International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

A Comparative Study between Total Laparoscopic Hysterectomy and Non-Descent Vaginal Hysterectomy for the Treatment of Benign Diseases of the Uterus

Dr. Tanya Jha[1], Dr. Hitendrasingh Patil[2], Dr. Gulab Singh Shekhawat[3]

[1]Junior Resident, Department of Obstetrics and Gynecology, Smt. Kashibai Navale Medical College and General Hospital, Narhe, Pune – 411041, India
Corresponding Author Email: *jhatanya111[at]gmail.com*, Mobile: 8879172224

[2]Senior Resident, Department of Obstetrics and Gynecology, Smt. Kashibai Navale Medical College and General Hospital, Narhe, Pune – 411041, India

[3]Professor & HOD, Department of Obstetrics and Gynecology, Smt. Kashibai Navale Medical College and General Hospital, Narhe, Pune – 411041, India

Abstract: ***Background: According to NCBI data, the prevalence of hysterectomy performed in married women is 17 per 1000 married women[1]. The number of women undergoing hysterectomy ranges from 2 to 63/1000 across different states. A little more than one-third of women who had undergone hysterectomy were under the age of 40 years[2]. We aim to compare between non-descent vaginal mode of hysterectomy and the total laparoscopic mode of hysterectomy in the treatment of Benign diseases of the uterus. Methods: This was a Cross-sectional comparative study. Patients who underwent non-decent vaginal hysterectomy (NDVH) and Total laparoscopic hysterectomy (TLH) at our tertiary care Hospital during the study period were enrolled.120 cases were randomized equally into two surgical procedure groups of NDVH and TLH with 60 cases in each group. Results: The financial burden was less In the NDVH procedure. The length of hospital stay was significantly less in NDVH. Blood loss during surgery was significantly more in NDVH. The mean drop in hemoglobin was significantly more in NDVH. Mean ambulation time was significantly less in TLH. The mean VAS score on different days was significantly less in TLH. Conclusions: When both surgical approaches are feasible, VH should remain the surgery of choice for benign hysterectomy***

Keywords: Laparoscopic hysterectomy, Vaginal hysterectomy

1. Introduction

According to NCBI data, the prevalence of hysterectomy performed in married women is 17 per 1000 married women1. The number of women undergoing hysterectomy ranges from 2 to 63/1000 across different states. A little more than one-third of women who had undergone hysterectomy were under the age of 40 years2. The proportion of women below 40 years of age who had had a hysterectomy was much higher in the southern states of Andhra Pradesh (42%) and Telangana (47%).

The vaginal approach greatly reduces complications, decreases hospital stay, lowers hospital charges and postoperative comfort is better.3Vaginal hysterectomy in the true sense is a scarless hysterectomy. As the awareness of simplicity and benefits involved with the vaginal route, that the vagina is the ideal and most natural route to approach the uterus along with the availability of good anesthesia, light, better suture material, electrosurgical technique, exploration of the uterus through vaginal route is becoming increasingly popular.

Factors that may influence the route of hysterectomy for benign diseases include, size, accessibility of uterus, the extent of extrauterine disease, need for the concurrent procedure, training of the surgeon, and experience[4]. A narrow subpubic arch, narrow vagina, an undescended immobile uterus prior to caesarian delivery, and an enlarged uterus have been proposed by some authors as contra-indications for vaginal hysterectomy. However vaginal hysterectomy can be successfully done in the above conditions[5].

Total laparoscopic hysterectomy is a modern concept. It is new to learn and the learning curve, requires modernized OT sections and special laparoscopic instruments which may not be available in all centers, especially in semi-urban and rural hospitals and it poses a greater financial burden for the patient when compared to vaginal hysterectomy. Non-decent vaginal hysterectomy is a viable alternative in such situations. Yet total laparoscopic hysterectomy is becoming popular because of its minimal invasiveness and overall better outcome[6].-Vaginal hysterectomy has been found to be associated with less febrile morbidity, less bleeding necessitating transfusion, shorter hospitalization, and faster post-operative recovery than total abdominal hysterectomy.

