

COMPARATIVE STUDY OF NON-DESCENT VAGINAL HYSTERECTOMY WITH ABDOMINAL HYSTERECTOMY IN A TERTIARY CARE HOSPITAL

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Abstract

Background: Hysterectomy is the most commonly performed major Gynaecological surgery in women. The aim is to compare non-descent vaginal hysterectomy with abdominal hysterectomy in a tertiary care hospital. **Materials and Methods:** This prospective study conducted at the Department of Obstetrics and Gynaecology of our institute enrolled 60 hysterectomies subjects meeting the inclusion and exclusion criteria. The participating subjects were equally divided in two groups and peri-operative observations and post operative observation were compared between the two groups. **Result:** It was found that the duration of surgery was significantly higher in Category I (Total Abdominal Hysterectomy) when compared to Category II (Non-Descent Vaginal Hysterectomy). Additionally, postoperative complications such as fever, wound infection, and UTI were significantly higher in Category I (Total Abdominal Hysterectomy) as compared to Category II (Non-Descent Vaginal Hysterectomy). **Conclusion:** The advantages of Non-Descent Vaginal Hysterectomy over abdominal hysterectomy include no scarring, fewer complications, shorter hospital stays, and faster recovery. Therefore, the vaginal route should be the preferred method for hysterectomy wherever possible.

INTRODUCTION

Hysterectomy is the most commonly performed major gynecological surgery in women. Presently, there exist two primary types of hysterectomy procedures, namely abdominal hysterectomy (AH), and vaginal hysterectomy (VH), The selection of VH or AH for a given case is dependent on various clinical variables, either individually or in combination. These variables include pelvic anatomy, uterine size, adnexal disease, gastrointestinal complaints, urological disorders, cystocele/descent of the urethra-vesical angle, rectocele, enterocele, heart or lung disease, body mass index, parity, previous caesarean section, and the experience and biases of the surgeon. The current emphasis on minimally invasive surgery has led to a renewed interest in and importance of VH for non-prolapse indications, such as Non-descent Vaginal Hysterectomy (NDVH), which is considered the scarless hysterectomy. NDVH is now performed for non-descent uterus in cases of conditions such as AUB, adenomyosis, and fibroid uterus. Therefore, this study was conducted to compare non-descent vaginal hysterectomy with abdominal hysterectomy in a tertiary care hospital. [1-8]

MATERIALS AND METHODS

Study design: This prospective comparative cross-sectional study included 60 subjects (divided equally into two groups) who underwent total abdominal and non-descent vaginal hysterectomy, in the Department of Obstetrics and Gynecology, at Anugrah Narayan Magadh Medical college and Hospital, Gaya, Bihar. The study was conducted over a period of 13 months from March, 2021 to March, 2022. The study was approved by the institutional research and ethical committee, vide letter no-2627. A written and informed consent was obtained from all the participating subjects before the commencement of the study.

This study enrolled subjects who were admitted for hysterectomy and met inclusion and exclusion criteria.

The inclusion criteria were women having Benign pathology, uterus less than 12 weeks size, mobile uterus while exclusion criteria were pelvic malignancy, pelvic adhesion, prolapse uterus, uterus size more than 12 weeks, patient with previous 2 or more LSCS and endometriosis. Additionally, women who had undergone failed vaginal or NDVH, or who had converted to AH due to failed VH, were excluded from the study.

Methodology

A comprehensive medical history was obtained, including details of the patient's present illness, menstrual cycle, obstetric history, past medical history, family history, and personal history. A thorough physical examination was conducted, encompassing a general examination, systemic examination, and gynecologic examination, which were all documented. Additionally, all female patients underwent a series of preoperative investigations, including hemoglobin and hematocrit tests, pelvic organ ultrasound to assess the size of the uterus and identify any associated pathology, and other routine tests. Prior to the procedure, informed written consent was obtained from each patient. The patients were then categorized into two groups based on the type of hysterectomy they were undergoing.

Category I: Total Abdominal Hysterectomy (TAH)

Category II: Non-Descent Vaginal Hysterectomy (NDVH).

