

Clinical Outcome of Non-descent Vaginal Hysterectomy Versus Abdominal Hysterectomy

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ABSTRACT

Background: Hysterectomy is one of the most common operations performed by the gynecologists second to caesarean section. Hysterectomies are done vaginally, laparoscopically or abdominally. This study has been conducted to compare the complications of abdominal hysterectomy with non-descent vaginal hysterectomy with an aim to establish a safer, superior and lesser complication for the patients.

Methods: This is a cross sectional study conducted at Kathmandu Model Hospital over the period of one year among 70 women. Women according to inclusion criteria were randomly allocated into two groups; 35 women in group 1 underwent non-descent vaginal hysterectomy and 35 in group 2 underwent total abdominal hysterectomy. Demographic data, intraoperative blood loss, intraoperative complications, operation time, postoperative complications, pain, and hospital stay was recorded and analyzed using statistical tool.

Results: The average age of the women was 45.77 ± 6.33 years. Median blood loss ($p=0.033$) and hospital stay ($p=0.005$) was significantly low in group 1 as compare to group 2. Mean pain score at discharge ($p=0.0005$) and follow-up ($p=0.0005$) was also significantly less in group 1 as compared to group 2. Overall rate of complication was rare and not statistically significant between groups ($p=0.643$). Rate of wound infection was 5.7% that was observed in group 2, Vault infection 5.7% in group 1, UTI in 2 cases (5.7%) and paralytic ileus was found in 1 case in group 2.

Conclusions: Non-descent vaginal hysterectomy is safe, effective and feasible procedure compared with abdominal hysterectomy. Less complications, faster operating time and easy recovery post operatively makes this a patient friendly mode of hysterectomy.

Keywords: Hysterectomy; non-descent vaginal hysterectomy; vault infection; wound infection

INTRODUCTION

Hysterectomy is one of the most common operations performed by the gynecologists. It can be done vaginally, laparoscopically or abdominally. With increasing trend of minimal invasive surgeries, non-descent vaginal hysterectomy (NDVH) is considered to be scar less hysterectomy and considered in developing countries like Nepal where medical resources and funds are very limited. Factors like uterine size and mobility, adnexal pathology helps us decide about the mode of surgery. Patients undergoing total abdominal hysterectomy (TAH) have many complications intraoperatively as well as postoperatively. Recovery time is often prolonged after abdominal hysterectomy. Patients undergoing NDVH have faster postoperative recovery, less hospital stay and early return to work compared to TAH.¹ However,

no superiority has been noted so far in intraoperative complications. This study was performed to evaluate the complications, both intraoperative and postoperative, between the two groups.

METHODS

This was a cross sectional study done at Kathmandu Model Hospital after being approved by institutional review board with ethical approval. The study duration was of 1 year; from January 2019 up to December 2019. Sample size was calculated using two proportion formula

$n = (Z\alpha/2 + ZB)^2 * (p1(1-p1) + p2(1-p2)) / (p1-p2)^2$ where, level of confidence is 95% and power is 80%. Outcome variable used was postoperative fever with sample size of 35 in each group. We enrolled 70 participants from outpatient department consecutively and they were

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grouped into two, group 1 NDVH and group 2 TAH after taking the informed written consent. Inclusion and exclusion criteria were used to select patients. Patients age 30- 60 years, uterine size less than 12 weeks with adequate uterine mobility and vaginal access on clinical judgment were included in the study. Patients with complex adnexal mass and malignancy, previous 2 or more LSCS or other pelvic surgery and Body Mass Index (BMI) > 35 and pelvic organ prolapse were excluded from the study . All the surgeries were performed by the same team of surgeons. Different techniques of delivering uterus during NDVH was used; entire intact uterus, coring, bisection and myomectomy if needed.

Information such as name, age, obstetric history, comorbid condition was recorded after admission. Total blood loss, time period from incision to closure, was recorded. All the operations were performed by the same team. Any complications encountered intraoperative was recorded as intraoperative complications. Postoperatively, pain was assessed using visual analogue score on first post-operative day, discharge and follow up of 1 week at outpatient department Any post-operative complications like wound infection, vault infection, fever, urinary tract infection, ileus was recorded. Patients were discharged as per physical fitness of patients and hospital stay of patient was recorded. Data analysis was done using Statistical Package for Social Science (SPSS) version 25.

