

Laparoscopic Hysterectomy for Benign Conditions a Hospital Based Cross Sectional Study

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Abstract

Background: Hysterectomy is one of the most common surgical procedures performed in women. It is a 'signature' procedure for all gynaecologist. As a frequently done surgery the best route is imperative in the interest of the patients.

Aim: The aim of this study is to evaluate, analyze the indications of surgery and compare hysterectomy, i.e., laparotomy for Total Abdominal Hysterectomy (TAH) and Non-descent Vaginal Hysterectomy (NDVH) in a patient with benign disease.

Materials and Methods: In this hospital-based cross-sectional study, total Hundred women requiring hysterectomy for benign non-prolapsed uterus were selected for the study, 50 cases for each group were admitted due to benign gynaecological conditions in Department of Obstetrics and Gynaecology, Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar from September 2019 to February 2020. Data were analysed statistically by simple proportions and statistical tests, i.e., Chi-square test and F-test.

Results: Most of women underwent hysterectomy in either group were of age group 41-50 years. Age range was 30-55 years and women who underwent hysterectomy in study were of lower and middle socio-economic groups. Parity was 3 or more than 3 in most of the women who underwent hysterectomy in both groups. Nulliparity was 2% in NDVH and 4% in TAH. Majority of cases who underwent NDVH and TAH were of thin, and average built. In either group bleeding disorder was the most common chief complaints. All-women who underwent hysterectomy had Hb% more than 9gm%. Pap smear showed inflammatory or normal smear in most of the cases. On cervical biopsy pre-malignant lesion was present in 12% NDVH cases and 8% in TAH cases. On endometrial sampling, majority of cases who underwent NDVH had endometrial hyperplasia and those underwent TAH had normal endometrium. Majority of cases had history of previous surgery i.e. BLTL. Most common indications were DUB and fibroid comprising of 66% and 64% in NDVH and TAH group respectively. Majority of cases who underwent NDVH had normal to just bulky uterus (90%) in TAH utrine size was 6-12 weeks (in 64%). BSO was the most common associated procedure in TAH. ACR and PNR were the most common associated procedure in NDVH group. There was 1 case of failed surgery and 1 case of bleeding pedicle in NDVH. There was 1 case of bladder injury in TAH group. Mean blood loss in NDVH was 254 gm where as in TAH was 136.6gm. Mean haemoglobin change in NDVH was 0.671 gm% where as in TAH was 0.79 gm%. Post-op minor complications were 98% in TAH group and 38% in NDVH group.

Majority of patients in NDVH were ambulant within 24h. and in TAH group after 24h. to 36h. Blood transfusion was given in 4% cases of NDVH and 12% cases of TAH. Majority of NDVH cases were discharged on 4-5th day and TAH cases were discharged on 7-8th day. Fibroid was most common histological finding followed by endometrial hyperplasia in both groups. In NDVH groups cost was less as compared to TAH group. Vault granuloma was the most common finding on follow up of patients in both groups. One case of incisional hernia and 2 cases of hypertrophic scar were seen in TAH group. Mean convalescence period in NDVH group was 16-24 and In TAH group 42-36 days

Conclusion: The utility and safety of vaginal hysterectomy for the moderately enlarged uterus upto 12 weeks with good mobility and proper anatomic condition. Thought vaginal hysterectomy is possible for the uterus of more than 12 weeks size, it needs good experience. With experience operative time, blood loss and complications can be reduced.

Keywords: Fibroid, Non-descent vaginal hysterectomy, Total abdominal hysterectomy.

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Introduction

Untill last decade the indication of hysterectomy, the choice was between abdominal/vaginal. Since the introduction of NDVH (Non-descent vaginal hysterectomy) this mode of surgery is being considered and gaining popularity day by day. The advent of NDVH skill has revolutionized the approach to hysterectomy and brought to many patients the benefits of minimally invasive treatment. Laparoscopy assisted vaginal hysterectomy (LAVH), although constantly gaining ground is associated with higher cost[1] and longer duration of operation and involves a large number of specially trained personnel.

With increasing concern over the containment of health care costs, there is a need for expanding the indications for performing hysterectomy via the vaginal non-laparoscopic method.[2] Instead of confining it to the conventional uterine descent.

