



ISSN Print: 2394-7500  
ISSN Online: 2394-5869  
Impact Factor: 5.2  
IJAR 2018; 4(12): 197-201  
www.allresearchjournal.com  
Received: 25-10-2018  
Accepted: 30-11-2018

**Dr. Jhansi Aratipalli**  
Senior Resident, RDT  
Hospital, Ananthapur, Andhra  
Pradesh, India

**Dr. Bhargavi Bandi**  
Assistant Professor, OBG  
AIMSR, Chittoor, Andhra  
Pradesh, India

## Comparison of outcome between total laparoscopic hysterectomy and vaginal hysterectomy in a non-descent uterus in a tertiary care hospital

**Dr. Jhansi Aratipalli and Dr. Bhargavi Bandi**

### Abstract

**Background:** The origins of hysterectomy are unclear but removal of a prolapsed gangrenous uterus is mentioned by Soranus in a manuscript dated almost two thousand years ago. Berengario from Bologna is given credit for the first authentic description of the removal of the uterus through the vagina, a procedure which is dated 1517. The first abdominal hysterectomy was a subtotal hysterectomy performed by Charles Clay in Manchester 1843. The procedure was indicated by an adnexal mass that in fact was a large fibroid and the corpus of the uterus was removed. Despite the successful operation the patient died on the 15th postoperative day. Since the time of its discovery the sole indication of vaginal hysterectomy, prolapsed uterus is even now the prime indication for vaginal hysterectomy. With the fine tuning of procedure, undeniable intra-operative and post-operative advantages of vaginal route has made it now common choice of route for hysterectomy by enthusiastic and skilled gynecologists.

**AIM:** Comparison of outcome between total laparoscopic hysterectomy and vaginal hysterectomy in a non-descent uterus in a rural hospital.

**Materials and Methods:** A Cross sectional study was conducted for a period of 1 year from March 2016 to April 2017 in Rural Development Trust Hospital, Bathalapalli, Ananthapur Dist and AIMSR, Chittoor. 100 patients who have under gone TLH and NDVH were compared for time taken for surgery, intra-operative blood loss, intra operative injuries, postoperative infections and duration of hospital stay.

**Results:** The average duration of surgery for NDVH group is  $98 \pm 44.85$  (mean  $\pm$  2SD) mins and TLH group is  $124 \pm 40.82$  (mean  $\pm$  2SD) mins, requirement for blood transfusion is 12% in NDVH group and 14% in TLH group, there was one case of ureteric injury and one case of bladder injury in both NDVH and TLH group, one case of bowel injury in NDVH group whereas in TLH none of them got bowel injury. In NDVH group there is 4% post-operative febrile morbidity and in TLH group it is 10%. The mean duration of stay in hospital NDVH group is  $4.46 \pm 0.973$  and in TLH group it is  $4.48 \pm 0.677$  days.

**Conclusion:** NDVH is associated with less operative time and decreased intra operative complications when compared to TLH. No significant difference in the length of hospital stay, pain scale and post-operative complications or blood transfusions noted between the two groups.

**Keywords:** hysterectomy, NDVH, TLH, laparoscopy, vaginal, uterus

### Introduction

Hysterectomy is the surgical removal of the uterus. It is the most common major gynaecological surgical procedure worldwide [2]. It has a broad spectrum of indications ranging from malignant gynecological disease to obstetrical indications. Regardless of mode, hysterectomy is most often performed for benign conditions such as irregular uterine bleeding with or without uterine fibroids, and the operation is done in order to improve the patient's quality of life. Hysterectomy is most often indicated when medical treatment or less invasive methods have failed [SKL 2008; NICE 2007; Lefebvre 2002].

