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THE STUDY OF NON DESCENT VAGINAL HYSTERECTOMY

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Abstract:

Non descent vaginal Hysterectomy & abdominal hysterectomy, two are not competitive procedures but each has its own place in modern operative gynecology. This study is conducted to report the feasibility of NDVH & to compare it with TAH for a benign condition. Total 335 cases were studied out of which 201 were done by vaginal route & 134 were done by abdominal route. NonDescent vaginal Hysterectomy is likely to replace abdominal hysterectomy as the operation of choice being minimally invasive with no visible scar.

Key Words: NDVH- Non-descent Vaginal Hysterectomy & TAH- Total Abdominal Hysterectomy

Introduction:

Hysterectomy is frequently performed gynecologic & obstetric procedure worldwide, second only to cesarean delivery.[1] The first successful TAH was performed by Charles Clay at Manchester (1843 A.D.) & Conard Langenbeck is credited with the first successful VH (1813A.D.). Hysterectomy can be performed by abdominal, vaginal route, laparoscopic assisted vaginal hysterectomy or robotic-assisted hysterectomy. When choosing the route and method of hysterectomy, the route of the surgery is decided according to the medical needs of the patient, cost-effectiveness, and safety of the procedure. NDVH is literally an innovative highly qualitative procedure where the uterine mass is exteriorized through the natural orifice resulting in an invisible minimum scar. "Rediscovery"[2] of the vaginal route, the term rediscovery is justified by the fact that vaginal hysterectomy is a technique that has already been introduced & performed centuries ago, but with little success among gynecologists. Usual limitation of vaginal hysterectomy in the non-descent uterus is its size, but with the help of technique like bisection, myomectomy, wedge debulking & intramyometrial coring NDVH can be performed in large size uterus.[3] In recent period vaginal hysterectomy can be done with newer indications with equal safety & lesser morbidity.

Aims and Objectives:

To study NDVH in terms of following intra-operative and postoperative parameters & compare it with TAH.

- ✓ **Intra Operative:** Duration of surgery, intraop blood loss, intraop complications.
- ✓ **Post Operative:** Post-op pain, ambulation, resuming full diet, fever, wound infection, duration if stay in hospital.

Materials and Methods:

After clearance from the ethics committee, the study was undertaken.
Study Area: A multidisciplinary Tertiary care hospital in a Metropolitan city.
Study Period: Two years duration, August 2013 to August 2015.
Type of Study: Prospective Observational study.
Study Population: All the cases requiring hysterectomy for benign uterine pathology. Total 335 cases were studied, out of 335 patients, 201 underwent Non-descent vaginal hysterectomy & 134 underwent abdominal hysterectomy for benign conditions.4 cases in NDVH group were converted to abdominal myomectomy due to dense adhesion.

Inclusion Criteria:

All patients of NonDescent Vaginal Hysterectomy except exclusion criteria for NDVH

- ✓ Prolapsed Uterus
- ✓ Uterus Size > 18 Week
- ✓ Complex Adnexal Mass
- ✓ Malignancy

Cases of TAH done for benign indications were included in the study. Selection of patients- Patients were selected for the vaginal or abdominal route of surgery after thorough history taking, clinical examination, P/S, P/V, PAP smear, ultrasonography, & after examination under anesthesia. Relevant features noted are Parity & route of delivery, previous medical problem, history of previous surgery, size of uterus & mobility, & adnexal masses.

Results:

Total 335 cases of hysterectomy studied from Aug 2013 to Aug 2015, out of this 201 are NDVH cases & 134 are TAH cases. 4 cases of NDVH was converted to abdominal route due to dense adhesion. In this study, an 80% (161) patient of NDVH group belongs to age group of 40-50 yrs & 75% (100) patients belong to TAH group. Age-wise distribution is given in fig 1.The majority of patients in both groups belonged to parity 1 to 4. 3 Patients were nulliparous in NDVH & 7 patients in TAH group. Parity wise distribution of patients is given in fig 2. 56% (116) patients had medical high-risk factors in NDVH group & 43% (58) patients had a medical high risk in TAH group. High-risk medical factors include hypertension, DM, anemia, lung disorder, hypothyroidism. The same patient had multiple high-risk factors.68% (137) patients in NDVH group had BMI >25.

