

Evaluation of Intra-operative and Post-operative Complications of Non Descent Vaginal Hysterectomy: A Single-center Hospital-based Prospective Study

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ABSTRACT:

Introduction: Globally, hysterectomy is the most common major gynecological procedure. Patients opting hysterectomy for benign non prolapse cases may be offered non-descent vaginal hysterectomy with quicker recovery, shorter hospital stay, less intra- and post-operative morbidity compared to abdominal route. Vaginal approach for hysterectomy is desirable in Nepal due to limited health resources. This study aimed to evaluate the intra- and post-operative complications of non-descent vaginal hysterectomy (NDVH). **Methods:** A prospective study was conducted at College of Medical Sciences over one-year period. A total of 50 cases were selected for NDVH on the basis of inclusion and exclusion criteria. Data regarding age, parity, uterine size, estimated blood loss, length of operation, complication and hospital stay were recorded. **Results:** Majority of women were in the age group of 41-45 years (mean age: 44.7±5.6 years) and multiparous (38%). The common indications for NDVH were fibroid uterus (66%) and adenomyosis (14%). The mean volume of blood loss was 121.5ml±110.94 and 3% required blood transfusion. The mean drop in hemoglobin level was statistically significant post surgery [1.05gm/dl]. The mean surgical time was 69.54±19.32 minutes. In the post-operative period, 10% women had UTI and 2% had fever. The mean duration of hospital stay was 4.06±0.24 days. **Conclusion:** Non-descent vaginal hysterectomy is a major surgery suitable in low-and middle income countries like Nepal with good outcome and low complication rates.

Keywords: Complications, Intra-operative, Non-descent vaginal hysterectomy, Pre-operative.

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INTRODUCTION:

Hysterectomy is the most common major gynecological procedure performed globally with a broad spectrum of indications ranging from malignant gynecological diseases to obstetrical conditions.[1,2] Regardless of the

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mode [abdominal /vaginal /laparoscopic/robotic/combined], it is most often performed for benign conditions to improve the patient's quality of life when medical or other less invasive methods have failed.[3,4] Various factors to be considered in choosing the route for hysterectomy should include safety, cost-effectiveness and the medical needs of the patient.[5]

Non-descent vaginal hysterectomy (NDVH), a vaginal approach without uterine prolapse, is associated with less morbidity, lower health care costs, less hospital stay, minimal complications and better patient satisfaction compared to laparoscopic techniques.[6] It is also associated with less complications rate, less operative time and a faster convalescence.[7,8]

Vaginal approach for hysterectomy is desirable in low- and middle income countries like Nepal due to limited health resources. This study was therefore conducted to note the various intra- and post-operative complications of NDVH.

METHODS:

This study was a single-centered hospital-based prospective study conducted at the Department of Gynecology and Obstetrics, College of Medical Sciences and Teaching Hospital, Bharatpur, over a one-year period from 15th March 2019 to 14th March 2020 after approval from the Institutional Ethical Committee [COMSTH-IRC/2019-150].

The sample size was derived from Cochran's formula: $n = Zpq / e^2$, where, n = minimal sample size, $Z = 1.96$, p = prevalence, $q = 1-p$, $e = 0.05$

Taking prevalence (p) as 2.9% [9], the sample size for this study was calculated to be 46. A total of 50 cases were enrolled in the study.

All the cases were selected on the basis of inclusion and exclusion criteria. The inclusion criteria were age above 35 years, uterine size not exceeding 16 weeks of gravid uterus, adequate vaginal access with good uterine mobility and non-prolapsed uterus, no previous pelvic surgery, dysfunctional uterine bleeding (DUB), adenomyosis, leiomyoma, and endometrial hyperplasia. Cases with nulliparity and those with suspicion of malignancy and complex adnexal masses were excluded.

Detailed history including significant past history, surgical history, family history, menstrual history and personal history were taken to determine the risk factors for outcomes of NDVH. Proper general physical and systemic examination and routine investigations were done. Special consent for conversion to abdominal hysterectomy if needed was taken. All the cases were reassessed in operating theatre after the patient was anaesthetized, to confirm the size, mobility of uterus, vaginal accessibility, and laxity of pelvic muscles. Vaginal hysterectomy was considered successful if it was not converted to abdominal route. In bigger size uterus, debulking techniques were performed as and when required. The intra-operative events i.e. the length of operation (incision of cervico-vaginal junction to the closure of vault) and estimated blood loss during surgery measured with Gauze Visual Analogue [10] as well as intra-operative complications i.e. visceral injury (bladder/ ureteric/ bowel), conversion to total abdominal hysterectomy (TAH), hemorrhage requiring blood transfusion, if any, were recorded. The post-operative complications like fever, hemorrhage, urinary tract infection, vaginal vault infection, paralytic ileus, chest infection, vault granuloma, and post-operative psychosis were recorded if encountered post operatively.

