

**ORIGINAL RESEARCH**

# Comparative analysis of non-descent vaginal hysterectomy versus total abdominal hysterectomy: A cross sectional study

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**ABSTRACT**

**Background:** Hysterectomy is the most common major surgical procedure in gynecology. Today various approaches are available for performing hysterectomy. Vaginal and abdominal approaches represent the least and most invasive techniques respectively whereas the laparoscopic procedure remain in the middle of the spectrum. Non-descent Vaginal Hysterectomy (NDVH) is the removal of a non-prolapsed uterus through vagina. Once hysterectomy is decided, evidence-based guidelines should be assessed carefully to select the most appropriate route of surgery. The possibility of vaginal approach should be considered first followed by LAVH and lastly abdominal hysterectomy.

**Aims and Objectives**

1. To determine feasibility, safety and patient comfort of non-descent vaginal hysterectomy.
2. Preoperative and postoperative comparison of non-descent vaginal hysterectomy and abdominal hysterectomy.

**Materials and Methods:** The study was a cross sectional study conducted in the Institute of Maternal and Child Health, Medical College, Calicut for a period of 2 years. 100 patients requiring hysterectomy for gynecological disorders without prolapse were included in the study. In group A, (n=50), NDVH was performed and in group B (n=50) TAH was performed. Demographic variables, intraoperative blood loss and injuries, postoperative pain and complications and duration of hospital stay were compared between the two groups. **Results:** Of the 11 variables studied, 4 were found significant. Pain scoring on post-operative day 3, mean pain score in the NDVH group was 2.84 cm, while in the TAH group was 6.76 cm (p-value-0.001). Mean duration of hospital stay was 5.5 day in the NDVH group while it was 7.4 days in the TAH group (p value 0,001). Incidence of wound infection in the TAH group was 11, no cases of wound infection was found in NDVH (p value-0.001). Twelve percent of patients in NDVH group and 30% patients in the TAH group had fever post-operatively (p value-0.048). **Conclusion:** Statistically significant decrease in the post-operative pain, wound infection, febrile morbidity and length of hospital stay occurred in the NDVH group compared to TAH group. There were no significant differences in the duration of surgery, blood loss, intraoperative injuries, post-operative bleeding needing re-laparotomy and post-operative blood transfusion between the two groups.

**Key words:** Non-descent vaginal hysterectomy, total abdominal hysterectomy, intraoperative and postoperative complications

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**INTRODUCTION**

Today, a spectrum of approaches is available for performing hysterectomy. Vaginal and abdominal hysterectomies represent the least and most invasive techniques respectively, whereas the laparoscopic procedures remain in the middle of the spectrum. Too often, a route is chosen merely because this has

become a routine procedure in that particular institution or clinic.

The ease and convenience offered by a large abdominal incision have led to the preponderance of abdominal hysterectomy over the other types of hysterectomy. Nowadays, this arbitrary approach is not justifiable because there are significant differences in the medical and economic outcomes of abdominal,

laparoscopic and vaginal hysterectomy, A critical evaluation of the methods is required to identify an optimum place for every type of hysterectomy and to enable the gynaecologist select the right method for a particular patient to bring about the best possible outcome. Various studies have demonstrated that Non-Descent Vaginal Hysterectomy (NDVH) is associated with statistically significant decrease in blood loss during surgery, duration of surgery, postoperative pain, time to postoperative mobility, wound infection, febrile morbidity, length of hospital stay and postoperative blood transfusion. American College of Obstetricians and Gynaecologists (ACOG) has stated that vaginal hysterectomy is the approach of choice for hysterectomy whenever feasible.

#### **FACTORS CONSIDERED UNFAVOURABLE FOR NDVH**

1. Estimated uterine size in excess of 12 weeks (280gm).
2. Previous cesarean/surgery.
3. Need to perform oophorectomy.
4. Suggestion of endometriosis/PID.
5. Uterine or adnexal restricted mobility.
6. Contracted bony pelvis with narrow vagina.
7. Lack of skill or experience for vaginal surgery.

#### **CONSIDERING THESE FACTORS IN DETAIL UTERINE SIZE**

An enlarged uterus has earlier been considered a contraindication to vaginal hysterectomy. Now the decision on the maximum uterine size suitable for vaginal surgery depends on the proficiency, expertise and experience of the surgeon.