NDVH was done in 10% (19) cases of prev LSCS successfully, out of which 5 cases were prev 2 LSCS & 2 cases were prev 3 LSCS & 12 were prev 1 LSCS. 3% cases of NDVH had a history of previous surgery like exploratory laparotomy, myomectomy, slings surgery & Fothergills surgery (fig 3). The majority of patients 79% (159) had a uterine size less than 12 wk, 19% (38) patients had uterine size between 12-16 weeks, & 2% (4) patients had uterine size between 16-18wks in NDVH group (fig 4). Most common indication for hysterectomy was fibroid uterus (61% in NDVH & 65% in TAH) in both groups followed by DUB (24% in NDVH & 19% in TAH). Other indications were Adenomyosis, chronic cervicitis (fig 5). The majority of the cases 95%(190) of NDVH were performed under spinal anesthesia, 5% (10) cases received GA. Whereas 78% (105) cases of TAH were done under spinal anesthesia, 21% (28) cases were done under GA, & 1%were done under epidural + GA.

In NDVH group, there were 36% (45) cases with anterior wall fibroid, 27% (34) had posterior wall fibroid, 27% (34) had a fundal fibroid, 4% (5) patients had cornual fibroid, 4% (5) had broad lig fibroid, 2 had supracervical fibroid & 1 patient had cervical fibroid (fig 6). Different morcellation techniques like bisection, myomectomy, were used during surgery to remove the bigger sized uterus. Debulking technique was done in 24% (48) patients. Bisection in 3% (5) cases, myomectomy in 10% (21) cases & bisection +myomectomy in 11% (22) cases were done. A maximum number of myomas removed in NDVH in our study were 167 fibroid of various sizes ranges from 1cm to 10cm (fig 7). In NDVH group, P repair done in 27 cases, Salpingectomy done in 8% (15) cases, bilateral salpingo-oophorectomy done in 5 cases, unilateral oophorectomy done in 7 cases, adhesiolysis done in 7 cases, 2 cases with cystectomy & in 2 cases cyst aspiration done. In TAH group, BSO done in 34 cases, USO in 26 cases, adhesiolysis done in 9 cases, 2 cases with salpingectomy.

The mean duration of surgery in both the procedure was kept & TAH was much lengthier a task than NDVH where it took 138 minutes in TAH which as compared to just 90minutes in NDVH. This was a statistically significant finding in our study. Shorter operating time for NDVH was 30 minutes in 2 cases (fig 8). The average blood loss in the abdominal group was 302.54ml and 230.9ml in NDVH group. The difference in the amount of blood loss was significant statistically (fig 9). 15% (20) cases in the Abdominal group required blood transfusion while only 3% (6) patients in the NDVH group required so.1% (2) cases in NDVH group had bladder injury which was a case of previous LSCS with dense adhesion & 0.5%(1) case had bladder injury in TAH group. 1% (2) cases had ureter injury in TAH group & none had ureter injury in NDVH group (fig 10). Pain scoring was done by verbal Numerical pain scale ranging from 0-10, analgesic was given according to this. In NDVH maximum no. of patients required analgesic for 1 day only i.e 75% (150) cases, 20% (41) required for 2 days & 5% (10) required analgesics for 3 days. Contrary to this, maximum no. of cases in TAH group required analgesics on day 2 & 3 also. Thus the difference in pain relief between two group was significant & indicate earlier pain relief in NDVH group as compared to TAH group. As there was no abdominal scar in NDVH, they had less pain & hence the majority of NDVH patients i.e. 99 % (199) were found to be ambulatory on day 2 of surgery & tolerated food well. Urinary catheterization was needed for 24 hr in the majority of cases in NDVH group, 12 cases required catheterization for 48 hr while only 2 cases with bladder injury prolonged catheterization required i.e. for 14 days. In TAH group, 66 patients required foley's catheterization for 24 hr, 65 required for 48 hr & 3 cases required prolonged catheterization for 14 days due to bladder & ureteric injury.

In NDVH group, 13 cases had UTI, 5 cases developed a hematoma, febrile illness occurred in 3 cases. In TAH group, most common complication found was wound gape in 32 cases, 15 cases developed UTI, 6 had a febrile illness, & 2 patients had VVF, 3 patients had paralytic ileus. Thus Postoperative complications were more in TAH group than in NDVH group (fig 11).The mean duration of hospital stay in NDVH group was 8.5 days & that in TAH group was 12.6 days. This indeed was highly significant statistically.