During the pre-operative and post-operative periods, patients were administered standard antibiotics. Thromboprophylaxis was provided in the form of low molecular weight heparin from the first postoperative day until the patient was able to move around in high risk cases. An indwelling urinary catheter was retained until the patient was no longer receiving intravenous fluids. Details of the surgery and type of anesthesia were documented. The perioperative outcome was evaluated based on the duration of surgery, bladder, bowel or ureteric injury, and primary hemorrhage requiring blood transfusion. Any blood transfusions during the intraoperative and postoperative periods were also recorded. Post-operative outcomes were assessed in terms of urine retention, duration of catheterization, urinary tract infection, paralytic ileus, febrile morbidity, wound infection/dehiscence, postoperative hemoglobin levels, systemic complications, postoperative pain,

hospital stay in days, secondary hemorrhage, readmission, if any. Post-operative temperature was monitored every 6 hours, and a midstream clean catch urine sample was sent for culture and sensitivity testing on the day after surgery. Hemoglobin levels were estimated preoperatively and on the second postoperative day for every patient. Hospital stay was recorded from the morning of the first postoperative day until the day of discharge. All these outcome variables were compared between abdominal, and Non-Descent Vaginal Hysterectomies.

Statistical Analyses

The obtained data was tabulated in a Microsoft Excel sheet and was subjected to statistical analysis using SPSS Software, version 16.0.

RESULTS

The study enrolled a total of 60 hysterectomies subjects equally divided into two groups. Category I (TAH) had 30 cases, and Category II (NDVH) had 30 cases. The study made the following observations:

[Table 1] indicates that the mean age of the subject undergoing hysterectomy was 49.6 ± 8.88 years. The mean age in category I (TAH) was 48.2 ± 6.16 years, and in category II (NDVH) it was 47.9 ± 6.21 years. Category I (TAH) was used as a reference, and the mean age of category II was compared with category I. The mean age was significantly higher in category I when compared to category II. The mean parity in the two categories were 2.7 ± 1.17 , and 2.66 ± 0.85 in category I, and II respectively.

The distribution of study subjects is shown in [Table 2].

Of the subjects underwent hysterectomy, maximum number of cases were of fibroids, followed by Abnormal uterine Bleeding (AUB), chronic PID, and least were in Endometrial Hyperplasia.

Table 1: Comparison of mean age, parity and BMI.

| Parameters | Category I (TAH) (n=30) | Category II (NDVH) (n=30) | P-Value |
|-------------|-------------------------|---------------------------|---------|
| Mean age | 48.2 ± 6.16 | 47.9 ± 6.21 | 0.28 |
| Mean parity | 2.3 ± 1.2 | 2.46 ± 0.45 | 0.66 |
| Mean BMI | 24.05 ± 2.7 | 24.5 ± 3.1 | 0.3 |

Table 2: Distribution of subjects

| | AUB | Fibroid | Chronic PID | Chronic cervicitis | Adenomyosis | Endometrial Hyperplasia | Total |
|-------|-----|---------|-------------|--------------------|-------------|-------------------------|-------|
| TAH | 05 | 15 | 06 | 01 | 02 | 01 | 30 |
| NDVH | 13 | 07 | 05 | 03 | 02 | 00 | 30 |
| Total | 18 | 22 | 11 | 04 | 04 | 01 | 60 |

Table 3: Intra-operative complications.

| Complications | Category I (TAH) | | Category III (NDVH) | | p-value |
|---|------------------|--------|---------------------|---------|---------|
| | Number | % | Number | % | |
| Haemorrhage requiring blood transfusion | 6 | 20 % | 2 | 13.33 % | 0.7 |
| Bladder and ureteric injury | 2 | 6.67 % | 0 | 0 | 0.41 |
| Bowel injury | 1 | 3.33 % | 0 | 3.33 % | 0.34 |

Table 4: Duration of surgery (in minutes).

| Duration of Surgery (in minutes) | Category I (TAH) | Category II (NDVH) | p-value |
|----------------------------------|------------------|--------------------|---------|
| Mean | 96.05 ± 18.4 | 63.5 ± 21.14 | 0.04 |
| Range | (30-174) | (40-150) | |

Table 5: Postoperative complications

| Post operative complications | Category I (TAH) | Category II (NDVH) | P value |
|--|------------------|--------------------|---------|
| Total number | 53 % | 12.9% | 0.0001 |
| Febrile morbidity | 22% | 8% | 0.019 |
| Wound infection/dehiscence | 13.5% | 1.6% | 0.007 |
| Urinary tract infection | 9.2% | 1.6% | 0.04 |
| Paralytic ileus | 4.2% | 0 | ? |
| Urinary retention | 1.7% | 0 | ? |
| Hemorrhage requiring blood transfusion | 1.4% | 1.6% | ? |
| Re-opening | 0 | 0 | |
| Burst abdomen | 0 | 0 | |
| Vault hematoma | 0 | 0 | |
| Pelvic abscess | 0 | 0 | |