Today various techniques are available for successful removal of an enlarged uterus

1. Bisection.
2. Uterine morcellation.
3. Myomectomy.
4. Lash technique/coring.

The safety of these procedures have been established in various studies. Pelvic factors play an important role here in the form of parous tissues, tissue laxity, roomy vagina and availability of uterus free pelvic space for operative maneuverability which results in visible descent making uterus more accessible for the procedure.

#### **PREVIOUS CESAREAN/SURGERIES**

Various new surgical techniques are available today which will help in the careful dissection and separation of the bladder under vision while doing NDVH. The only previous surgery, which should contraindicate a safe VH will be ventrofixation and sling operation.

#### **OOPHORECTOMY**

Transvaginal oophorectomy can be accomplished dependent on the surgeon's skill and experience. The

safety of this procedure has been proved in various studies.

#### **FACTORS SUGGESTIVE OF PELVIC DISEASES LIKE ENDOMETRIOSIS AND PID**

These factors if really present are considered as contraindication to VH. But, laparoscopic examination before the surgery showed negative findings in about 47% of patients. Patients with clinical findings suggestive of endometriosis, adnexal disease, chronic pelvic pain, previous pelvic surgery, chronic pelvic inflammatory disease and adhesions may be candidates for a laparoscopy assisted VH.

#### **UTERINE OR ADNEXAL RESTRICTED MOBILITY**

Physiologically uterus is mobile in all four directions as well as upwards and downwards. Any restriction in the mobility is an unfavourable finding, which may contraindicate vaginal hysterectomy. Experience is essential to assess how much mobility is necessary for a safe vaginal procedure. An examination under anesthesia will help the surgeon to perform a proper assessment.

#### **CONTRACTED BONY PELVIS WITH NARROW VAGINA**

These factors are seen in only 1% of patients. With proper self-retaining vaginal wall retractors and good illumination, VH can be performed without difficulty in majority of the patients.

#### **LACK OF SKILL OR EXPERIENCE FOR VAGINAL SURGERY**

Vaginal surgery definitely requires more skill and is often used to judge the skill of a gynecologist.

#### **LAPAROSCOPIC HYSTERECTOMY**

In the past, traditional contraindications to vaginal surgery automatically would lead to abdominal hysterectomy. Nowadays laparoscopic assistance helps in resolving the contraindications and provides the patients the benefits of VH by converting an abdominal procedure into a safe vaginal one. But Total Laparoscopic Hysterectomy (TLH) requires infrastructural setup, greater surgical expertise, longer operative time and has major intraoperative complications when compared to NDVH.

So once hysterectomy is decided, surgeon's expertise and evidence based objective guidelines comprising pelvic pathology, anatomical accessibility and uterine size should be assessed carefully to select the route of surgery. Surgeon's preference and institutional policies should not be the deciding factors here. The possibility of vaginal approach should be considered first followed by laparoscopic conversion VH and lastly abdominal hysterectomy.

**ADVANTAGE OF VH OVER ABDOMINAL ROUTE**

1. Avoidance of large painful skin incision.
2. Less intraoperative blood loss.
3. Reduced postoperative pain.
4. Shorter hospital stay.
5. More rapid convalescence.
6. Less infection morbidity.
7. Reduced tissue trauma.
8. Less post-operative adhesion formation.
9. Cosmesis.
10. Potential cost saving to community.
11. No possibility of incisional hernia.

This research aims to scrutinize Non-Descent Vaginal Hysterectomy (NDVH) and Total Abdominal Hysterectomy (TAH) within a tertiary care facility in Kerala. Various previous studies with respect to this favours NDVH.

This study emphasizes the significance of adopting a patient centered, evidence-based approach to health care that is appropriate for specific local contexts.

**MATERIALS AND METHODS**

The study was a cross sectional study conducted in the Institute of Maternal and Child Health, Medical College, Calicut for a period of 2 years. 100 patients requiring hysterectomy for gynecological disorders without prolapse were included in the study after obtaining Institutional Ethical Committee approval and taking informed consent. A detailed history was taken, general and systemic examination was performed. Necessary preoperative investigations were done. Sample was divided into 2 groups. In group A (n=50), NDVH was performed and in group B (n=50), TAH was performed. These cases were assessed in terms of duration of surgery, blood loss, intra-operative and post-operative complications. All data were collected using a standard proforma.