1. Figure – Table – Age Distribution:

	NDVH		**TAH**		**TOTAL**	
Age in yr	No.	%	No.	%	No.	%
<40	10	(5%)	8	(6%)	18	(5%)
40 - 50	161	(80%)	100	(75%)	261	(78%)
>50	30	(15%)	26	(19%)	56	(17%)
Total	201	(100%)	134	(100%)	335	(100%)

2. Figure – Table – Parity:

PARITY	NDVH		TAH	
	No.	%	No.	%
Nullipara	3	(1%)	7	(5%)
Para 1-4	185	(93%)	116	(87%)
>P5	13	(6%)	11	(8%)
Total	201	(100%)	134	(100%)

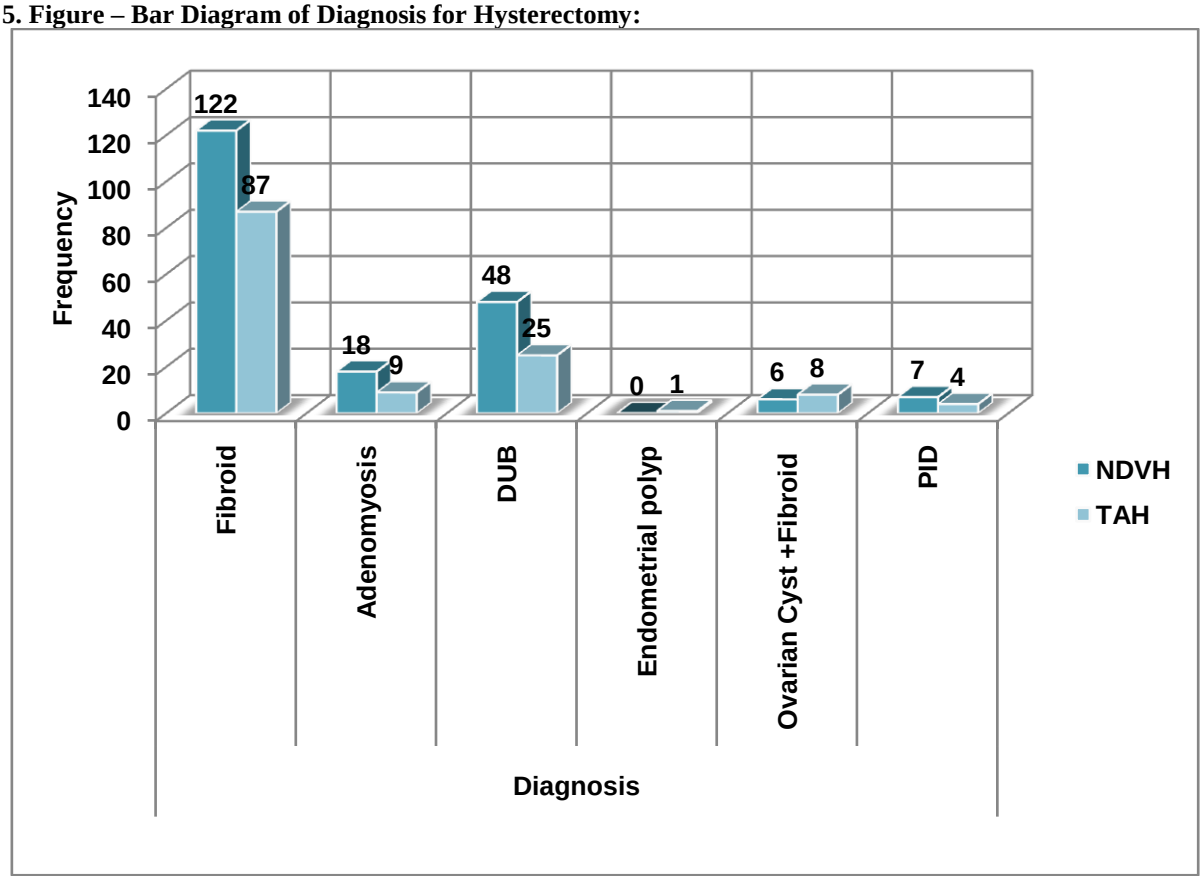
3. Figure – Table – Previous Surgery:

Prev sx	Type			
	NDVH		TAH	
	NO.	%	NO.	%
pre 1 LSCS	12	6%	0	0%
pre 2 LSCS	5	3%	6	5%
pre 3 LSCS	2	1%	4	3%
Myomectomy	2	1%	0	0%
Sling sx	1	0.5%	0	0%
Fothergill's repair	1	1%	0	0%
Exploration	3	1.5%	0	0%
Total	26	14%	10	8%

