The First Case: A Success of Using Khampitak Uterine Forceps in A Modified Laparoscopically Assisted Vaginal Hysterectomy.

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Objective: To evaluate effectiveness and safety of Khampitak Uterine Forceps in Modified Laparoscopically assisted Vaginal Hysterectomy (M- LAVH)

Design: One case of 12 week - size leiomyoma was operated by M-LAVH

Setting: Srinagarind Hospital, Faculty of Medicine, Khon Kaen University.

Results: The uterine size was 13 x 10 x7 cm³. The total operative time was 210 minutes. The forceps procedure time (applying, sawing and uterine removing) was 35 minutes. Average blood loss was 130 cc. The patient was discharged in 5 days. Febrile morbidity was detected in the 2nd day after surgery and subsided in the 3rd day.

Conclusion: Using Khampitak Uterine Forceps in M-LAVH is a safe and effective method for the treatment of patient with large leiomyoma. Khampitak Uterine Forceps in M-LAVH is expected to benefit gynecologists to achieve the success of LAVH in large uterus.

Keyword: Vaginal Hysterectomy, Uterine forceps
BACKGROUND

Large variations of laparoscopic hysterectomy have been broadly discussed since it was firstly reported by Reich in 1989. Due to the fact that the most common indication for Total Abdominal Hysterectomy (TAH) is huge leiomyoma, in the coming of laparoscopically operative era, the laparoscopic procedure for leiomyoma has been developed by many physicians. In Srinagarind hospital since 1998, many patients with large leiomyoma (≥12 week-size) had been operated by Laparoscopically Assisted Vaginal Hysterectomy (LAVH). Two significant problems in the operative field were detected. The first issue was how to evaluate and clear the screen, especially, to identify the uterine vessels. The other concern was how to remove the huge uterus from the abdominal cavity.

Modified-LAVH (M-LAVH) and Khampitak uterine forceps were introduced in early 2006 by Department of Obstetrics and Gynecology, Khon Kaen University to resolve the problems of very large leiomyoma in LAVH. This research protocol was approved by the Ethics Faculty Ethnic Committee of Khon Kaen University.

In this article, we reported our first successful experience of M-LAVH with Khampitak Uterine Forceps.

Material and method

This research was carried out in June 2006 at Srinagarind hospital. The inclusion criteria were aged more than or equal to 18 years with a strong indication of TAH that cannot be replaced by Vaginal Hysterectomy (V-hyst). All of the participants would not have moderate to severe endometriosis or chronic pelvic inflammatory disease (PID). The patients were preoperatively counseled on the risks versus the benefits of this operation. We recorded the duration of forceps application till the uterine removal, total operative time, intra- and post-operative complications, duration of hospital stays, and actual uterine size.

Operative procedure

After general anesthesia with endotracheal intubations, the urinary bladder was emptied by intermittent catheter. After that, the upper lip of uterine cervix was held by a single tooth-tenaculum. Then the reusable uterine manipulator was placed through the cervix. Pneumoperitoneum was performed via Verres needle by approximately 2 liters of CO₂. A four - puncture technique was used, a 10 mm. reusable cannular was placed supraumbilically for laparoscopic camera. After that two 5 mm. cannulas were placed laterally in each lower quadrant and finally, one 5 mm. cannula was placed at 2 inches below the umbilicus.

Khampitak uterine screw (5 mm.) was inserted into the uterine fundus through the lower umbilical cannula and then pulled backward for the adequate, adnexal and round ligament, exposure. The bipolar-coagulating device was used to coagulate and transect the round ligaments and the infundibulopelvic ligaments (whenever the ovary was removed). Whenever the ovary was retained, the same technique was repeated to coagulate and transect the round ligaments, proximal fallopian tubes and ovarian ligaments. The laparoscopic part was finished at this stage. After that the surgeon ran downward to do the vaginal part.

At this stage, the urinary bladder was emptied again by intermittent catheter. After exposing the vagina by A-P retractors, we incised around the diluted-adrenaline injected cervix. Then the sponge with gauze was pushed into the anterior space between bladder and cervix up to peritoneal reflex. At this moment, the second operator was searching for the protruded of vesico-uterine flap causing by gauze and entering the vaginal space by incision at the bulging point.

In the posterior approach, the process continued until the cul-de-sac was identified. After that the uterosacral ligaments and cardinal ligaments were clamped, cut and sutured.

Khampitak Uterine forceps was applied in nearly the same way as we did in a child birth. The Rail Road technique was used to pass the suture material into the intra-forceps canal. Then, the suture material was clamped medially to them and the uterine vessel was being controlled. The same process was repeated with another size.

