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Original Research Article

Comparison of Abdominal, Vaginal and Non-Descent Vaginal Hysterectomy and its Perioperative Outcome at JLNMCH, Bhagalpur, Bihar

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Abstract

Background: The most frequent major gynaecological procedure performed on women is a hysterectomy. Abdominal hysterectomy (AH), vaginal hysterectomy (VH), and non-descent vaginal hysterectomy are the three primary forms of hysterectomy procedures currently available (NDVH). This study compares the intraoperative and postoperative consequences of hysterectomy performed via the abdominal versus vaginal routes.

Methods: From May 2021 to October 2022, a prospective study was carried out at the JLNMCH in Bhagalpur, Bihar, in the department of obstetrics and gynaecology. 479 hysterectomies were included in the study. The majority of cases, 281 (58.6%), fell into category I (TAH), followed by 136 (28.3%) cases in category II (VH), and 62 (12.9%) instances in category III (NDVH).

Results: The average operation time for categories I, II, and III was 74.01± 22.2 minutes, 69.19±19.01 minutes, and 67.5±23.12 minutes, respectively. Category I (TAH) had a considerably longer average surgical time than categories II(VH) and III (NDVH). As compared to categories II (VH) and III (NDVH), category I (TAH) patients experienced significantly greater postoperative problems, such as fever, wound infection, and UTI (p value <0.05).

Conclusion: No scar, no adhesions, less problems, a shorter hospital stay, and quick recovery were just a few benefits of NDVH over abdominal hysterectomy. Therefore, wherever possible, the vaginal route for hysterectomy should be chosen.

Keywords: AH-Abdominal hysterectomy, NDVH-non descent vaginal hysterectomy, VH-vaginal hysterectomy.

Introduction

The most frequent major gynaecological procedure performed on women is a hysterectomy. Currently, abdominal hysterectomy (AH), vaginal hysterectomy (VH), and laparoscopic hysterectomy are the three basic forms of hysterectomy procedures (LH). The choice of cases for VH or AH is based on a variety of clinical factors, either

separately or in combination. These include pelvic anatomy, uterine size, adnexal disease, gastrointestinal complaints, urological disorders, cystocele/descent of the urethrovesical angle,rectocoele, enterocoele, heart or lung disease, body mass index, parity, prior tubal ligation, caesarean section, the experience and biases of the surgeon, as well as these factors: biases and experience of the surgeon. The importance of vaginal hysterectomy (VH) for non-prolapse causes, namely Non-descent Vaginal Hysterectomy (NDVH), as the scarless hysterectomy, has increased as a result of the focus on minimally invasive surgery.

These days, non-descent uteri are treated for disorders like AUB, adenomyosis, and uterine fibroids. This study compared the intraoperative and postoperative consequences of hysterectomy via the abdominal and vaginal routes.

Material and Methods

From May 2021 to October 2022, this prospective study was carried out at the Jawaharlal Nehru Medical College and Hospital of Obstetrics and Gynecology Department in Bhagalpur, Bihar. Women who met the following requirements and were admitted for hysterectomy were enrolled in this study:

Inclusion Criteria: Benign pathology in women.

Exclusion Criteria: Endometriosis, chronic pelvic inflammatory illness, and pelvic cancer. Women who had failed vaginal or NDVH who had been converted to AH as a result of a failed VH were not included in the study.

Methods

A thorough medical, menstrual, obstetric, previous, familial, and personal history was collected. A comprehensive gynaecologic, systemic, and general physical examination was performed and documented. Along with other customary preoperative tests, all women underwent haemoglobin, hematocrit, and pelvic organ ultrasounds to check for the size of the uterus and other related pathologies. Written informed consent was obtained. According to the different types of hysterectomies, the individuals were split into three groups. Total abdominal hysterectomy, category I (TAH) Vaginal hysterectomy (VH), Category II, for Pelvic Organ Prolapse (POP) Non-Descent Vaginal Hysterectomy, Category III (NDVH). During the preoperative and postoperative periods, patients received conventional antibiotics. From the first surgical day until the patient was mobile, low molecular weight heparin was administered as thromboprophylaxis. An indwelling urinary catheter was kept in situ till patient was off the intravenous fluids. Operative details and type of anaesthesia was recorded.