Laparoscopy is a useful adjunct and may increase success of hysterectomy by vaginal route when used in clinical situations of uterine and adnexal immobility with associated risk factors (endometrioses, chronic pelvic inflammatory disease)[3].

Usual limitation of vaginal hysterectomy in non-descent uterus is its size but now

with larger sizes, hysterectomy can be facilitated by bisection, myomectomy, wedge debulking and intramyometrial coring (morcellation) (Ungor JB 2019)[4]. Other reasons given for avoiding vaginal hysterectomy are nulliparity and lack of uterine descent, need for oophorectomy, previous abdominopelvic surgery and extrauterine disease.

In practice, a lack of uterine mobility and less than two finger breaths of vaginal access are more significant considerations with regard to operability than nulliparity.[5]

Bilateral salpingo-oophorectomy (BSO) is the procedure most commonly performed concurrent with hysterectomy and most are performed by abdominal route. However, most ovaries are visible and readily accessible during vaginal surgery, and it is generally safe to perform BSO at the time of vaginal hysterectomy.

In a 2013 review of 621 hysterectomies Coulam et al[6] concluded that previous pelvic surgery was not a contraindication to vaginal surgery. Damage to the bladder in women with previous caesarian section (CS) is usually easier to avoid during vaginal hysterectomy, because the initial dissection plane is below any bladder scarring from the CS.

Objective of the study:

1. The indications
2. duration of operation and anaesthesia
3. Average blood loss
4. Complications early and late
5. Post operative hospital stays
6. Cost
7. Resumption of normal household work and activities without discomforts after NDVH in comparison with abdominal hysterectomy TAH.

We are of view that the surgeon should offer a option of NDVH to all patients with benign disease with provision that it may be necessary to convert it to an abdominal hysterectomy if unexpected problems occur.

Materials and Methods

Total Hundred women requiring hysterectomy for benign non-prolapsed uterus were selected for the study, 50 cases for each group. A hospital-based cross-sectional study was conducted in the Department of Obstetrics and Gynaecology, Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar from September 2019 to February 2020. Informed consent for performing the hysterectomy procedure and for participating in the study was obtained from all the eligible women.

Inclusion criteria: (According to ACOG. Guideline for Vaginal Hysterectomy)

Surgical indication for Hysterectomy, Patient anatomic condition, Data that supports chosen approach, Informed patient consent, Surgeon's expertise and training.

Indication of Hysterectomy included in study: DUB, Fibroid uterus, Adenomyosis, enlarged uterus (Causing dysmenorrhoea and menorrhagia), Chronic pelvic pain, Post-menopausal bleeding (after excluding malignancy), Cervical dysplasia, Cervical polyp or fibroid polyp.

Exclusion Criteria: Uterus size > 12 weeks, Previous vesico – vaginal fistula repair, cervix flushed with vault, Adnexal Pathology, very limited vaginal space, severely restricted uterine mobility, Poor per operative score, Uterine prolapsed, Malignant disease requiring hysterectomy.

Surgical Technique:**(A) NDVH**

Procedure: Lithotomy position maintained with both hips and knees hyperflexes and a 15–30-degree head down tilt. Antiseptic dressing of lower abdomen, perineum was done properly. Bladder was evacuated by plain rubber catheter. Sim's speculum applied and with Allies/ vulsellum forcep the cervix was dragged out. The paracervical tissue were infiltrated with saline. Dissection commenced with circular incision around cervix below the line of bladder sparing the attachment of uterosacral ligament.

In 7 cases we dissected uterosacral ligament as well by circumferential incision around cervix.

Bladder pushed up until the shiny peritoneum of uterovesical fold was visualized. The posterior wall dissected away from the tissues lying on the back of the cervix and in due course the peritoneum of pouch of Douglas identified and opened.

The cervix is now pulled laterally and a little upward to expose the side of the cervix with Mayo's scissors and dissecting forceps the vaginal wall is stripped away from the deeper structures both laterally and posteriorly – In this way the downward prolongation of the cardinal ligament together with the lower extremity of the uterosacral ligament is exposed. The structures are now clamped, cut transfixed and ligated –Repeated on other side. At each step further descent of uterus occurs.

