mean $\pm$ SD in the LAVH group (147.11 $\pm$ 19.82 min) was different longer than that of the TAH group (94.90 $\pm$ 7.76 min), Table 2. There was difference in estimated blood loss (369.23 $\pm$ 57.00 ml and 333.41 $\pm$ 51.97 ml, in the LAVH and the TAH groups, respectively. Postoperative hospitalization period in the LAVH group was shorter than the TAH group (3.0 $\pm$ 0.95 days and 5.7 $\pm$ 0.81 days). Meperidine was given less often in the LAVH group than in the TAH group (64.42 $\pm$ 17.56 mg and 132.14 $\pm$ 23.94 mg); the average operative cost in the LAVH group was higher than the TAH group (11,653.85 $\pm$ 1,111.48 baht and 6,424.60 $\pm$ 555.09 baht). However, in the LAVH group there was one complication, bladder injury, which was not found in the TAH group. There was no conversion from LAVH to laparotomy.

Table1. Baseline characteristics of the subjects

Baseline data	LAVH (26)	TAH (63)
Age (Years)	45.6 $\pm$ 4.6	44.3 $\pm$ 3.9
Body weight (Kg)	56.7 $\pm$ 6.3	58.1 $\pm$ 5.9
Uterine weight (g)	287.6 $\pm$ 163.5	290.39 $\pm$ 171.3
Indication	No. (%)	No. (%)
myoma uteri	20 (76.92 %)	49 (77.80%)
ovarian cyst	2 (7.7%)	5 (8%)
DUB	2 (7.7%)	4 (6.4%)
Endometrial hyperplasia	2 (7.7%)	5 (8 %)

Data are presented mean $\pm$ standard deviation and number of patients (%)

Table 2. Shows results between LAVH and TAH

Results	LAVH (26)	TAH (63)
Operative time (min)	147.11 $\pm$ 19.82	94.90 $\pm$ 7.76
Estimated blood loss (ml)	369.23 $\pm$ 57.00	333.41 $\pm$ 51.97
Post operative hospitalization (days)	3.0 $\pm$ 0.95	5.7 $\pm$ 0.81
Parenteral analgesic (meperidine) (mg)	64.42 $\pm$ 17.56	132.14 $\pm$ 23.94
Operative cost (Baht)	11,653.85 $\pm$ 1,111.48	6,424.60 $\pm$ 555.09

Data are presented as mean $\pm$ standard deviation

Discussion

The development of laparoscopic surgery is broadly used in various fields of medicine. Currently, it has entered into the practices of gynecologists. In Thailand, LAVH was introduced about 10 years ago, but it was not popular among general clinicians. It was almost always performed in medical schools or central hospitals. In 2001, there were only two reports on LAVH by Thai physicians, namely, Mongkul Chantapakul[3] from Charoengkrung Pracharak Hospital and Opas Sreshthaputra[4] from Chiang Mai University, who published the comparative study between LAVH and TAH. Most of the literature in this area is from international publications, where culture and economic influences are quite different from Thailand. The author had direct experience with LAVH for 6 years at Ranong Provincial Hospital. Between LAVH and TAH, the baseline characteristics were not different: age, body weight, uterine weight and indications; in the LAVH group; however, there was a significantly longer operative time spent in LAVH than in TAH as reported in Thai and international journals[3-16]. Because the technique is relatively new, it needs more time to gain acceptance and more skill for surgical trainings. According to the learning curve assessment of 100 cases of laparoscopic hysterectomy, it was found that the duration of surgery decreased from an average of 180 minutes in the first 10 cases to 75 minutes in the last 20[17]. The difference of estimated blood loss between LAVH and TAH were of no significance, as reported in most of the literature[4,7,14,15]. Except in the study by Lowell L[6] in which LAVH had more estimated blood loss than TAH, the rest of the literature revealed that LAVH had less estimated blood loss than TAH[3,13,18]. Fewer parenteral analgesics were also significantly less in LAVH, than in TAH[3,4,7,9,10,12,14-16]. This is simply because LAVH demands a smaller incision than TAH. The postoperative hospitalization period in the LAVH group was relatively shorter than that of the TAH group, due to earlier ambulation, like most other studies[5-7,9-16,19]. However, the operative cost in the LAVH group was higher than that of the TAH group[3,5,7,9,19], because most instruments employed in LAVH are disposable, although the author could re-use them 3-4 times. However, in some of the literature they were not different[6,11,14]. Regarding the return of the patient to normal activity, in LAVH, it was clearly faster than the TAH. On a scale of 1 to 10 (10 being complete normal activity), the activity level of women who underwent LAVH was 9.1 by day 14, compared to 6.4 for those who had TAH. By the sixth postoperative week, the latter group reported and activity level of only 8.5, this indicates that the ability to function was much more severely limited after TAH than LAVH[12,15]. The LAVH group could resume work faster than the TAH group. Hence, it provides more chance for the patient to earn their income. In the LAVH group, however, one serious complication was detected: bladder injury which was latter repaired. No complication was detected in the TAH group.