**STUDY METHODS****STUDY DESIGN**

Cross-sectional study.

**STUDY SETTING**

IMCH, Govt. Medical College, Calicut.

**STUDY POPULATION**

Patients with gynaecological problems without prolapse needing hysterectomy.

**STUDY PERIOD**

2 years.

**SAMPLE SIZE**

100 patients.

**INCLUSION CRITERIA**

1. Uterine size not exceeding 16 weeks of gravid uterus.

2. Adequate uterine mobility.
3. Multiparous women.
4. Haemoglobin more than 10 gm%.
5. Ovaries normal bilaterally.

**EXCLUSION CRITERIA**

1. Uterine size more than 16 weeks of gravid uterus.
2. Restricted uterine mobility.
3. Nulliparous women.
4. Haemoglobin less than 10 gm%.
5. Patients with complex adnexal mass.

All patients were given prophylactic antibiotics in the form of injection Cefazolin 2 gm intravenous one hour before surgery. Group A underwent NDVH and group B underwent TAH. Suprapubic transverse incision was used in TAH patients. All cases were given inj. Diclofenac sodium 75 mg intramuscular just before leaving the theatre and the same was repeated 8 hourly for 2 more doses, making it a total of 3 doses.

**THE MAIN PARAMETERS USED FOR COMPARISON ARE**

1. Intraoperative blood loss.  
**METHOD USED:** Swabs were weighed in their dry state. Then weigh the blood-soaked swabs soon after the procedure. Subtract the dry weight of any unused swabs from the total dry weight. Then subtract the weight of the blood-soaked swabs. 1 ml of blood weighs approximately 1 gm. To this value, amount of blood in the suction apparatus was added to estimate the total blood loss.
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. Intraoperative bleeding.
5. Postoperative bleeding needing relaparotomy.
6. Blood transfusion if any is noted.
7. Fever during the postoperative period-This is assessed using clinical thermometer and charted 4 hourly. Fever is defined as temperature more than or equal to 38 degree Celsius on 2 occasions 4 hours apart excluding the first postoperative day.
8. Pain perception on day 3-The woman scored their postoperative pain on a 10 cm visual analogue scale and the results compared.
9. Wound infection-The presence of wound induration or evidence of any frank infection if present were assessed. The patients were followed up till the date of discharge.
10. Any form of infection like respiratory tract infection, urinary tract infection, was looked for and compared.
11. Duration of hospital stay is noted in both groups and compared. Patients were followed up till the date of discharge.

**STATISTICS**

Quantitative variables were expressed as mean and standard deviation (SD) and qualitative variables were expressed as frequency and percentage. Differences in quantitative variables were evaluated using t test and that between qualitative variables using Fisher’s exact test. The p value, a measure of statistical significance was set at less than 5% ( $p < 0.05$ ). Software used for analysis JAMOVI version 2.3.16.

**DEMOGRAPHIC VARIABLES OF STUDY SUBJECTS**

**1. AGE**

Mean age in NDVH group is 45.32 and mean age in TAH group is 41.96

**2. PARITY**

Mean Parity in NDVH group is 3.36 mean parity in TAH group is 2.58

**3. SURGICAL HISTORY**

Percentage of previous CS in NDVH group is 2%.

Percentage of previous CS in TAH group is 4%.

**4. MEDICAL HISTORY**

There were 28% (n=14) hypertensives 10% (n=5) diabetic, 6% (n= 3) asthmatic, 2% (n= 1) cardiac and

10% (n= 5) anaemic patients in NDVH group whereas their percentages in TAH group were 24% (n=12), 9% (n=4), 6% (n=3), 2% (n=1), 14% (n=7) respectively.

**5. UTERINE SIZE**

Forty four percent (n=22) patients in NDVH group and 40% (n=20) in TAH group had uterine size less than 10 weeks of gestation. Fifty six percent (n=28) in the NDVH group and 60% (n=30) in the TAH had size more than 10 weeks. Maximum uterine size included in the study was equivalent to 16 weeks of gestation.

**6. TYPE OF ANAESTHESIA**

Ninety percent of (n=45) cases were done under spinal anaesthesia, 4% (n=2) cases were done under Epidural and 6% (n=3) were done under General anaesthesia in NDVH group.

