

## ORIGINAL ARTICLE

*Outcome of Non-descent Vaginal Hysterectomy: Comparison of Conventional and Modified Method*Mili D.Choudhury<sup>1</sup>, S.S.Ghose<sup>2</sup> and Momon Singh<sup>3</sup><sup>1,3</sup> Department of Obstetrics & Gynaecology, <sup>2</sup> Department of Surgery<sup>1,2</sup>INHS Asvini, Mumbai-400005, Maharashtra, <sup>3</sup>INHS Sanjivani, Kochi-682004, Kerala, India**Abstract:**

**Background:** Worldwide hysterectomy is the second most common surgery performed by the gynecologist after caesarean section. It is important that the procedure of hysterectomy for Indian population should be cost effective and with minimum duration of hospital stay. This study is aimed to compare the surgical outcomes in patients undergoing non-descent vaginal hysterectomy by conventional and modified method.

**Material and Methods:** A prospective comparative study was conducted in a tertiary care hospital from January 2017 to December 2021. A total of 150 patients of reproductive and perimenopausal age group were operated by Non descent vaginal hysterectomy due to various benign uterine diseases. Half of the patients were operated by conventional method and the other half by modified method. The demographic characteristics, indications for surgery, surgical outcomes in the form of operative time, blood loss, uterine size, hemoglobin level on postoperative day one, postoperative pain scale, complications, and hospital stay were compared in both the groups.

**Results:** Most common indications for hysterectomies were fibroid uterus, adenomyosis and abnormal uterine bleeding. The mean operative time in both the group was about 45mins±5. The mean blood loss in the conventional method was about 55ml-100ml and that in the modified method it was only 30ml. Postoperative analgesia was less in modified group and postoperative hospital stay were similar in both the groups. Postoperative complications were less in the patients who underwent non descent vaginal hysterectomy by modified method. **Conclusions:** Non-descent vaginal hysterectomy has advantages over all other hysterectomies as a scar less surgery with very few complications and the complications can be brought further down by few modifications in the surgical procedures and thus improving the overall outcome.

**Keywords:** NDVH, Conventional method, Modified

method, Scarless surgeries

**Introduction:**

Worldwide hysterectomy is the second most common surgery performed by the gynecologist after caesarean section<sup>[1]</sup>. The incidence of hysterectomy in India is about 6% and out of which 90% are performed for benign indications<sup>[2]</sup>. Every year more than 6 lakh women undergo hysterectomy worldwide<sup>[3]</sup>. Till date several routes of hysterectomy have been explored and debated either through abdominal, vaginal or laparoscopic routes. Though the oldest known technique is vaginal hysterectomy but it was preserved mostly for prolapse cases<sup>[4]</sup>. Gradually emphasis on minimally invasive surgery has led to a resurgence of interest and importance of vaginal hysterectomy for even non prolapsed indications. That is the time when emergence of Non descent vaginal hysterectomy as scar less hysterectomy happened<sup>[5]</sup>. NDVH (Non descent vaginal hysterectomy) is an art of gynecological surgeon and with minimal invasion there is better access to ligaments of uterus with minimal blood loss and analgesia requirement. The belief that bigger bulky uterus, endometriosis, pelvic inflammatory disease, previous surgeries and narrow vagina make vaginal hysterectomy difficult are no longer considered to be contraindication for non descent vaginal hysterectomy and can be successfully attempted<sup>[6]</sup>. However proper selection of patients is a critical factor in determining the success of vaginal hysterectomy. Usual limitations of non descent vaginal hysterectomy is the size of uterus and the minimal access which can be overcome with experience, skill and learning curve<sup>[6]</sup>. It has a clear advantage over the abdominal route in obese women<sup>[7]</sup>. Laparoscopic route is associated with increased operating time, exposure to general anaesthesia for longer duration and increased rate of intraoperative injuries<sup>[8]</sup>. Lack of expertise in the various techniques also has major impact on number of procedures being practiced in certain hospitals<sup>[9]</sup>. It is important that the procedure of

hysterectomy for Indian population should be cost effective and with minimum duration of hospital stay. Keeping in view the above mentioned facts the present study has been undertaken in a tertiary care hospital from January 2017 to December 2021 to see the surgical outcome in two groups of patients undergoing non-descent vaginal hysterectomy by conventional and modified method and to evaluate the benefit of the two methods over other. The present study was undertaken to establish the benefit of non descent vaginal hysterectomy by modified method. The objectives of the study was to see the surgical outcome in the two groups of patients undergoing non descent vaginal hysterectomy by (conventional & modified method) and evaluate the benefit of one method over other.