Data regarding age, parity, uterine size, indications, intra-operative and post-operative events and complications, adjuvant procedures, clinical outcome and hospital stay were recorded. Patients were prescribed an identical regime of analgesia and prophylactic antibiotics post-operatively for five days. The post-operative haemoglobin was estimated on the first post-operative day to compare the drop in haemoglobin following surgery. All the cases were advised for follow up in two weeks after discharge with histopathology report and thereafter in four weeks for observation of late complications.

The collected data were recorded in a preformed performa and entered in Statistical Package for Social Sciences (SPSS™) software version 20. Descriptive analysis is presented in mean ±SD. Frequency tables were generated for the categorical data and are presented in frequency and percentage. A p-value less than 0.05 was considered to be statistically significant.

RESULTS:

The most common age group of the women enrolled in the study was 41-45 years with the mean age 44.70±5.60 years. Majority (38%) of women had parity 2. Out of 50 cases, the most common indication for NDVH was uterine fibroid in 33 patients (66%) followed by adenomyosis in seven cases (14%), endometrial hyperplasia in four cases (8%), dysfunctional uterine bleeding in three cases (6%), endometrial polyp in two cases (4%) and chronic cervicitis in one case (2%).

Thirty one (62%) of women had uterine size six to ten weeks, nine (18%) had 10-12 weeks size uterus, eight (16%) had normal to six weeks size uterus and two (4%) women had 12-16 weeks size uterus. Out of 50 cases, 43 cases had no co-morbidities and one case had Type II diabetes mellitus, one case had Type II DM and hypothyroidism, one with hepatitis B, and four cases with systemic hypertension.

All 50 patients were monitored during intra-operative period for blood loss and duration of surgery. The mean duration of surgery was 69.54 minutes (SD 19.32; CI 95%). The mean volume of blood loss was 121.5ml (SD±110.94; CI 95%). Among 50 patients, six cases needed debulking technique (12 %), of which the most common technique was bisection in five cases (10%) and the second most common was myomectomy in one case (2%).

During NDVH, only three cases needed blood transfusion due to hemorrhage and there were no other complications like visceral injury or conversion to abdominal hysterectomy. Women who underwent NDVH had undergone hemoglobin (Hb) level estimation both in pre- and post-operative periods. The estimated Hb had been compared in both periods in terms of minimum and maximum level, mean and standard deviation. Preoperatively, it was found that the mean Hb level was 11.54gm/dL (SD±1.23). Post-operatively, the mean level was 10.49gm/dL (SD±1.18).

Table 1: Comparison of pre-operative and post-operative hemoglobin level.

Hemoglobin level	Mean ± SD	Standard error of mean	p value*
Pre-operative Hb (gm/dl)	11.54±1.23	0.12	<0.001
Post-operative Hb (gm/dl)	10.49±1.18		

*Paired t test

In comparison between pre-operative and post-operative Hb level (Table 1), there was a mean drop in Hb level of 1.05gm/dL (p-value <0.001) which was statistically significant (p<0.05).

The most common postoperative complication was urinary tract infection (10%) and fever in 1 case (2%) (Fig.1). The other complications

like hemorrhage, vault hematoma or infection, paralytic ileus, chest infection, vault granuloma or post-operative psychosis were absent. Eighty two percent of women had ambulated within 24 hours of NDVH. The mean duration of hospital stay was 4.06 days (SD±0.237). Forty-seven patients (94%) had four days of hospital stay and remaining three patients (6%) had five days.

