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A COMPARATIVE STUDY BETWEEN TOTAL ABDOMINAL HYSTERECTOMY AND NON-DESCENT VAGINAL HYSTERECTOMY

KEY WORDS: Hysterectomy, NDVH, TAH

Dr. Anita G. Pawar

Associate Professor OBGY Department, VDGIMS, Latur, Maharashtra ,India.

Dr. Diksha Nijling Ravangave*

Junior Resident, OBGY Deptment VDGIMS, Latur, Maharashtra ,India.
*Corresponding Author

ABSTRACT

Background- Both Abdominal and Vaginal are not competitive procedures but each has its own place in the operative armamentarium of the gynecologist. Guidelines incorporating uterine size, mobility accessibility, and the pathology confined to the uterus (no adnexal pathology or known or suspected adhesions) have been proposed as selection criteria for vaginal hysterectomy. **Aim:** The aim of the current study was to compare Total abdominal hysterectomy (TAH) and Non-descent vaginal hysterectomy (NDVH) with respect to duration of surgery, intra and post-operative complications, hospital stay in women with benign disorders. **Methods:** A total of 120 cases were selected with enlarged uterus of which 60 underwent NDVH and rest 60 underwent TAH. All patients were evaluated for operative time, intra-operative and post-operative complications and duration of hospital stay. Data were recorded and processed and standard statistical software were used. **Results:** Patients undergoing NDVH had an average operating time of 52.19 mins whereas for those undergoing TAH was 65.41 mins (p'- value <0.001) Intra-operative complications were noted in 2% of patients undergoing NDVH whereas in 20% of patients undergoing TAH (p'- value 0.014). Post-operative complications were noted in 30% of patients undergoing NDVH v/s 56% in TAH (p'- value <0.001). Patients undergoing NDVH had a mean hospital stay of 4.02 days whereas 8.23 days in those undergoing TAH (p'- value <0.001). **Conclusions:** NDVH is associated with decreased operative time, post-operative morbidity, and early postoperative recovery compared to TAH.

INTRODUCTION

After caesarean section, hysterectomy remains the second most commonly performed surgical operation in gynaecology. A substantial number of women undergo hysterectomy annually and 70% of hysterectomies are performed for benign indications, including leiomyoma, adenomyosis, severe dysmenorrhea and uterine prolapsed¹. There are three main approaches to perform hysterectomy, namely, abdominal, vaginal and minimally access surgeries including laparoscopic or robotic surgeries.

The current ratio of abdominal to vaginal hysterectomy is 3:1 for the treatment of benign disorders. The ratio should be reversed because fewer post-operative complications are associated with the vaginal route, which allows earlier recovery and return to work².

Vaginal hysterectomy is a very ancient technique which is being performed on large scale, however it requires skill and is technique sensitive and demanding an experienced surgeon to carry out the procedure, due to which abdominal route is being preferred as the safest and easier procedure. In recent decade increased expertise has been achieved by the gynaecologist and better compliance has been reported by the patients. This has led to increased number of vaginal hysterectomies compared to abdominal hysterectomies.

Vaginal surgery is least invasive and results in better quality of life. Many nulliparous women and many women who have undergone caesarian delivery do infact have sufficient vaginal capacity to allow vaginal hysterectomy.

Vaginal approach is associated with fewer complications and decreased hospital stay and postoperative comfort is better³. Also, economically it is more promising than abdominal hysterectomy³.and also cosmetically its more pleasing than abdominal hysterectomy. Vagina is the ideal and most natural route to approach the uterus along with the availability of good anesthesia, light, better suture material, electrosurgical technique, exploration of uterus through vaginal route is becoming increasing popular.

A narrow sub-pubic arch, narrow vagina, an undescended immobile uterus, prior caesarian delivery and enlarged uterus has been proposed by some authors as contraindications for vaginal hysterectomy. However vaginal hysterectomy can be successfully done in above conditions⁴.

Extra-uterine diseases such as adnexal pathology, severe endometriosis, adhesions may preclude vaginal hysterectomy. Vaginal hysterectomy in large sized uterus can be facilitated by bisection, myomectomy, debulking, coring and clampless approach⁵

Abdominal hysterectomy gives better operative field vision, can be performed in uterus size >12 weeks and uterus with adnexal pathology. So, both the method has certain limitation and benefit equally, while deciding the route of hysterectomy. It depends upon the case selection and expertise on surgeon. The aim of the current study was to compare Total abdominal hysterectomy (TAH) and Non-descent vaginal hysterectomy (NDVH) with respect to duration of surgery, intra and post-operative complications, hospital stay in women with benign disorders.

METHODOLOGY

This prospective case-control study was conducted in the Department of Obstetrics and Gynaecology, in a tertiary care medical centre for a period of one year. Total 120 patients requiring hysterectomy were selected randomly from the outpatient department after detailed history including patient's age, parity, weight, menstrual history and presenting complaints were noted. General, systemic and pelvic examination was performed and proforma maintained. Those fulfilling the inclusion and exclusion criteria defined below were assigned for the study. Out of 120 patients, 60 were selected for total abdominal hysterectomy while 60 patients were assigned to the NDVH group

Inclusion Criteria

- Women having benign pathology.
- Uterus < 14 weeks size.
- Mobile uterus.