The duration of operation, bladder, bowel, or ureteric damage, and main haemorrhage requiring blood transfusion were used to quantify the perioperative outcome. Any intraoperative or postoperative blood transfusions were reported. Retention of urine, length of catheterization, uti, paralytic ileus, febrile morbidity, wound infection/dehiscence, post-operative haemoglobin, any systemic complications, post-operative algesia, hospital stay in days, secondary haemorrhage, readmission, re-opening, and mortality, if any, were used to measure post-operative outcomes.

Six-hourly temperature readings were taken following surgery. The day after surgery, midstream clean catch urine was sent for culture and sensitivity testing. Prior to surgery and on the second post-operative day, haemoglobin levels were estimated for every patient.

The number of days in the hospital was calculated as the number of days from the

first post-operative day's morning to the day of discharge, inclusive. Comparing abdominal, vaginal, and non-descending vaginal hysterectomies using all these outcome characteristics.

The perioperative results of category I (TAH), category II (VH), and category III were compared (NDVH). The mean± SD and percentage values for the continuous and categorical variables, respectively, were provided.

Significance of difference in the distribution between the three categories was analysed using unpaired student t test for continuous variables and X^2 test for categorical variables. Statistical analysis was done using statistical software MS Excel and analysed using SPSS version 20. P value <0.05 was considered significant.

Results

479 hysterectomies in all were included in the study. The majority of cases, 281 (58.6%), fell into category I (TAH), followed by 136 (28.3%) cases in category II (VH), and 62 (12.9%) instances in category III (NDVH). In the study, the following observations were made.

According to Table 1, the average age of the subjects having hysterectomies was 49.6± 8.88 years, 47± 6.76 years for category I (TAH), 55.2± 10.56 years for category II (VH), and 46.9± 6.32 years for category III (NDVH). The reference category, category I (TAH), served as the basis for comparing the mean ages of categories II and III to category I. In comparison to category I, category II had a much higher mean age. Category I, II, and III, respectively, had mean parities of 2.7± 1.17, 3.9± 2.07, and 2.66±0.85.

Table 1: Comparison of mean age, parity and BMI

Parameters	Category I (TAH)	Category II (VH)	Category III (NDVH)
Mean age	47 ± 6.76 SD	55.2± 10.5 SD p value <0.000*	46.9 ± 6.32 SD p value = 0.28
Mean parity	2.7 ± 1.17 SD	3.9 ± 2.07 SD p value <0.000	2.66 ± 0.85 SD p value = 0.66
Mean BMI	23.05 ± 2.9 SD	22.2 ± 2.2 SD (p value 0.004)	23.5 ± 3.0 SD (p value 0.3)

Table 2: Indication for hysterectomy in category I (AH) and III (NDVH)

Indication	Category I (Tah) N=281	Category III (Ndvh) N=62	P Value
AUB (Palm-Coein)	140 (49.8%)	45(72.5%)	0.001*
Polyp	2 (0.7%)	6 (9.6%)	0.0005*
Adenomyosis	20 (7.1%)	10 (16.1%)	0.04*
Leiomyoma	112 (39.8%)	22 (35.4%)	0.5*
Endometrial	6 (2.1%)	7 (11.2%)	0.0006*
Asymptomatic Leiomyoma	96(34.1%)	2(3.2%)	0.0000*
Benign Ovarian Disease	24 (8.5%)	-	0.01*
Postmenopausal Bleeding	18(6.4%)	13 (20.9%)	0.0002*
CIN	3(1.0%)	2 (3.2%)	0.04*

Table 3: Indication for hysterectomy in category II (VH)