2. Material and Methods

Type of Study: Cross-sectional comparative study. Patients recruited from Obstetrics & Gynecology OPD to undergo non-decent vaginal hysterectomy (NDVH) and Total laparoscopic hysterectomy (TLH) during the study period.

Inclusion Criteria:

1) Patient with age >35 years.
2) Patient with a clinical uterine size of fewer than 12 weeks.
3) Patient having at least one live child.
4) Only benign cases such as Fibroid, Polyps, Adenomyosis, Endometriosis, and Abnormal Uterine Bleeding were enrolled,

Exclusion Criteria:
1) Patient with age <35 years.
2) Patient with a clinical uterine size of more than 12 weeks
3) Patient with no child

Sampling technique: Simple random sampling.

Data collection: Data was collected using a case record form which included basic demographic data of patients, like age, diagnosis, duration of surgery from the first incision to abdominal or vaginal closure, pathological specimen, estimated blood loss, drop in hemoglobin level, and length of hospital stay will be taken into consideration. Major and Minor complications were also observed.

3. Methodology

All the patients were evaluated pre-operatively, and observed carefully during the intra-operative and post-operative periods for any complications. Hematoma requiring transfusion, surgical drainage, pulmonary embolism, injury to bowel, bladder, or ureter, unintended laparotomy, or any major anesthesia complications were taken under major complications. Minor complications included infection, fever of more than 38 °Con two occasions 6 hours apart, hematoma not requiring transfusion or drainage, deep vein thrombosis, or any minor anesthesia complication. After more than 24 hours of surgery, returning to the emergency room or hospital readmission was recorded as a delayed postoperative complication. Overall expenditure by the patient was considered and recorded for both procedures. A visual analog score was calculated for postoperative pain assessment**.**

Ethical Consideration: Institutional ethical committee clearance for the study was obtained.

Statistical Analysis: The data were entered in a Microsoft Excel sheet and analyzed using SPSS version 26 and EPI Info version 7.2. Comparison of Categorical variables was done by using counts and percentages and a chi-square test for significance. The student's t-test (unpaired t-test) was used to compare the means of independent variables and data. A p-value of <0.05 was considered to be significant.

4. Results

Table 1: Distribution of study subjects according to age

Age groups (In years)	NVDH Number (%)	TLH Number (%)
35-44	29 (48.33%)	25 (41.67%)
45-54	19 (31.67%)	29 (48.33%)
55-64	08 (13.33%)	06 (10.00%)
>64	04 (6.67%)	00 (00)
Total	**60 (100)**	**60 (100)**
Mean age	**46.98 ±7.91**	**45.76 ± 5.81**
Range	**36-66**	**35-59**

Table-1show majority of 29 (48.33%) cases in the NVDH group were in the age group of 35-44 years followed by 19 (31.67%) cases in the age group of 45-54 years followed by 08 (13.33%) cases in the age group of 55-64 years. The mean age was 46.98 ±7.91 years ranging from 36-66 years in the NVDH group. The majority of 29 (48.33%) cases in the TLH group were in the age group of 45-54 years followed by 25 (41.67%) cases in the age group of 35-44 years followed by 06 (10.00%) cases in the age group of 55-64 years. The mean age was 45.76 ± 5.81 years ranging from 35-59 years in the TLH group.

