



Surgical Trends in Hysterectomy- A Comparative Analysis

KEYWORDS

Non descent vaginal hysterectomy, Total abdominal hysterectomy, Benign gynaecological disorders

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ABSTRACT *Objectives: To compare the indications, intra operative characteristics and clinical outcomes of patients undergoing NDVH and TAH.*

Methods: Fifty cases each of NDVH and TAH requiring hysterectomy for benign gynecological disorders were included. They were compared for indications, complications, operative time, blood loss, length of hospitalisation and total cost involved in the surgery.

Results: Main indication of hysterectomy in the two groups was uterine fibroid (62%). No statistically significant difference was observed in the intra operative complications between the two groups. Blood loss during surgery was more in the TAH group ($p=0.019$). The operative time was shorter for NDVH group ($p=0.00$) and NDVH was more cost effective ($p=0.00$).

Conclusions: NDVH proved to be a feasible and faster operative technique than TAH. Hence it can be offered as a primary method for uterine removal to patients requiring hysterectomy for benign gynaecological disorders.

INTRODUCTION

Hysterectomy is a reasonably safe (mortality rate 1-2 per 1000)⁸, common and routine surgical procedure. There are many indications for hysterectomy and it can be performed using any of a variety of techniques and approaches. This procedure has undergone important changes recently. The need to try to suit the surgical procedure to modern medicine, which aims at maximum reduction of surgical damage, has led to the rediscovery of the vaginal route, which has led it to become a valid alternative to the traditional abdominal route¹. This study was conducted to compare the two routes of hysterectomy in females with benign gynaecological disorders. Traditionally vaginal hysterectomy was limited to cases of uterine prolapse but now vast worldwide literature has demonstrated its applicability in other common benign disorders with no uterovaginal descent like uterine leiomyoma, adenomyosis, abnormal uterine bleeding – a term referred to as vaginal hysterectomy in non prolapsed uterus: no scar hysterectomy.

There is considerable evidence from observational and uncontrolled studies showing that vaginal hysterectomy is associated with several advantages but guidelines for choosing the proper route are still debated. Thus in gynaecological surgery, abdominal and vaginal hysterectomy are two predominant operative modalities for various uterine conditions, however the indications for selecting a particular procedure in any setting may not be optimally defined. This study was designed to compare surgical indications, intraoperative complications and clinical outcomes of patients who underwent non descent vaginal hysterectomy (NDVH) and total abdominal hysterectomy (TAH).

METHODOLOGY

The study was conducted with the aims to compare the two groups of surgery NDVH and TAH for indications, intra operative complications, operative time, blood loss during surgery, length of hospitalisation and total cost involved in the surgery.

This observational study was carried out in the Department

of Obstetrics and Gynaecology, Sunder Lal Jain Hospital, Ashok Vihar, Delhi. All the women requiring hysterectomy for benign gynaecological disorders were considered and first fifty patients undergoing NDVH and first fifty patients undergoing TAH were included in the study and analysed. Cases with uterovaginal prolapse and malignant condition of the uterus and cervix were excluded from the study.

The patients scheduled for elective hysterectomy were assigned to the TAH and NDVH group entirely on the basis of clinical judgment of the operating gynaecologist. Also, importance of individual surgeon's experience in NDVH and TAH was considered and all procedures were performed by the same surgeons using identical technique.

Detailed case history and clinical evaluation of the patients was done and to correlate the clinical provisional diagnosis a pre operative ultrasonography was also done for all the patients. A pre anaesthetic check up of all the patients was got done and they were explained about the type of surgery, the possible complications and a written informed consent was obtained. All the surgeries were performed under spinal anaesthesia.

The observations noted for the patients of the two groups were:

• Intra operative blood loss:

Blood loss (ml) during the surgery was estimated by measuring the aspirated blood and blood soaked in the mops and swabs. This was done by subtracting the weight of the dry mops and swabs from the weight of blood soaked mops and swabs ($1.06\text{gm} = 1\text{ml}$), and adding the amount of the blood in the suction apparatus.

• Intra operative complication

[a] Intra operative primary hemorrhage: intra operative hemorrhage of unknown cause, hemorrhage due to descending cervical artery bleeding, uterine artery bleeding, ovarian vessel bleeding and bladder base vessel injury were noted.

[b] Intra operative haemorrhage requiring blood transfusion: a note was made about the blood transfusion to the patients.

[c] Intra operative injury: other complications like injury to bladder, bowel, and ureter were also noted.

• Duration of surgery:

The total time from the first surgical incision till all wounds were closed and dressed, was recorded in minutes.

• Length of hospitalization:

The length of hospitalization was recorded considering the day of surgery as day one to the day of discharge from the hospital. For the purpose of discharge fully ambulated patient with no febrile morbidity (temperature > 38°C recorded on two different occasions, 24 hours apart), requiring no further analgesia and tolerating normal diet was considered fit for discharge.

• Total cost:

The cost of surgery including hospital charges were considered as total cost for each patient of the two groups.

The data collected was statistically analysed to find out the level of significance between various factors of the two groups. Data was also tabulated and values were expressed as Mean ± SD. The statistical analysis was performed with SPSS software. T test and Pearson chi square test were used for continuous data and discrete data respectively. A p value < 0.05 was considered statistically significant.

RESULTS

INDICATIONS OF HYSTERECTOMY

In the NDVH group the indications for the surgery were uterine fibroid (62%), fibroid with an adnexal pathology (4%), fibroid with rectocele (2%), adenomyosis (6%), DUB (8%), DUB with adnexal pathology (6%), cervical polyp with cystocele (2%).

