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RESEARCH ARTICLE

Two different approaches of hysterectomy in benign conditions of uterus without uterovaginal prolapse

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ABSTRACT

Objectives: To compare between abdominal and vaginal hysterectomy in terms of operative time, length of hospital stay and post operative morbidity. **Methods:** A prospective observational study was done at R.G.KAR Medical College, Kolkata, West Bengal, India with 140 patients over a period of 18 months at department of Obstetrics and Gynaecology. **Results:** Results shows less operative time (mean 76.49% in TAH and 56.44% in NDVH), per-operative complications, blood loss, post-operative complications, post-operative ambulance and mean hospital stay are statistically significance (i.e. <0.005). **Conclusion:** Result shows NDVH is more advantageous than TAH in many aspects. But it needs more extensive studies before universal acceptance.

Keywords: Abdominal hysterectomy, nondescent vaginal hysterectomy, hospital stay, operative time, post-operative morbidity.

Hysterectomy can be perform by abdominal, vaginal, laparoscopic, or robotic approach and selection is influenced by many factors for example shape, size of uterus, surgical indication, presence or absence of adnexal pathology, extensive pelvic adhesive disease, surgical risk, hospital resource and surgeon expertise.

Many large scale surveys of hysterectomies practice have shown that 70 – 80% of hysterectomies are performed by abdominal approach [1] .Vaginal hysterectomy (without prolapsed) is a technique that had already been introduced and performed years ago but with little success among gynaecologist probably because of an inexperience or lack of enthusiasm among gynaecologist who performed abdominal route believing it to be safer and easier procedure [2]. But now a days with recent advances in expertisation and training surgeon doing non descent vaginal hysterectomy (NDVH) specially in normally situated uterus without any organ prolapse more frequently.[1]

The common belief that bulky uterus, endometriosis, pelvic inflammatory disease, previous surgeries and narrow vagina make vaginal hysterectomy difficult to be performed are not consider to be contraindication for non-decent vaginal hysterectomy with the advancement of training [1] . NDVH in large sized uterus is facilitated by bisection, myomectomy, debulking, and clamp less approach. [1]

Objectives: After considering the above mentioned issues, the study is designed with these objectives - 1) To compare between abdominal and vaginal hysterectomy in term of length of hospital stay, 2) To compare between abdominal and vaginal hysterectomy in terms of operating time and postoperative morbidity like fever, urinary tract infection, abdominal wound infection, vaginal cellulitis.

Methods

After clearance from the ethics committee the prospective observational study was done for 18 months (June 2017 to December 2018) in the department of

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obstetrics and gynaecology R G KAR Medical College and Hospital Kolkata, India. 140 patients are selected and admitted in the gynaecology ward from outpatient department who requires hysterectomy after through history elicitation and proper general and systemic examination.

Inclusion criterias: Uterine size not exceeding 12 weeks, adequate uterine mobility, fibroid uterus, abnormal uterine bleeding, chronic cervicitis, adenomyosis, postmenopausal bleeding (malignancy excluded).

Exclusion criterias: Uterus size more than 12 weeks grossly restricted uterine mobility, prolapsed uterus, patients with adnexal mass, patients with previous 2 or more caesarean section [3] and medical or surgical disorder likely to modify postoperative recovery of patient.

The selected patients were placed randomly into two equal group i.e. Group 1 (total abdominal hysterectomy with or without salpingo-oophorectomy as indicated); Group 2 (vaginal hysterectomy) by using random member tables. Before any procedure proper informed written consent was taken from all patient explaining the risk and complication of procedure.

Prophylactically antibiotic which was intravenous Cefazolin (2gm) given within 2 hours before surgery to prevent postoperative infective morbidity. Operating time for nondecent vaginal hysterectomy was calculated from incision at cervico-vaginal junction to the completion of closure of vault. Operating time for total abdominal hysterectomy was calculated from incision on the abdomen to closure of skin incision. To measure the intraoperative blood loss weight of swab in the dry and blood soaked states were measured and 19 mg weight difference was equal to 1 ml blood loss. Also any operative complication like bowel, bladder, ureteric injury and excess haemorrhage were noted. Postoperative complication like fever, urinary tract infection (due to catheterization), abdominal wound infection, vaginal cellulitis, paralytic ileus and haemorrhage were noted. First postoperative ambulation time in hours, requirement of any blood transfusion and duration of requirement of analgesia (hours) were noted in calculated format for analysis. The febrile morbidity was defined as fever more than 100.4^0 F on two occasions 6hours apart after first 24hours of operation. Duration of hospital stay was calculated by days spent in the hospital after hysterectomy including the day of surgery.