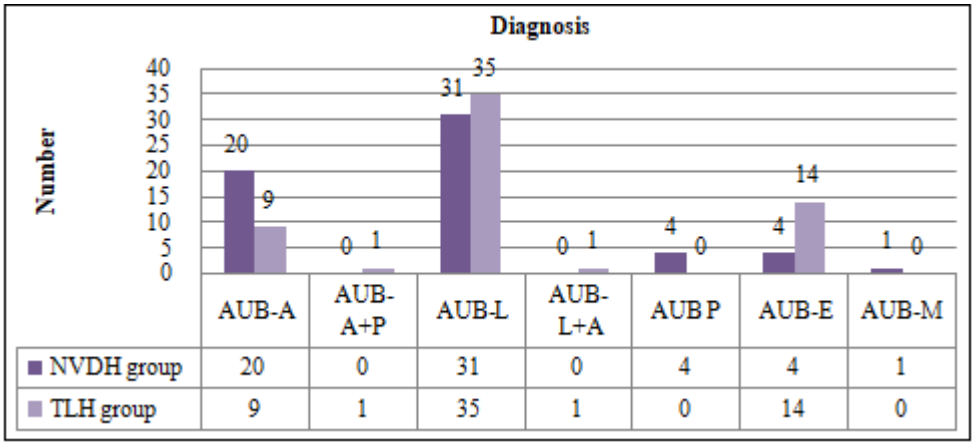

Figure1: Distribution of study subjects according to diagnosis

Figure1 shows the distribution of study subjects according to diagnosis. In the NVDH group, the majority of 31 (51.67%) cases were diagnosed with AUB-L followed by 20 (33.33%) cases diagnosed with AUB-A. In the TLH group, the maximum cases of 35 (58.33%) were diagnosed with AUB-L followed by 14 (23.33%) cases with AUB-E.

Table 2: Distribution of study subjects according to the type of surgery performed

Type of surgery	Number	Percentage
TLH	60	50
NDVH	60	50
Total	120	100

Table no 2, shows the distribution of study subjects according to the type of surgery performed. A total of 60 cases each was included in both NVDH and TLH groups.

Table 3: Distribution of study subjects according to mean duration of surgery and type of surgery performed

Type of surgery performed	Duration of surgery (in minutes) Mean ±SD	Unpaired t-test p-value
NVDH	164.50 ±18.72	0.000*
TLH	185.50±2.38	

Table 4 shows the distribution of study subjects according to mean duration of surgery and type of surgery performed. When the mean duration of surgery was compared in both groups using an unpaired t-test, it was found to be statistically significant. (p value=0.000).

Table 5: Distribution of study subjects according to mean blood loss during surgery and type of surgery performed

Type of surgery performed	Blood loss (in ml) Mean ±SD	Unpaired t-test p-value
NVDH	372.50±95.85	0.0006*
TLH	304.16 ±115.82	

Table 5, shows the distribution of study subjects according to mean blood loss during surgery and type of surgery performed. When mean blood loss during surgery was compared in both groups using an unpaired t-test, it was found to be statistically significant. (p value=0.0006).

Table 6: Distribution of study subjects according to mean hospital day during surgery and type of surgery performed

Type of surgery performed	Mean Postoperative hospital stay (in days) Mean ±SD	Unpaired t-test & p-value
NVDH	5.21±1.12	0.001*
TLH	5.95±1.29	

Table 6, shows the distribution of study subjects according to Mean postoperative hospital stay (in days) and type of surgery performed. When mean postoperative hospital stay (in days) was compared in both groups using an unpaired t-test, it was found to be statistically significant. (p value=0.001).

Table 7: Distribution of study subjects according to mean expenditure during surgery and type of surgery performed

Type of surgery performed	Mean expenditure (In INR) Mean ±SD	Unpaired t test p value
NVDH	3233 ±384.73	0.000*
TLH	6508±666.96	

*INR-Indian Rupee

Table7 shows the distribution of study subjects according to Mean expenditure during surgery and type of surgery performed. When expenditure during surgery was compared in both groups using an unpaired t-test, it was found to be statistically significant. (p value=0.00

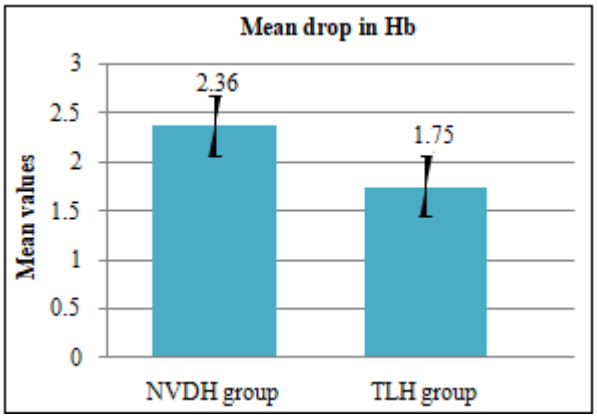

Figure 2: Distribution of study subjects according to mean drop in hemoglobin during surgery and type of surgery performed

Figure2 shows the distribution of study subjects according to mean drop-in hemoglobin ring surgery and type of surgery performed. When the mean drop in hemoglobin during surgery was compared in both groups using an unpaired t-test, it was found to be statistically significant. (p value=0.0001).

