



# A Comparative Study of Non-descent Vaginal Hysterectomy and Laparoscopic Hysterectomy

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## Abstract

**Objective** To compare intra- and post-op complications between non-descent vaginal hysterectomy and laparoscopic hysterectomy and establish the better method for hysterectomy in non-descent uterus.

**Methods** A prospective comparative study of 80 hysterectomies was done over a period of January 2017–Dec 2017, with 40 cases each in one group of non-descent vaginal hysterectomy (NDVH) and other group of total laparoscopic hysterectomy (TLH). Demographic characteristics, co-morbid conditions, indications for surgery, operative time, intra-operative blood loss, post-operative analgesia requirements, post-operative hospital stay and post-operative complications were compared between both groups.

**Results** The most common age in both groups was 41–50 years. Fibroid uterus was the most common indication for surgery in both groups. The mean operative time in NDVH group was 40 min while it was 120 min in TLH group, and the mean blood loss in NDVH group was 50 ml, while it was 120 ml in TLH group.  $P < 0.001$  when intraoperative blood loss and operative time were compared between both groups. There were no conversions to laparotomy in NDVH group, while there were three conversions to laparotomy in TLH group. Both groups were similar in post-operative analgesia requirement and post-operative hospital stay. Post-operative complications were similar in both groups.

**Conclusions** Non-descent vaginal hysterectomy has advantage over laparoscopic hysterectomy as scarless surgery with fewer complications.

**Keywords** NDVH · Laparoscopic hysterectomy · Scar less surgery

## Introduction

Hysterectomy is the second common surgery performed by gynaecologists. Traditionally, the uterus has been removed by abdominal route which gives the opportunity to inspect the ovaries and vaginal route was reserved for pelvic organ prolapse. Now emphasis on minimally invasive surgery has led to a resurgence of interest and importance of VH for

non-prolapse indications, i.e. non-descent vaginal hysterectomy (NDVH) as the scarless hysterectomy. In this era of robotic and laparoscopic surgery, considering the advantage of minimal invasive surgery along with precision, we did a study on non-descent vaginal hysterectomy (NDVH), which is an art of gynaecological surgeons giving us an edge over general surgeons. NDVH also gives us option of minimal invasion with better access to ligaments of uterus for surgery with less blood loss and minimal analgesic requirements post-surgery and under a relatively safe spinal anaesthesia rather than general anaesthesia with its associated complications. Usual limitation of vaginal hysterectomy in non-descent uterus is its size, but now for uterus with larger sizes, hysterectomy can be facilitated by bisection, myomectomy, wedge debulking and intramyometrial coring (morcellation) [1]. Keeping in view that this approach could substantially decrease cost, duration of hospital stay and morbidity, we decided to study vaginal hysterectomies in women with benign gynaecological disorders, other than prolapse, and

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compare them with laparoscopic hysterectomies done in our hospital.

## Materials and Methods

All patients who required hysterectomy without prolapse, for benign conditions were studied between the periods of January 2017 and December 2017. A total of 95 hysterectomies were performed for benign diseases, 40 were non-decent vaginal hysterectomies, 40 were laparoscopic hysterectomies and 15 were vaginal hysterectomies for the descent of uterus. All the surgeries were performed by the author to avoid bias in results.

Prerequisites for vaginal route were uterine size not exceeding 16 weeks of gravid uterus, adequate vaginal access and uterine mobility. Benign ovarian cysts less than 8 cm in size were included. Patients with severely restricted uterine mobility, complex adnexal mass and suspicion of malignancy were excluded. Informed consent was taken from all cases [4].

All cases in NDVH group were done under regional anaesthesia, spinal. After cleaning and draping, cervix was held with vulsellum. Saline infiltration was done. Circumferential incision was taken around the cervix, and pubovesico-cervical ligament was cut and bladder pushed up. Both anterior and posterior pouches were opened. Uterosacral and cardinal ligaments were situated in close proximity to vaginal vault and were clamped, cut and ligated. Clamping the uterine vessels was easy vaginally as its relationship to isthmus remained unchanged. The next step depended upon the size of the uterus. Uterine bisection, debulking, myomectomy or combinations of these are effective morcellation techniques, which were performed when required. After delivery of the uterus in the vagina, hysterectomy was completed in usual fashion [4]. Data regarding age, parity, uterine size, uterine weight and estimated blood loss, length of operation, complications and hospital stay were analysed and evaluated.

Similarly, data were collected from 40 laparoscopic hysterectomy surgeries. All surgeries were done under general anaesthesia with standard operative techniques and similar coagulation devices.

Data from both groups were compared on basic statistical analysis methods. Intraoperative time and blood loss were assessed using Chi-square tests.