Table 6: Postoperative parameters.

| Parameters | Category I (TAH) | Category II (NDVH) | p-value |
|--|------------------------|--------------------------|---------|
| Mean Fall in Hb (g/dl) | 2.02 ± 0.84 (0.3-5) | 1.26 ± 0.81 (0.3-3.1) | 0.00001 |
| Mean duration of Catheterization (days) | 1.66 ± 1.8 (1-15) | 1.72 ± 0.8 (1-5) | 0.4 |
| Mean duration of analgesic Usage (days) | 6.23 ± 2.05 (5-15) | 5.49 ± 1.27 (3-8) | 0.0001 |
| Mean duration of antibiotic usage (days) | 7.32 ± 1.5 (5-14) | 6.39 ± 0.59 (5-7) | 0.0001 |
| Mean duration of hospital stay (days) | 5.08 ± 1.9 (5-25) | 4.19 ± 1.69 (4-8) | 0.0001 |

Table 7: Comparison of Blood Loss (in ml)

| Parameter | Route of Surgery | Mean Amount of Blood Loss | P value |
|--------------------|------------------|---------------------------|-----------------|
| Blood Loss (in ml) | TAH | 120 ML | p value < 0.001 |
| | NDVH | 40 ML | |

[Table 3] shows that out 60 subjects, 14 (9.1%) subjects had intra-operative complications, out of which 9 were in category I while 5 were in category II and the difference was statistically non-significant. [Table 4] presents the average duration of surgical procedures for category I, which was found to be 74.01 ± 22.2 minutes. While for category II, the mean duration of surgery was 67.5 ± 23.12 minutes. Notably, the duration of surgery was significantly higher in category I (TAH) compared to category II (NDVH) (p values = 0.04).

As demonstrated in [Table 5], postoperative fever, wound infection, and urinary tract infection were significantly more prevalent in Category I (total abdominal hysterectomy) in comparison to Category II (non-descent vaginal hysterectomy) (p value < 0.05). Conversely, postoperative complications such as urinary retention, paralytic ileus, hemorrhage necessitating blood transfusion, reopening, and burst abdomen did not exhibit significant differences across the two categories.

[Table 6] demonstrates that the decrease in hemoglobin was significantly greater in category I (total abdominal hysterectomy) in comparison to category II (non-descending vaginal hysterectomy), with a p value of less than 0.05. The mean duration of analgesic usage was also significantly longer in category I when compared to category II, with a p value of less than 0.05. Additionally, the mean duration of antibiotic usage was significantly longer in category I when compared to category II, with a p value of less than 0.05. The mean duration of hospital stay for category I, and II was 6.08 ± 1.5 , and $5.19 \pm$

0.69 days, respectively. Furthermore, the duration of hospital stay was significantly longer in category I when compared to category II, with a p value of less than 0.05.

DISCUSSION

The study enrolled a total of 60 subjects, of which 50 % underwent total abdominal hysterectomy (TAH) and remaining 50 % underwent non-descent vaginal hysterectomy (NDVH). The mean age of subjects in category I (TAH) was 48.2 ± 6.16 years, and in category II (NDVH) the mean age was 47.9 ± 6.21 . The mean age observed in this study is comparable to that reported by Benassi et al,^[9] with mean ages of 47 ± 5.1 years in TAH and 48 ± 5.3 years in NDVH for both abdominal and non-descent hysterectomy.

In the current study, the mean parity values were found to be 2.3 ± 1.2 and 2.46 ± 0.45 in categories I and II respectively. These values were observed to be higher than the mean parity values (1.42 ± 0.69 in TAH and 1.38 ± 0.58 in NDVH) reported by Benassi et al⁹ and Batista et al¹³ (2.4 ± 1.6 in NDVH). The mean BMI values were 24.05 ± 2.7 kg/m² and 24.5 ± 3.1 kg/m² in categories I and II respectively. These values were found to be comparable to those reported by Ottosen et al²¹ (i.e. 23.7 kg/m² in TAH and 25.8 kg/m² in NDVH) and lower than the mean BMI values reported by Miskry et al,^[6] (i.e. 27.4 kg/m² in TAH and 29.0 kg/m² in NDVH).