The surgical saw was placed through the intra-forceps canal by Rail Road technique and then, the uterus had been sawing into two parts. The first part of uterus was then removed through of the vaginal canal, and the uterine vessel stump was cut and sutured. The same process was repeated with another part. The vaginal stump was closed by delay absorbable suture the same as V-hyst. The urinary catheter was retained for 24 hours after surgery.
The bleeding was checked again via the laparoscopic monitor. After that, the abdominal wall was suture and the patient was closely observed in the post operative room.

Results
A middle age 38 years old woman, G2P2, without underlying disease, was recruited in this study. The indication for M-LAVH was leiomyoma. The total operative time was 210 minutes. The duration of forceps applying throughout the procedure to uterine removal was 35 minutes. The operative procedure was M-LAVH with right salpingo-oophorectomy. The operative finding was an enlarged uterus with multiple intramural leiomyoma: size 13x10x7 cm³, right ovary: size 5x4x3 cm³ with parovarian cyst: size 1x1x1 cm³. Estimated blood loss by visual method was 130 cc The hematocrit was 36.7% before operation and 37% after operation. The patient started the oral meal in 36 hours and started ambulation in 14 hours after the operation. There was febrile morbidity, temperature 38°C - 38.2°C, in the 2nd day after surgery and it was spontaneously resolved without changing the antibiotic. Intraoperative Cefazolin started with 2 gm. intravenously and then, 1 gm of cefazolin continued every 6 hours for 4 days.

The patient was discharged from the hospital at day five after the surgery without any additional complications. One month after the surgery, the patient felt good with no complications. The histopathological report was intramural leiomyoma and corpus luteum in the right ovary.

Discussion
Laparoscopic hysterectomy was first reported by Reich et al in 1989.1 In the classical LAVH, the procedure is divided into two parts, laparoscopic part and vaginal part. The laparoscopic procedure did not include uterine vessel ligation.6 The uterine morcellation was required in all patients who underwent LAVH in uterine leiomyoma larger than 6 cm in diameter or uterine weighing at least 450 gm² The Khampitak uterine forceps is designed for the large uterine liomyoma. In M-LAVH, surgical saw is applied through the intra-forceps canal and divides the uterus into 2 parts. This expects to make it easier and take shorter time in practice. In contrast to a very small piece of uterine tissue from the morcellation, the removing part of the uterus is close to normal sample for histopathological evaluation.

Laparoscopic Subtotal Hysterectomy (LSH) is one of various methods of Laparoscopic hysterectomy that was first described by Semm.8 However, we have usually removed cervix in nearly all cases of leiomyoma because of the high incidence of abnormal Pap smear and cervical carcinoma in Thailand.9

The preoperative ultrasound examination was done in every cases. The advantages are to exclude the presence of a large ovarian tumor or ovarian endometriosis and to assess the size and position of the leiomyoma that allows adequate planning and selecting the proper size of uterine forceps.

The Khampitak uterine screw was also designed for a traction of the huge uterus. It can provide high traction force10, making adequate operative screen.

After incision around cervix, we use sponge with gauze to separate the bladder from cervix and uterine corpus, as we have had three-case experience in bladder injuries caused by using the classical process of LAVH, putting sponge with gauze at anterior fornix and cutting the vaginal wall via the laparoscopic procedure.

The operative time was 210 minutes and that was longer than other studies (mean 120 minute)11. This phenomenon can be explained as it was the first time of this modified technique. Operative time is expected to be shorter in the cases to come. However, the duration between forceps maneuver to uterine removal was only 35 minutes and that was quite short and could even be shorter in the next cases. In general, abdominal hysterectomy was performed significantly faster than laparoscopic hysterectomy (WMD 10.6 minutes, 95% CI 7.4 to 13.8 minutes) and vaginal hysterectomy also had a shorter operative time than laparoscopic hysterectomy (WMD 41.5 minutes, 95% CI 33.7 to 49.4 minutes).12

There was a little blood loss in this surgery, 130 cc. by visual estimation, and pre- and post-operative hematocrits were not changed. Bleeding could be a result of longer the operative time. In order to prevent bleeding, we usually cut the fallopian tube and round ligament at least 1 cm. apart from the uterine surface. Although the ovarian proper ligament is very short and so close to uterine surface, we prefer cautering it with a bipolar and cutting with scissors to the ultrasonic blade that is less potency. In LAVH, the blood loss is usually less than total abdominal hysterectomy (TAH) and vaginal hysterectomy.
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(V-hyst) except for the huge leiomyoma. 4,7,12,13 However this case shows a satisfying outcome for intraoperative blood loss.