The first abdominal hysterectomy was a subtotal hysterectomy performed by Charles Clay in Manchester 1843. The procedure was indicated by an adnexal mass that in fact was a large fibroid and the corpus of the uterus was removed. Despite the successful operation the patient died on the 15th postoperative day [Clay 1863] [1]. In 1984 SEMM suggested the use of laparoscopic technique in Hysterectomy [3] various classifications of the laparoscopic Hysterectomy technique followed leading to the currently accepted classification system

**Correspondence**  
**Dr. Bhargavi Bandi**  
Assistant Professor, OBG  
AIMSR, Chittoor, Andhra  
Pradesh, India

Which includes, total laparoscopic hysterectomy (TLH), Laparoscopic assisted vaginal hysterectomy (LAVH), and vaginally assisted laparoscopic hysterectomy (VALH) [Garry 1994].

The vaginal approach (VH) was originally used only for prolapsed uterus but has now become more widely utilized for menstrual abnormalities such as dysfunctional uterine bleeding (DUB) when the uterus is a fairly normal size. Every Hysterectomy should be done by vaginal route when “technically” feasible according to SOGC & ACOG guidelines. Vaginal hysterectomy is the preferred procedure whether descent is there or not.

The only formal guideline available is the uterine-size guideline by ACOG in 1989, which suggests that vaginal hysterectomy is most appropriate in women with mobile uterus no larger than 12 weeks gestational size (approximately 280 g) [4, 5].

### Aims and Objectives

To compare laparoscopic and vaginal hysterectomy for a non-descent uterus with respect to

1. The blood loss, operative time, intra operative complications, cost and rate of conversion to open abdominal procedures.
2. Length of stay in hospital, post-operative morbidity.

### Need for the Study

According to Cochrane review vaginal hysterectomy is the surgical route of choice. The report concludes improved outcomes with VH when compared to TLH.

Cost analysis trials shows VH is cost effective when compared to TAH or NDVH. VH can minimize the use of disposable surgical devices.

So the need of present study is to prove VH is the validated mode of hysterectomy with good outcomes even in a resource poor setup.

### Study Design

A Prospective observational study.

### Materials and Methods

A prospective observational study was conducted in tertiary care hospitals named Rural Development Trust Hospital, Bathalapalli, Ananthapuramu Dist and AIMS, Chittoor. For a period of 1 year from March 2016 to April 2017. Before start of the study the institutional ethics committee approval has obtained. Data was collected in a case proforma. After a proper preoperative evaluation with clinical and laboratory investigations and after getting informed consent, patients were selected for the study and divided into study group A and study group B.

### Inclusion criteria

1. Non-descent uterus
2. Uterine mobility present
3. Benign or premalignant indication

### Exclusion criteria

1. Uterus size > 12wks
2. with adnexal pathology
3. Uterine descent >1st degree
4. Those suffering with genital malignancy.

A total of 100 patients requiring hysterectomy due to gynecological disorders without prolapse were selected for

the study by simple random sampling method after considering inclusion and exclusion criteria. Of the 100 patients, 50 patients who underwent hysterectomy by vaginal route were included in group A, and the 50 patients who underwent total laparoscopic hysterectomy were included in group B after valid written consent. There are various methods of performing vaginal hysterectomy which includes Mayo's operation followed by wards modification, Manchester operation, haene's operation, purohit technique<sup>6</sup>. All patients in group A (NDVH) were operated under spinal anesthesia and all patients in group B (TLH) were operated under general anesthesia.

### The contraindications for vaginal hysterectomy

1. Uterine volume > 500 cm<sup>3</sup> (depends on surgeons experience)
2. Previous vesicovaginal or rectovaginal fistula repair
3. Cervix flushed with vault
4. Adnexal pathology
5. Very limited vaginal space, severely restricted uterine mobility and poor per operative score were not eligible for the vaginal hysterectomy

### The contraindications for laparoscopic hysterectomy

1. Medical conditions that contraindicate the establishment and maintenance of the pneumoperitoneum.
2. Inexperience and / or inadequate training of surgeons.
3. Malignancy that may require removal of the intact specimen or special procedures that cannot be done due to skill, access or other circumstances.
4. Lack of proper equipment. (Sokol & Green, 2009).

