

## Laparoscopic Assisted Vaginal Hysterectomy by Bipolar/Tripolar Electrosurgical Techniques

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### Summary

This is a retrospective study of 60 patients who had undergone Laparoscopic assisted vaginal hysterectomy (LAVH), with or without adnexectomy from August 1997 to December 1999. Techniques used were bipolar coagulation (by 5mm forceps) and scissors dissection (36 patients) and use of tripolar forceps (10mm forceps) by which coagulation and cutting can be done by one instrument. (24 patients). In 30 patients, concomitant adnexectomy was also performed. Major complication in the form of inferior epigastric artery injury at the time of introduction of secondary 10mm trocar occurred in one patient. Minor complications occurred in 8 patients in the form of vault sepsis (4 patients), skin infection (2 patients), and fever (UTI-2 patients). In 2 patients, the procedure was converted to abdominal hysterectomy (AH) due to severe pelvic adhesions (1 patient), and failure of electrosurgical machine (1 patient). The average operation time for the whole operation was 112 minutes. (90-135 mnts.). The operation time was shorter by 10-15 minutes with the use of Tripolar forceps. But such a 10mm forceps requires a bigger secondary port resulting in more abdominal wall trauma and may not be as safe as a 5mm. bipolar forceps. Average hospital stay was 24-48 hrs. No patient required blood transfusion. Post operative recovery was excellent in all cases and patient satisfaction was high. The main indication of LAVH is to convert AH to safe VH with the use of operative laparoscopy. It is not a substitute for a simple VH. It may expand the limits of VH and not replace it.

### Introduction

Hysterectomy is one of the most common surgical procedure performed in women. Various studies have clearly shown the advantages of vaginal hysterectomy (VH) over abdominal hysterectomy (AH) in terms of low morbidity, early recovery, low complication rate, early resumption of work, low cost etc. (Dicker et al 1982). But, despite these advantages, majority (approx 70%) of hysterectomies are performed by abdominal route (Kovac et al 1990). The reason for this paradox is that many Gynaecologists feel uncomfortable with the vaginal route in the absence of

prolapse with an enlarged uterus. For many of the contraindications (Table I) of VH, concomitant laparoscopy is extremely helpful, by allowing the AH, concomitant laparoscopy is extremely helpful, by allowing the AH to be converted to VH. Adhesions, small ovarian cysts, fibroids, endometriotic lesions, etc. may be dealt therapeutically at laparoscopy and then, VH can be performed safely-Laparoscopic assisted vaginal hysterectomy (LAVH) (Diamond and Daniell, 1995). Various studies have shown the advantages of laparoscopic hysterectomy (LH) over AH in terms of early recovery, less pain, no big scars, decreased hospital stay, and early resumption of work etc. (Reich et al 1993).

**Table I**  
Possible contraindications to vaginal hysterectomy

1. Excessive uterine enlargement.
2. Adnexal masses.
3. Suspicion of pelvic adhesions, endometriosis, PID.
4. Poor vaginal access.

### Material and Methods

We have carried out a retrospective study of 60 patients who had undergone LAVH from Aug. 97 to Dec 99. The operations were performed at Rural Medicare centre, Mehrauli, New Delhi, Chikitsa hospital, Saket, New Delhi and various nursing homes of Delhi. The main indications and the selection criteria were as shown in tables II and III. Concomitant surgery was performed in 34 patients (Table IV).

**Table II**  
Indications of LAVH

D.U.B.	40
Fibroid uterus	8
Endometriosis	6
Pelvic pain & Dysmenorrhoea	2
Post menopausal bleeding	2
Adenomyosis	2

**Table III**  
Selection Criteria for LAVH

1. Uterine size not more than 12-14 wks.	60 (All Patients)
2. Limited vaginal access	5
No uterine descent	60
3. Concomitant adnexectomy	30
4. Suspicion of adhesions, endometriosis, PID	10
5. A clear cut indication of exploring the remainder of abdomen	14

**Table IV**  
Concomitant Surgeries

1. Adnexectomy	30
Endometriotic Cyst.	4
Family history of ovarian ca.	2
Age > 45	22
Pain and adhesions	2
2. Adhesiolysis	4

### Preoperative Preparation

Preoperative investigations were carried out as is done for any other major surgical procedure. Light diet was prescribed for 3 days before the operation. Peglec was prescribed the night before the surgery.

### Operative Technique

After the induction of General Anaesthesia,

patient was put in a low dorsolithotomy position. A 10mm. 0° Laparoscope was inserted infraumbilically, after the creation of adequate pneumoperitoneum. Two additional ports were made at the suprapubic sites lateral to obliterated umbilical ligaments. When Bipolar forceps was used, both were 5mm. in diameter. When Tripolar forceps was used, these were 10mm. A Hulka-type uterine elevator was used to manipulate the uterus during the procedure. After preliminary inspection of the whole abdominal cavity, any concomitant surgery was performed. (Table V). For Adnexectomy, the infundibulopelvic ligament was coagulated and cut with either bipolar forceps and scissors or by Tripolar forceps. (Table VI). The word 'Tripolar' is a misnomer. This forceps also utilises Bipolar energy and the tissues can be cut by an inbuilt knife blade by the same instrument only. When adnexectomy was not performed, the medial ends of round ligament, the tube and ovarian ligament were coagulated and cut by same instruments. Uterovesical fold of peritoneum was incised with sharp scissors and bladder pushed down. This step greatly facilitates the entry into the anterior fornix during the vaginal part of the procedure. Posterior culdotomy was performed by incising the distended cul-de-sac by a unipolar needle or hook electrode using cutting current. A tenaculum was placed on the posterior lip of cervix to apply traction while the cul-de-sac was distended with a moist sponge. No attempt was made to secure the Uterine vessels, uterosacral or cardinal ligaments laparoscopically. These were secured vaginally. The operation was completed vaginally. Pneumoperitoneum was again created and laparoscope reintroduced. Thorough irrigation and suction done. Any bleeding points were coagulated by bipolar coagulation. The secondary port trocars were removed under vision and complete hemostasis ensured. The primary trocar was then removed. Vaginal pack was inserted in some patients where excessive ooze was noticed. Foley's catheter was inserted in all patients. Vaginal pack and catheter were removed after 24 hrs. in all patients.