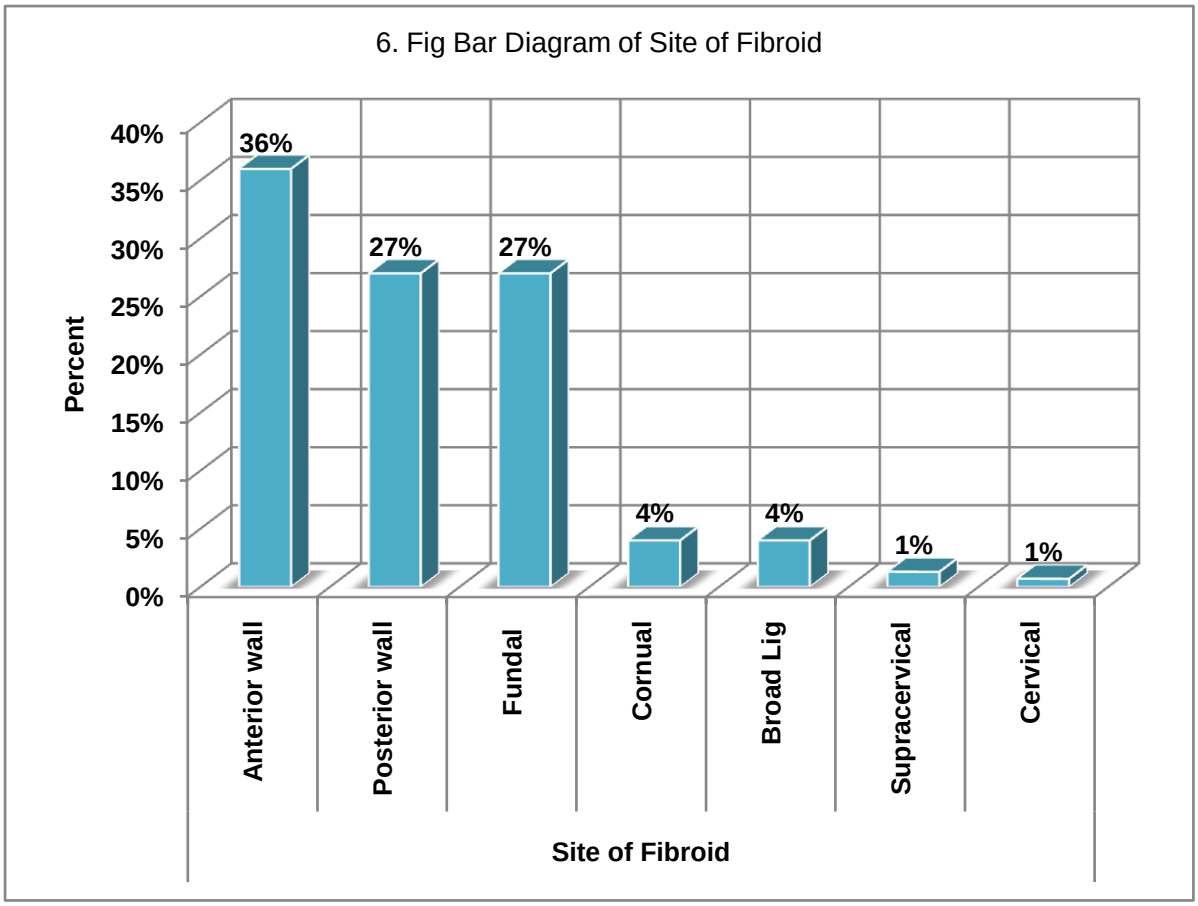
4. Figure – Table – Size of Uterus:

	NDVH		TAH		Total	
Size in WK	No.	%	No.	%	No.	%
<12wk	159	(79%)	83	(62%)	242	(72%)
12-14k	25	(13%)	15	(11%)	40	(12%)
14-16wk	13	(6%)	14	(10%)	27	(8%)
16-18wk & >18	4	(2%)	22	(17%)	26	(8%)
Total	201	(100%)	134	(100%)	335	(100%)