### Material and Methods:

A prospective comparative study conducted in a tertiary care hospital, which caters for serving personnels, ex-servicemen and dependents of Indian Armed Forces. All the patients who needed hysterectomy for benign causes like fibroid uterus, abnormal uterine bleeding, adenomyosis without prolapse are included in the present study. The study has been conducted between Jan 2017 to Jan 2022. A total of 150 hysterectomies were performed in patients with benign diseases who met the inclusion and exclusion criteria. Out of these 150 patients every alternate patient (even serial numbers) were operated by modified method of non descent vaginal hysterectomy and the rest (odd serial numbers) were operated by conventional method to avoid any kind of selection bias. All the surgeries were performed by the author herself to avoid bias in results. Inclusion criteria of the study was size of uterus not exceeding 16 weeks of gravid uterus, mild to moderate uterine mobility, benign ovarian cysts less than 6 cm in size, caesarean scar not more than once, uterine myomas, adenomyosis, abnormal uterine bleeding, endometrial hyperplasia without atypia. All the cases preoperatively had negative pap smear and endometrial biopsy reports. Exclusion criteria of the study was severely restricted uterine mobility due to grade 3 or 4 endometriosis, severe pelvic inflammatory disease, twice or thrice post caesarean cases, complex adnexal mass, evidence of malignancy in pap smear, positive endometrial biopsy showing endometrial malignancies and positive tumour markers for ovarian malignancy. For all the cases preoperative check-up were done to reconfirm the indications and routes of the surgery already decided. Subsequently preoperative instructions were given on the day prior to surgery. All the cases of non descent vaginal hysterectomy were done under spinal anaesthesia except for three cases that required

additional general anaesthesia. The patients were placed in lithotomy position. Antiseptic dressing followed by draping of the patients were done. Evacuation of the bladder was performed using metal catheter. It was followed by examination under anaesthesia in all cases to access the size and mobility of the uterus. Stay sutures in the vaginal wall and labial folds were given for proper exposure in all the cases. In Conventional method the cervix was held by vulsellum. Saline infiltration was done for hydro dissection and reduction of vascularity. Circumferential incision was taken around the cervix and cervico-vesical ligament was cut and the bladder was pushed up. Both anterior and posterior pouches were opened. Uterosacral and cardinal ligaments were situated in close proximity to vaginal vault and were clamped cut and transfixed. Clamping of bilateral uterine vessels was done subsequently. The next step depended on the size of uterus. The uterus was delivered either en-mass after clamping the round ligaments, tubes and the ovarian ligaments bilaterally or by bisecting the uterus. Occasionally effective morcellation technique like debulking and myomectomies were also done to reduce the volume of the uterus. After delivery of uterus the vault was closed in usual fashion. Hemostasis achieved, betadine vaginal pack was kept for 24 hrs. In the modified method of non descent vaginal hysterectomy, after evacuating the bladder and examination under anaesthesia the uterosacral ligaments, the vaginal walls were rubbed using lignocaine gel and left for 5 minutes. Lignocaine jelly contains lidocaine hydrochloride, sodium chloride, synthetic gums which acts as lubricant and hydrates the tissues thus decreasing tissue friability and allowing easy dissection. Vaginal infiltration was done using 40ml adrenalin and normal saline (1:200000) dilution. It gives an hemostatic effect. After removing the extra lignocaine gel with an abdominal swab the cervix was held using vulsellum. Incision was given just below the cervico vesical junction and sharp dissection of bladder pillars were done. Bladder was pushed up using a wet gauze piece. The Pouch of Douglas was opened using sharp dissection. Subsequently one vertical incision given on the midline posteriorly so that all the fibres of uterosacral ligaments could be clamped without any tension. The uterosacral ligaments were transfixed using Vicryl no.1 and tightened. Then the ligaments were cut and simultaneous final tightening of the same suture was done and clamps were removed and thus resulting in very minimal blood loss. The long end of the same suture was taken out through vaginal wall which could be used during vault closure and thus it was providing vault suspension. Anteriorly the peritoneum was cut before clamping the bilateral uterine artery. The bilateral uterine arteries were clamped, ligated and cut.