Indication	Category II (VH) N=136
UV prolapse alone	117 (86%)
UV Prolapse associated with other diseases	19 (14%)
UV prolapse with AUB	6 (4.4%)
Polyp	2 (1.4%)
Adenomyosis	1 (0.7%)
Leiomyoma	3 (2.2%)
UV prolpase with Postmenopausal bleeding	5 (3.6%)
UV prolpase with CIN	1(0.7%)

Table 4: Intra-operative complications

Complications n=479	Category I (TAH)n=281	Category II (VH) n=136	Category III (NDVH)n=62
Total n=44(9.1%)	29(10.3%)	11(8.0%) P value 0.46	4(6.4%) P value 0.38
Haemorrhage requiring blood transfusion	22(7.8%)	10(7.3%) P value 0.86	4(6.4%) P value 0.7
Bladder and ureteric injury	3(1.06%)	1(0.7%) P value 0.7	0 P value 0.41
Bowel injuryn= 4(0.8%)	4(1.4%)	0 P value0.16	0 P value 0.34

Table 2 demonstrates that of the 479 participants, 343 were assigned to categories I and III, while the other subjects had UV prolapse and were assigned to category II (VH). It was noted that out of 343 participants enrolled in categories I and III, 140 (49.8%) and 45 (72.5%) subjects, respectively, underwent hysterectomy for AUB. When compared to group I, category III had a considerably higher number of hysterectomies for AUB (p value <0.05). All subjects (n = 136) experienced category II UV prolapse (VH).

According to table 3, the only reason for hysterectomy in 117 (86%) of the participants was UV prolapse. 19 (14%) of the individuals also had comorbid disorders. Out of 479 participants, 44 (9.1%) had intra-operative problems, according to Table 4, and the difference was statistically insignificant. Of these, 29 (10.3%), 11 (8.0%), and four (6.4%) subjects were in categories I, II, and III, respectively. According to Table 5, the average procedure took 74.01±22.2 minutes for category I patients, 69.19±19.01 minutes for category II patients, and 67.5±23.12 minutes for category III patients. Compared to categories II (VH) and III (NDVH), category I (TAH) surgeries took noticeably longer to complete (p value 0.02 and 0.04 respectively). Postoperative fever, wound infection, and UTI were substantially higher in category I (TAH) than in categories II (VH) and III (NDVH), as shown in table 6 (p value 0.05).

The three groups did not significantly differ in terms of postoperative complications including urine retention, paralytic ileus, haemorrhage needing blood transfusion, reopening, and burst abdomen. According to table 7, group I (TAH) experienced a significant greater fall in Hb than category III (NDVH), with a p value of less than 0.05. In comparison to categories II and III, category I's mean duration of analgesic use was substantially longer (p value <0.05). In category I (TAH), the average length of antibiotic use was substantially longer than in

categories II and III (p value <0.05). The average hospital stay in categories I, II, and III was 6.08±1.5, 5.3±1.0, and 5.19±0.69 days, respectively, with category I being substantially longer than categories II and III (p <0.05).

Table 5: Duration of surgery (in minutes)

Duration of Surgery (In Minutes)	Category I (TAH) N=281	Category II(VH)N=136	Category III (NDVH) N=62
Mean	74.01± 22.2	69.19 ± 19.01	67.5 ± 23.12
Range	(30-174)	(30-160) P value = 0.02*	(40-150) P value = 0.04*

Table 6: Postoperative complications

Post operative complications	Category I (TAH)n=281	Category II (VH)n=136	Category III (NDVH)n=62
Total number	149 (53.0%)	24 (17.6%) P value 0.000	8 (12.9%) P value 0.000
Febrile morbidity	62(22%)	14(10.2%) P value 0.003*	5 (8%) P value 0.019*
Wound infection/dehiscence	38 (13.5%)	2 (1.4%) P value 0.0008*	1(1.6%) P value 0.007*
Urinary tract infection	26 (9.2%)	4(2.9%) P value 0.002*	1 (1.6%) P value 0.04*
Paralytic ileus	12 (4.2%)	1 (0.7%)	0
Urinary retention	5 (1.7%)	2 (1.4%)	0
Hemorrhage Requiring blood transfusion	4(1.4%)	1(0.7%)	1(1.6%)
Re-opening	1(0.3%)	0	0
Burst abdomen	1(0.3%)	0	0
Vault hematoma	0	0	0
Pelvic abscess	0	0	0