Exclusion Criteria

- Uterine prolapse
- Pelvic malignancy
- Endometriosis /pelvic adhesion.

Required pre- operative investigations were performed along with ultrasonography to assess the size of fibroid and any adnexal pathology. Every patient was clinically evaluated and investigated. Written informed consent was taken from all patients and the study was approved by institutional ethical committee. Statistical analysis was done by descriptive and inferential statistics using Chi-square test and Students unpaired't' test. Software used in analysis were SPSS version 17 and Microsoft office Word and Excel version 13. Data was analysed as graphs and charts

RESULTS

Table 1: Baseline demographic characteristics

Baseline characteristics	TAH (n=60)	NDVH (n=60)
Age (years)	49.12 +/- 3.11	46.61 +/- 2.32
Parity	2.99	2.39

Out of total of 120 hysterectomies, 60 patients underwent total abdominal hysterectomy while 60 cases underwent NDVH. The age group of those operated by abdominal route ranged between 43 to 58 years with a mean of 49.12, while the NDVH arm aged between 40 to 55 years (mean=46.61). Parity was also comparable in both abdominal and vaginal hysterectomy groups. (Table 1)

Table 2: Indication of surgeries

Indications	TAH(n=60)	NDVH (n=60)
AUB	14 (23%)	14(23%)
Fibroid	24 (40%)	16(26%)
Adenomyosis	7 (11%)	10 (16.6%)
Chronic cervicitis	7 (11%)	10 (16.6%)
Chronic pelvic pain	2 (3.33%)	0 (0%)
Endometrial polyp with fibroid	2 (3.33%)	5 (8%)
Adenomyosis with fibroid	1(1.6%)	0(0%)
Cervical polyp with fibroid	3(5%)	5 (8%)

NDVH was done for 24 cases of uterine fibroid, 10 cases of adenomyosis, 14 cases of AUB, 10 cases of chronic cervicitis, 5 cases of endometrial polyp with fibroid and 5 cases of cervical polyp with fibroid. TAH was done for 24 cases of fibroid, 7 cases of adenomyosis, 14 cases of AUB, 7 cases of chronic cervicitis, 2 cases of endometrial polyp with fibroid and 1 case of adenomyosis with fibroid (Table 2)

Table 3: Distribution of patients according to the size of uterus

Size of the uterus (weeks)	TAH(n=60)	NDVH (n=60)
Bulky	26 (43%)	30 (50%)
8	3(5%)	9 (15%)
10	11(18%)	10 (16%)
12	20(33%)	11 (18%)
Total	60 (100%)	60 (100%)

In this study, maximum patients had bulky uterus. In NDVH group, 10 patients had uterine size of 10 weeks and 8 cases had uterine size of 12 weeks. In TAH group, 11 patients had uterine size of 10 weeks and 13 cases had uterine size of 12 weeks (Table 3)

Table 4: Comparison of duration of surgery (in minutes)

Parameter	Route of surgery	Mean ±SD	P value
Duration of surgery (min)	TAH (n=60)	65.41+/-10.6	<0.001
	NDVH(n=60)	52.19+/-8.01	

We observed significant difference in the duration of surgery between the two groups where the mean time to perform TAH was 65.4 minutes and NDVH in 52.1 minutes (Table 4)

Table 5: Comparison of Blood loss (in ml)

Parameter	Route of surgery	Mean ± SD	P value
Blood loss (in ml)	TAH (n=60)	183.34+/-57.56	<0.001
	NDVH(n=60)	84.21+/-15.31	

The mean blood loss in total abdominal hysterectomy was 183.34 ml (100 ml-300ml) and non-descent vaginal hysterectomy was 84.21 ml (60-150 ml) which was significantly less in NDVH arm (Table 5).

Table 6: Comparison of hospital stay (in days)

Parameter	Route of surgery	Mean ± SD	P value
Hospital stay (in days)	TAH (n=60)	8.23+/-1.34	<0.001
	NDVH (n=60)	4.02+/-1.3	

The difference in the duration of hospital stay was significantly less with NDVH than TAH where the mean hospital stay was 8.2 days for TAH and 4.02 days for NDVH (Table 6)

Table 7: Post-operative requirement of blood.

Blood transfusion	TAH	NDVH
Required	35 (58%)	10 (5%)
Not required	25 (41%)	50 (83%)
Total	60 (100%)	60 (100%)

P<0.001, highly significant

Need for post-operative blood transfusion was significantly higher in TAH group as compared to NDVH group. Blood loss was more in TAH group with 35 patients requiring blood transfusion whereas it was less in NDVH group with 10 patient requiring blood transfusion (Table 7).

Table 8: Comparison of intra-operative complications in both groups

Intra operative complications	TAH	NDVH
None	50 (83%)	59 (98%)
Bowel injury	0 (0%)	0 (0%)
Bladder injury	2 (3%)	0(0%)
Vascular injury	8 (13%)	1(1.6%)

P value 0.014, significant

49 out of 50 patients in NDVH group were without any intra-operative complications. 1 case of NDVH was complicated due to bladder injury. 40 out of 50 patients in TAH group were without any complications. 2 cases was complicated by urinary bladder injury and 8 were complicated by vascular injury. The difference between the two groups with respects of intra-operative complications was statistically significant (Table 8).