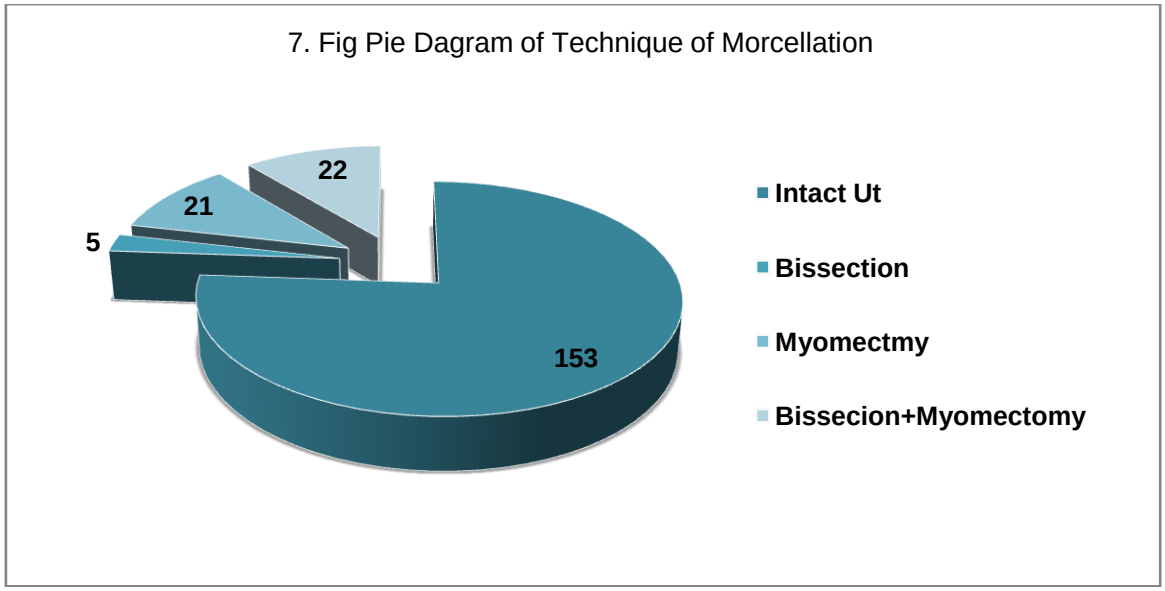
5. Figure – Bar Diagram of Diagnosis for Hysterectomy:



6. Fig Bar Diagram of Site of Fibroid

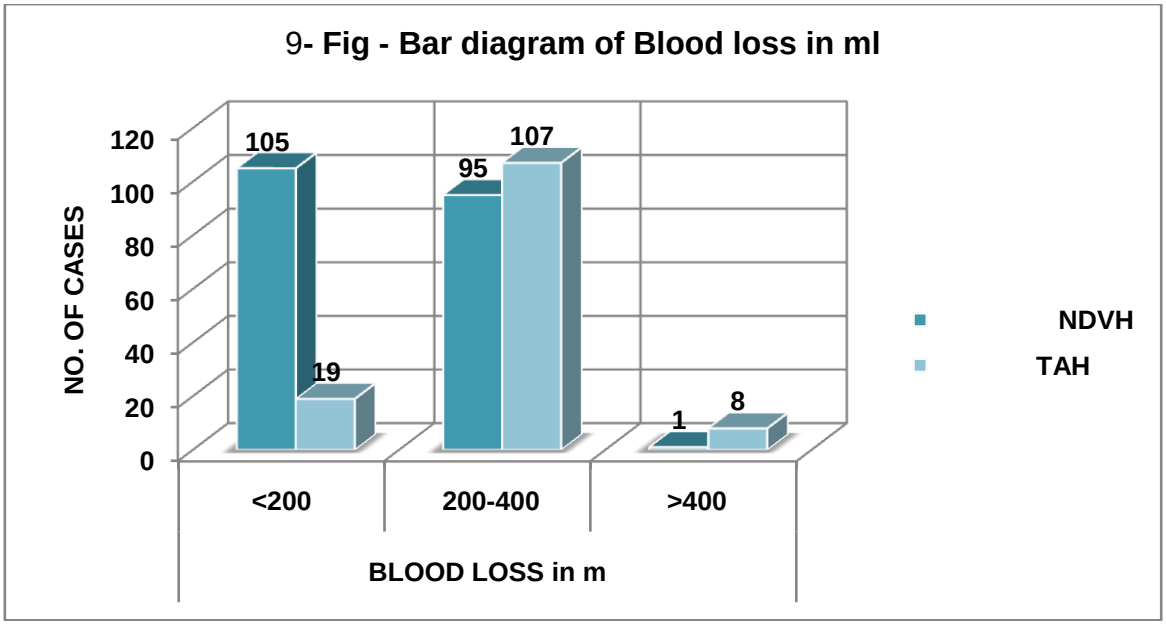


7. Fig Pie Dagram of Technique of Morcellation



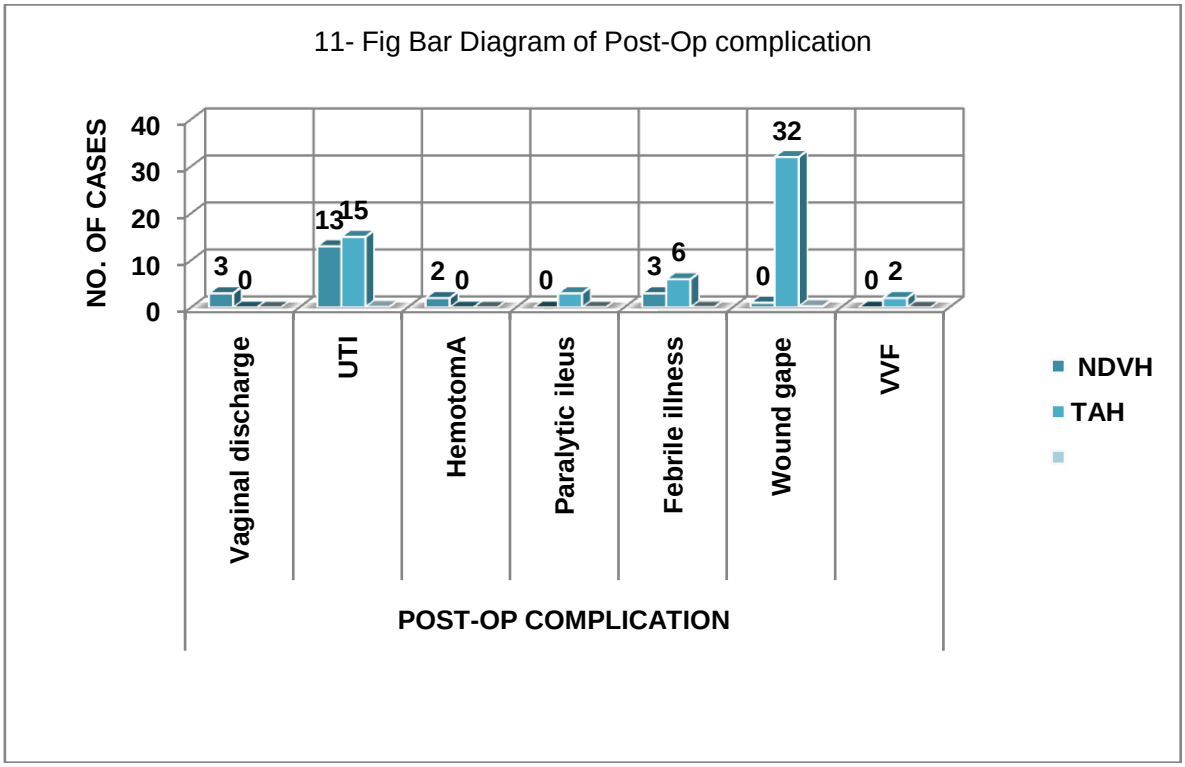
8. Figure – Table Time Taken for Surgery:

Time in Hour	Ndvh Unit A	Ndvh Unit B	Ndvh Total	Tah
<1hr	52	2	54(27%)	2 (2%)
1-2hr	67	53	120(60%)	56 (42%)
2-3hr	10	14	24(12%)	63 (47%)
>3hr	1	2	3(1%)	13 (9%)
Mean	70min	100min	90min	138
Total	130	71	201(100%)	134 (100%)



10. Figure Table – Intraop Complication:

Intra-Op Complication	NDVH		TAH	
	No.	%	NO.	%
Bladder injury	2	(1%)	1	(0.5%)
ureter injury	0	(0%)	2	(1.5%)
Total	2	(1%)	3	(2%)



Discussion:

NDVH is safe & feasible in benign conditions & should be attempted whenever indicated. In present study after a thorough history, clinical examination, mobility & size of the uterus, vaginal accessibility, pathology confined to the uterus, adnexal pathology, ultrasonography route of hysterectomy was decided. Out of 335 cases, 201 (60%) cases underwent NDVH & 134 (40%) cases underwent TAH for benign gynecological indications. 4 (2%) cases of NDVH required abdominal myomectomy due to dense adhesions. In our study

mean age of patients undergoing NDVH was 45.49 & in TAH group was 45.29, like Pradeep Kumar Garg & Dewan Rupali & S. Bharatnur study.