Table 7: Postoperative parameters

Parameters	Category I(TAH)	Category II (VH)	Category III (NDVH)
Mean Fall in Hb (g/dl)	2.02 ± 0.84 (0.3-5)	1.92 ± 0.69 (0.4-3.4) (P value 0.2)	1.26 ± 0.81 (0.3-3.1) (P value 0.0000)
Mean duration of catheterization (days)	1.66±1.8 (1-15)	1.8±1.18 (1-7) (P value 0.26)	1.72±0.8 (1-5) (P value 0.4)
Mean duration of analgesic usage (days)	7.23±2.05 (5-15)	5.3±1.02 (2-8)	5.4±1.27 (3-8)

		(P value 0.0000)	(P value 0.0000)
Mean duration of antibiotic usage (days)	6.22±1.5 (5-14)	5.1±0.49 (5-7) (P value 0.0000)	5.19±0.59 (5-7) (P value 0.000)
Mean duration of hospital stay (days)	6.08±1.5 (5-25)	5.3±1.0 (4-8) (P value 0.000)	5.19±0.69 (4-8) (P value 0.000)

Discussion

The study included 479 individuals, of which 281 (58.6%) underwent TAH, 136 (28.3%) underwent VH, and the remaining 62 (12.9%) underwent NDVH.

The average age of the individuals in categories I (TAH), II (VH), and III (NDVH) was 47±6.76 years, 55.1±10.56 years, and 46.9± 6.32 years, respectively. In both abdominal and non descent hysterectomy, the mean age in the current study is comparable to the work of Benassi *et al* [1]. (mean age 47±5.1 years in TAH: 48±5.3 years in NDVH). The mean parity in the current study was greater than that reported by Benassi *et al*. [1] (1.42±0.69 in TAH and 1.38±0.58 in NDVH) and Batista *et al*.13 (2.4±1.6 in NDVH) (1.42±0.69 in TAH and 1.38±0.58 in NDVH). Mean BMI was 23.05 ± 2.9 kg/m^2, 22.3 ± 2.2 kg/m^2 and 23.5 ± 3.0 kg/m^2 in category I, II and III respectively, this is comparable to that observed by Ottosen *et al* [2] (i.e. 23.7 kg/m2 in TAH and 25.8 kg/m2 in NDVH) and lower than the mean BMI observed by Miskry *et al* [3] (i.e. 27.4 kg/m2 in TAH and 29.0 kg/m2 in NDVH).

The most frequent cause of abdominal hysterectomy was abnormal uterine bleeding (48%) which is comparable to that (42.5%) observed by Mahasani *et al* [4] and less common than that (66.6%) observed by Miskry *et al* [3]. The second most frequent cause was asymptomatic leiomyoma (34%) which is more common than that observed by Miskry *et al* [3] and Mahasani *et al* [4] where it accounted for 16.6% and 23.1% respectively. In the current study, 86% of the individuals undergoing vaginal hysterectomy had UV prolapse as the explanation, which is comparable to the finding made by Mahasani *et al*. [4], who noted prolapse in 81.6% of the subjects.

According to Mahasani *et al*. [4], AUB was the reason for hysterectomy in 60% of the subjects who underwent NDVH, whereas in the study by Miskry *et al*. [3] it was 50%. This difference was noted because the sample sizes for the studies by Miskry *et al*. [3] (n 18) and Mahasani *et al*. [4] (n 40) were smaller than those for the current study (n=479).