The most prevalent indication for hysterectomy was fibroid, accounting for 22 cases. This finding is similar to the findings of Mahasani et al, who

observed a rate of 42.5%. However, it is lower than the rate reported by Miskry et al, which was 66.6%. The second most common indication was abnormal uterine bleeding, accounting for 18 cases. This finding is higher than the rates reported by Miskry et al and Mahasani et al, which were 16.6% and 23.1%, respectively. In the present study.^[10-13]

In Category I, the occurrence of haemorrhage requiring blood transfusion was observed in 20% subjects, which is higher than the rate reported by Ottosen et al where 6.4% of subjects required blood transfusion due to haemorrhage, as compared to the 11.2% reported in the study conducted by Miskry et al.^[14-16] In the present study, bladder and ureteral injuries were observed in 6.67 % of subjects, and bowel injuries were observed in 3.33 % of subjects each in Category I and Category II. This is in contrast to the studies conducted by Benassi et al,^[9] and Miskry et al,^[6] where such injuries were not observed. In Category II (NDVH), no bowel, bladder, or ureteral injuries were observed in the present study. However, in a study conducted by Ottosen et al,^[16] bladder injury was observed in 2.5% of subjects.

In the current investigation, within category I, the average duration of surgery was 69.05 ± 18.4 minutes, a finding that is comparable to Ottosen et al,^[16] and Miskry et al,^[6] but lower than that reported by Shanthini et al.^[11] Within category II, the mean duration of surgery was 63.5 ± 21.14 minutes, which is comparable to Miskry et al,^[6] but lower than that observed by Ottosen et al^[16] and Shanthini et al.^[11]

In the present study, it was observed that the mean duration of surgery in the abdominal route of hysterectomy was significantly greater than that of NDVH. This finding is consistent with the observations made by Ottosen et al,^[16] and Shanthini et al.^[11] However, the mean duration of surgery in the study conducted by Miskry et al,^[6] was found to be almost equal in both groups. This observation may be attributed to poor subject selection in the vaginal group by the researchers. Furthermore, it was found that the mean duration of surgery was significantly higher in category I (TAH) as compared to category II NDVH (p value 0.04). This is because subjects with prior pelvic surgery and all uterus > 12 weeks were operated abdominally.

In our study the mean blood loss was significantly lesser in NDVH group compared to TAH group which was statistically significant [Table 7].

The study conducted by Benassi et al,^[9] revealed that the overall rates of febrile morbidity were significantly lower in the vaginal group compared to the abdominal group. Similarly, in the present study, it was observed that longer hospital stays, longer surgery durations, and abdominal wounds could be potential explanations for this difference. Furthermore, the incidence of wound infection/dehiscence was significantly higher in category I (total abdominal hysterectomy) compared to category II, and the incidence of urinary tract infections was significantly higher in category I

compared to categories II. These findings are consistent with those reported by Miskry et al.^[6] Postoperative complications such as urinary retention, paralytic ileus, haemorrhage requiring blood transfusion, reopening, and burst abdomen did not differ significantly among the two categories, which is in line with the observations made by Ottosen et al,^[16] and Benassi et al.^[9]

The incidence of fall in haemoglobin level was found to be significantly higher in Category I (total abdominal hysterectomy) as compared to Category II (non-descent vaginal hysterectomy) with a p value of less than 0.05. This finding is in contrast to the results reported by Benassi et al.^[9] The reason for this difference in incidence is attributed to the fact that in the present study, subjects without a prior pelvic surgery and with uteri up to 12 weeks in size were operated vaginally, which facilitated easy delivery of the uterus with minimal blood loss through this route. Furthermore, the mean duration of analgesic usage was found to be significantly longer in category I as compared to the vaginal group, which is consistent with the findings reported by Shanthini et al.^[11] Additionally, the mean duration of antibiotic usage was significantly longer in category I (total abdominal hysterectomy) as compared to the vaginal group. The mean duration of hospital stays in category I and II was 5.08 ± 1.9 and 4.19 ± 1.69 days, respectively. This duration was found to be significantly longer in category I as compared to category II, which is similar to the findings reported by Ottosen et al,^[16] and Miskry et al.^[6]

CONCLUSION

The benefits of performing a non-descent vaginal hysterectomy (NDVH) over an abdominal hysterectomy are numerous like shorter duration of surgery, less intra operative and post-operative complications, shorter duration of hospital stay, scarless surgery, etc. Therefore, the vaginal route should be the preferred option not only for women with Genital Tract Prolapse but also for those without, wherever possible.

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