Statistical data analysis has been done using SPSS (statistical package for the social science) version 20.0.1. The chi-square test was used to test the association. The Z-test was used to compare the proportion. Independent t-test was used to compare the mean between the groups. P-value of ≤ 0.05 was considered as the level of statistical significant.

Results

The primary outcome which was length of hospital stay was significant shorter in cases of non-decent vaginal hysterectomy (NDVH) than total abdominal hysterectomy (TAH) cases.

The secondary outcomes were operating time and postoperative morbidity. The study has shown NDVH was associated with significantly shorter duration of surgery than TAH. In case of preoperative complications (bladder and bowel injury and requirement of blood transfusion) and postoperative morbidity (fever, urinary tract infection, abdominal wound infection, and vaginal vault cellulitis/hematoma) also less in cases of NDVH than TAH. NDVH was associated with early postoperative ambulation.

Table 1 : Distribution of demographic parameters and independent variables between TAH and NDVH

Demographic parameters	Groups	Mean ± SD	P –value
Age (years)	TAH	47.77±8.752	0.529
	NDVH	48.68±8.386	
BMI	TAH	23.38±5.026	0.8977
	NDVH	23.41±5.413	
Weight of uterus (gm)	TAH	188.57±77.42	0.2105
	NDVH	173.49±63.8	
Size of uterus (wks)	TAH	8.57±1.87	0.7388
	NDVH	8.67±1.67	

TAH – Total abdominal hysterectomy, NDVH – Non decent vaginal hysterectomy, BMI – Basal metabolic index.

All independent variables like mean age of women, body mass index (BMI), uterine weight and size are compared in both groups and they are statistically insignificant (table 1).

The chief complain of maximum number of patients were heavy menstrual bleeding followed by lower abdominal pain. Maximum number of patient undergoing surgery both TAH and NDVH had AUB (Abnormal uterine bleeding) as the underlying pathology followed by fibroids and adenomyosis. 17.14% of patients in NDVH group and 21.42% of patients in TAH group had history of pelvic surgeries (e.g. tubal ligation, ovarian cystectomy, laparotomy etc.). All parameters are compared in both groups and found statistically insignificant (table 2).

The mean duration of surgery i.e. operating time for both TAH and NDVH were measured and we found operation time for TAH was much lengthier than NDVH where it took 76.49 minutes in TAH and just 56.44 minutes in NDVH (table 3). In study it has been found that one bladder and one bowel injury occurred in TAH group and only one bladder

Table 2: Symptoms, indication of surgery and history of pelvic surgery wise distribution of TAH and NDVH

Variables		TAH No (%)	NDVH No (%)	Total No (%)	P-value
Symptoms of patients	1. Heavy menstrual bleeding	49(70%)	45(64.28%)	94(67.14%)	0.715
	2. Lower abdominal pain	16(22.85%)	21(30%)	37(26.42%)	0.715
	3. Other menstrual disorder	5(7.14%)	4(5.7%)	9(6.42%)	0.715
	Total	70	70	140	
Indication of surgery (by USG/HPE)	1. AUB *	30(42.86%)	32(45.71%)	62(44.28%)	0.733
	2. Adenomyosis	12(17.14%)	15(21.43%)	27(19.28%)	0.520
	3. Fibroid	18(25.71%)	16(22.85%)	34(24.29%)	0.693
	4. Endometrial hyperplasia	3(4.28%)	3(4.28%)	6(4.28%)	1
	5. Chronic cervicitis	3(4.28%)	2(2.85%)	5(3.57%)	0.648
	6. Post menopausal bleeding	4(5.71%)	2(2.85%)	6(4.28%)	0.404
	Total	70	70	140	
Previous pelvic surgery	Yes	15(21.42%)	12(17.14%)	27(19.29%)	0.520
	No	55(78.57%)	58(82.85%)	113(80.21%)	0.520
	Total	70	70	140	

TAH – Total abdominal hysterectomy, NDVH – Nondecent vaginal hysterectomy, AUB* - Abnormal uterine bleeding (without any definitive or detectable, organic causes), USG – Ultrasonography, HPE – Histopathology examination.

injury seen in NDVH, the difference is statistically significant. The mean blood loss and requirement of blood transfusion, post operative morbidities and time required for post operative ambulance, duration of hospital stay in both the groups are statistically significant. This is the primary objective of our study.