The uterine vessels secured between anterior and posterior folds of peritoneum, cut and ligated without transfixing,

repeated on other side. Vicryl No. – 1 was the suture of choice.

At this stage of operation uterovesical pouch opened and uterus delivered anteriorly through the uterovesical pouch.

In 6 cases we read to apply additional clamp at the cornual angle where a twig from uterine artery lies. It facilitated further descent of uterus and delivery of uterus was made easier.

The attachment of the round ligament, the fallopian tube and the ovarian ligament to the uterus are now clamped cut transfixed and ligated.

In the last the pedicles were ligated together of each side. Finally anterior and posterior edge of the vagina were closed by continuous suture using vicryl no – 1.

In cases having cystocele anterior colporrhaphy done and vaginal vault closed thereafter.

No vaginal pack given. In 9 cases where we were suspicious of some oozing blood vessel, vagina was lightly packed using a ribbon gauze soaked in povidone iodine. We find that patients were more comfortable in post-operative period if vaginal packing avoided.

Time of surgery was recorded, blood loss estimated, and specimen dissected for post-operative diagnosis and sent for

histopathologic study. Any complications during surgery were recorded.

(B) Total Abdominal Hysterectomy

Was done through abdominal incision Transverse/Longitudinal in usual technique by clamping, ligating and cutting uterine appendages, Uterine vessels, Mackenrodts ligaments and Uterosacral ligaments from above downward. Vault closed with continuous locking suture. Abdomen closed in layers.

Time of surgery was recorded, blood loss estimated, and specimen dissected for post operative diagnosis and sent for HP study. Any complications during surgery were recorded.

Statistical Analysis

Data were analysed by the software Microsoft Excel and SPSS version 21.0 for mean, SD, and t-value.

Results

In the cross-sectional study total hundred women undergoing hysterectomy for benign non-prolapsed uteri were selected after proper pre-operative assessment and informed consent to include in the study in Department of Obstetrics and Gynaecology, Jawaharlal Medical College & Hospital, Bhagalpur, Bihar.

Out of these, 50 cases were selected for Non-Descent Vaginal another 50 for Abdominal hysterectomy.

Table 1: Distribution of Cases According to Age

Age (In years)	NDVH (n=50)		TAH (n=50)	
	Incidence	Percentage	Incidence	Percentage
≤ 30	1	2	2	4
31-35	6	12	5	10
36-40	11	22	13	26
41-45	13	26	12	24
46-50	13	26	16	32
>50	6	12	2	4
Total	50	100	50	100

The above table shows that in both groups, most women who underwent hysterectomy belonged to the age group of 41-50 years. Mean (\pm SD) age in NDVH was 43.42 ± 6.24 and in TAH 43.24 ± 9.2 . SEM in NDVH was 0.88 and in TAH 0.54. T. value 0.15.

Hence in the study there was no significant difference of age between NDVH and TAH group ($P > 0.05$).

Table 2: Distribution of Cases According to Parity

Parity	NDVH (n=50)		TAH (n=50)	
	No. of cases	Percentage	No. of cases	Percentage
0	1	2	2	4
1	1	2	3	6
2	9	18	7	14
3	14	28	14	28
≥ 4	25	50	24	48
Total	50	100	50	100

This table shows that most of the women had parity 3 or above in both groups. Nulliparity was 2% in NDVH and % in TAH group. Mean (\pm SD) parity in NDVH was 3.36 ± 1.08 and in TAH 3.58 ± 1.75 . SEM in NDVH 0.15 0.15 and TAH 0.25. T. value 0.76. Hence, women who underwent NDVH and TAH were not different in terms of their parity ($P>0.05$).

Table 3: Distribution of Cases According to Chief Complaints

Chief complaint	NDVH (n=50)		TAH (n=50)	
	No. of cases	Percentage	No. of cases	Percentage
Menorrhagia	27	54	23	46
Dys-menorrhoea	5	40	4	8
Irregular bleeding	11	22	4	8
Polymenorrhoea	2	4	13	26
Post-menopausal bleeding	1	2	1	2
Chronic pelvic pain	1	2	1	2
Excess whitish discharge	3	6	4	8
Total	50	100	50	100

The above table show that menorrhagia and irregular bleeding were the most common symptoms in NDVH group, whereas Menorrhagia and polymenorrhoea were in TAH group.