Table 9: Duration of catheterization

Catheter removed	TAH	NDVH
<20 hrs	46 (76%)	45 (75%)
Post-op day 2	12 (20%)	13 (21%)
>2 days	2 (3.3%)	2 (3.3%)

P value 0.5, not significant

Prolonged postoperative catheterization was avoided in most patients with the help of good enthusiastic anaesthesiologists and nursing staff. Foley's catheter for bladder drainage overnight following hysterectomy. In TAH group, 76% of patients in had catheter removed in less than 20 hrs. In 20% of patients, the catheter was removed on postop day 2. Only 2 patients required catheterization for more than 2 days. Whereas, in NDVH group, 75% of patients in had catheter removed in less than 20 hrs. 21% of patients, had catheter removed on postop day 2. Only 2 patients required catheterization for more than 2 days and the difference between the groups was not statistically significant (Table 9)

Table 10: Comparison of post-operative complications in both groups

Post-op complications	TAH	NDVH
None	32 (53%)	45 (75%)
Urinary tract infections	7 (11%)	9(15%)
Respiratory tract infections	5 (8.3%)	1 (1.6%)
Fever	9 (15%)	4 (6.6%)
Wound infection	5 (8.3%)	0 (0%)
Vault haematoma	2 (3.3%)	1 (1.6%)

P<0.001, highly significant

45 out of 60 patients in NDVH group were without any post-operative complications, 4 patients had fever in post-operative period whereas 9 patients had urinary tract infections and 1 patient had respiratory tract infection and 1 patient had vault haematoma. 32 out of 60 patients in TAH group were without any post-operative complications, 9 patients had fever in post-operative period, 7 had urinary tract infection, 5 patients had respiratory tract infection, 2 patients had vault haematoma and 5 patients had wound infection (Table 10)

DISCUSSION

In the past, vaginal hysterectomies were performed for uterine prolapse or inversion, however in the present time even enlarged uterus due to adenomyosis or fibroid can be delivered through vaginal hysterectomy, depending on the skill and experience of the surgeon. This is the era of non-invasive surgery so NDVH is becoming choice of hysterectomy for non-descended uterus with benign lesions and freely mobile uterus with size not more than 12 weeks. The mean age of the subjects in TAH was 49.12 +/- 3.11 and 46.61 +/- 2.32 in NDVH, which is in line with a study done by and Pranathi et al⁷.

In our study most common indication for hysterectomy either (NDVH or TAH) is fibroid uterus followed by AUB in case of NDVH and uterus with ovarian pathology in case of TAH. Similar findings were noticed by Mehta K et al⁷.

We observed that NDVH was less time consuming than TAH where time taken to perform NDVH was 52.19 +/- 8.01 and TAH was 65.41 +/- 10.6 (p <0.001). Rohidas P. Chavhan et al⁸ and other studies^{9,10} have shown similar results where NDVH was performed in significantly lesser time. This result depends upon the size of the uterus, any previous pelvic surgery leading to adhesion and the experience of the operating surgeon¹¹. In our study, the amount of blood loss was comparatively more with TAH than NDVH (183.3 ml vs 84.21ml, p<0.001). Balakrishnan D et al¹² and Abrol S et al¹⁰ observed similar findings where the amount of blood loss was significantly less in the NDVH group. Post-operative blood transfusion was required in 2% NDVH cases and the need was clearly in excess in TAH group

The patients were discharged from the hospital after assuring their physical stability and those who were medically fit. We observed that the NDVH arm had shorter hospital stay than TAH arm (p<0.001) indicating that those in the NDVH arm were medically fit earlier than the subjects in the TAH arm. Hence the financial burden was also considerably reduced on the patients. Rosy N et al¹³ also found similar results in their case control study of non -descent vaginal hysterectomy versus total abdominal hysterectomy conducted on one hundred and fifty patients. Alike the findings of Abrol S et al¹⁰ while comparing the overall complications between the two group, we found that TAH had significantly more complications than NDVH (p=0.01). We did not observe any major complications like bowel or bladder injury in the NDVH group while these were encountered in TAH, although statistically insignificant. Vault hematoma was encountered in two cases of TAH which further required blood transfusion, but was statistically insignificant. In the present study, no intraoperative complications occurred in the vaginal group, except one case of vascular injury was encountered and was

successfully managed. The observations noticed in our study were comparable to other studies found in the literature^{9,10,11,13}. NDVH was found to be safe and effective operative technique for benign gynaecological conditions and should be offered whenever possible, considering safety, better operative outcome and cost effectiveness

CONCLUSIONS

Non-descent vaginal hysterectomy is associated with less blood loss during surgery, decreased operative time, less intra-operative and post-operative complications with shorter hospital stay as compared to total abdominal hysterectomy. So NDVH is considered to be more feasible, safe, economical and effective procedure when compared to TAH

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