Study	NDVH (Mean Age)	TAH (Mean Age)
Pradeep Kumar Garg et al (2002)[4]	41	43
Dewan Rupali et al (2004)[5]	44	42.5
S. Bharatnur et al (2010)[6]	44.2	44.4
Present study	45.49	45.29

In the present study, 3 nulliparous patients, NDVH did successfully, though its challenging due to inadequate accessibility & narrow vagina. Thus as thought earlier, nulliparity was not a contraindication for NDVH. Mean parity was 2.75 in NDVH & 2.62 in TAH group. Mean parity in Dewan Rupali study was 3.2 in NDVH & 2.5 in TAH group similar to S. Bharatnur study. 56% Patients in NDVH & 43% patients in TAH had medical high-risk factors like HTN, DM, heart disease, lung pathology, hypothyroidism similar to study conducted by V. Patil[7] study (2015). NDVH had a special role in cases with medical complications by reducing the anesthesia time, blood loss, faster postoperative ambulation & recovery. In NDVH group 68% patients were had BMI >25 & 65% in TAH group. NDVH seems to be a better approach of hysterectomy in overweight & obese patients as there are early postoperative ambulations and no incidence of wound dehiscence & wound infection (Scarless procedure). Dense pelvic adhesions around the uterus in women who have undergone previous surgery would make the opening of anterior or posterior pouch difficult. However, with surgical expertise, NDVH can be done successfully in this case. 10% (19) cases in NDVH & 8% (10) cases in TAH group were prev LSCS. In Pradeep Kumar Garg study, there was one case (4%) of previous LSCS in NDVH group. In Christian Ottosen[8] et al (2000) study 2 cases (5%) in NDVH group & 6 cases in TAH group had a history of previous LSCS. Thus it indicates that prev LSCS or pelvic surgery are no longer a contraindication for NDVH. In present study size of uterus ranges between normal to 18 wk in NDVH group, with a mean of 11.3 wk while that in TAH group ranges from 8wk to 24 wk with a mean of 12.6wk. In S. Chakraborty[9] study 2011- the average size of the uterus in the abdominal group was 11-12 wk while in NDVH group average size was 10-11 wk. Uteri palpable per abdominally could also be removed vaginally with skill & surgical expertise in morcellation techniques. In the present study, largest size was 18wk in 4 (2%) cases.

In present study commonest indication for NDVH as well as TAH was fibroid uterus i.e. 61% & 65% respectively. Other indications were DUB 24% in NDVH 19% in TAH, adenomyosis 9% in NDVH & 7% TAH group, chronic cervicitis 3% in NDVH & 2% in TAH group, adnexal pathology in 3% case of NDVH & 6% case of TAH, an endometrial polyp in 1%case of TAH. Thus the main indication for hysterectomy in NDVH & TAH group was fibroid in the present study, Smritee Virmani[10] study & in P. Mittal study[11]. Majority of cases of NDVH group 190 (95%) were done under spinal anesthesia. Thus NDVH is preferable in patients with medical risk factors to avoid hazards of GA, as it can usually be performed under SA. Fibroids at cornual, broad ligament, supracervical & cervical regions were usually posed great difficulties in NDVH but by using techniques like myomectomy, bisection, it can be done. In 48 (24%) cases on NDVH, different techniques were used to remove large size uterus. Bisection was carried out in 5 (3%) cases, myomectomy in 21 (10%) cases & combination of bisection & myomectomy in 22 (11%) cases, whereas 153 (76%) uterus were removed intact. In our study, there was one case in which 167 fibroids were removed by myomectomy of varying size (1cm to 10cm) in large conglomerate fibroid in a patient of 18 wk size uterus. Dewan Rupali study 64% cases bisection done, 24% cases myomectomy is done & in 6% cases morcellation technique were used to remove uterus vaginally. In V Patil study, bisection done in 23.3% cases, bisection with myomectomy in 6.7% & morcellation were done in 3.3% cases.

Study	Bissection	Myomectomy	Bissection + Myomectomy	Morcellation
Dewan Rupali 2004	64%	24%		6%
V. Patil 2015	23.3%		6.7%	3.3%
Present Study	5 (3%)	21(10%)	22(11%)	

During NDVH additional surgery like BSO, salpingectomy, where indicated were undertaken after hysterectomy. Thus the need to do unilateral or bilateral salpingo-oophorectomy or presence of adnexal cyst is not a justification for choosing abdominal route as it can be done vaginally also. Operating time is a time taken from incision on the cervix to the end of surgery. In our study, the mean operating time for NDVH was 90.15min & for TAH was 138.04min. The difference in the time noted was statistically significant with a P value of <0.0001, like S. Bharatnur & Smritee Virmani (2010) study. In our institute mean time of surgery for unit A was 75min & for Unit B was 100min. Thus it indicates that time taken for NDVH was less as compared to TAH group. In our study 2 cases of NDVH were done in 30 minutes. Operating time depends on experience & expertise of the surgeon.