### The Main parameters used for comparison are

1. Intraoperative blood loss: this is evaluated by pre-operative hemoglobin estimation and post-operative hemoglobin estimation on day 3.
2. Time taken for surgery- this is the time duration of surgery from the time of incision till the end of the procedure and is noted by the assistant.
3. Intraoperative injury- Any injury to bowel, bladder or ureter is noted.
4. Postoperative blood transfusion if any is noted.
5. Fever during the postoperative period- This is assessed & charted 4 hourly. Fever is defined as temperature more than or equal to 38 degree Celsius on 2 occasions four hours apart excluding the first postoperative day.
6. Pain perception on day 3- The woman scored their postoperative pain on a 10cm visual analogue scale and the results compared.
7. Any form of infection like respiratory tract infection, urinary tract infection, is looked for and compared.
8. Duration of hospital stay is noted in both groups and compared. Patients were followed up till the date of discharge.

### Statistical analysis

The data was analyzed by using SPSS Version 20.057. For Qualitative data proportions and for quantitative data, mean and standard deviation were calculated. The mean of various quantitative clinical and laboratory parameters were calculated for both vaginal and laparoscopic groups and the difference between their means was calculated by Mann Whitney U test. The significance of difference between

Vaginal and Laparoscopic groups was calculated with respect to intra operative injury, post-operative complications and need for further laparotomy by Kruskal Wallis analysis. 95% confidence interval for proportions was calculated. Pvalue of 0.05 were taken as statistically significant. All the statistical analyses were conducted.

**Results**

The study was a prospective observational study with total number of 100 patients. Of these, 50 patients were recruited to study group A, who underwent vaginal hysterectomy. In the group B 50 patients were included who underwent total laparoscopic hysterectomy who m1 *et al* the criteria of inclusion and exclusion.

**A. Age of subjects**

Mean age in NDVH group (study group A): 42.42years (42.42 ±2\*5.845) (mean + 2SD), maximum age being 55 years and minimum being 30 years.

Mean age in TLH group (study group B) 41.54years (41.54±2\*4.921), maximum age being 56 years and minimum being 35 years. The difference between the two groups age were not statistically significant. The p value is 0.194 (p < 0.05 is statistically significant) which suggests age of patients similar in both groups.

**Table 1:** Avrage Age of the patients for NDVH and TLH.

Age Range	Type of Surgery		Total
	NDVH	TLH	
IN YRS			
<40	12(24%)	17(34%)	29(29%)
40 - 45	26(52%)	23(46%)	49(49%)
>45	12(24%)	10(20%)	22(22%)
TOTAL	50	50	100

X<sup>2</sup>=1.22 df=2 p=0.541(NS)

**B. Uterine Size**

Mean uterine size in NDVH group (study group A) 8.36 weeks of gestational age and in TLH group (study group B), Mean uterine size was 8.12 weeks of gestational age. Table no: 5 Distribution according to uterine size 75% of the patients had uterine size of about ≤8weeks of which 36 patients were in NDVH group and 39 patients were in TLH group.

**Table 2:** Size of the uterus in gestational weeks for NDVH and TLH

Uterine size (In gestational weeks)	NDVH		TLH		Total
	Number	Percentage	Number	Percentage	
≤8	36	72	39	78	75
>8	14	28	11	22	25
Total	50	100	50	100	100

X<sup>2</sup> = 0.48884 df =1 p=0.48 (NS)

**C. Diagnosis**

Most common indication for hysterectomy was fibroid uterus (57%), followed by dysfunctional uterine bleeding (17%).

**D. Duration of Surgery**

Mean duration of surgery for NDVH (group A) is 98 ± 2\*

44.86 (mean ± 2SD) min and in TLH (group B) is 124 ± 2\*40.82min (mean ± 2SD). The difference in the duration of surgery is statistically significant as p value is <0.001.

**Table 3:** Duration of the surgery for NDVH and TLH.

Duration of Surgery in Mins	NDVH	TLH	TOTAL
≤89	23(46%)	8(16%)	31(31%)
90-119	13(26%)	14(28%)	27(27%)
120-150	11(22%)	17(34%)	28(28%)
>150	3(6%)	11(22%)	14(14%)
TOTAL	50(100%)	50(100%)	100(100%)

X<sup>2</sup> = 13.15224 df =3 p=0.0130 (S)

**E. Intra OP Injuries**

In NDVH group only one (2%) patient had bowel injury, one (2%) patient had bladder injury one (2%) patient had ureteric injury where as in TLH group 1 (2%) patients had bladder injury and 1(2%) patient had ureter injury.