**Table 1** Demographic factors

	NDVH	TLH
Age (years)		
30–40	4	5
41–50	18	24
51–60	10	7
61–70	6	3
> 71	2	1
2. Parity		
Nulliparous	1	2
Para 1 to para 3	31	33
Multi-parous	8	5
3. Indication for surgery		
Endometrial hyperplasia	4	5
Fibroid uterus (weeks)		
6	6	8
6–8	4	1
8–12	3	3
12–16	2	2
Adenomyosis	8	10
Post-menopausal bleeding	2	4
DUB	11	7
4. Co-morbidities		
Hypertension	7	8
Diabetes	3	5
HTN and DM	7	6
Asthma	2	
Hypothyroidism	5	4
High BMI	2	

## Results

Table 1 shows the comparison between both groups in demographic factors like age, parity, indication for surgery and associated co-morbidities.

Both the groups had similar age distribution.

Multiparity is more common in NDVH group while Para 2 was more common in TLH group.

Fibroid uterus was the most common indication in both groups. Uterus of size up to 16 weeks could be operated by vaginal route. Dysfunctional uterine bleeding was the next common indication.

Both groups were compared equally in co-morbidities, like hypertension and diabetes. NDVH was done for two women with morbid obesity, where general anaesthesia was high risk.

Table 2 shows the intraoperative time between the groups.

Eighty-seven per cent of surgeries in NDVH group were completed within 40 min, while only in 13% duration extended up to 80 min. Fifty per cent of surgeries in

**Table 2** Operative time

Operative time (min)	NDVH		TLH	
	Number	% within group	Number	% within group
30–60	35	87.5		
60–120	5	12.5	20	50
120–240	0		15	37.5
240–300	0		5	12.5
Chi-square tests				
		Value	df	Asymptotic significance (two-sided)
Pearson Chi-square		49.310	3	0.000
Likelihood ratio		64.712	3	0.000
Linear-by-linear association		44.605	1	0.000
No. of valid cases		81		

There was a statistically significant difference in operative time between NDVH group and TLH group.  $P < 0.001$

**Table 3** Intraoperative blood loss

Intra-op, blood loss (ml)	NDVH		TLH	
	Number	% Within group	Number	% Within group
30–50	21	52.5	1	2.4
50–80	19	47.5	10	26.8
80–100	0	0	24	58.5
> 100	0	0	5	12.2
Chi-square tests				
		Value	df	Asymptotic significance (two-sided)
Pearson Chi-square		49.310	3	0.000
Likelihood ratio		64.712	3	0.000
Linear-by-linear association		44.605	1	0.000
No. of valid cases		81		

There was a statistically significant difference in amount of intraoperative blood loss in NDVH and TLH group.  $P < 0.001$

laparoscopic hysterectomy group were completed in 120 min while in 37% duration extended up to 240 min. Operative time was less in NDVH group which was statistically significant,  $P < 0.001$ . Operative time was shorter in NDVH group as it was independent of all biomedical instruments needed for laparoscopic hysterectomy.

Table 3 shows the intra-operative blood loss between both groups.

In NDVH group, 35% of surgeries had blood loss of 30–50 ml, while 32% had blood loss of 50–80 ml. In laparoscopic hysterectomy group, 50% had blood loss between 80 and 100 ml, more than NDVH group. Blood loss in NDVH

group was less than TLH group, and it was statistically significant  $P < 0.001$ .

In six cases of NDVH, bilateral salpingo-oophorectomy was done by vaginal route. Additional advantage was repair of cystocele and rectocele. Similarly in six laparoscopic hysterectomy cases, bilateral salpingo-oophorectomy was done. Adhesiolysis was the other common additional surgery in TLH group.

No cases in NDVH group were converted to laparotomy while three cases in laparoscopic hysterectomy group were converted to laparotomy. There were no intraoperative complications in NDVH group while two cases of bladder injury and one ureteric injury were seen in laparoscopic

hysterectomy group, which were converted into laparotomy to deal with complications.

Analgesia requirements and hospital stay were the same in both groups. Average hospital stay was 3 days in both the groups.

In both groups, all patients were ambulated by 6–8 h post-surgery.

While post-op complications were reviewed, two cases in NDVH group had diarrhoea and one patient had pelvic abscess which was treated conservatively. Post-op ileus was seen in two cases of laparoscopic hysterectomy.

## Discussion

In the absence of uterine prolapse, most gynaecologists prefer the abdominal to vaginal route of hysterectomy. The common limitations for vaginal hysterectomy in non-prolapsed uterus include size of the uterus, nulliparity, previous pelvic surgery or lower segment caesarean section (LSCS), pelvic adhesions and endometriosis, last but not the least limited exposure during the learning phase of their career. The factors that may influence the route of hysterectomy for any surgical indication include uterine size, mobility, accessibility and pathology confined to the uterus. Multiparity, lax tissues following multiple deliveries and decreased tissue tensile strength provide comfort to vaginal surgeon even in the presence of uterine enlargement [2, 3].