Conclusion

LAVH has some advantages and disadvantages compared to TAH. It is still too soon to draw a decisive conclusion. The disadvantages of LAVH must be improved, especially its operative time and operative cost. New operative techniques in LAVH should be performed in a shorter time. It is a very challenging concept that despite current skepticism, the advantages of LAVH in general gynecologist, may or may not be accepted as the new alternative treatment in the future. Time will tell.

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ศึกษาเปรียบเทียบย้อนหลังระหว่างการผ่าตัดมดลูกโดยกล้องวีดิทัศน์ (LAVH) กับการผ่าตัดมดลูกผ่านทางหน้าท้อง (TAH)

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วัตถุประสงค์ *: เพื่อเปรียบเทียบผลการผ่าตัดมดลูกโดยกล้องวีดิทัศน์ (LAVH) กับการผ่าตัดมดลูกผ่านทางหน้าท้อง (TAH)*
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กลุ่มเป้าหมาย *: คนไข้ที่ผ่าตัดมดลูกโดยกล้องวีดิทัศน์ จำนวน 26 ราย กับคนไข้ที่ผ่าตัดมดลูกผ่านทางหน้าท้อง จำนวน 63 ราย ในช่วงเวลาตั้งแต่ เดือนกุมภาพันธ์ พ.ศ.2539 ถึง เดือนกันยายน พ.ศ.2544*
วิธีการ *: รายงานผลบันทึกข้อมูลทางการแพทย์ ของคนไข้ LAVH กับคนไข้ TAH ในช่วงเวลา และแพทย์ผู้ผ่าตัดคนเดียวกัน*
ข้อมูลที่วัด *: เวลาในการทำผ่าตัด จำนวนเลือดที่เสีย ยาแก้ปวดหลังผ่าตัด ระยะเวลานอนพักรักษาในโรงพยาบาล ภาวะแทรกซ้อน และค่าผ่าตัด*
ผลการศึกษา *: ประวัติข้อมูลพื้นฐาน ไม่แตกต่างกันทั้ง 2 กลุ่ม เวลาที่ผ่าตัดในกลุ่ม LAVH นานกว่ากลุ่ม TAH อย่างมีนัยสำคัญ คือ 147.11 $\pm$ 19.82 นาที และ 94.90 $\pm$ 7.76 นาที การพักรักษาตัวหลังผ่าตัดในโรงพยาบาลของกลุ่ม LAVH น้อยกว่าของกลุ่ม TAH อย่างมีนัยสำคัญ คือ 3.0 $\pm$ 0.95 วัน และ 5.7 $\pm$ 0.81 วันจำนวนเลือดที่เสียในการผ่าตัดไม่แตกต่างกัน คือ 369.23 $\pm$ 57.00 มิลลิลิตร และ 333.41 $\pm$ 51.97 มิลลิลิตร จำนวนยาแก้ปวด (Meperidine) ที่ให้ในกลุ่ม LAVH น้อยกว่ากลุ่ม TAH อย่างมีนัยสำคัญ คือ 64.42 $\pm$ 17.56 มิลลิกรัม และ 132.14 $\pm$ 23.94 มิลลิกรัม ค่าใช้จ่ายในกลุ่ม LAVH มากกว่าใน TAH อย่างมีนัยสำคัญ คือ 11,653.85 $\pm$ 1,111.48 บาท และ 6,424.60 $\pm$ 555.09 บาท ภาวะแทรกซ้อนที่สำคัญของการผ่าตัดในกลุ่ม LAVH คือ การทะลุของกระเพาะปัสสาวะ จำนวน 1 ราย แต่ไม่พบในกลุ่ม TAH*
สรุป *: LAVH มีทั้งข้อดี และข้อเสีย กว่า TAH ในบางแง่มุม อย่างไรก็ตาม ในสถานการณ์ ปัจจุบันของเมืองไทย ยังต้องใช้เวลา ประสบการณ์ของการเรียนรู้ เพื่อความชัดเจนว่า LAVH เหมาะสมอย่างไร*