

Comparative clinical study of laparoscopic assisted vaginal hysterectomy and non-descent vaginal hysterectomy

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ABSTRACT

Background: Laparoscopic assisted vaginal hysterectomy (LAVH) is increasingly becoming popular. It's really a technique made to replace abdominal hysterectomy. The need of the hour is the minimal invasive surgery, early discharge from the hospital, early resumption of work, avoidance of disfiguring scar on the abdomen and cost-effectiveness of the procedure which are as important as cure of the disease. The objective of this study is to compare the effectiveness and safety of laparoscopic and vaginal hysterectomies for non-descent uteri (NDVH).

Methods: The study was undertaken in the department of obstetrics and gynecology, Amrita Institute of Medical Sciences, Kochi for the period of one year. About 50 women in each group undergoing LAVH and NDVH for benign pelvic conditions were studied preoperatively, intra-operatively and post-operatively in detail for indications, operative time, intraoperative blood loss, duration of stay in hospital.

Results: The mean operative time in LAVH was 240.6 minutes and in NDVH 168.3 minutes. Minimum duration of stay was in LAVH 3 days and in NDVH 4 days. Mean duration of stay in both groups was 6.4 days. Maximum duration of stay-15 days in both groups.

Conclusions: LAVH is a better approach for a larger uterus whereas NDVH is preferable for a small uterus, not only for shorter operative time and minimal wound, but also for much lower costs.

Keywords: Hysterectomy, Laparoscopy, LAVH, NDVH

INTRODUCTION

Hysterectomy is the most common performed major abdominal surgery among gynaecologic surgeons and the decision is generally based on indications for surgery, surgeon's training and preference, uterine size, presence and absence of any associated pelvic pathologies and patient's choice.¹ Laparoscopic assisted vaginal hysterectomy is increasingly becoming popular. Laparoscopic route is associated with increased operating times and rise in the rate of intraoperative injuries.² It is

really a technique made to replace abdominal hysterectomy. About 70% to 85% of the hysterectomy operations are done abdominally and only 30% are performed vaginally. The need of the hour is the minimal invasive surgery, early discharge from the hospital, early resumption of work, avoidance of disfiguring scar on the abdomen and cost-effectiveness of the procedure which is as important as cure of the disease. Vaginal hysterectomy fulfils these criteria to absolute satisfaction. The benefits of LAVH remain uncertain when compared with VH. The common belief that bigger, bulky uteri,

endometriosis, pelvic inflammatory disease, previous surgeries, and narrow vagina make vaginal hysterectomy difficult to be performed.³ Vaginal hysterectomy can be done more quickly than abdominal and LAVH. But technically the vaginal route is bit more complex for the surgeons. Laparoscopy can facilitate surgery vaginally in cases of suspected adnexal disease, endometriosis, narrow vagina and in cases where uterine size is greater than 12 weeks gestation. A randomized study was done by Darai et al, to compare short-term results of vaginal hysterectomy with those of laparoscopically assisted vaginal hysterectomy.⁴ Soranio et al, did a prospective randomized multicenter study to evaluate short term recovery of vaginal hysterectomy with those of LAVH.⁵ The aim of this study was to compare the effectiveness and safety of laparoscopic and vaginal hysterectomies for non-descent uteri by comparing the indications of hysterectomy, the intraoperative and post-operative events like operative time, intra op blood loss, operative complications, weight of specimen and duration of stay in hospital of Non-descent vaginal hysterectomy and laparoscopically assisted vaginal hysterectomy.

METHODS

The study was undertaken in the department of obstetrics and gynecology, Amrita Institute of Medical Sciences, Kochi. The study was done during the period of September 2006 to September 2007.

About 50 women in each group undergoing LAVH and NDVH for benign pelvic conditions were studied preoperatively, intra-operatively and post-operatively in detail and analyzed.

Inclusion criteria

- LAVH and NDVH done for the non-prolapsed uterus of different uterine sizes.

Exclusion criteria

- Vaginal hysterectomy done for the prolapsed uterus of different uterine sizes and for endometrial carcinoma. Women with associated diseases like anemia, infection, diabetes, hypertension.

Patients were selected irrespective of age, parity, associated medical disorders, history of previous laparotomy, obesity. Uterine size in these patients varied between normal sizes to 24 weeks.