**Table 4:** Intra operative injuries in NDVH and TLH

Type of injury	NDVH		TLH		Total	
	Number	percentage	Number	percentage	Number	percentage
None	47	94	48	96	95	95
Bowel	1	2	0	0	1	1
Bladder	1	2	1	2	2	2
Ureter	1	2	1	2	2	2
	50	100	50	100	100	100

X<sup>2</sup> = 1.0105 df =3 p=0.6033 (NS)

**F. Conversion to Laparotomy IN NDVH group** 1 patient because of ureteric ligation laparotomy done whereas 3 patients in TLH group needed conversion to laparotomy.1 patient because of bleeding and 2 patients because of adhesions.

**Table 5:** Number of surgeries converted to laparotomy in NDVH and TLH

	NDVH		TLH		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Yes	1	2	3	6	4	4
No	49	98	47	94	96	96
Total	50	100	50	100	100	100

X<sup>2</sup> = 1.041667 df =1 p=0.307434 (NS)

**G. Requirement of Blood Transfusion**

6 (12%) patients in NDVH group and 7(14%) patients in TLH group required blood transfusion. p value is 0.051 indicating difference is not statistically significant.

**Table 6:** Number of patients requiring blood transfusion in NDVH and TLH

Blood Transfusion in Pints	NDVH	TLH	TOTAL
0	44(88%)	43(86%)	87(87%)
1	4(8%)	7(14%)	11(11%)
2	2(4%)	0	2(2%)
TOTAL	50(100%)	50(100%)	100(100%)

X<sup>2</sup> = 2.829676df =2 p=0.2429 (NS)

**H. Post op pain scale on day 3**

Mean value of pain scale on day 3according to Visual Analogue Scale in Group A (NDVH) is 5.40 ± 0.78 and in B

(TLH) it is 5.06 ±1.18. The difference is not statistically significant as p value is 0.104.

**Table 7:** Postoperative pain score in NDVH and TLH groups.

Pain Score	NDVH	TLH	TOTAL
2	44(88%)	44(88%)	88(88%)
3	4(8%)	4(8%)	8(8%)
4	2(4%)	2(4%)	4(4%)
Total	50(100%)	50(100%)	100(100%)

**Duration of Stay in Hospital**

Mean duration of stay in hospital in group A (NDVH) was 4.46 ±0.973 days and in group B (TLH) is 4.48 ± 0.677days. p value is >0.05 indicating that difference is not statistically significant. Duration of stay in hospital is less in NDVH than TLH.

**Table 8:** Duration of hospital stay in NDVH and TLH groups

Duration of Hospital	NDVH	TLH	Total
< 5DAYS	35(70%)	30(60%)	65(65%)
5DAYS	12(24%)	17(34%)	29(29%)
>5DAYS	3(6%)	3(6%)	6(6%)
TOTAL	50(100%)	50(100%)	100(100%)

X<sup>2</sup> = 1.2467 df =2 p=0.5361 (NS)

**J. Post-OP Complications:** The most common post-operative complication was fever. Followed by vault infection and urinary tract infection (UTI).

**Table 9:** Post operative complications in NDVH and TLH groups.

Post OP Complications	NDVH	TLH	Total
None	43(86%)	42(84%)	85(85%)
Febrile	2(4%)	5(10%)	7(7%)
Morbidity			
UTI	4(8%)	2(4%)	6(6%)
Vault	1(2%)	1(2%)	2(2%)
Infections			
Total	50(100%)	50(100%)	100(100%)

X<sup>2</sup> = 1.9641 df =3 p=0.37454 (NS)