Study	NDVH (Mean Time in Min)	TAH (Mean Time in Min)	P Value

S. Bharatnur et al (2010)	65 min	101min	<0.001
Smritee Virmani et [10]al (2014)	75.2 min	128.3min	0.000
P. Mittal et al[11] (2014)	97 min	100min	0.621
Rathindra Nath Ray[12] et al (2015)	66.32 min	72.88min	0.10
Present study	90.15 min	138.04min	<0.0001

In present study mean blood loss was significantly less amongst NDVH group (230.9ml) as compared to TAH group (302.5ml). The mean difference in blood loss in NDVH group & TAH group was statistically significant in present study, S Bharatnur study (NDVH-316.4ml, TAH-500ml), Smritee Virmani study (NDVH-168.5ml, TAH- 211.9), P. Mittal study (NDVH-251.13ml, TAH 327.33ml) & in Rathindra Nath Ray (NDVH-127.64ml, TAH- 216.16ml). Thus the amount of blood loss is less in NDVH group as compared to TAH group, hence only 3% cases were required blood transfusion in NDVH group & 15% cases in TAH group.

In the present study, 2 patients in NDVH group & 1 patient in TAH group had bladder injury. 2 cases in TAH group had ureter injury while none had ureter injury in NDVH group. One patient in NDVH group which had bladder injury was previous one LSCS. No bowel injury had occurred in either group of NDVH & TAH group. In Pradeep Kumar Garg study 2004 one (3.8%) case in NDVH group with previous LSCS had bladder injury while no case in TAH group had bladder injury. In S. Bharatnur study 2010 – one (4%) patient had bladder injury during abdominal hysterectomy & none had an intraoperative problem in NDVH group.

In our study, maximum no. of patients required analgesic in NDVH group for day 1 i.e 150 cases, contrary to this, maximum no. of cases in TAH group required analgesics on day 2 & 3 also i.e 62 & 64 respectively, similar to V. Mahasani[13] study. Thus the difference in pain relief between two group was significant & indicate earlier pain relief in NDVH group as compared to TAH group. NDVH patients ambulate& tolerate food early as compared to TAH patients due to no abdominal scar & less pain & extraperitoneal procedure. Early removal of foley's in NDVH was statistically significant in two group with P value of <0.0001. Postoperative complications were more in TAH group than NDVH group similar to study like S. Bharatnur, P.Mittal, RathindraNath Ray study. The mean hospital stay in NDVH group was 8.5 days was significantly less as compared to TAH group was 12.6 days (P-<0.0001). Similarly, in S. Bharatnur study 2010, (NDVH-9.6day, TAH-11.1day), N. V. Mahasani study 2013 (NDVH-5 days, TAH- 7days), & in Rathindra Nath Ray 2015 (NDVH-7.9days, TAH-9.92days) duration of hospital stay in days was found to be statistically significant. Thus hospital stay during postoperative period is minimum in NDVH group as compared to TAH group.

Conclusion:

Medical standard in present day health system relies on the evidence-based practical guidelines that are defined by outcomes rather than subjective criteria. The route of hysterectomy for an individual patient depends on numerous factors such as childbirth, uterine size, associated disease like infection & endometriosis, the presence of adnexal mass, ovarian tumors, prior pelvic surgery, suspicion of malignancy & skill of the surgeon. The method should be simple, easy, uncomplicated, relatively less time to consume & cost effective for removal of the uterus. NDVH is safe & should be offered as the first surgical choice in women with uterine enlargement due to benign pathology & non-prolapsed uterus. With a combination of techniques like bisection, myomectomy, morcellation large size of the uterus can be removed successfully. NDVH has been found to be the suitable mode of surgery, meeting all criteria. Worldwide trends are rising towards minimally invasive approach. A natural Orifice technique of Surgery such as Vaginal Route remains the primary choice. With the experience & skill of the surgeon, operative time, blood loss, intra & postoperative complications can be reduced. Also, NDVH being almost extra peritoneal, it is a less invasive procedure. Thus, it can be concluded that NDVH is feasible, safe & provides more patient comfort without increasing the duration of surgery, blood loss & other intraoperative complications, provided case is evaluated properly pre-operatively.

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