Comparative study of outcome of NDVH versus LAVH

Pawan Dhariwal*, Kusumlata Meena, B. S. Meena

Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur, Rajasthan, India.
Corresponding author: *Dr. Pawan Dhariwal, Resident Doctors Hostel, Mahila Chikitsalaya Campus , Sanganeri Gate, Jaipur. Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur, Rajasthan, India.

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Abstract
Introduction: The present study was done to compare non-descended vaginal hysterectomy (NDVH) and laparoscopically assisted vaginal hysterectomy (LAVH) with reference to indication of surgery, intraoperative and postoperative analysis.
Method(s): The present study is prospective study of 50 cases of NDVH and LAVH from March 2015 to December 2016 in department of obstetrics and gynecology in SMS Medical College, Jaipur, Rajasthan. The outcome of NDVH and LAVH was analyzed by standard statistical methods. Appropriate test of significance was applied (t-test) with $p < 0.05$ as level of significance.
Result(s): Among 50 cases undergoing NDVH and LAVH, most of the patients belonged to age group 40-49 yrs. The most common indication of surgery was Fibroid and DUB in both the groups. The operative time was significantly lower in NDVH group than in LAVH group with $p < 0.001$. The intraoperative blood loss was lower in LAVH group than NDVH group with $p < 0.001$. Mean pain score analyzed by VAS in LAVH was significantly lower than NDVH with $p < 0.001$.
Conclusion(s): The present study concludes that NDVH & LAVH both can be safely offered to patients with benign gynecological conditions.

Keywords: Hysterectomy, Non descent vaginal hysterectomy (NDVH), Laparoscopic assisted vaginal hysterectomy (LAVH), Visual analog scale (VAS)

Introduction

The word hysterectomy comes from Greek word ''hystera'' means ''womb'' and ''ektomia'' means ''a cutting out of.'' Hysterectomy is the most common surgery performed by the gynaecologist.[1]The most recent analysis of health care cost and utilization project data showed that abdominal hysterectomy was performed in 66% of cases, by vaginal route in 21.8% and laparoscopic route by11.8%.[2]

Laparoscopic assisted vaginal hysterectomy (LAVH) is a combination of laparoscopic and vaginal approaches. Sir Henry Reich first described laparoscopic hysterectomy in 1989. LAVH has become a popular alternative to abdominal hysterectomy in cases difficult to manage via vaginal route alone.
The study also opens up a chapter that NDVH & LAVH both must be included in the practical surgical training programme to

keep surgeon up to date with the needs of this era.

Materials and methods

It was a randomized prospective study, conducted in Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur from March 2015 to December 2016. The study was performed among 50 women requiring hysterectomy for benign uterine conditions. Twenty five patients in each group were assigned to NDVH (group A) and LAVH (group B).

Selection criteria
Inclusion criteria
• Uterus without descent and with good mobility
• DUB
• Fibroid uterus < 12 week size
• Recurrent PID
• Adenomyosis
• Dysplasia
• Endometrial atypia

Exclusion criteria
• Uterine prolapse
• Pelvic adhesion
• Associated adnexal pathology or Adnexal mass
• Vaginal stenosis,
• History of 2 or more abdominal surgeries or pelvic organ surgeries

Study subjects were admitted one day before the operation day. Detailed history was taken and complete physical as well as pelvic examination was done. Routine blood and systemic investigation was done. They were randomized the day before the operation.

The analysis was done on the basis of the following: age, parity, indication of surgery, operative time, blood loss, post operative pain, length of hospital stay, and complications. Time of surgery was measured from the start of incision to the placement of vaginal pack. Post operative pain was measured with the help of visual analogue scale. Post operative pain was measured with the help of visual analogue of from day 2st to day 5th which consist of a 10 cm line with 0 on one end, representing no pain and 10 cm on the other representing the worst pain ever experienced. Patient marks on scale to indicate severity of her pain. Hospital stay was defined as the number of days in hospital after surgery.

Operative Steps at a Glance

Non descent vaginal hysterectomy was performed under spinal anaesthesia. In the vaginal group, labial sutures were applied, bladder evacuated. Holding the cervix with vulsellum, transverse incision was made on anterior vaginal wall. Deepening the incision, the pubo-vesicocervical ligament was reached and incised. Pushing the bladder up with steady traction, uterovesical peritoneum was visualized and was incised and incision extended. After opening the pouch of douglas, bilateral Mackenrodt's-Uterosacral ligaments were clamped, cut and transfixed, the same procedure was followed for uterine artery and round ligament. Infundibulopelvic ligament were transected in those who preferred a salpingo-oophorectomy & fallopian tube and ovarian ligament were transected in those who desired to preserve the adnexa followed by vault closure.

LAVH was done under general anaesthesia. Hysterectomy began with electrocoagulation and transection of the bilateral round ligaments. In patients who desired to preserve the adnexa, the fallopian tube and ovarian ligament were transected, whereas in those who preferred a salpingo-oophorectomy, the infundibulopelvic ligaments were isolated, and transected, electrocoagulated. Bilateral uterine arteries were identified; the anterior and posterior leaves of the broad ligament were separated with the help of Maryland forceps. The

vesicouterine peritoneal fold was identified and opened. Bladder pushed downwards. Troacars were left in place. The vaginal procedures began with anterior and posterior colpotomy. The vesicocervical, cardinal and uterosacral ligaments were transected. After the uterine vessels and the adnexal collaterals had been secured uterus brought out and then vaginal cuff closure was done vaginally with the help of vicryl no 1. After closing the vaginal wall the surgeon returned to the laparoscopic view to confirm haemostasis.

