

## A Study on Deciding the Route of Hysterectomy

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### ABSTRACT

**Background:** Hysterectomy is a common major gynaecological procedures and the choice of route for the same, whether abdominal, vaginal or laparoscopic route is controversial.

**Aims:** To compare the outcome measures and rate of complication following vaginal, abdominal and laparoscopic hysterectomy.

**Methods:** This prospective, randomised study was performed at a tertiary care centre from July 2012 to June 2014. A total of 180 patients undergoing hysterectomy for benign conditions were studied and 60 patients were randomly assigned for abdominal, vaginal and laparoscopic hysterectomy. The outcome was assessed and compared between groups.

**Results:** Outcome in majority of the parameters studied showed that vaginal hysterectomy is the most beneficial method with least complications.

**Conclusion:** Vaginal hysterectomy was the most beneficial method as compared to other methods and was associated with least complications.

**Keywords:** Hysterectomy, vaginal, abdominal, laparoscopic.

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### INTRODUCTION


Hysterectomy is one of the most commonly performed gynaecological operative procedure and can be performed through several approaches which include the abdominal, vaginal and laparoscopic approach. Abdominal hysterectomy involves removal of the uterus through an incision in the lower abdomen, whereas, vaginal hysterectomy involves removal via the vagina, and laparoscopic hysterectomy involves 'keyhole surgery' through small incisions in the abdomen. The uterus may be removed vaginally or, after morcellation (cutting it up), through one of the small incisions.

Despite convincing evidence that vaginal hysterectomy is preferable when either vaginal or abdominal route is

clinically appropriate, the only formal guideline available is the uterine size guideline by American Congress of Obstetrician and Gynaecologist (ACOG) which suggest that the vaginal route is the most appropriate in women with mobile uteri no larger than 12 weeks gestational age (approximately 280 gm).<sup>[1]</sup>

Selection of route of hysterectomy for a benign causes can be influenced by the size and shape of the vagina and uterus; accessibility to the uterus (e.g., descensus, pelvic adhesions); extent of extrauterine disease; the need for concurrent procedures; surgeon training and experience; average case volume; available hospital technology, devices, and support; whether the case is emergent or scheduled; and preference of the informed patient. Training, experience, and technical difficulty have been proposed as potential barriers to performing a laparoscopic hysterectomy.<sup>[2]</sup>

ACOG also acknowledges that the choice of approach should be based on the surgical indication, anatomical condition, informed patient preference and the surgeon's

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expertise and training.<sup>[3]</sup> More specific guidelines incorporating uterine size, risk factors and uterine and adnexal mobility and accessibility can help surgeons select the best route of hysterectomy and reduce the number of abdominal operations.<sup>[4]</sup> It is possible to use such guidelines to identify women with more or less serious diseases and study the route of hysterectomies. It is important to be well informed about the relative benefits and harms of each approach to make best informed choices for each woman needing hysterectomy for a benign disease.

We performed this study on women with mobile uteri up to 14 weeks size and having benign conditions confined to the uterus, who would ordinarily be considered candidates for vaginal hysterectomy and compare the outcomes when abdominal and laparoscopic routes were chosen. We also compared the intra and post-operative complications, requirement for blood transfusion, length of hospital stay and requirement of analgesia between abdominal (AH), laparoscopic (LAVH) and vaginal (VH) route of hysterectomy.

## METHODS

This randomized prospective study was carried out on 180 women requiring hysterectomy for benign uterine conditions at a tertiary care centre from July 2012 to June 2014. Sixty cases each were assigned randomly in the groups of abdominal, vaginal and laparoscopic route of hysterectomy. Written informed consent was taken from each patient. Women having disease outside the uterus confirmed on ultrasound, immobile uterus, malignancy, prolapse or requiring pelvic floor repair, medical complications making them unfit for general anaesthesia, or requiring other procedures except for hysterectomy with or without removal of tubes and ovaries were excluded from the study.

Analysis was done based on the route, age, parity, disease, operating time, blood loss, requirement of analgesics, length of hospital stay and complications in each group.

Statistical analysis was done by applying Chi square test, z test and p- value was calculated.

## RESULTS

As per Table 1, there was not much difference in distribution by age and parity. Majority were perimenopausal and multiparas. As per previous surgery and delivery route, majority patients in all groups underwent vaginal delivery.

Table 2 shows the indications of hysterectomy in each group after confirmation by histopathology. In vaginal hysterectomy as well as LAVH, bigger uteri were removed by bisection, myomectomy or vaginal morcellation. Table 3 shows that added procedures like adnexectomy or cyst puncture or adhesiolysis performed in AH, VH and LAVH were 33.3%, 10% and 39.3% respectively. Mean duration of surgery in abdominal (59.24± 10.69) and vaginal (61.31± 10.12) group was comparable but significantly more in LAVH (98.64± 18.52) (p<0.0001). Intra-operative blood loss was almost comparable in all the groups with lesser in vaginal. Mean days of hospital stay in vaginal and LAVH

group were 4±1.76 and 4±1.12 whereas significantly (p<0.0001) more in abdominal group (8±2.10). Table 4 shows the complications in each procedure. Hemorrhage requiring blood transfusion was more in AH group and least in vaginal group. Four patients in LAVH group had to be operated abdominally causing failure of procedure and due to hemorrhage out of which 2 needed blood transfusions. 2 cases in LAVH group were diagnosed with ureteric injury on follow up, intraoperatively bladder injury was detected in 2 cases of vaginal hysterectomy and 1 of abdominal. In immediate post-operative period, 1 patient of abdominal hysterectomy was taken up for laparotomy in view of hemorrhage. Minor complications like secondary hemorrhage, wound sepsis and vault hematoma were significantly more in AH group as compared with other two. For the first 24 hours, all the groups needed similar dosage of analgesia though after that, requirement was quite low in VH and LAVH group. VH group rarely needed analgesics at the time of discharge.