Although severe pelvic adhesions secondary to endometriosis and uterine leiomyoma larger than 13 cm. were the contraindications to V-hyst and LAVH. 7 By the new method, we expect to operate uterine fibroids in any size, except for the adhesion.

The hospital stays for LAVH was generally shorter than V-hyst or TAH. 6 13 In this study, we observed the patient for 4 days after the surgery for any other complications. A short term complication for this surgery was febrile morbidity that could be resolved within 1 day. However, the urinary tract injury, increased incidence in LAVH 14, would have to be closely observed in the following cases.

In conclusion, the uterine leiomyoma can be effectively and safely operated by using MñLAVH with Khampitak uterine forceps. The operative time are expected to be improved when the surgeon gained more skill. So as to the other complications that would have to be closely observed We would like to distribute the results of the study so that the procedure can be re-studied and re-evaluated by gynecological laparoscopist for further recommendation.

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References
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Khampitak uterine forceps

Khampitak uterine screw

2. ภาพรายละเอียดการผ่าตัด (หมายเหตุ กายยานัตถุการผ่าตัดนั้นพิจารณาเพิ่มเติมเมื่อผ่านจากการผ่าตัดใน 1st Case Report )
1. ขั้นตอนการผ่าตัดโดยการส่งกล่อง
1.1 เจาะรูที่หน้าห้อง 4 รู
1.2 ใช้สกรีวจับบดลูกพร้อมใช้ปัสสาวะติด ปีกมดลูก

1.3 ปีกมดลูกที่ถูกตัดแล้ว

2. ขั้นตอนการน่าที่ทางช่องคลอด
2.1 ความรอบปัสสาวะช่องคลอด พิจารณาใช้เกี้ยงคันแยกกระเพาะปัสสาวะ และมดลูก
2.2 หนีบ ติด และ ยุก Uterosacral และ Cardinal ligament

3. ขั้นตอนการใส่eeniemmeend สูญ
3.1 การใส่ Forceps หน้า

3.2 การใส่ Forceps หลัง
3.3 ภาพในช่วงท้องเมื่อ Forceps ประกบกันสมบูรณ์.

4. ขั้นตอนการตัดสมดุกภายหลังจากใช้ คีมคีบสมดุก (uterine forceps) แล้วมีดังนี้
4.1 คีมคีบสมดุกพร้อมใบเลือด ลอดพร้อมในตำแหน่งคีบสมดุก บนฝ่า

4.2 ใช้ดูปกรณ์ เจาะสมดุกเจาะผ่านแนวสมดุก
4.3 นำลำคอที่มีกลุกออก แล้วนำกระชอกก็ยิ่งไปยิ่งเข้าไปแทนที่

4.4 ใช้ตะขอเกี่ยวห่วงที่อยู่ปลายใบเลี้ยงหัว 2 ดึงยืดออกถูกทางช่องคอถด

4.5 ทำการเลี้ยงกลูกให้ขาดเป็น 2 ชิ้น โดยเลี้ยงไปเลี้ยงที่ละชุด

4.6 กลุกที่แบ่งเป็น 2 ชิ้น โดยใบเลี้ยง 2 ชุด
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5. การนำแผลเกิดขึ้น
6. ฝีเยื่อภายนอกของคลอด

7. ภาพผู้ป่วยหลังผ่าตัด
3. Uterine manipulator คือเครื่องมือที่ช่วยดึงลูกทางของคลอด

4. AP retractors ใช้สำหรับย้ายชายข้างของคลอดให้ง่ายต่อการผ่าตัด

5. Rail Road technique ทำโดยการใส่สีเข้มเข้าไปตามช่องของ forceps ก่อนเพราะสีเข้มมีความช่อนมุมมากกว่า จำนำจึงลูกเล่นลื่นกันในเสื้อ เมื่อทำการตีพื้นขึ้นมาในเสื้อจะคลี่ออก เลื่อนเข้าไปในช่องของ forceps แทน

6-7. การให้ Antibiotic prophylaxis สำหรับการผ่าตัดทางช่องคลอด มีผู้แนะนำว่าควรให้อย่างน้อย 3 วัน (เอกสารข้างล่าง แบบท้าย) cefazolin loading dose คือ 2 กรัม และเป็นที่ทราบทั่วโลก จึงไม่ได้กล่าวไว้ในวิจัย

8. High incidence of abnormal pap (เอกสารข้างล่างแบบท้าย)