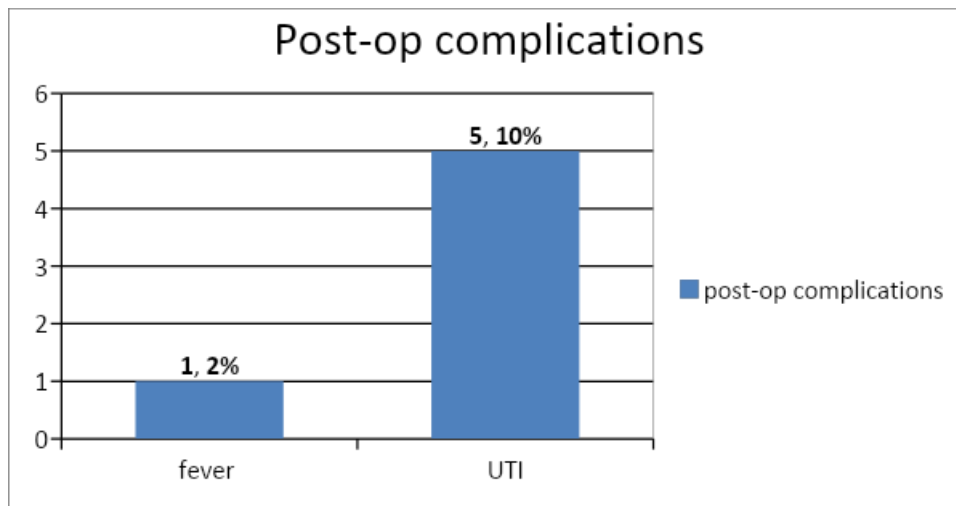


Fig.1 Post-operative complications of the study population

DISCUSSION:

Hysterectomy is the second most common surgery performed on women after caesarean section around the world.[11] It is a well-known fact that 70-80% of hysterectomies are performed by abdominal route despite higher complication rate and vaginal approach is usually reserved for utero-vaginal prolapse.[12,13] The factors that may influence the route of hysterectomy for any surgical indication include uterine size, mobility, accessibility and pathology confined to the uterus (no adnexal pathology or known or suspected adhesions).[14]

Majority of the patients were in the age group of 41-45 years in our study. Similar age prevalence was noted in other case series

reviews.[15,16,17] Most of the patients were multiparous comparable to other studies.[13,14,15,18,19] The commonest indication for NDVH was fibroid uterus, which remained commonest indication in the studies by Dewan et al.,[15] Bharatnur et al.,[16] Singh et al.[17] and Goel et al.[18] The mean blood loss (121.5 ml) was less than the amount reported in other studies like Dewan et al. (290ml),[15] Bharatnur et al. (164ml) [16] and Goel et al. (168ml).[18] But it was high compared to some other studies by Bhadra et al. (100ml)[13] and 35.56 ml by Singh and colleagues.[17] Three (6%) of the patients required blood transfusion, which was similar to the result of CREST study[19] but less compared to the study by Rachana and colleagues (15%) of Nepal.[20] The mean

duration of surgery was 69.54 minutes as compared to Bhadra et al.(55 minutes)[13], Dewan et al. (54.5 minutes),[15] Bharatnur et al. (65minutes)[16] and Goel et al. (64 minutes).[18] Whereas it was shorter compared to the study conducted by Rachana et al. (120 minutes)[20] and Durga et al. (90minutes).[21]

The operative time was definitely more in the earlier phase of the learning. The size of uterus was bigger in our cases as compared to Sheth in his personal series of 5655 cases.[22,23] Due to the larger size of myoma preventing descent, six cases required debulking technique and the reasons were similar as cited by Goel et al.[18] in their analysis of 75 cases. Eighty two percent of our NDVH ladies had ambulated within 24 hours of surgery which was better compared to Mehta et al (66%).[24] The post-operative UTI and fever were the only complications in our study population similar to the study conducted by Mehta et al.[24] The duration of hospital stay was four days which was similar to the studies by Rachana et al.[20] and shorter compared to average stay of 7-8 days for abdominal hysterectomy in our hospital. The hospital stay of 2-5 days during NDVH was reported in other studies.[25,26]. The intra-operative and post-operative complications were less in our study population. While comparing complications of vaginal hysterectomy with other route, it has best outcomes with minimal complications.[27]

The limitation of the study was small size of population. So, the numbers of complication were documented less. More studies comparing this approach with other alternatives such as abdominal route and laparoscopic approaches should be done in future and the outcome, complications as well as cost effectiveness of NDVH in comparison

to other methods should be done in the local setting.

CONCLUSION:

Non-descent vaginal hysterectomy is a feasible vaginal surgery in low and middle income countries like Nepal with low intra-operative and post-operative complications with no mortality in our study.

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Conflict of Interest: The authors declare that no competing interests exist.

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