Table 4: Distribution of Cases According to Past Surgical History

Past Surgery	NDVH (n=50)		TAH (n=50)	
	No. of cases	Percentage	No. of cases	Percentage
BLTL	29	58	27	54
Lap BLTL	1	2	1	2
Ectopic	-	-	-	-
Polypectomy	1	2	-	-
L.S.C.S	2	4	5	10
Total	33	66%	34	68%

The above table shows that patients who underwent NDVH and TAH were almost similar with regard to their previous surgical history. BLTL was the most common previous surgery in both NDVH (58%) as well as TAH (54%) group. History of L.S.C.S. was present in 10% of women who underwent TAH and 4% in NDVH group.

Table 5: Distribution of Cases According to Preoperative Diagnosis / Indication

Pre-op Diagnosis	NDVH (n=50)		TAH (n=50)	
	No. of cases	Percentage	No. of cases	Percentage
DUB	17	34	14	28
Fibroid	16	32	18	36
Adenomyosis	10	20	12	24
Chronic Cervicitis	3	6	-	-
Cervical dysplasia	2	4	3	6

Chronic pain abdomen	-	-	1	2
CIN	-	-	1	2
Polyp	2	4	1	2
Total	50	100	50	100

The above table shows that indications were almost similar in both groups. Most common indications were DUB and fibroid comprised of 66% and 64% in NDVH and TAH group respectively.

Table 6: Distribution of Cases According to Follow Up Morbidity

Follow up morbidity	NDVH (n=50)		TAH (n=50)	
	No. of cases	Percentage	No. of cases	Percentage
Vault granuloma	7	14	8	16
Hernia	-	-	1	2
Hypertrophic scar	-	-	2	4
Total	7	14	11	22

The above table shows that vault granuloma was found in 14% cases of NDVH and 16% cases of TAH (almost similar). There was one case of incisional hernia and 2 cases of hypertrophic scar in TAH group.

Table 7: Distribution of Cases According to Resumption of Normal Work (Convalescence Period)

Sl. No.	Resume Household work (in days)	NDVH (n=50)		TAH (n=50)	
		No. of cases	Percentage	No. of cases	Percentage
1.	≤ 18	39	78	-	-
2.	19-24	9	18	-	-
3.	25-36	-	-	13	26
4.	37-48	2	4	31	62
5.	> 48	-	-	6	12

The table shows that in NDVH group maximum no. of women (78%) resumed their normal work within 18 days. Whereas in TAH most of patient (88%) required upto 48 days to resume their normal work. None of the patient in TAH group resumed their normal work within 24 days even 12% cases required more than 48 days.

Convalescent period: was defined as number of days after discharge from hospital until full recovery. Mean (\pm SD) convalescent period in NDVH was 16.24 ± 6.07 and in TAH 41.96 ± 7.86 . SEM in NDVH 0.86 and in TAH 1.11. T value 18.37. So, in the present study there was significant difference in convalescent period between two groups ($P < 0.001$).

Discussion

In the present study, the age range was 30-52 in NDVH and 30-55 in TAH group & maximum number of women were between 41-50 years of age in both groups. Mean age in NDVH was 43.48 and in TAH 43.24 (Table 1).[7] Age range in their study for NDVH was 32-50 years (mean 41 year) whereas for TAH was 40-52 (mean 43 years). O.H. Harmanli et al (2014) Age range in their study for NDVH group was 33-53 (mean 44 ± 4.7) years where as in TAH group 24-65 years.[8] Nesrin Varol et al 2011: In their study mean age for NDVH was 57.0 and TAH was 45.3.[9] Deewan Rupali et al (2004). In their study most of patients belonged to age group 41-50 i.e. 74%.[10]

In our study majority of cases had parity more than 3 in both groups i.e. 78% and 84% in NDVH and TAH respectively. 2%

patients in NDVH and 4% patients in TAH were nullipara. Mean parity was 3.4 in NDVH and 3.6 in TAH group. (Table II)