Compared to Ottosen *et al*. [2] observation of 2.5%, the percentage of category I participants who experienced haemorrhage that required blood transfusion was 7.8%. 7.3% of category II (VH) participants experienced haemorrhage that required transfusion. 6.4% of category III (NDVH) participants experienced haemorrhage that necessitated blood transfusions, as opposed to 11.2% in the trial by Miskry *et al*. [3]. In the current study, 1.4% of participants in category I (TAH) had intestinal injuries, while 1.06% of subjects in category I (TAH) had bladder and ureteral injuries. This is in contrast to studies by Benassi *et al*. [1] and Miskry *et al*. [3], which found no evidence of such injuries. Only 0.7% of the participants in category II (VH) developed bladder and ureteral damage in the current investigation. In category III (NDVH) no bowel, bladder and ureteral injury was observed in the present study. On contrary in a study by Ottosen *et al* [2] 2.5% subjects had bladder injury.

In the present study in category I, mean duration of surgery was 74.01 ± 22.2 minutes which is comparable to Ottosen *et al* [2], Miskry *et al* [3] and lower than that observed by Shanthini *et al* [6], in category II, mean duration of surgery was 69.19 ±19.01 minutes, in category III, mean duration of surgery was 67.5 ± 23.12 minutes which is comparable to Miskry *et al* [3] and lower than that observed by Ottosen *et al* [2] and Shanthini *et al* [5].

In the current study, the mean length of surgery for the abdominal route of hysterectomy was significantly longer than the vaginal (VH & NDVH) route, which was consistent with the findings of Ottosen *et al* [2] and Shanthini *et al* [6], however, the mean length of surgery in the study by Miskry *et al* [3] was almost equal in the two groups. This finding may be due to the researchers' poor choice of subjects for the vaginal group.

As all uteri were operated on abdominally and participants with prior pelvic surgery, the mean operation time in category I (TAH) was substantially longer than in categories II (VH) and III (NDVH) (p values 0.02 and 0.04, respectively) [6-9].

In a research by Benassi *et al*. [5], the overall rates of febrile morbidity were significantly lower in the vaginal group compared to the abdominal group, and in the current study, a longer hospital stay, a lengthier surgery, and an abdominal wound may be the likely causes. Compared to categories II and III, category I (TAH) had a considerably greater rate of wound infection and dehiscence. Postoperative complications like urinary retention, paralytic ileus, haemorrhage requiring blood transfusion, reopening, and burst abdomen did not differ significantly in the three categories, which was similar to what was seen by Ottosen *et al* [2] and Benassi *et al* [5]. UTI was significantly higher in category I as compared to category II and III [10-12].

Contrary to Benassi *et al*. [5], the fall in haemoglobin was significantly greater in category I (TAH) compared to category III (NDVH), with a p value of less than 0.05. This was because in the current study, subjects without a history of pelvic surgery and uteri up to 12 weeks in size were operated vaginally, allowing for a simple delivery of the uterus with little blood loss. In category I, the mean duration of analgesic use was significantly longer than in the vaginal group, which is consistent with the findings of Shanthini *et al* [6]. In category I (TAH), the average length of antibiotic use was noticeably longer than in the vaginal group [12-16]. The average hospital stay in categories I, II, and III was 6.08±1.5, 5.3±1.0, and 5.19±0.69 days, respectively, with category I having a significantly longer stay than categories II and III. This finding is consistent with Ottosen *et al*. [2] and Miskry *et al*. [3].

Conclusion

Hysterectomy and other gynaecological surgical procedures should be performed in accordance with modern medicine's goal of minimising surgical damage. This idea has led to the rediscovery of the vaginal route, which has emerged as a viable alternative to the traditional abdominal route.According to the results of the current study, vaginal hysterectomy is related with shorter hospital stays, fewer discomfort, and shorter postoperative problems.

Therefore, benefits of NDVH over abdominal hysterectomy include: no scar, no adhesions, no hernia, no wound gap; shorter hospital stay; faster recovery; less blood loss; extraperitoneal dissection to prevent injury to bowel, bladder, and ureter; minimal bowel handling; no paralytic ileus; and the ability to perform associated urogynecological procedures.Therefore, wherever possible, the vaginal route ought to be taken by both

women with and without genital tract prolapse.

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