94% (n=47) cases were done under Spinal anaesthesia, 4% (n=2) cases were done under epidural and 2% (n= 1) cases were done under general anaesthesia in TAH group

**7. DIAGNOSIS**

**Table 1: Diagnosis**

Diagnosis	NDVH		TAH	
	No	%	No	%
Fibroid	29	58	30	60
AUB A	12	24	13	26
AUB E	3	6	2	4
AUB P	1	2	1	2
CIN	2	4	1	2
PMB	3	6	3	

AUB A-Abnormal uterine bleeding Adenomyosis.

AUB E-Abnormal uterine bleeding Endometrial.

AUB P-Abnormal uterine bleeding Polyp.

CIN-Cervical intraepithelial neoplasia.

PMB-postmenopausal bleeding.

**8. TECHNIQUES USED FOR EASY REMOVAL OF UTERUS IN NDVH GROUP**

Bisection was carried out in 58% (n=29) cases, morcellation in 24% (n=12) cases and myomectomy in 2% (n=1) case. No technique was employed in 16%

**Table 2: Techniques used in NDVH**

Techniques	NDVH (n)	NDVH (%)
Entire	8	16
Bisection	29	58
Morcellation	12	24
Myomectomy	1	2

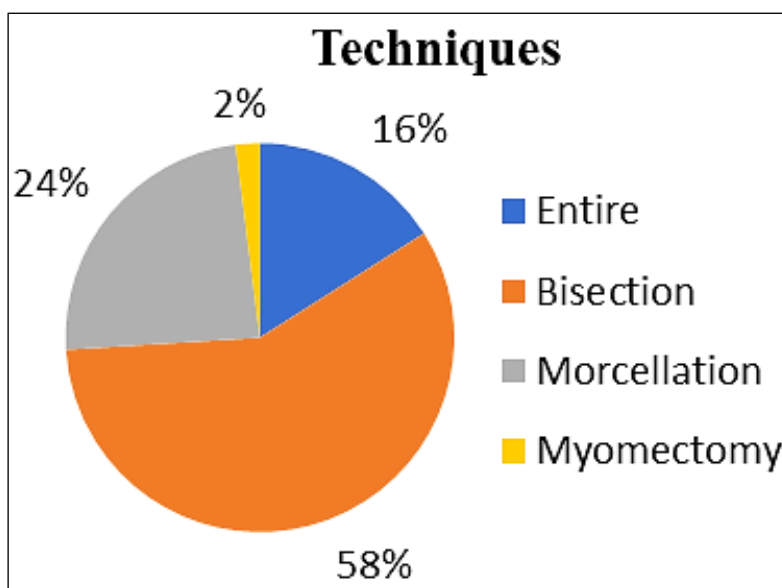


Figure 1: Techniques used in NDVH

**RESULTS**

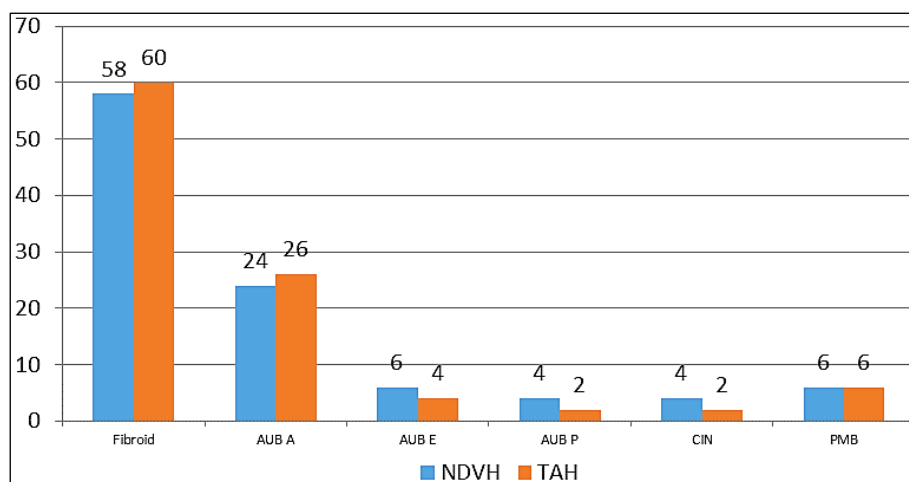
**ANALYSIS OF DEMOGRAPHIC VARIABLES**

**Table 3: Demographic variables analysis**

Variable	Category	Group				Total		Chi square	P
		NDVH		TAH		N	%		
		N	%	N	%				
Age	<40	10	20	13	26	23	23	1.4	0.486
	40-49	28	56	22	44	50	50		
	>50	12	24	15	30	27	27		
Parity	1	4	8	8	16	12	12	1.9	0.396
	2	18	36	19	38	37	37		
	>3	28	56	23	46	51	51		
Previous surgical history	Yes	1	2	2	4.0	3	3	0.344	0.558
	No	49	98	48	96	97	97		
Medical disorders	Yes	28	56	27	54	55	55	0.040	0.841
	No	22	44	23	46	45	45		
Size of uterus	<10	22	44	20	40	42	42	0.164	0.685
	>10	28	56	30	60	58	58		
Anesthesia	Spinal	45	90	47	94	92	92	1.040	0.593
	Epidural	2	4	2	4	4	4		
	General	3	6	1	2	4	4		