According to Beir, parity was maximum in $\geq P4$ group and are almost equal in either discipline i.e. 49% in NDVH and 48% in TAH. Nulliparity in their study was present in 1% in NDVH and 8% TAH patient. Nesrin Varol et al (2011), In their study mean parity was 3.1 in VH and 2.5 in TAH. [9] Deewan Rupali et al (2004) in their study, patients underwent NDVH had parity more than 3 in 70% cases.[10] In Christian Ottosen et al (2015) Nulliparity was present in 17.5% of VH and 10% TAH patient. In L. Benassi et al (2012) mean parity in VH was 1.38 ± 0.58 (range 1-3) and in TAH 1.42 ± 0.6 (range 1-4).[11] S. Ghumman et al (2015): In their study nulliparity was present in 3.3% cases and in our study in 2% cases.[12]

Parity point of view, our study is more nearer to Nersin Varol et al, Devan Rupali et al and Ghumman et al group.

The most common chief complaint in NDVH as well as TAH was bleeding disorder. Menorrhagia and irregular bleeding accounting for 66% in NDVH and Menorrhagia and Polymenorrhoea accounting for 72% in TAH group. Other complaints were post-menopausal bleeding, chronic pelvic pain and excess whitish discharge accounting for 10% in NDVH and 12% in TAH. (Table 3).

In the present study previous pelvic and abdominal surgery including tubal ligation was present in 58% NDVH and 54% of TAH group. Lap BLTL was present in 2% in each NDVH and TAH group L.S.C.S. was present in 4% NDVH and 10% TAH group. Polypectomy was present in 2% cases of NDVH group.

Pradeep Kumar Garg et al (2002); In their study L.S.C.S. was present in 3.8% cases of NDVH and absent in TAH group. Kumar Shushil et al (2014); 21% patient had history of L.S.C.S. was present in 5% cases of NDVH and 15% cases of TAH group.[13] Nasrin Varol et al (2011); In

their study history of previous pelvic surgery was present in 35.3% of VH and 51.4% of TAH group, patients. S. Ghumman et al (2015). In their series history of previous abdominal surgery was present in 4 out of 25 (16%) successful cases and 4 out of 5 (80%) unsuccessful cases of NDVH. (Table 4).

The most common indications were DUB and fibroid comprising of 66% and 64% in NDVH and TAH group respectively. Other indications were adenomyosis, chronic cervicitis, cervical dysplasia, chronic pain abdomen, CIN and polyp in TAH group (36%) and adenomyosis chronic cervicitis, cervical dysplasia and polyp in NDVH (34%). So, indications were almost similar in both NDVH as well TAH group. (Table 5).

In present study DUB was still one of the most common indications both groups, this could be explained by the fact that conservative management for DUB is not very effective in our set up, due to more and more patients belong to lower and middle socio-economic group. Most of them were illiterate. They found it more costly and of more morbidity than surgical treatment and also due to lack of advance treatment like different modalities of endometrial ablation. Thus, most of the DUB patients turn into surgical management. Fibroid was also one of the most common indications, the above studies are similar to current study.

The follow up in NDVH group 14% cases were having vault granuloma. In TAH group, 16% cases were having vault granuloma, 4% cases were having hypertrophic scar and 1 case (2%) was having incisional hernia, that was repaired. (Table 6)

In the present study NDVH group maximum no. of women (78%) resumed their normal work (not heavy one) within 18 days of discharge from hospital. Whereas in TAH group most of the patients (88%) resumed their normal work within 48 days but none less than 18 days.

Two cases in TAH required more than 48 days.

Mean convalescence period in NDVH was 16.24 where as in TAH group the same was 42.36 days. In the present study there was marked difference in convalescence period in between NDVH and TAH group. Christian Ottosen et al (2015) in their study mean sick leave in VH was 21.3 (5-11 range) where as in TAH 28.1 (7.55 days). (Table 7)

Conclusion

Thus, it can be concluded that NDVH is feasible, safe and provide more patient comfort without increasing the duration of surgery and other post-operative complications.

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