Finally the specimen of uterus was bisected, then the round ligaments, the tubes and the ovarian ligaments were clamped, transfixed and cut. In cases of fibroid uterus myomectomy and in adenomyosis sometime debulking was done. After ensuring hemostasis anterior and posterior vaginal walls were caught separately using allies forceps. Anteriorly the peritoneum was held with the anterior vaginal wall. Finally the vault was closed using interlocking vicryl no1 sutures. The long end of uterosacral ligaments were now finally ligated with the vault sutures and resulting in vault suspension. Vaginal wash was given using warm saline in each case. Hemostasis checked, no vaginal pack was used and indwelling catheterization was done using Foley's catheter. All the patients were given three doses of injectable antibiotics and analgesia. They were started on liquids within 6 hours and catheter was removed within 24 hours. The patients who underwent hysterectomy by conventional method were discharged on fifth day after receiving five days of injectable antibiotics. Out of 75 patients five of them had complications like secondary hemorrhage and fever. The patients who underwent modified vaginal hysterectomy were discharged on day 3 of surgery except one patient who had postoperative pelvic collection and pelvic pain. The parameters like operative time, blood loss, recovery time, pain and usage of analgesics, complications like bleeding per vagina, vaginal discharge, intestinal obstructions, paralytic ileus, fever etc were recorded in the performance for each patients. The records were then compiled and compared.

### Results:

Total of 150 patients with benign gynecological causes were operated by non descent vaginal hysterectomy in a tertiary care hospital between Jan 2017 to Jan 2022. Out of these 150 patients, 75 were operated by conventional non descent vaginal hysterectomy and the rest underwent non descent vaginal hysterectomy with few modifications<sup>[10]</sup>. Age wise distributions: In the present study 150 patients were included. Non descent vaginal hysterectomy by conventional method: 50 patients were above 45 years of age, 13 were below 45 years and 12 patients were above 50 years of age.



Modified non descent vaginal hysterectomy: 58 patients above 45 years, 10 patients below 45 years and 7 patients above 50 years. Indications for hysterectomy: 87 patients were operated for symptomatic fibroid (35 by conventional method and 52 by modified method), 38 patients were operated for adenomyosis (24 by conventional and 14 by modified method), 21 patients were operated for irregular heavy bleeding with endometrial hyperplasia (15 patients by conventional method and 6 patients by modified method), 4 patients were operated for chronic pelvic pain and endometriosis (1 by conventional and 3 by modified method). The mean operative time: The mean operative time in the conventional method was about 45 mins and that with modified method was 35 mins. The mean blood loss in the conventional group was 70-80ml and that with modified method the blood loss was only 30 - 40 ml. No conversion to laparotomy in any of our patients. Postoperative pain in both the group of patients who underwent non descent vaginal hysterectomy by conventional or modified methods were similar. Hospital stay for the patients who underwent hysterectomy by conventional method was 5 days and that by modified method was 3-4 days. There were three cases of secondary hemorrhage and two case of post operative fever in the group of patients who underwent hysterectomy by conventional method. One patient who underwent hysterectomy by modified method had severe pelvic pain and pelvic collection on second postoperative day which was confirmed by CT pelvis. She had postoperative pus like discharge per vagina from day four. She was on injectable antibiotics and continuous vaginal douching for seven days. CT pelvis on second postoperative day revealed collection in pouch of Douglas because of secondary infection of vault. The patient responded to injectable antibiotics. All the patients were reviewed with their histopathological report after 6 weeks and then after 3 months and then after a year. None of the cases had any long term complications.

### Discussion:

Hysterectomy is the most common surgical procedure performed for non pregnant women while cesarean section remains the commonest surgical procedure performed in pregnant women<sup>[1]</sup>. Non descent vaginal hysterectomy is found to be a safe and effective operative technique for benign gynecological conditions and should be done whenever indicated considering the safety, better operative outcome and cost effectiveness<sup>[11]</sup>. The present study was conducted in 150 patients where patients with benign causes were operated by non descent vaginal hysterectomy either by