A thorough history was elicited from those women chosen as study subjects followed by a general physical, systemic and gynaecological examination along with routine haematological investigations, blood sugar levels, ABO and Rh typing, renal function tests, chest X-ray, ECG, ultrasound of pelvis and abdomen as and when required. Dilatation and curettage were done as a diagnostic procedure in some of the cases.

Before posting the cases for surgery preanesthetic evaluation was done. Preparation of the patient: part of the body from umbilicus to knee was prepared by shaving, cleaning and thoroughly washed with soap and water.

Soap water enema was given in the night, a day before. Injection Tetanus Toxoid was given to all patients, Tab Tinidazole 2g and Tab albendazole 400mg was given in the evening, a day before the surgery. Pre-anaesthetic drugs were given as per the advice of the anaesthesiologists.

All the patients were prepared psychologically about their operation. Written informed consent was taken in all cases.

Statistical analysis

Data was entered and analyzed using statistical package for social sciences (SPSS) software. Numerical variables were reported in terms of mean and standard deviation. Categorical variables were reported in terms of proportions and percentages.

Difference between LAVH and NDVH were analyzed using chi-square technique and independent t-test. Probability value less than 0.05 was considered to be statistically significant.

RESULTS

Majority of study subjects in both groups belonged to the age group 40-50 years constituting 60% in LAVH and 70% in NDVH.

The mean age operated in LAVH group was 46.6 years and in NDVH group 47.02 % with a p-value of 0.76, which was statistically not significant. In the present study the patients were ranging between nulliparous to para-9.

Majority (72% in LAVH and 62% in NDVH) of patients in both groups belonged to para-2. About 04% of patients in each group belonged to nulliparous.

In the present study 31 (62%) in LAVH group and 33 (66%) in NDVH group were overweight. The commonest indication for surgery in the present study is fibroid uterus (80% in LAVH and 92% in NDVH) in both groups.

In case of fibroids up to size 12-14 weeks most common route preferred was NDVH accounting for 76% of cases, while LAVH accounted only 58% of cases. LAVH was used with increasing uterine size.

For the Fibroid size 14-24 weeks 11 (22%) of operated cases were in LAVH group and only 08 (16 %) cases in NDVH group.

Table 1: Distribution of cases according to the diagnosis.

Diagnosis	Group			
	LAVH	%	NDVH	%
Fibroid uterus 8 weeks with ovarian cyst	04	08	04	08
Fibroid uterus 8 weeks-10 weeks	11	22	15	30
Fibroid uterus 10 weeks-12 weeks with ovarian cyst	00	00	04	08
Fibroid uterus 12 weeks-14 weeks	13	26	15	30
Fibroid uterus 14 weeks with endometrial hyperplasia	01	02	00	00
Fibroid uterus 16 weeks-20 weeks	08	16	03	06
Fibroid uterus 16 weeks with left ovarian cyst	01	02	00	00
Fibroid uterus 16weeks with endometrial hyperplasia	01	02	00	00
Fibroid uterus 20 weeks with endometrial hyperplasia	01	02	03	06
Fibroid uterus 24 weeks	00	00	02	04
Endometriotic cyst	01	02	00	00
Adenomyosis	06	12	04	08
DUB	03	06	00	00
Total	50	100	50	100

Next commonest indication was Adenomyosis 06(12%) in LAVH and 4 (8%) in NDVH.

About 01(2%) in LAVH group was operated for endometriotic cyst, and 03 (6%) of cases the indication was DUB.

In the present study 26(52%) in LAVH group and 22(44%) in NDVH group had abdominal surgery done for various reasons 7 (14 %) patients in LAVH and 1(2 %) patient in NDVH group had undergone LSCS, 10 (20%) patients in LAVH and 16 (32 %) in NDVH had undergone pps, 5 (10%) in LAVH and 1 (2%) in NDVH had undergone lap sterilization, 2(4%) in LAVH and 1 (2%) in NDVH had undergone myomectomy, 2(4%) in NDVH had undergone appendisectomy, 2 (4%) in NDVH had breast lumpectomy, 1(2%) in LAVH had breast lumpectomy with pps. 1 (2%) in NDVH had pps with lap cholecystectomy,1(2%) in LAVH had laparotomy confidently.

Table 2: Previous surgeries group.