The outcome was analyzed by standard statistical methods. Appropriate test of significance was applied (t-test) with p<0.05 as level of significance.

Results

Table 1 shows that the mean age in the NDVH group was 42.56 yrs and that in the LAVH group was 41.32 yrs. Most of the patients belonged to age group 40-49 yrs.

Table 2 shows that Fibroid and DUB were the most common indications of hysterectomy in both the groups.

The Table 3 shows that the mean duration of NDVH was 58.08 minutes and that of LAVH was 100.88 minutes. The difference was significant as p-value was <0.001.

Table 4 shows that the mean blood loss in the NDVH group was 97.84 ml and that in the LAVH group was 74.52 ml. The p-value was <0.001 which was significant.

Table 5 shows that mean pain score analyzed by VAS in NDVH & LAVH was 5.48 and 3.84. This was statistically significant (p <0.001).

Table 1: Distribution of Study Population According to Age.

Age group (in years)	Group A NDVH		Group B LAVH	
	Numbers	Percentage	Numbers	Percentage
30-39	8	32%	8	32%
40-49	13	52%	11	44%
50+	4	16%	6	24%
Total	25	100%	25	100%

Chi-square = 0.567 with 2 degrees of freedom; P = 0.753

Table 2: Distribution of Study Population According to Indication of Hysterectomy.

History of Medical Illness	Group A (NDVH)		Group B (LAVH)	
	Number	Percentage	Number	Percentage
DUB	13	52%	13	52%
Fibroid Uterus	6	24%	7	28%
Chronic Pelvic Pain	2	8%	1	4%
Adenomyosis	2	8%	3	12%
Endometrial hyperplasia	2	8%	1	4%
Total	25	100%	25	100%

Chi-square = 0.944 with 4 degrees of freedom; P = 0.918 (NS)

Table 3: Distribution of Study Population According to Operative Time.

Group	N	Mean (Minutes)	Std. Deviation
NDVH	25	58.08	8.53
LAVH	25	100.88	8.76

t = -17.501 with 48 degrees of freedom; P < 0.001 (S)

Table 4: Distribution of Study Population According to Operative Blood Loss (in ml).

Group	N	Mean (ml)	Std. Deviation
NDVH	25	97.84	11.47
LAVH	25	74.52	11.11

t = 7.303 with 48 degrees of freedom; P < 0.001 (S)

Table 5: Distribution of Study Population According to Pain Score (Visual Analogue Score).

Group	N	Mean	Std. Deviation	Median
NDVH	25	5.48	1.39	5
LAVH	25	3.84	1.84	3

Mann-Whitney Rank Sum Test Z sub T = 3.367 P < 0.001 (S)

Discussion

Fibroid was the commonest indication of LAVH and NDVH in the study by Nurun Nahar Khanam[3] et al (2009), whereas it was dysfunctional uterine bleeding in our study. The mean duration of operation for NDVH & LAVH was 58.08 and 100.88 minutes in our study. The p-value was < 0.001which was significant. Goswami[4] et al (2016) found that the average duration of surgery was 172.3 minutes (SD 41.7) in LAVH group, and 105.8 minutes (SD 32.9) in NDVH group. The difference was also statistically significant with p <0.001. Nurun Nahar Khanam[3] et al (2009) also found that LAVH (145.3±30.5) took longer time to perform than NDVH (81.7±10.2) difference was statistically significant. So LAVH recquired more time than NDVH.

The mean operative blood loss for NDVH and LAVH was 97.84 and 74.52 ml in our study. The p-value was <0.001 , which was highly significant. Raxita Patel[5] et al (2014) found more blood loss in NDVH group. It found that average amount of blood loss was 100 to 200 ml and 100 to 300 ml in LH and NDVH group respectively. Whereas Roy KK[6] (2011) reported that NDVH was associated with lesser blood loss (p = 0.02) compared to LAVH.

In our study mean pain score on VAS in NDVH group was (5.48) as compared to LAVH group (3.84). This difference was significant (p<0.001). LAVH group experienced less post operative pain. Raxita Patel[5] et al (2014) also reported that LH group experienced less pain than NDVH. Nurun Nahar Khanam[3] et al (2009) also found that the total amount of analgesics needed was much higher in the NDVH group than that of the LAVH group (p < 0.005). result of both these studies were mirror similar to our study , where as Roy KK[6] (2011) found no significant difference for postoperative pain between the two techniques.

Duration of hospital for both the groups was almost same in our study. Goswami[1] et al (2016) found no statistically significant difference between both the groups.

Conclusion

This study compared the outcome of Non-descended vaginal hysterectomy and laparoscopy assisted vaginal hysterectomy. LAVH required higher operation time but associated with less blood loss & less postoperative pain as compared to NDVH. The other outcome variables like post operative complication, day of discharge, recovery time did not demonstrate any significant differences between both the groups. LAVH is now an efficient technique at glance due to new advances in equipment,

surgical techniques and training. Hence LAVH or even VH has no disadvantages and remain a good option for hysterectomy.

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