RESULTS

A total of 70 women according to inclusion criteria were allocated into two groups; 35 women in group 1 underwent NDVH and 35 in group 2 underwent TAH. Mean age, BMI and uterine size are reported in table 1.

Table 1. Descriptive statistics of characteristics of women according to groups.

Variables	Group 1 n=35		Group 2 n=35	
	Mean	Std. Deviation	Mean	Std. Deviation
Age (Years)	45.46	5.94	46.09	6.78
BMI (kg/m ²)	24.99	1.97	25.226	2.26
Uterus Size ()	9.37	2.26	9.43	2.31
Duration of surgery (minutes)	82.66	22.50	140.09	37.11

80% were multigravida in group 1 and 74.3% in group

2. There were 11.4% diabetic, 8.6% were hypertensive and 15.7% were with hypothyroidism. 8.6% of women had attended menopause status. All women included in this study had vaginal delivery. Fibroid uterus and abnormal uterine bleeding were the commonest cause of hysterectomy in both groups and the mean uterus size was found to be 9.3 weeks in both groups.

Intraoperative, median blood loss was significantly low in NDVH compared to TAH as shown in Figure 1.

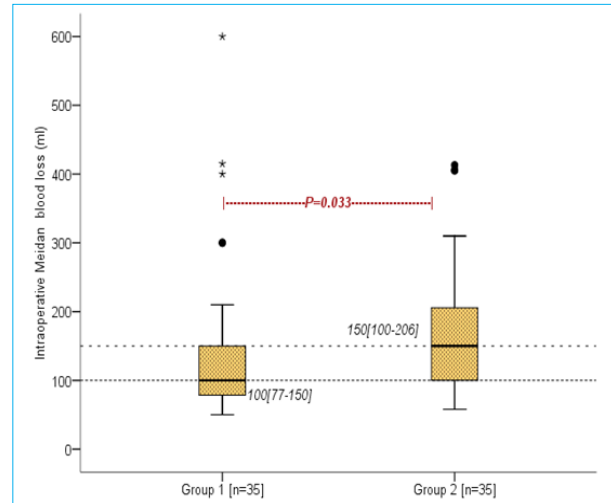


Figure 1. Comparison of intraoperative median blood loss between groups.

There was one case of bladder injury during NDVH (2.85%) for which primary repair was done and patient was catheterized for 10 days post operatively. Also, one case was converted to abdominal hysterectomy due to difficulty in delivering uterus due to dense adhesion. Most common method of uterus removal in NDVH was removal of entire intact uterus in 54.3% (19/35) followed by bisection 20% (7/35), coring in 17.4% (6/35), and myomectomy 8.6% (3/35). There was one case of bowel injury intraoperative in TAH and primary repair was done. Average duration of surgery in NDVH group was 82±22.50minutes and in TAH group was 140±37.11minutes.

Post-operative complication was not statistically significant between two groups (p=0.643). Rate of vault infection was 5.7% in group 1 and rate of wound infection was 5.7% in group 2. There were 2 cases with fever secondary to UTI (5.7%) in TAH; one of them had concomitant paralytic ileus as reported in Table 2.

Table 2. Comparison of complication rate between groups.

Post-operative Complication	Group 1 n=35	Group 2 n=35	P-Value
Overall all complications	2(5.7%)	3(8.6%)	0.643
Wound Infection	0(0%)	2(5.7%)	0.493
Vault Infection	2(5.7%)	0(0%)	0.493
UTI	0(0%)	2(5.7%)	0.493
Paralytic Ileus	0(0%)	1(2.9%)	0.999

Similarly, median hospital stay was also significantly low in group 1 than group 2, as shown in figure 2. Mean pain score on discharge and follow up was also significantly less in group 1 as compared to group 2 (P=0.005) as shown in Table 3.

