

COMPARATIVE STUDY OF LAPAROSCOPIC HYSTERECTOMY VERSUS VAGINAL HYSTERECTOMY

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ABSTRACT

Background: Hysterectomy is the most common performed major abdominal surgery among gynaecologic surgeons and the decision is generally based on indications for surgery, surgeon's training and preference, uterine size, presence and absence of any associated pelvic pathologies and patient's choice. By avoiding laparotomy, laproscopic procedures are associated with less post-operative pain, shorter hospitalization, and with lower infectious morbidity rate than laparotomy.

Aims & Objective: (1) To compare duration of surgery, blood loss and complications during surgery and post-operative pain in each type of hysterectomy. (2) To evaluate the safety, simplicity and acceptability of each type of hysterectomy both to the patient as well as the surgeon.

Materials and Methods: Patients undergoing both the types of hysterectomy i.e. LH and NDVH during May 2009 to September 2011 at Smt. SCL General Hospital, Saraspur, Ahmedabad were included in the study. Those patients having malignancy as diagnosed by Pap smear or by D & C were excluded from the study. All the patients were investigated thoroughly for their cardio respiratory status, fitness for surgery and other medical conditions. Patients were observed vigilantly during the pre-operative, intra-operative and post-operative period for any complications.

Results: In this study 56% of patients underwent AH, 20% had VH for prolapse, 13% had NDVH and 10% had LH. Majority of patients belongs to age group 40-49years in both the groups. Fibroid and DUB were the most common indications of hysterectomy in LH group while DUB was the most common indication in NDVH group. Bladder injury was found in one case of NDVH and 2 cases of LH group and bowel injury in 1 case of LH which was managed by expert by laparotomy. Patients of LH and 4 of NDVH had vaginal bleeding but it was minimal and did not require any surgical management. The average duration of surgery was 2 to 4 hours in TLH group, 30 minutes to 2 hours in LAVH group and 1 to 2 hours in NDVH patients. Average amount of blood loss in LH was 100 to 200 ml and it was 100 to 300 ml in NDVH group. Blood loss in NDVH group was less. The difference in the pain scores of LH and NDVH is statistically significant showing 2.24 Z value.

Conclusion: LH can be considered an alternative to AH for those in whom VH is not feasible. TLH may be comparable to NDVH in terms of post-operative parameters and satisfaction, but it has significantly longer operating time and requires laparoscopic surgical skills. Recent advances in equipment, surgical techniques and training have made TLH a well-tolerated and efficient technique. The future place of LH will be determined by the increased familiarity and skill of surgeons with vaginal procedure, stimulated by doing the difficult part of LAVH. Hence in normal uncomplicated uterus LAVH or even VH has no disadvantages and remain an excellent option.

Key Words: Laparoscopic Hysterectomy; Vaginal Hysterectomy; Pap Smear

Introduction

Hysterectomy is the most common performed major abdominal surgery among gynaecologic surgeons and the decision is generally based on indications for surgery, surgeon's training and preference, uterine size, presence and absence of any associated pelvic pathologies and patient's choice. By avoiding laparotomy, laproscopic procedures are associated with less post-operative pain, shorter hospitalization, and with lower infectious morbidity rate than laparotomy. Present study was done at our institute to compare vaginal hysterectomy with various types of laproscopic hysterectomies.^[1] We have attempted the scientific scrutinization of entire clinical picture of cases with detailed consideration important operative steps and post-operative observation with follow up. So, that a gynecologist can give the best possible treatment option to patient.

Materials and Methods

This is a prospective study aimed to compare vaginal hysterectomy and laparoscopic hysterectomy from all angles. For that cases of both types of hysterectomies were scrutinized thoroughly, during May 2009 to September 2011, Smt. SCL General Hospital, Ahmedabad. The aims and objectives are as follows: (1) To compare duration of surgery, blood loss and complications during surgery and post-operative pain in each type of hysterectomy. (2) To evaluate the safety, simplicity and acceptability of each type of hysterectomy both to the patient as well as the surgeon. All these patients were admitted after proper examination, investigations and fulfilling selection criteria and Pap smear examination to rule out malignancy.

Selection Criteria: (A) *For non-descent vaginal hysterectomy:* (i) Adequate lateral space in fornices; (ii)

Size of uterus ≤ 12 wks; (iii) Cases with previous surgery were included after proper clinical evaluation. (B) *For laparoscopic hysterectomy: same as NDVH plus:* (i) No umbilical hernia; (ii) No local abdominal skin infection.

All cases were investigated thoroughly for their cardiorespiratory status and fitness for surgery. All patients were operated under spinal and epidural or general anesthesia as decided by anesthetist whichever was best for individual case. Total follow up was 6 months period.