conventional or modified methods. In the present study out of 150 patients 72%(108 patients) were above 45yrs and 12.6%(19 patients) were above 50 yrs. In a comparative study at Yashoda hospital Hyderabad between nondescent vaginal hysterectomy and laparoscopy hysterectomy<sup>[5]</sup> the age group studied was between 41-50 years which is a very wide range of age distribution. But in the present study 84% of the patients were above 45 years. This is because of the institutional practice of conservative management with oral progesterone, trenexamic acid, mirena insertion and even myomectomy until and unless there is some evidence of malignancy. Indication for hysterectomy in our present study were mostly symptomatic fibroids(87 patients i.e 58%), Adenomyosis (38 patients i.e 25.3%), Abnormal uterine bleeding and endometrial hyperplasia (21 patients i.e 14%), Chronic pelvic pain and endometriosis(4 cases i.e 2.6%). In a study conducted in a Medical college at Bhopal<sup>[11,12]</sup> 44% of the cases who underwent hysterectomy were for Abnormal uterine bleeding, 31% were for fibroid uterus and 26% for Pelvic inflammatory disease. Morcellation techniques were employed in 66% of the cases for removing the specimen. The indication for surgeries in both the studies are similar except for pelvic inflammatory disease which in the present study is only 2 cases i.e only 1.3% compared to 26% in the study conducted at Bhopal. The reason may be the lifestyle and the family planning methods followed by the population being studied (wives of armed forces with slightly better socioeconomic background) of the service personnels who are the cases in the present study. Morcellator is not available in our hospital hence bisection, myomectomy and piecemeal removal techniques were used to remove the bulky uterus with myomas. The mean operative time for the conventional non descent vaginal hysterectomy was 45 mins and that for the modified method was 35 mins. In a study conducted at LN Medical College Bhopal<sup>[13]</sup> the mean operative time was 79.6mins and in a study by Dr Divya Balakrishnan<sup>[1]</sup> at GMC Guwahati the mean operative time for vaginal hysterectomy was 37.07mins and 56.4mins in the abdominal hysterectomies. The mean operative time for non descent vaginal hysterectomy in the present study is similar to that conducted by Dhivya Balakrishnan et al. The time for the surgery reduces with a learning curve, experience, assistance and most importantly the case selection. In the present study the mean operative time for modified nondescent vaginal hysterectomy was still lesser i.e 35 mins. In the present study the mean blood loss was 70-80 ml in conventional non descent vaginal hysterectomy and 30-40 ml in the modified method. None of the cases required

postoperative blood transfusion. Study at Bhopal Medical College<sup>[13]</sup> showed average blood loss to be 110ml and that at Guwahati Medical College<sup>[1]</sup> showed 102.5 ml in vaginal group and 249 ml in abdominal hysterectomy group. In the present study blood loss in the modified method of non descent vaginal hysterectomy was significantly less. There was no conversion to laparotomy in any of our patients which matches with the study done by Dhivya et al<sup>[1]</sup> at Guwahati Medical College.

In the present study postoperative pain was similar in both the groups of patient who underwent non descent vaginal hysterectomy and hence mobilization and ambulation were earlier. Mean hospital stay was 3-4 days for both the groups. At JK hospital<sup>[14]</sup> mean duration of hospital stay in Non descent vaginal hysterectomy was 5-6 days and that for total abdominal hysterectomy was (6-7 days). Lesser days of hospital stay in the present study was probably due to the preoperative and intraoperative aseptic measures, the surgical methodology and the modifications, the case selection, hemostasis and postoperative antiseptic dressing of the vagina. The postoperative duration of hospital stay in our study matches with the comparative study of Non descent vaginal hysterectomy and laparoscopic hysterectomy at Yashoda hospital at Hyderabad which showed 3 days average hospital stay and ambulation by 6-8 hours<sup>[5]</sup>. In the present study there were three cases of secondary hemorrhage on postoperative day (10-12) and two case had post operative fever on 7<sup>th</sup> postoperative day in the group of patients who underwent hysterectomy by conventional method i.e approximately 6% of the patients had postoperative complications which is very less compared to the study conducted at Yashoda hospital<sup>[5]</sup>. More over the two cases who had secondary hemorrhage had uncontrolled diabetes. In the second group of patients who underwent modified non descent vaginal hysterectomy only one patient had fever and excessive pus like discharge on 6<sup>th</sup> postoperative day. She was a known diabetic on irregular medications. She was admitted and was started on injectable antibiotics for five days and strict diabetic control. Continuous vaginal douching for seven days. CT scan pelvis revealed collection in the pouch of douglas because of secondary infection of vault. She responded to injectable antibiotics. Compared to studies conducted at Yashoda hospital or Nilratan Sircar Medical College<sup>[2,5]</sup> the postoperative complications in the group of patients who underwent hysterectomy by the modified method is very less and hence can be considered as a better choice for removal of uterus in indicated cases.

### Limitations:

The study was restricted to Armed forces community of a tertiary care hospital over a period of five years. The study populations were the serving personnel, ex-servicemen and their dependents of Indian Armed Forces.

### Conclusion:

Non descent vaginal hysterectomy is a scar-less surgery and the known by few own complications like

hemorrhage, trauma to vital structures like bladder and bowel, pelvic pain, secondary infection and secondary hemorrhage etc can be brought down by few modifications in the surgical procedures and thus improving the overall surgical outcome.

Sources of supports: Nil

Conflicts of Interest: Nil

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***Address for correspondence:***

Dr. Sivaji S. Ghose,  
Classified Specialist, Department of Surgery, INHS,  
Asvini, Mumbai-400005, Maharashtra, India.  
Mobile no.+91 8179528880  
Email: [sharkdoctor007@gmail.com](mailto:sharkdoctor007@gmail.com)

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