**Table V**  
Complications

1. Major	
Inferior epigastric artery injury	1
2. Minor	
Vault sepsis	4
Skin infection	2
Fever (UTI)	2

**Table VI**  
Operation Parameters

1. Energy Modality	
Bipolar forceps	36
Tripolar forceps	24
2. Operation time	112mnts. (90-135 mnts)

## Observation and Results

The main indications, the selection criteria for the operation are as shown in the tables II & III respectively. The mean age of the patients was 46 yrs (38-54 yrs). 2 patients were nulliparous, 25 were para 2 and 35 were para 3 to 6. Concomitant surgery was performed in 34 patients (Table IV). In thirty six patients, bipolar coagulation and scissors dissection was done while in 24 patients 'Tripolar' forceps was used. The average time taken for the whole operation was 112 minutes (90-135 mnts.) The average time taken for the Laparoscopic part was 60 minutes (45-75 mnts). The operation time was shorter (by 10-12 minutes) with the use of 'Tripolar' forceps. But such a 10mm forceps requires a bigger secondary port and may be more risky if the pedicle is short. No patient required blood transfusion. In two patients, the procedure was converted to AH, due to severe pelvic adhesions in one patient and failure of electrosurgical machine in the other patient. Major complication in the form of inferior epigastric artery injury occurred in one patient. (Table V). This happened during the introduction of 10mm. trocar and cannula. This was managed successfully by introducing a Foley's catheter through the trocar and tamponading the bleeder with the inflated bulb of the catheter. Minor complications occurred in 8 patients (Table V). Postoperative recovery was fast and all but two patients (who had AH) were discharged within 24-48 Hrs. Patients who had AH also had excellent recovery and were discharged on the fourth postoperative day.

## Discussion

Although the technical feasibility of Laparoscopic Hysterectomy (LH) was conceptualized by Semm in 1984, first LAVH was reported by Reich (Reich et al 1989). LAVH is now considered to be an established procedure in properly selected patients. The main indication of LAVH is to convert AH to VH with the help of operative laparoscopy. For patients without any intraabdominal pathology, VH should be done. For patients who have adhesions, endometriosis, adnexal masses, fibroids, laparoscopy is extremely helpful in dealing with these conditions and converting what would have been an Abdominal Hysterectomy to the one performed vaginally.

Concomitant adnexectomy is a strong indication of LAVH. (Chapron et al 1997). Performing adnexectomy vaginally in the absence of prolapse with an enlarged uterus or in a postmenopausal woman where ovaries are atrophic is technically very difficult even for an expert vaginal surgeon. Laparoscopic adnexectomy is much simpler and easier in these conditions and then VH can be performed safely. Also by laparoscopy, one can assess the nature of the adnexal mass.

Use of tripolar forceps for LAVH shortens the operation time marginally. We have used a 10mm. Tripolar forceps. Securing a long infundibulopelvic ligament, where adnexa is free without any adhesions may be quicker with such a forceps. Similarly, coagulation and cutting of medial parts of tube, round ligament and ovarian ligament, where adnexa is to be preserved, also decreases the operation time. But in presence of adhesions, or where the ligament is short, such a 10mm. instrument is not that helpful, where it is desirable to coagulate smaller areas and cut in small bites. Although a 5mm Tripolar forceps is also available we have not used it. (It seems to be too fragile). Use of a good 5mm. bipolar forceps and sharp scissors dissection is the most versatile and safe way of securing the ligaments.

The true complication rate of LAVH is probably not known. However there are sufficient data published in the literature about the safety of LAVH. Boike et al reported a complication rate of 26%, 12% and 6% with AH, LAVH, and VH respectively (Boike et al 1993). We also had a low complication rate. Complication rate with LAVH will certainly be low in properly selected cases, using good equipment and with adequate experience of the surgeon.

## Conclusions

1. Simple VH carries least morbidity and should be preferred to AH as well as LAVH. LAVH may expand the limits of VH and not replace it.
2. LAVH may be a substitute for AH in selected cases.
3. Often concomitant adnexectomy is an indication of LAVH.
4. Use of 10mm 'Tripolar' forceps carries no major advantages over a 5mm bipolar forceps and scissors dissection. In some cases where no adhesions are found and where the ligament is 'long, it may marginally reduce the operation time.

## References

1. Boike GM, Elfstr and EP: Am. J. Obst. Gyn 168; 1690; 1993.
2. Chapron C; Dubuisson JB; Ansquer T; Allouc SC: J. Reprod. Med. 201; 42; 1997.
3. Diamond MP, Daniell JF: Hysterectomy; 2 Blackwell science Inc. 1995.
4. Dicker RC, Greenspan JR, Strauss LT, Cowart HR, Peterson HB, Destefeno F, Rubin G, Ory HW; Am. J. Obst. Gyn, 841, 144, 1982.
5. Kovak SR, Cruikshank SH, Rettto HF: J. Gynae. Surg. 185; 6; 1990.
6. Reich H, Decaprio J, McGlynn F: J. Gynecol. Surg. 213; 5; 1989.
7. Reich H.J.; McGlynn F; Sekel L.; Gynaecological Endoscopy 2: 59; 1993.