**Table 4: Diagnosis Analysis-Comparison table**

Category	Group				Total		Chi square	P
	NDVH		TAH		No	%		
	No	%	No	%				
Fibroid	29	58.0	3;0	60.0	59	59	0.010	1.000
AUB A	12	24.0	13	26.0	25	25	0.010	1.000
AUB E	3	6.0	2	4.0	5	5	0.211	0.646
AUB P	2	4.0	1	2.0	3	3	0.344	0.558
CIN	2	4.0	1	2.0	3	3	0.344	0.558
PMB	3	6.0	3	6.0	6	6	0.000	1.000



**Figure2:** Diagnosis Analysis Histogram

The age distribution among participants did not significantly differ between the two groups, evidenced by a p-value of 0.486. Likewise, there were no statistically significant differences in parity ( $p=0.396$ ) and history of previous caesarean section ( $p=0.558$ ) observed. The occurrence of medical disorders, ( $p=0.841$ ) uterus size, ( $p=0.685$ ) and the reasons for performing the hysterectomy appeared almost identical across both groups. Additionally, the type of anaesthesia used (spinal, epidural, or general) did not significantly differ between the NDVH and TAH groups, with a p-value of 0.593. This uniformity in baseline characteristics suggests that the two groups were well-matched for these variables, indicating that any differences in outcomes between the NDVH and TAH methods are less likely to be attributed to differences in patient characteristics at the start of the study. The study seems to have been carefully designed to minimize confounding factors, allowing for a more accurate uniformity in baseline characteristics suggests that the two groups were well-matched for these variables, indicating that any differences in outcomes between the NDVH and TAH methods are less likely to be attributed to differences

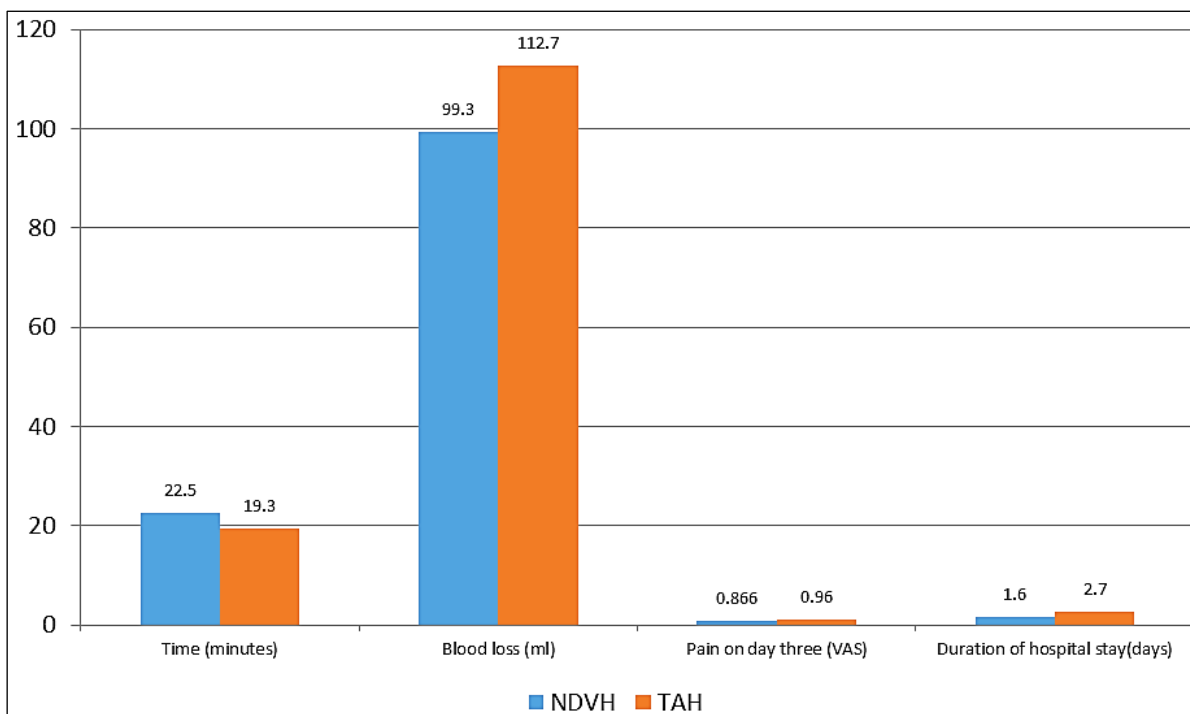
in patient.