Previous surgeries	LAVH	%	NDVH	%
Myomectomy	1	2	1	2
Myomectomy and LSCS	1	2	0	0
1 LSCS	3	6	0	0
2 LSCS	3	6	1	2
3 LSCS	1	2	0	0
Appendisectomy	0	0	2	4
Lap sterilization	5	10	1	2
Laparotomy	1	2	0	0
LSCS and laparotomy	1	2	0	0
PPS	10	20	16	32
PPS and lap cholecystectomy	0	0	1	2
NIL	24	48	28	56
Total	50	100	50	100

The mean operative blood loss in LAVH was 187ml and in NDVH 184ml. Minimum was 50 ml in both groups. Maximum in LAVH was 700ml and NDVH 500ml.

Table 3: Blood loss in ml in LAVH and NDVH group.

	Blood loss in LAVH	Blood loss in NDVH
Mean	187.30	184.80
Median	175.00	150.00
Standard deviation	116.440	102.390
Range	650	450
Minimum	50	50
Maximum	700	500

About 26(52%) in LAVH group completed the surgery in 200-300 minutes, while the majority 35(70%) cases in NDVH group completed in 100-200 minutes.

The minimum time taken in NDVH was 45 minutes and in LAVH 130 minutes. Longest time taken was in LAVH 430 minutes and in NDVH 420 minutes.

Table 4: Distribution of cases according to the duration of surgery.

Operative time	Group LAVH		Group NDVH	
	Frequency	%	Frequency	%
<100	00	0	06	12
100-200	16	32	35	70
200-300	26	52	07	14
>300	08	16	02	4
Total	50	100	50	100

Time taken for the surgery depends on the experience of the surgeon, uterine size, assistant's knowledge about the surgery and uterine mobility.

The mean operative time in LAVH was 240.6 minutes and in NDVH 168.3 minutes.

Table 5: Operative complications.

Operative complications	LAVH	%	NDVH	%
Acute renal failure	1	2	0	0
Injury to bowel	1	2	0	0
Acute pulmonary embolism	0	0	1	2
Re-exploratory laparoscopy	0	0	1	2
Conversion to TAH	0	0	2	2
Total	2	4	4	8

There were no ureteral and bladder injury in the present study. 1(2%) in LAVH group went for acute renal failure secondary to acute tubular necrosis post-operatively. 1(2%) in LAVH group had serosal injury to bowel which was managed conservatively, 1(2%) died on 2nd post-operative day due to acute pulmonary embolism, 2(4%) cases in NDVH group were converted to TAH due to dense adhesions of bladder to isthmus and in 1(2%) case re-exploratory laparoscopy done for the removal of round ligament fibroid which was not removed in first sitting. The average weight of the specimen in LAVH group was 330grams, with standard deviation of 197 and in NDVH 307grams with standard deviation of 213. Maximum size of the specimen removed in LAVH group was 830grams and in NDVH 1300grams. Minimum duration of stay was in LAVH 3 days and in NDVH 4 days. Mean duration of stay in both groups was 6.4 days. Maximum duration of stay-15 days in both groups.

DISCUSSION

In the present study, 50 cases of LAVH and 50 cases of NDVH done for non-prolapsed uterus were studied and compared. The indications, intraoperative and postoperative complications of these women were studied, analyzed, compared. Mean age for LAVH and NDVH group in benign pelvic conditions by Wen-Chun Chang, MD, Su-Cheng Huang et al, was 47 years for LAVH and 48 years for NDVH, which was comparable to present study.⁶ In a study conducted by Wen-Chun Chang, MD, Su-Cheng Huang majority belonged to para-2, which was comparable to present study where 72 % in LAVH and 62 % in NDVH group belonged to para-2. Mean operating time in a study conducted by Summitt RL Jr, Stovall TG, Lipscomb GH, Ling FW for LAVH and NDVH was 120 and 64 minutes.⁷ But in this study operating time was comparatively more, as in most of the cases the size of uterus operated was more than 12 weeks size and surgeons are in a learning curve. In a study conducted Aniuliene R, Varzgaliene L, Varzgalis M by mean duration of hospital stay for LAVH was 8.6 days and 9.1 days for NDVH which was comparable to this study where it is 6.4 and 6.5 days respectively.⁸

In the study by Hwang JL, Seow KM mean operative blood loss in LAVH was 29ml and in LAVH 215ml which was comparable to present study where it is