Further in the TAH group 62% patients had uterine fibroid, 20% patients had fibroid with adnexal pathology, 2% had fibroid with endometriotic cyst, 6% patients had adenomyosis, 2% had adenomyosis with bilateral endometriosis, 10% had DUB and 1% had isolated adnexal pathology.

BLOOD LOSS

In the NDVH group mean intraoperative blood loss was 168.5 ml and that in the TAH group was 211.9 ml. The difference in mean blood loss for the two groups of hysterectomies was statistically significant (p value = 0.019) DURATION OF SURGERY

The mean operative time for the NDVH group was 75.2 minutes and that for the TAH group was 128.3 minutes. On statistical evaluation it was found that the mean operative time was significantly higher for the TAH group (p=0.000).

Table 1
BLOOD LOSS (ml) AND DURATION OF SURGERY (minutes)

	NDVH(n=50)	TAH(n=50)	P value
*Blood loss(ml)	168.5±75.426	211.9±104.334	0.019
*Operative time(minutes)	75.20±13.812	128.30±12.105	0.000

*Mean±SD

INTRA OPERATIVE COMPLICATIONS

In the NDVH group intra operative haemorrhage of unknown origin was seen in 14% of cases. Haemorrhage due to descending cervical artery bleeding occurred in 2% cases, due to uterine artery bleeding in 6% and due to ovarian artery bleeding in 6% cases. In the TAH group primary haemorrhage of unknown origin was seen in 18% cases, haemorrhage due to uterine artery bleeding occurred in 2% and that due to bladder base vessel injury in 2% cases. On comparing the two groups no statistically significant difference (p=1.00) was found in terms of primary haemorrhage. Also on comparing the requirement of blood transfusion, five patients in the NDVH group and eight patients in the TAH group were given blood transfusion, however the difference was not statistically significant (p=0.552). None of the patients in the two groups had bladder, bowel or ureteric injury. In one case of NDVH, intra operatively vaginal hysterectomy was converted to abdominal hysterectomy. This was due to lack of vaginal descent and inaccessibility of the uterus.

TABLE 2
INTRA OPERATIVE COMPLICATIONS

Complications	NDVH (n=50)	TAH (n=50)	P value
(1) Primary haemorrhage	14(28%)	14(28%)	1.0
Unknown origin	7(14%)	9(18%)	
Descending cervical a. Bleeding	1(2%)	0(0%)	
Uterine a. Bleeding	3(6%)	4(8%)	
Ovarian vessel bleeding	3(6%)	0(0%)	
Bladder base vessel injury	0(0%)	1(2%)	

(2) Haemorrhage requiring BT	NDVH (n=50)	TAH (n=50)	P value
	5 (10%)	8 (16%)	0.552

(3) Intra operative injuries	NDVH	TAH
Ureteric	0(0%)	0(0%)
Bladder	0(0%)	0(0%)
Bowel	0(0%)	0(0%)

LENGTH OF HOSPITALISATION

It was found that the length of hospitalization of the patients of the NDVH group was shorter than those of the TAH group.

Mean duration of hospital stay for the NDVH group was 3.42 days and for the TAH group was 4.5 days. Statistically the difference was highly significant (p=0.000).

TOTAL COST

The results also showed that the mean of the total cost including cost of surgery and hospital charges was higher for TAH group in comparison to NDVH group and the difference was statistically highly significant (p=0.00).

Table 3
LENGTH OF HOSPITALISATION AND COST OF SURGERY

	NDVH(n=50)	TAH(n=50)	P value
*Length of hospital stay(days)	3.42±0.498	4.5±0.505	0.000
*Cost of surgery(Rs) (range)	30,778.6±6984.83 (21,400-48,080)	43,304.8±13026.06 (25,550-75,400)	0.000

*Mean±SD

DISCUSSION

The main indication for hysterectomy in the two groups NDVH and TAH was uterine fibroid (62%).

In this study, no significant difference was observed between the intra operative haemorrhage that occurred in the two groups ($p = 1.0$). Studies in the past also state that intra operative haemorrhage requiring blood transfusion is similar for two groups of hysterectomies^{2, 4}.

It was found that blood loss in the NDVH group was less than that in the TAH group and the difference was statistically significant ($p=0.019$). Various studies in the literature also demonstrated that when two routes of hysterectomy are compared, blood loss is greater in the abdominal approach.^{2, 5, 7} Thus, this was in conformity with the findings of those studies.

In the previous several studies it has been reported that operative time is much longer with TAH than with NDVH.^{1,3,4} In the present study the mean operative time was 75.2 minutes for NDVH group versus 128.3 minutes for the TAH group ($p=0.00$) which also suggested that NDVH is a less time consuming surgical procedure .

In the present study the length of hospitalisation was shorter for patients of NDVH group when compared with the TAH group ($p=0.00$). Also, on comparing the cost effectiveness of the two procedures, it was found that mean cost of surgery for NDVH group was much lower than that for the TAH group and the difference was highly statistically significant ($p=0.00$). Furthermore it was observed that shorter duration of surgery, shorter hospital stay contributed to the decreased cost. A review of literature also supports these findings giving NDVH an upper edge over TAH.^{1,2,4,6}

CONCLUSIONS

On the basis of the findings of this study it was concluded that in terms of intra operative blood loss, operating time, duration of hospital stay and total cost of surgery, NDVH is superior to TAH. The study also supports the view that to ensure the efficacy and safety of operation the most minimally invasive procedure should be chosen and NDVH appears to have advantages over TAH for patients requiring hysterectomy for benign gynaecological disorders.

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