**Table 10:** Demographic, Clinical and Laboratory Data

Variables	NDVH(n=50) Mean± SD	TLH(n=50) Mean± SD	P value
Age	42.42±5.845	41.54±4.921	0.194
Size of uterus in weeks	8.36	8.12	>0.05
Hb difference	1.411±0.954	1.2332±0.60158	>0.05
Duration of surgery	98±44.858	124±40.821	<0.001
Pain scale	2.16±0.468	2.16±0.468	0.104
Duration of hospital stay	4.46±0.973	4.48±0.677	>0.05
Cost of the procedure in rupees	7000	9000	<0.05

**Discussion**

In the present study mean age is comparable to Garry *et al* [8] which is 42.42 years in NDVH group and 41.54 years in TLH group. In the present study uterine size is expressed in weeks of gestation as per clinical examination and mean uterine size is about 8.36 gestational weeks in NDVH group and 8.12 gestational weeks in TLH group. This is comparable to Garry *et al* [8] study where in both TLH and NDVH uterine size is about 6weeks.

In the present study most common indication for hysterectomy is fibroid uterus in both TLH and NDVH group which is same as in Darai and Chang study [9, 10].

The mean operative time in NDVH is 98 mins and in TLH is 124 mins. The difference is statistically significant. The results are comparable with most other studies except Chang *et al* [10] study. This emphasises the fact that laparoscopic hysterectomy has a prolonged operative time than the vaginal hysterectomy. In Chang *et al* study the increase in operative time in NDVH is attributed to increase in uterine weight in that group.

In the present study, requirement of blood transfusion is 6 (12%) in NDVH group and 7

(14%), difference is not statistically significant. This is significantly more when compared to E David *et al* [11] and Da costa *et al* [12] other studies. This can be attributed to increased incidence of anaemia in India and lower socioeconomic status.

In Garry *et al* [8] study, there were 3 cases of bladder injury in TLH group and 2 cases in NDVH group whereas no ureter or bowel injuries noted. In Da Costa *et al* [12] there was only one case of bladder injury in TLH group. In Chang *et al* [10] there were no injuries to bowel bladder or ureter in either of the group. In David *et al* [11] study injuries were more in NDVH group, 2 bowel and 6 bladder injury cases. In TLH group there was only one ureter injury. In the present study there were one case of bowel injury, one case of bladder injury, one case of ureteric injury in NDVH group but, in TLH group there were no case of bowel injury, 1 case of bladder injury and one case of ureteric injury was noted. The amount of blood loss in TLH and NDVH is not statistically significant. The results are comparable to study by Riberio *et al* [13].

In the present study, in TLH group, procedure was converted to laparotomy in view of adhesions and bowel injuries in 10% (n=5) patients. This is comparable to Darai *et al* [9] study (7.5%). In David *et al* [11] study conversion rates are higher compared to present study. In NDVH group none of the patients required laparotomy as per the present study. Whereas 4.2% (13) patients in David *et al* [11] and 4.2% (7) patients in Garry *et al* [8] required laparotomy.

Febrile morbidity in the present study in NDVH is comparable to Chang *et al* [10] study. In TLH group also the present study has more febrile morbidity compared to others. This can be attributed to increased intra-operative complications in the present study and increased prevalence of anemia in the population.

The mean duration of stay in hospital in NDVH group is 4.46 ±0.973, and in TLH group it is 4.48±0.677 days. p value is >0.05 indicating that difference is not statistically Significant. The results are similar to other studies like Darai *et al* [9] and David *et al* [11]. Whereas in studies like Da Costa *et al* [11] and Chang *et al* [10] mean duration of stay in hospital is less in TLH compared to NDVH. This can be attributed to increased intra-operative complications in the present study.

**Conclusion**

1. NDVH is associated with less operative time and decreased intra operative complications when compared to TLH.
2. Cost for the TLH is significantly higher than the NDVH.
3. No significant difference in the length of hospital stay, pain scale and post-operative complications or blood transfusions noted between the two groups. Thus it can be concluded that NDVH is feasible, economical and

safe with less duration of surgery, blood loss, decreased duration of hospital stay and other intra-operative complications.