### STUDY OUTCOME VARIABLES, STATISTICAL ANALYSIS

The duration of surgery for both NDVH and TAH groups was notably similar, with NDVH averaging 84.3 minutes and TAH slightly less at 82.3 minutes, a difference deemed statistically insignificant ( $p$  value-0.665). Regarding blood loss, the NDVH group saw a marginally higher average (274.8 ml) compared to the TAH group (238 ml), yet this variance lacked statistical significance as well ( $p$  value-0.093). On the other hand, NDVH patients experienced significantly lower pain levels, averaging a pain score of 2.84 against the TAH group's 6.76, indicating both a meaningful clinical and statistical difference ( $P$ value-0.001). This reduced pain score for the NDVH group points to a more comfortable postoperative recovery, which is corroborated by the shorter hospital stays observed. Specifically, the NDVH patients had an average hospital stay of 5.5 days, markedly less than the TAH patients, who stayed for an average of 7.4 days, a difference that was also statistically significant ( $P$  value 0.001).

**Table 5: Quantitative Variable Analysis**

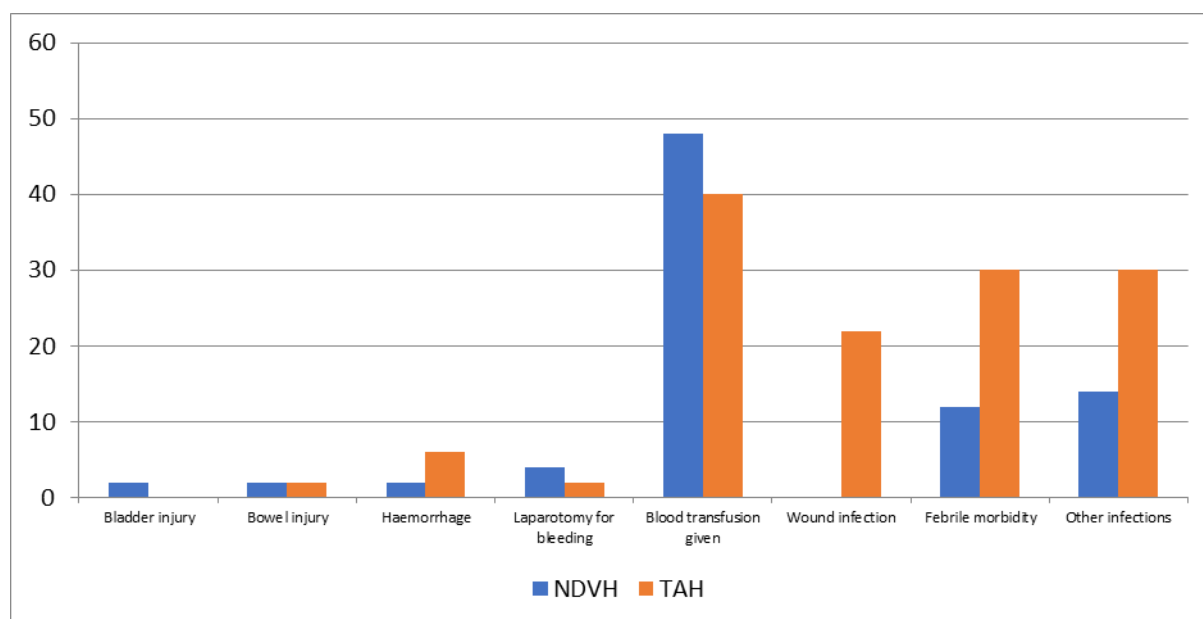
Outcome Variable	NDVH	TAH	T	P
Time (minutes)	84.3(22.5)	82.3(19.3)	0.435	0.665
Blood loss (ml)	274.8(99.3)	238(112.7)	1.69	0.093
Pain on day three (VAS)	2.84(0.866)	6.76(0.960)	21.4	0.001
Duration of hospital stay(days)	5.5(1.6)	7.4(2.7)	4.3	0.001