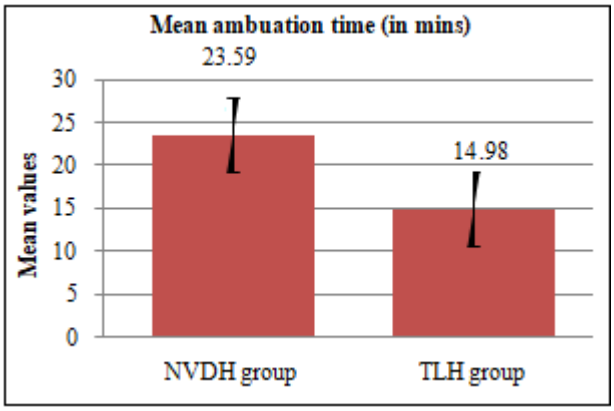

Figure 3: Distribution of study subjects according to mean ambulation time and type of surgery performed

Figure3 shows the distribution of study subjects according to mean ambulation time and type of surgery performed. When mean ambulation time was compared in both groups using an unpaired ttest, it was found to be statistically significant. (p value=0.000).

Table 8: Distribution of study subjects according to mean VAS score at 3rd hour, day 1, and day 3 postoperatively and type of surgery performed

Type of surgery performed	Mean VAS score 3rd hour postop Mean ±SD	Mean VAS score Day 1 postop Mean ±SD	Mean VAS score Day 3 postop Mean ±SD
TLH	4.81±1.45	2.25±1.21	0.45±0.67
NVDH	2.35±1.03	0.71±0.76	0.18±0.46
Unpaired t-test &p-value	0.000*	0.000*	0.01*

Table8 shows the distribution of study subjects according to mean VAS score at the 3rd hour, day 1, and day 3 post-operatively and type of surgery performed. When the mean VAS score was compared in both groups at 3rd-hour postop, it was found to be statistically significant. (p value=0.000).

When the mean VAS score was compared in both groups at day 1 postop, it was found to be statistically significant. (p value=0.000). When the mean VAS score was compared in both groups at day 3 postop, it was found to be statistically significant. (p value=0.01).

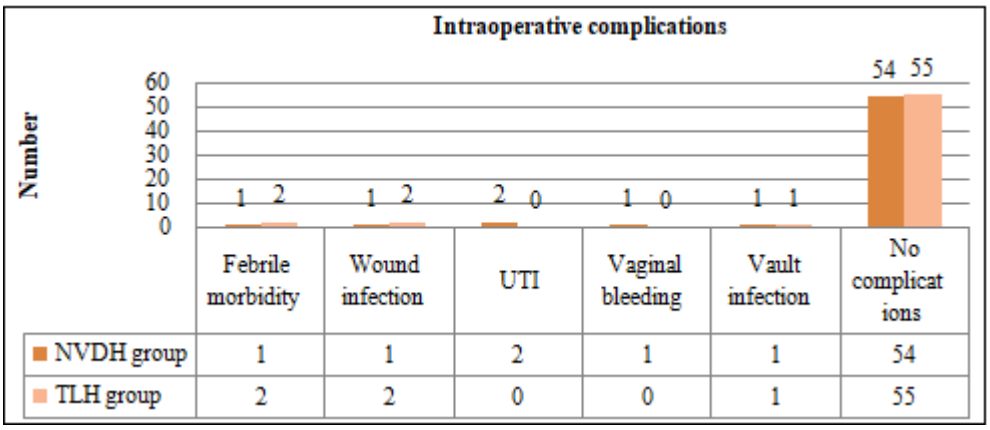

Figure 4: Distribution of study subjects according to intraoperative complications