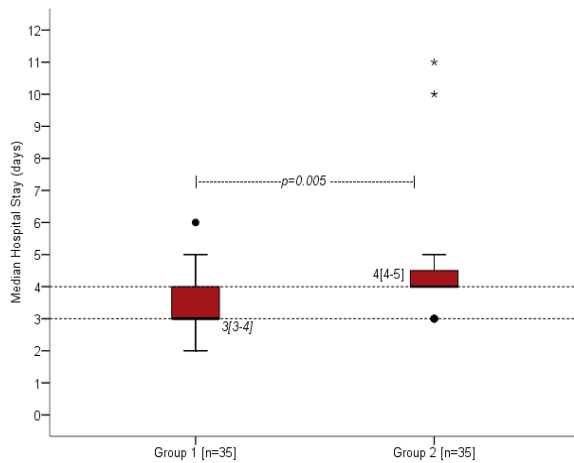


Figure 2. Comparison of median hospital stay between groups.

Table 3. Comparison of mean VAS pain score between groups.

Pain by VAS	Group 1 n=35		Group 2 n=35		P-Value
	Mean	Std. Deviation	Mean	Std. Deviation	
Post-Operative	7.31	0.96	7.43	0.92	0.613
At discharge	3.31	1.07	4.86	1.22	0.0005
At Follow up	2.11	0.47	3.26	1.54	0.0005

DISCUSSION

Hysterectomy is the second most common operation performed by the Gynecologists. The surgical approach of hysterectomy is the most important factor responsible

for postoperative morbidity. Vaginal hysterectomy is associated with a shorter duration of hospital stay, speedier recuperation, fewer unspecified infections or febrile episodes than abdominal hysterectomy.² In the absence of uterine prolapse, most gynaecologists prefer the abdominal to vaginal route of hysterectomy. The common limitations are the non-prolapse uterus, larger size, nulliparity, prior pelvic surgery, cesarean sections, pelvic adhesions, endometriosis and limited exposure during the learning phase of their career.

In our study average age of the women was 45.77±6.33 years and it was the common age group for surgery and similarity was also observed in studies done by Kansara et al³ and Davies et al.⁴ Similar to the study by Kansara et al and Davies et al, fibroid uterus followed by DUB was the most common indication of hysterectomy as in the present study.^{3,4} Fibroid uterus or large uterus were successfully removed via different techniques like coring, bisection, morcellation, myomectomy or with combination of techniques. Difficulty in delivering uterus can be due to adhesion or obstruction. We had one case converted to laparotomy due to difficulty in vaginal removal of uterus due to dense adhesion.

Intraoperatively, the amount of blood loss was comparatively more with TAH than NDVH (p<0.01). We had one case of bladder injury during NDVH and one case of bowel injury during TAH; both treated with primary repair intraoperatively immediately. Priyadarshini et al⁵, Balakrishnan et al⁶ and Abrol et al⁷ observed similar findings where the amount of blood loss was significantly less in the NDVH group. Priyadarshini et al⁵ also reported that two patients of TAH sustained bladder injury and one had bowel injury. Average duration of surgery in NDVH group was shorter than TAH group. This can be explained by the time required to open and close the abdomen. In this study, the incidence of vault infection in NDVH was found to be 5.7% and the wound infection observed in TAH was 5.7%, which was statistically non-significant. Two cases of UTI and one case of paralytic ileus were recorded post TAH; which was also statistically non-significant; 5.7%. This finding was compatible with study by Iftikar et al and Bharatnur et al.^{8,9} However, postoperative complications are comparable between these two groups in studies by Priyadarshini et al, Abrol et al, Chen et al.^{5,7,10} Overall, the rate of wound infection is higher following TAH compared to NDVH. However, this finding can be due to limitation of sample size and study duration of our study.

The patients who underwent NDVH had minimal tolerable

pain, mobilized early and comfortably and were able to start normal diet easily. They were medically and physically fit earlier than the patients who underwent TAH. Hence, the patient who underwent NDVH had significant shorter hospital stay ($p < 0.01$) compared to TAH group. Maximum number of patients had VAS score of 2 on average during discharge and follow up. Similar findings were noted in a study by Rosy et al.¹¹ In contrast, patients who underwent TAH had more pain comparatively and mobilized late compared to NDVH group. TAH group felt more discomfort and had average of VAS score of 4- 6 on discharge and during follow up. This was similar to the observations by Dhivya et al.¹² and Chakraborty et al.¹³

NDVH is a safe and effective operative technique for benign gynecological conditions and should be offered whenever possible, considering safety, better operative outcome and cost effectiveness. Despite of the surgical challenges in NDVH, it was noted to be superior to abdominal in terms of intraoperative blood loss, bladder and bowel injury, postoperative pain, duration of hospitalization, patient comfort and financial burden. NDVH has lower risk of associated bladder and bowel injury as compared to abdominal hysterectomy.^{14,15} This research, however, is subject to several limitations. The first one is the sample size and second one is the study duration. This is probably due to the small research center and the difficulty aroused by COVID pandemic had limited our study duration. A longer duration and larger sample size will help us yield a better result.