Table 3: Distribution of categorical/numerical independent variables between TAH and NDVH

Variables	Groups	Mean ± SD	P-value
Mean operative time in minutes	TAH	76.49±14.99	<0.0001
	NDVH	56.44±9.20	
Blood loss during operation (ml)	TAH	176.64±30.92	<0.0001
	NDVH	131.27±25.84	
Post operative requirement of blood transfusion (no of unit)	TAH	0.11±0.47	<0.0447
	NDVH	0.00±0.00	
Intraoperative complications (bowel, bladder, ureteric injury and haemorrhage)	TAH	2	0.559
	NDVH	1	
Post operative morbidity (Fever, UTI, vaginal cellulitis, abdominal wound infection etc.)	TAH	23	0.002
	NDVH	8	
Post operative ambulance (hrs)	TAH	26.80±9.86	<0.0001
	NDVH	11.49±4.82	
Mean hospital stay (days)	TAH	6.04±1.18	<0.0001
	NDVH	3.74±0.91	

TAH – Total abdominal hysterectomy, NDVH – Nondecent vaginal hysterectomy, UTI – Urinary tract infection

Discussion

It is well known fact that abdominal route is preferred in 70-80% of hysterectomies done for benign conditions. But now a day's vaginal approach of hysterectomy has been the hallmark of gynaecological surgery. It allows the surgeon to operate by the least invasive route of all, utilising an anatomical orifice. The observational prospective study was carried out with 140 patient requiring hysterectomies to study the outcomes of two common route of hysterectomy in terms of duration of hospital stay, operating time and post operative morbidity. Following are the important findings which are enumerated upon.

There were no major statistical difference present in age, BMI, symptoms, indications, uterine weight and uterine size between the two groups as found in many studies [3-6] and these are independent variables in our study.

In our study common indications for hysterectomy are AUB, fibroid and adenomyosis. We found no major difference between indications between two groups. Maximum hysterectomies done in this study was due to AUB which was similar as observed by H Despande et al [3] as in their study main indications were AUB, fibroid and cervicitis. Similar finding was observed in a study conducted by S Bharatnur et al [7] where they studied the comparative risks of complications of abdominal and vaginal hysterectomy and concluded that dysfunctional uterine bleeding (DUB), fibroid and chronic cervicitis were common indication of hysterectomy. But in a study performed by Dawood NS et al[8] found that out of 80 hysterectomies 50(62.5%) were performed for uterine leiomyomas, 23(38.7%) for utero-vaginal prolapsed and only 7 (8.8%) for DUB.

Regarding mean duration of hospital stay we found in this study it was 6.04 days for TAH and 3.74 days for NDVH patients. Similar finding observed by H Despande et

al [3] in which they reported mean hospital stay for TAH was more than non descent vaginal hysterectomy. In another study done by D Balakrishnan et al [4] where they found mean duration of hospital stay for NDVH cases was significantly less than abdominal hysterectomy. The mean duration of surgery is significantly less during NDVH than TAH. This finding was consistent with the study done by T Parveen et al [6], a study carried by Chandrika S et al [5].

With the advent of electrocautery though the overall blood loss in both cases are substantially reduced, but still it is much less in NDVH which is statistically significant. Similar finding noted by Bharatnur S et al [7], a study done by D Balakrishnan et al [4], study done by K Mehta et al [9] and another study H Despande et al [3].

In this study one bowel injury and one bladder injury occurred during abdominal hysterectomy but only one bladder injury occurred during NDVH. These two cases where injury occurred had history of previous pelvic operations and also dense adhesions present between uterus and adjacent organs. No ureteric injury happened in both the two groups. The bowel and bladder injury during TAH were repaired in the same sitting and longer duration of operation and it causes no significant post operative complication except longer duration of hospital stay for these two cases. Similar finding of increased intraoperative complication of TAH was observed by T Parveen et al [6]. While H Despande observed one bladder injury in NDVH cases and one bowel injury in TAH cases [3]. The overall postoperative complication (fever, UTI, wound infection, etc.) rate is very less in NDVH than TAH cases in this study which is very much similar with many previous studies [7-8,10 -12]. In this study NDVH patients experienced early post operative ambulation and this finding was similar with the study done by K Mehta et al [9]. NDVH patients need no blood transfusion and less requirement of analgesia postoperatively as stated in many studies [9, 13].

Conclusion

So from this study it can be easily concluded that NDVH is more feasible, safe and give more post operative comfort to patient without increasing the duration of surgery and operative complications. Therefore, NDVH should be the procedure of choice whenever feasible but before it becomes a dictum more multicentric studies in properly selected cases should be performed.

Conflict of interest: None. **Disclaimer:** Nil.

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