Figure4 shows the distribution of study subjects according to intraoperative complications. Out of 60 cases in NVDH, 54 (93.33%) cases had no intraoperative complications and in TLH cases, 55 (91.67%) cases had no intraoperative complications. There were 02 (3.33%) cases with UTI in NVDH cases and no case of UTI in TLH cases. There was one case of febrile morbidity and wound infection in NVDH cases and two cases each of febrile morbidity and wound infection in TLH cases.

5. Discussion

The uterus has been removed by an abdominal route which gives the opportunity to inspect the ovaries and the vaginal route was reserved for pelvic organ prolapse. Now emphasis on minimally invasive surgery has led to a resurgence of interest and importance of vaginal hysterectomy for nonprolapse indications, i. e., non-descent vaginal hysterectomy (NDVH) as the scarless hysterectomy. NDVH also gives us the option of minimal invasion with better access to ligaments of the uterus for surgery with less blood loss and minimal analgesic requirements post-surgery and under relatively safe spinal anesthesia rather than general anesthesia with its associated complications[7].

However, laparoscopic hysterectomy has the advantage of visualization of pelvic structure from above and occasional dissection and adhesiolysis. High-tech instruments and sophisticated operation theatre is required to perform TLH. Bowel preparation is also required. This is done under general anesthesia. It also increases the financial burden for the patient in comparison to vaginal hysterectomy. Vaginal hysterectomy descent or non-descent is a simple and effective technique for benign pathologies of the uterus. It can be a good alternative to trans-abdominal hysterectomy[8].

The present study was conducted with the aim to study post-operative outcomes between NDVH and TLH. A total of 120 cases out of which 60 cases undergoing non-descent vaginal hysterectomy (NDVH) and 60 cases undergoing total laparoscopic hysterectomy (TLH) were included in the study.

In the present study, the majority of 29 (48.33%) cases in the NVDH group were in the age group of 3544 years followed by 19 (31.67%) cases in the age group of 45-54 years. The mean age was 46.98 ±7.91 years ranging from 36-66 years in the NVDH group. The majority of 29 (48.33%) cases in the TLH group were in the age group of 45-54 years followed by 25 (41.67%) cases in the age group of 35-44 years. The mean age was 45.76 ± 5.81 years ranging from 35-59 years in the TLH group. In a study by Nimbannwar et al[8] (2021) the age group was also similar

In the NVDH group, the majority of 31 (51.67%) cases were diagnosed with AUB-L followed by 20 (33.33%) cases diagnosed with AUB-A. In the TLH group, the maximum cases of 35 (58.33%) were diagnosed with AUB-L followed by 14 (23.33%) cases with AUB-E. Chattopadhyay S et al [9]also reported a similar trend in indications for surgeries. The mean duration of surgery was compared in both groups using an unpaired t-test, and it was found to be statistically significant (p value=0.000). Kansara v et al also had similar durations of surgery[10]. When mean blood loss during surgery was compared in both groups using an unpaired t-test, it was found to be statistically significant. (p value=0.0006). It was also significant in other similar studies.[9, 10]

When mean postoperative hospital stay (in days) was compared in both groups using an unpaired t test, it was found to be statistically significant. (p value=0.001). When expenditure during surgery was compared in both groups using an unpaired t-test, it was found to be statistically significant. (p value=0.000). Expenditure was less in NDVH procedure in our study. When the mean drop in hemoglobin during surgery was compared in both groups using an unpaired t-test, it was found to be statistically significant (p value=0.0001). When mean ambulation time was compared in both groups using an unpaired t-test, it was found to be statistically significant. (p value=0.000). Mean VAS score was compared in both groups at 3rd-hour postop, day 1 postop, and day 3 postop. It was found to be statistically significant. (p value=0.000, 0.000, 0.01 respectively). It was similarly significant in other studies by Aratipalli Jetal[11] and Tonge G et al.[12]

Out of 60 cases in NVDH, 54 (93.33%) cases had no intraoperative complications and in TLH cases, 55 (91.67%) cases had no intraoperative complications. There were 02 (3.33%) cases with UTI in NVDH cases and no case of UTI in TLH cases. There was one case of febrile morbidity and wound infection in NVDH cases and two cases each of febrile morbidity and wound infection in TLH cases. Aarts JW et al also reported a low incidence of intraoperative injuries during hysterectomies in the Cochrane database review[13].