CONCLUSIONS

Non-descent vaginal hysterectomy is safe and feasible procedure when compared with total abdominal hysterectomy. The decrease in the blood loss reduced the need for blood transfusion. The intra-operative complications and post-operative complications were relatively less with NDVH in this study. The shorter hospital stay reduced the economic burden to the patients. In addition, early mobilization, comfort, and improvement in quality of life in patient undergoing NDVH were markedly significant. Hence, NDVH is feasible, safe and effective procedure when compared with TAH.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

REFERENCES

1. Chavyan RP, Arora G, Pajai S. Comparative study between

vaginal and abdominal hysterectomy in non-descent cases. *Int J Sci Rep.* 2016;2(3):48-52. [\[Article\]](#)

2. Gayathri KB, Sajana G, Manjusha P. Non descent vaginal hysterectomy for benign gynaecological disease: an institutional study on safety and feasibility from South India. *IOSR J Dent Med Sci.* 2017;16(11):59-63. [\[Article\]](#)
3. Kansara V, Chaudhari J, Desai A. A comparative study of non-descent vaginal hysterectomy and total laparoscopic hysterectomy. *Int J Reprod Contracept Obstet Gynecol.* 2020;9:777- 81. [\[Article\]](#)
4. Davies A, Wizza E, Bournas N. How to increase the proportion of hysterectomies performed vaginally. *Am J Obstet Gynaecol.* 1998;179:1008–12. [\[Article\]](#)
5. Priyadarshini M, Hansda R. A comparative study between total abdominal hysterectomy and non-descent vaginal hysterectomy. *Indian J Obstet Gynecol Res.* 2020;7(2):153-156. [\[Article\]](#)
6. Balakrishnan D, Dibyajyoti G. A comparison between non-descent vaginal hysterectomy and total abdominal hysterectomy. *J Clin Diagn Res.* 2016;10(1):11–4. [\[Article\]](#)
7. Abrol S, Rashid S, Jabeen F, Kaul S. Comparative analysis of nondescent vaginal hysterectomy versus total abdominal hysterectomy in benign uterine disorders. *Int J Reprod, Contracept, Obstet Gynecol.* 2017;6(3):846–9. [\[Article\]](#)
8. Iftikhar R. Vaginal Hysterectomy is Superior than Abdominal Hysterectomy. *J Surgery Pakistan.* 2008;13(2):55-8. [\[Download PDF\]](#)
9. Bharatnur S. Comparative study of abdominal versus vaginal hysterectomy in non- descent cases. *Internet J Gynaecology and Obstetrics.* 2010;15. [\[Article\]](#)
10. Chen B, Ren DP, Li JX, Li CD. Comparison of vaginal and abdominal hysterectomy: a prospective non-randomized trial. *Pak J Med Sci.* 2014; 30(4):875-9. [\[Article\]](#)
11. Rosy N, Roy BN, Naher L, Hayat S, Sultana N. Non-descent vaginal hysterectomy versus total abdominal hysterectomy-A case control study. *IOSR J Dent Med Sci.* 2017;16(12):24–7.
12. Dhivya B, Gharpalia D. A comparison between non-descent vaginal hysterectomy and total abdominal hysterectomy. *J Clin Diagn Res.* 2016;10(1):11–14. [\[Article\]](#)
13. Chakraborty S, Goswami S, Mukherjee P. Hysterectomy..... Which Route?. *J Obstet Gynaecol India.* 2011;61(5):554–557. [\[Article\]](#)
14. Kovac SR, Cruikshank SH, Retto HF. Laparoscopy assisted vaginal hysterectomy. *J Gynecol Surg.* 1990;6(3):185-93. [\[Article\]](#)

15. Salcedo FL. Vaginal hysterectomy in non-prolapsed uteruses: “no scar hysterectomy”. *Int Urogynecol J Pelvic Floor Dysfunct.* 2009; 20(9): 1009-12. [\[Article\]](#)