**Table 1: Patient Profile**

Total No Of Patients	AH(N=60) %	VH(N=60) %	LAVH(N=56) %
MEAN AGE IN YEARS	42.63	43.32	45.43
Parity-			
NULLIPARA	03 (5%)	04 (6.67%)	03 (5.36%)
-MULTIPARA	57 (95%)	56 (93.33%)	53 (94.64%)
Mode of Delivery			
CS	13 (21.67%)	04 (6.67%)	08 (14.29%)
VD	47 (78.33%)	56 (93.33%)	48 (85.71%)
OTHER PELVIC SURGERIES	09 (15%)	05(8.33%)	07(12.5%)

**Table 2 Indications for hysterectomy**

INDICATIONS	AH(N=60)	VH(N=60)	LAVH(N=56)
FIBROID UTERUS	22 (36.67%)	19 (31.67%)	16 (28.57%)
ADENOMYOSIS	08 (13.33%)	08 (13.33%)	09 (16.07%)
DUB	13 (21.67%)	19 (31.67%)	18 (32.14%)
CIN & SEVERE DYSPLASIA	08 (13.33%)	07 (11.67%)	06 (10.71%)
CHRONIC PELVIC PAIN	02 (3.34%)	01 (1.67%)	02 (3.57%)
POST MENOPAUSAL BLEEDING	07 (11.67%)	06 (10%)	05 (8.935)

## DISCUSSION

Evidence supports that vaginal route is superior; it also supports the use of abdominal route only when documented pathologic conditions preclude the vaginal route.<sup>[4-8]</sup> LAVH was described in 1989, and the uptake of the procedure was slow having a long learning curve, expenditure, operating time and high complication rate. Now a day, laparoscopic surgeons claim to overcome the limitations of VH with laparoscopic assistance. However, advantage of LAVH or TLH (total laparoscopic hysterectomy) has not been

established over NDVH. According to a Cochrane review in 2009, VH is considered to have the best outcomes as compared to other routes; however, when VH was not possible, laparoscopic hysterectomy was preferred over AH.<sup>[9]</sup>

**Table 3: Operative Observations**

Observation	AH(N=60)	VH(N=60)	LAVH(N=56)	P-VALUE
Added procedures	20 (33.3%)	06 (10%)	22 (39.3%)	(NS)
Duration of Surgery MEAN±SD	59.24 ±10.69	61.31±10.12	98.64±16.52	<0.0001
Duration of hospital stay MEAN± SD	08±2.10	04±1.76	04±1.12	<0.0001

**Table 4: Complications**

COMPLICATIONS	AH(N=60)	VH(N=60)	LAVH(N=56)
<b>MAJOR</b>			
1.HAEMORRHAGE NEEDING BT	04 (6.67%)	01 (1.67%)	02 (3.57%)
2.URINARY TRACT INJURIES	01 (1.67%)	02 (3.34%)	02(3.57%)
3.BOWEL INJURIES	00 (0%)	00 (0)	00 (00)
4.LAPAROTOMY	01 (1.67%)	00 (0)	00 (00)
<b>MINOR</b>			
1.SECONDARY HAEMORRHAGE	03 (5%)	01 (1.67%)	01(1.79%)
2.WOUND SEPSIS	08 (13.3%)	00 (0)	00 (0)
3.VAULT HAEMATOMA	04 (6.67%)	00 (0)	01 (1.79%)

In the present study also, VH has shown the best outcomes. The complications as seen in our patients were least in VH (5.01%) group. Laparoscopy when successful has similar outcome in respect to recovery and infection rate as VH when compared with AH as is seen in various other studies also.<sup>[10,11]</sup> 4 cases (6.67%) had to be converted to laparotomy because of hemorrhage and difficulty.

Our study has shown longer operating time in LAVH as in seen in majority studies. Mean operating time in our study in LAVH was 98.64 min, VH was 61.31 and AH was 59.24 min as is seen in another study by Panda Sandhyasri et al which was 124.56 min, 64.14 min and 61.26 min respectively.<sup>[12]</sup> A study done by Ray A et al.<sup>[13]</sup> has suggested a scoring system for pre-operative assessment of the patient while deciding the route of hysterectomy.

They have shown a reduction in the complication rates from 2.1% to 0.2% in women undergoing NDVH after applying the scoring system.

We have also realized through this study that careful selection of the patient is helpful in choosing the best route of hysterectomy for the surgeon as well as the patient as it reduces the complications and improves the outcome. Specific guidelines for uterine size, risk factors, uterine mobility and accessibility help in selecting the optimal approach and reducing the need for abdominal surgeries.

## CONCLUSION

Vaginal hysterectomy remains the gold standard even in the era of laparoscopy. Laparoscopy can be combined with vaginal approach to avoid complications and conversion to laparotomy. Abdominal approach should be considered in severe disease. NDVH should always be the preferred choice by carefully selecting the patients.

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