**Figure 3:** Quantitative Variables Histogram

**Table 6: Qualitative Variables Analysis**

Outcome measures	Category	NDVH		TAH		Significance (Fishers Exact test)
		No	%	No	%	
Bladder injury	Present	1	2	0	0	1.000
	Absent	49	98	50	100	
Bowel injury	Present	1	2	1	2	1.000
	Absent	49	98	49	98	
Haemorrhage	Present	1	2	3	6	0.617
	Absent	49	98	47	94	
Laparotomy for bleeding	Yes	2	4	1	2	1.000
	No	48	96	49	98	
Blood transfusion given	Yes	24	48	20	40	0.546
	No	26	52	30	60	
Wound infection	Present	0	0	11	22	0.001
	Absent	50	100	39	78	
Febrile morbidity	Present	6	12	15	30	0.048
	Absent	44	88	35	70	
Other infections	Present	7	14	15	30	0.090
	Absent	43	86	35	70	



**Figure 4:** Qualitative Variables Histogram

Both bladder and bowel injuries were infrequent and exhibited equal distribution between the NDVH and TAH groups, each registering a 2% incidence rate for both complications, with no statistically significant difference observed ( $p=1.000$ ). Likewise, intraoperative blood loss, the necessity for re-laparotomy due to bleeding, and rate of blood transfusions demonstrated no substantial discrepancies between the two methods. Haemorrhage occurred in 2% of NDVH cases and 6% of TAH cases ( $p=0.617$ ), while blood transfusions were administered in 48% of NDVH cases and 40% of TAH cases ( $p=0.546$ ). A significant disparity emerged in the incidence of wound infection. The NDVH group reported no cases (0%), in contrast to the TAH group's 22% incidence rate ( $p=0.001$ ), suggesting a significantly lower risk of wound infection with NDVH. Additionally, febrile morbidity was less prevalent in the NDVH group at 12%, compared to a 30% incidence rate in the TAH group, representing another significant difference ( $p=0.048$ ). Although not reaching statistical significance, the incidence of other infections was also lower in the NDVH group at 14%, compared to 30% in the TAH group, indicating a potential trend toward fewer infections associated with NDVH.

## DISCUSSION

The ACOG has recommended in Committee Opinion<sup>1</sup> No 71 that Vaginal route is the approach of choice for hysterectomy since it is associated with better outcomes.

This cross-sectional study compared important clinical parameters between Non-Descent Vaginal Hysterectomy (NDVH) and Total Abdominal Hysterectomy (TAH) groups. The two groups were comparable with respect to important variables like age, parity, history of previous caesarean section,

presence of medical disorders, uterine size, and diagnosis. Type of anaesthesia used was also similarly distributed with majority had spinal anaesthesia.

Our study revealed a statistically significant difference in pain levels ( $p=0.001$ ) on the third day post-surgery between the Total Abdominal Hysterectomy (TAH) group ( $6.76 \pm 0.96$ ) and the Non-Descent Vaginal Hysterectomy (NDVH) group ( $2.84 \pm 0.866$ ). The study's outcomes are supported by Alamelu's<sup>5</sup> research in 2019, which reported mean pain scores of 2.79 for the vaginal group and 4.11 for the abdominal group. Postoperative pain showed a statistically significant difference with  $p$  value 0.0006 in the study by Rana<sup>4</sup> UB *et al.*, in 2020. Mean pain score on postoperative day 3 in VAS pain score in NDVH was 4.3 cm and mean pain score TAH was 5.04 cm in the study by Chandrakar K<sup>3</sup> *et al.*, in 2016 which was statistically significant with a  $p$  value of 0.0001. These consistent findings across multiple studies reinforce the notion that patients undergoing NDVH generally experience lower postoperative pain on the third day compared to those undergoing TAH. This finding contributes to postoperative pain management, early ambulation and faster recovery of these patients.