### Summary

We have conducted a study in the Department of Obstetrics and Gynaecology, in Rural Development Trust hospital to compare between Non Descent Vaginal Hysterectomy and Total laparoscopic Hysterectomy with the following aims:

1. To show that vaginal hysterectomy requires shorter duration of surgery, has less intra-operative complications & less duration of hospital stay compared to total laparoscopic hysterectomy.
2. Total laparoscopic hysterectomy requires trained gynecologists with specialized expensive instruments. Vaginal hysterectomy is the better choice than total laparoscopic hysterectomy in the places with less advanced equipment.

One hundred patients requiring hysterectomy for gynaecological disorders without descent were included in the study. 50 underwent hysterectomy by vaginal route whereas 50 underwent total laparoscopic hysterectomy. These cases were assessed in terms of duration of surgery, intraoperative and post-operative complications, conversion to laparotomy and duration of stay in the hospital. □ Mean Age distribution for hysterectomy was 40-45years (49%).

- Most common indication was fibroid uterus.
- 1 patient in NDVH and 3 patients in TLH required conversion to laparotomy.
- There was no significant difference in the parameters like age, size of uterus, pain scale on post op day 3 and requirement of blood transfusion. □ Statistically significant difference was noted in the duration of surgery, less in NDVH group than the TLH group.
- Intra operative complications were more in the group of Total laparoscopic hysterectomy than NDVH.
- There was no statistically significant difference in the overall post-operative complications but febrile morbidity was significantly less in the NDVH group when compared to TLH group.
- There was significant differences in the cost of the procedure. NDVH is less expensive than the TLH.

### References

1. Sutton C Past, Present and Future of Hysterectomy. *J Minim Invasive Gynecol.* 2010; 17(4):421-35.
2. Robert S Kavoc. Guidelines to determine the route of hysterectomy. *Obstet and Gynecol.* 1995; 85(1):18-22.
3. Hrkki-Sirén P. Laparoscopic hysterectomy. Outcome and complications in Finland. [Doctoral thesis]. Helsinki: Medical Faculty University of Helsinki, 1999.
4. Quality assurance in obstetrics and gynecology Washington DC, American College of Obstetricians and Gynaecologists, 1989.
5. American College of Obstetricians and Gynaecologists, *Precis IV, an Update in Obstetrics and Gynecology*, Washington DC, the College, 1990, 197.
6. Ram Krishna Purohit. Purohit technique of vaginal hysterectomy: a new approach *Br. J Obstet and Gynecol.* 2003; 110:1115-1119.
7. Total Laparoscopic Hysterectomy: Surgical Technique and Results Kondo *et al.* *Advanced Gynecologic Endoscopy* page no: 263-292.

8. Garry R, Fountain J, Brown J, Manca A, Mason S, *et al.* Evaluate hysterectomy trial: a multi centre Randomised trial comparing abdominal, vaginal and laparoscopic methods of hysterectomy. *Health Technol Assess.* 2004; 8(26):1-154.
9. Emile Darai, David Soriano, *et al.* Vaginal Hysterectomy for Enlarged Uteri, With or Without Laparoscopic Assistance: Randomized Study, *American College of Obstetricians and Gynecologists*, 2001, 97(5).
10. Chang WC, Huang SC, Sheu BC, Chen CL, *et al.* Transvaginal hysterectomy or laparoscopically assisted vaginal hysterectomy for non-prolapsed uteri. *Obstet Gynecol.* 2005; 106(2):321-6.
11. David-Montefiore E, *et al.* Surgical routes and complications of hysterectomy for benign disorders: a prospective observational study in French university hospitals, *Human Reproduction.* 2007; 22(1):260-265.
12. V Da Costa, McIntosh A, *et al.* Total Laparoscopic Hysterectomy versus Vaginal Hysterectomy at the University Hospital of the West Indies: A 5-year Retrospective Study, *West Indian Med J.* 2012; 61(9):865.
13. Ribeiro SC, Ribeiro RM, Santos NC, *et al.* A randomized study of total abdominal, vaginal and laparoscopic hysterectomy. *International Journal of Gynecology and Obstetrics.* 2003; 83:37-43.