187and184 ml respectively.⁹ In the study by Wen-Chun Chang, MD, Su-Cheng Huang, mean weight of the specimen in grams for LAVH was 291g and 200g in NDVH group, which was comparable to present study where mean weight of the specimen in LAVH and NDVH group was 330.4g and 307g respectively. Mc Cracken et al, in their study concluded that intraoperative and postoperative morbidity were lesser in vaginal hysterectomy compared to abdominal hysterectomy and that vaginal hysterectomy should be the procedure of choice wherever possible.¹⁰ Doucette and co-workers in their study on 250 patients challenged the common contra-indications to vaginal hysterectomy including large uteri, nulliparas, previous CS or laparotomies and concluded that the above mentioned factors are rarely contra-indications.¹¹ Garg et al, conducted a study comparing vaginal hysterectomy with abdominal hysterectomy with 23 patients in each group and found a reduced operating time, lesser intraoperative blood loss, reduced postoperative morbidity and shorter hospital stay in the vaginal hysterectomy group.¹²

CONCLUSION

Vaginal hysterectomy is considered as a feasible option to abdominal hysterectomy. Laparoscopic hysterectomy requires greater surgical expertise and has a steep learning curve. Laparoscopic hysterectomy took a long time to perform There was no statistically significant difference in post-operative analgesia requirement, hospital stay, recovery milestones or complication rates between the two groups. The biggest drawback of laparoscopic route over Vaginal one is its cost due to expensive disposable instruments, prolonged operating and anaesthesia time and the need for a trained senior gynaecologist. In the clinical situations such as dense pelvic adhesions, severe endometriosis, adnexal disease, when vaginal access is reduced laparoscopic hysterectomy is indicated as it has advantages over the vaginal approach. Laparoscopic approach is helpful post-operatively to rule out haemorrhage in some cases. LAVH is a better approach for a larger uterus whereas NDVH is preferable for a small uterus, not only for shorter operative time and minimal wound, but also for much lower costs.

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REFERENCES

1. Bruhat MA, Mage G, Chapron C, Pouly JL, Canis M, Wattiez A. Presentday endoscopic surgery in gynecology. *Eur J Obstet Gynecol Reprod Biol.* 1991;41:4-13.
2. Richardson RE, Bournas N, Magos AL. Is laparoscopic hysterectomy a waste of time?. *Obstet Gynecol Survey.* 1995;50(8):590-1.

3. Coulam CB, Pratt JH. Vaginal hysterectomy: is previous pelvic operation a contraindication. *Am J Obstet Gynecol.* 1973;116:252.
4. Darai E, Soriano D, Kimata P, Laplace C, Lecuru F. Vaginal hysterectomy for enlarged uteri, with or without laparoscopic assistance: randomized study. *Obstet Gynecol.* 2001;97(5):712-6.
5. Soriano D, Goldstein A, Lecuru F, Darai E. Recovery from vaginal hysterectomy compared with laparoscopy-assisted vaginal hysterectomy: a prospective, randomized, multicenter study. *Acta Obstet Gynecol Scand.* 2001;80(4):337.
6. Chang WC, Huang SC, Sheu BC, Chen CL, Torng PL, Hsu WC, et al. Transvaginal hysterectomy or laparoscopically assisted vaginal hysterectomy for nonprolapsed uteri. *Obstet Gynecol.* 2005;106(2):321-6.
7. Summitt RL Jr, Stovall TG, Steege JF, Lipscomb GH. A multicenter randomized comparison of laparoscopically assisted vaginal hysterectomy and abdominal hysterectomy in abdominal hysterectomy candidates. *Obstet Gynecol.* 1999;93(1):160.
8. Aniulienė R, Varžgalienė L, Varžgalis M. A comparative analysis of hysterectomies. *Med.* 2007;43(2):118.
9. Hwang JL, Seow KM, Tsai YL, Huang LW, Hsieh BC, Lee C. Comparative study of vaginal, laparoscopically assisted vaginal and abdominal hysterectomies for uterine myoma larger than 6cm in diameter or uterus weighing at least 450g: a prospective randomized study. *Acta Obstet Gynecol Scand.* 2002;81(12):1132-8.
10. McCracken G, Hunter D, Morgan D, Price JH. Comparison of laparoscopic-assisted vaginal hysterectomy, total abdominal hysterectomy and vaginal hysterectomy. *Ulster Med J.* 2006;75(1):54.
11. Doucette RC, Sharp HT, Alder SC. Challenging generally accepted contraindications to vaginal hysterectomy. *Am J Obstet Gynecol.* 2001;184(7):1386-91.
12. Garg PK, Deka D, Malhotra N. Non descent vaginal hysterectomy for benign condition. A better proposition than abdominal hysterectomy. *Obstet Gynaecol Today.* 2002;6:345-6.

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