In our study 40–50 years was the common age group for surgery and similarity was also observed in study done by Dewan et al. [4]. The mean parity was 3 in NDVH group and 2 in laparoscopic hysterectomy group which is comparable with Kalpana et al. group, which found mean parity of 3.6 in NDVH group.

Uterine enlargement was the common contraindication for vaginal surgery. In our study, 37.5% of indications for surgery in NDVH group were for fibroid uterus, of which 30% were of size 12–16 weeks. The techniques of bisection, myomectomy and morcellation were used to remove bulky uterus. Davies et al. [5] and Mazdisian et al. [6] also resorted to these techniques.

The mean duration of surgery in NDVH group without debulking was 40 min which was compared with the study done by Kalpana et al., which showed the duration of 36.7 min [2].

The mean blood loss in our study was 50 ml in NDVH group, while 100 ml was blood loss reported by Bhadra et al. [7]. Post-op stay in hospital was 3 days in NDVH group in our study which was compared with the study done by Chakraborty et al. [8].

## Conclusions

Vaginal hysterectomy for non-descent large uterus is safe and feasible provided one is familiar with the technique [9, 10]. Our study shows NDVH can be offered to women with co-morbidities like asthma and high BMI without increasing risk of anaesthesia complications with general anaesthesia for TLH. Operative time and intraoperative blood loss are also very less compared to TLH study group. With experience, NDVH can be done safely for fibroid size even above 12 weeks. Thus, this scarless approach appears to be the preferred method of hysterectomy.

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## Compliance with Ethical Standards

**Conflict of interest** Both the authors declare that they have no conflict of interest.

**Ethical approval** This study has been approved by institutional ethical committee.

**Informed Consent** Informed consent was obtained from patients included in the study.

## References

- Balakrishnan D, Dibyajyoti G. A comparison between non descent vaginal hysterectomy and total abdominal hysterectomy. *J Clin Diagn Res.* 2016;10(1):11–4. <https://doi.org/10.7860/JCDR/2016/15937.7119>.
- Gayathri KB, Sajana G, Manjusha P, et al. Non descent vaginal hysterectomy for benign gynaecological disease: an institutional study on safety and feasibility from South India. *IOSR J Dent Med Sci.* 2017;16(11):59–63. <https://doi.org/10.9790/0853-1611075963>.
- Mehta K, Prakash O, Fatehpuriya DS, et al. Comparative study of abdominal hysterectomy and vaginal hysterectomy in non descent cases—a prospective study. *Int J Reprod Contracept Obstet Gynaecol.* 2017;6(4):1265–70.
- Rupali D, Shivani A, Manisha MB, et al. Non descent vaginal hysterectomy—an experience. *Obstet Gynaecol.* 2004;54(4):376–8.
- Davies A, Wizza E, Bournas N, et al. How to increase the proportion of hysterectomies performed vaginally. *Am J Obstet Gynaecol.* 1998;179:1008–12.
- Mazdisnian F, Kurzel RB, Coe S, et al. Vaginal hysterectomy by uterine morcellation: efficient, nonmorbidity procedure. *Obstet Gynaecol.* 1995;86:60–4.

7. Bhadra B, Choudary AP, Tolassaria A, et al. Non-descent vaginal hysterectomy (NDVH): personal experiences in 158 cases. *AL Ameen J Med Sci.* 2011;4(1):23–7.
8. Chakraborty S, Goswami S, Mukherjee P, et al. Hysterectomy which route? *J Obstet Gynaecol India.* 2011;61(5):554–7.
9. McPherson K, Metcalfe MA, Herbert A, et al. Severe complications of hysterectomy: the VALUE study. *BJOG.* 2004;111:688–94.
10. American College of Obstetricians and Gynaecologists. Appropriate use of laparoscopically assisted vaginal hysterectomy. ACOG Committee Opinion. Number 311. *Obstet Gynaecol.* 2005;105(4):929–30.

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## About the Author



**Dr. M. Sarada Murali** started her obstetric training in Hyderabad 20 years ago as postgraduate resident for 2 years. She learnt basic skills of conducting deliveries, conducting OP clinics and initial management of emergencies in her study period. She was actively involved in academic activities and attended perinatal and maternal mortality meetings. After post-graduation, she worked as a registrar for 4 years and gained valuable surgical

experience (assisting, doing under supervision, doing independently) working with senior professors at University College Hospital. Working with Dr. Leela Digumarti for 2 years, she practised evidence-based medicine and developed obstetric and gynaecological skills. Dr. Sarada has presented various papers in state, national and international conferences. She is awarded for best paper presentation on adolescent gynaecological problems, an observational study, at FOGSI state conference, Vizag, June 2011. Now she is a joint secretary of ISOPARB Hyderabad chapter and actively involved in conducting monthly CMEs, PG teaching programme and various other academic activities of organization. Presently, she is working as a consultant in Yashoda Hospitals, one of its kind of multispecialty hospitals in India.