The duration of hospital stay showed a notable difference between the Non-Descent Vaginal Hysterectomy (NDVH) group ( $5.5 \pm 1.6$  days) and the Total Abdominal Hysterectomy (TAH) group ( $7.4 \pm 2.7$  days) in the present study. This finding aligns with the study conducted by Alwani<sup>8</sup> in 2017, which reported an extended stay for women undergoing TAH ( $6.96 \pm 0.94$ ) compared to NDVH ( $4.44 \pm 0.78$ ). Consistent trends were observed in other studies as well. Abrol<sup>6</sup> research from 2018 indicated a hospital stay of 3.1 days for NDVH and 7.1 days for TAH. Mythili<sup>9</sup> and Shanthi (2018) reported a hospital stay of  $4.1 \pm 0.53$  days for NDVH and  $8.2 \pm 1.5$  days for



TAH. Regarding wound infections, the present study noted no incidences in the NDVH group, contrasting with a 22% incidence in the TAH group. This aligns with findings from Mutyapawar<sup>10</sup> and Amrita Jain's study in 2023, where the incidence rates of wound infection were nil and 20%, respectively. Similarly, Alwani<sup>8</sup> (2017) found a 2.4% incidence of wound infection in the vaginal group and 9.4% in the abdominal group whereas Mythili<sup>9</sup> and Shanthi (2018) reported a 2.5% incidence in the vaginal group and 13.3% in the abdominal group. These consistent observations emphasize the potential advantages of NDVH over TAH in terms of both the duration of hospital stay and the incidence of postoperative wound infections.

The present study aligns with the findings of several related studies, collectively supporting the low incidence rates of febrile morbidity in the Non-Descent Vaginal Hysterectomy (NDVH) compared to Total Abdominal Hysterectomy (TAH). In the current investigation, the NDVH group exhibited a 12% incidence of febrile morbidity, while the TAH group had a higher rate of 30%. These results are consistent with Khatun<sup>11</sup> *et al's.*, study (2020), which reported a 3% incidence for NDVH and 21% for TAH. Likewise, the Mirza<sup>7</sup> study showed comparable figures of 4% and 18.7% for NDVH and TAH respectively. The Alwani<sup>8</sup> study reinforced this pattern, reporting rates of 7.1% and 17.6% for NDVH and TAH groups.

Our study showed statistically insignificant difference in the intraoperative blood loss and time taken for surgery between the two groups with a p-value of 0.093 and 0.665 respectively. Similar findings were seen in the study by Rana<sup>4</sup> UB where the p value for these parameters were 0.105 and 0.145 respectively. No statistical significance was found in the incidence of intraoperative complications and blood transfusions in our study (p-value 1.00 and 0.546). This is in contrast to the study by Rohidas P Chavhan<sup>2</sup> where statistically significant difference was demonstrated in the two parameters with p-value of 0.016 and <0.001 respectively.

In short the present study highlights significant disparities in postoperative outcomes between Non-Descent Vaginal Hysterectomy (NDVH) and Total Abdominal Hysterectomy (TAH) groups. NDVH group showed statistically significant reduction in postoperative pain, wound infection, febrile morbidity and duration of hospital stay compared to TAH group.

## CONCLUSION

NDVH surgery is associated with less postoperative pain, lower incidence of wound and other infections as well as febrile morbidity and shorter hospital stay without increasing intraoperative complications and duration of surgery. All these will help in the early postoperative recovery of these patients which in turn will have economic benefits for both patients and healthcare systems. In conclusion as ACOG stated we should always consider NDVH as the preferred

route for hysterectomy provided no contraindication exists.

## LIMITATIONS OF THE STUDY

1. The sample size is small.
2. The study was conducted in a single hospital. It may not represent the general population.

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**CONFLICT OF INTEREST:** None declared.

**ETHICAL APPROVAL:** The study was approved by the institutional ethical committee.

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