6. Conclusions

When both surgical approaches are feasible, NDVH should remain the surgery of choice for benign hysterectomy. The results of this study suggest that VH should be the treatment of benign gynecologic disease when both operative methods are available. Large randomized controlled trials should be performed to identify differences in VH and LH outcomes for operation time, postoperative pain, perioperative complications, and effective cost.

References

[1] Ghezzi F, Uccella S, Cromi A, Siesto G, Serati M, Bogani G, et al. Postoperative pain after laparoscopic and vaginal hysterectomy for benign gynecologic disease: a randomized trial. Am J Obstet Gynecol.2010; 203 (2): 118 e1–8.
[2] Koike E, Kotani Y, Tobiume T, Tsuji I, Nakai H et al. Introduction of Total Laparoscopic Hysterectomy as a Substitute for Laparoscopic assisted vaginal hysterectomy Hysterectomy: A Comparison of the First 23 Cases. Gynecol Obstet (Sunnyvale).2014; 4: 211.
[3] Wilcox LS, Villard Mackintosh I, Epidemiology of hysterectomy . Br. J. Obstet and Gynecol 1992; 99: 402-7.
[4] Patel R, Chakravarty N, Comparative study of Laparoscopic Hysterectomy versus Vaginal Hysterectomy. International Journal of Medical Science and Public Health.2014; 3 (3): 335-337.
[5] Shinde S et al. Non-descent vaginal hysterectomy (NDVH): Our experience at a tertiary care centre: Indian Journal of Basic and Applied Medical Research.2015; 5 (1): 132-137.
[6] Tohic AL, Dhainaut C. Hysterectomy for benign uterine pathology. Obstet andGynecol2008; 829-37.
[7] Meikle S F, Naugent S W complication and recovery of laparoscopic assisted vaginal hysterectomy compared with vaginal and abdominal hysterectomy. Obstet and Gynecol 1997; 89; 304-11.
[8] Nimbannavar H, Chugh A, Rama A, Bal H. Comparative study of non-descent vaginal hysterectomy and total laparoscopic hysterectomy performed for benign gynecological conditions. Int J Reprod Contracept Obstet Gynecol 2021; 10: 993-8.
[9] Chattopadhyay S, Patra KK, Halder M, Mandal A, Pal P, Bhattacharyya S. A comparative study of total laparoscopic hysterectomy and non-descent vaginal hysterectomy for treatment of benign diseases of uterus. Int J Reprod Contraception, Obstet Gynecol.2017; 6 (3): 1109.
[10] Kansara V, Chaudhari J, Desai A. A comparative study of non-descent vaginal hysterectomy and total laparoscopic hysterectomy. Int J Reprod Contraception, Obstet Gynecol.2020; 9 (2): 777.
[11] Aratipalli J, Bandi B. Comparison of outcome between total laparoscopic hysterectomy and vaginal hysterectomy in a non-descent uterus in a tertiary care hospital.2018; 4 (12): 197–201.
[12] Tondge G, Dasila PS, More N, Kale S, Shelke S. Comparison of intraoperative and postoperative outcomes of non descent vaginal hysterectomy and total laparoscopic hysterectomy.2021; 8: 342-8.
[13] Aarts JW, Nieboer TE, Johnson N, Tavender E, Garry R, Mol BW, Kluivers KB. Surgical approach to hysterectomy for benign gynecological disease. Cochrane Database Syst Rev.2015 Aug 12; (8): CD003677.