Operative steps at a glance: Preoperative preparation: After admission & counselling, consent of patient and her relatives was taken. They were counselled about the pros and cons of both the types of surgeries and were free to make a choice for themselves. For LH axelyte solution 200 ml mixed with 750 ml of lemon water or limca to avoid nausea and vomiting was given in the evening of previous day. This was done for bowel preparation. For NDVH proctoclysis enema twice before surgery 10 hours apart was given. Patients were kept nil by mouth from 10 pm of previous night. Vaginal hysterectomy was done using standard technique.^[2] Laparoscopic hysterectomy was done using standard technique^[3] with few specific steps: (i) Mobilise the bladder: The anterior and posterior leaves of the broad ligament are separated with the help of Maryland forceps. The vesicouterine peritoneal fold is identified and hydro dissection done in which 20-30 ml of saline is introduced with needle in the vesicouterine space for dissection of bladder. (ii) Vaginal cuff closure: it is done either vaginally or Laproscopically with the help of vicryl no 1 taking figure of eight stitches one at each angle and one at the centre.

Post-operative management: (i) IV fluids for 24-36 hrs to maintain hydration; (ii) Catheter was kept in situ for 48 hrs in majority. Only in a few patients catheter was kept for longer period either due to a repair or bladder injury; (iii) antibiotics given parenterally for 2 days and then orally for 5 days to prevent infection. (iv) Patient was encouraged for early ambulation and regular diet. (v) Adequate analgesic was given. (vi) Most of the patients were discharged on 4th or 5th post-operative day in case of non-descent VH while on 3rd or 4th day in case of LH as per the general condition of the patient.

Results

In this study 56% of patients underwent AH, 20% had VH for prolapse, 13% had NDVH and 10% had LH (Table 1). In this study majority of patients belongs to age group 40-49 years in both the groups since incidence of menstrual

disorders is more during this age group. Mean age in LH - 47.8 years (Table 2). Fibroid and DUB were the most common indications of hysterectomy in LH group while DUB was the most common indication in NDVH group. The most common indication of hysterectomy in both the groups was fibroid (Table 3). Mean operating time NDVH- 55 min. Average duration of surgery for NDVH-54.4 minutes and that for LH -104.4 minutes (Table 4). Mean blood loss in NDVH – 100 ml. Mean blood loss in TLH – 250 ml and in LAVH – 300 ml. Blood loss was comparatively less in LH than in NDVH. Mean blood loss in LH and NDVH respectively were 204.40ml and 187.01ml. Z value of blood loss is 1.01 which is not statistically significant (Table 5). Post-operative pain was determined by visual analogue scale on a grade of 1 – 10 as no pain to worst possible pain. Pain scoring was done at 24 hours and at one week. Post-operative pain was less in LH group as compared to the NDVH group (Table 6).

Table-1: Incidence of hysterectomy

Incidence	Present Study	Aniuliene et al (2007) ^[4]
Total no. of hysterectomies	433	602
AH	243 (56.12%)	348 (57.8%)
VH (2 nd & 3 rd degree prolapse)	90 (20.78%)	203 (33.7%)
NDVH	57 (13.16%)	
LAVH	34 (7.85%)	
TLH	09 (2.07%)	51 (8.5%)

Table-2: Distribution of patients according to age

Mean age	Present Study			KK Roy et al, 2010 ^[5]		
	TLH (n=08)	LAVH (n=35)	NDVH (n=57)	TLH (n=30)	LAVH (n=30)	NDVH (n=30)
	43.87	42.11	42.07	41.9	43.4	43.7

Table-3: Indications of LH and NDVH

Indication	Present Study		Matthew Morton et al, 2008 ^[7]		KK Roy et al, 2010 ^[5]	
	LH (n=43)	NDVH (n=57)	LH (n=109)	NDVH (n=43)	LH (n=60)	NDVH (n=30)
DUB	16 (34%)	25 (41%)	12 (12%)	11 (11%)	24 (40%)	08 (26%)
Fibroid	18 (42%)	15 (27%)	70 (63%)	14 (33%)	30 (50%)	22 (74%)
Adenomyosis	08 (18%)	10 (19%)	19 (17%)	04 (09%)	04 (07%)	-
Chronic pelvic pain	01 (02%)	04 (07%)	-	-	-	-
Postmenopausal bleeding	01 (02%)	03 (06%)	-	-	-	-
Others	-	-	08 (08%)	14 (33%)	02 (03%)	-

Table-4: Mean operative time

Mean Operative Time (Min)	Present Study			KK Roy et al, 2010 ^[5]		
	TLH	LAVH	NDVH	TLH	LAVH	NDVH
	190	97.28	97.71	100	85	60

Table-5: Average blood loss

Mean blood loss	Present study		Matthew Morton et al, 2008 ^[7]	
	LH	NDVH	LH	NDVH
	204.40 ml	187.01 ml	141 ml	114 ml

Table-6: Post-operative pain scoring

Pain score	Present Study			KK Roy et al, 2010 ^[5]		
	TLH	LAVH	NDVH	TLH	LAVH	NDVH
0 – 3	02	18	13	14	14	18
4 – 6	05	13	34	14	12	12
>6	01	04	10	02	02	-

Discussion

At our institute, lower trend of LAVH and TLH in this study is probably reflecting that it is a preliminary study of implement. 56% of patients in present study had history of previous surgery and most of them were operated successfully. This indicates that both LH and NDVH can be performed safely even if the patient has been operated previously. Patients with previous history of LSCS, laparotomy and appendectomy were selected for NDVH only after proper evaluation. Intra operative complication is higher in LH than in NDVH group. In this preliminary study, these may be attributed to our less exposure and experience to this technology, instrumentation and associated anatomical alterations. Bladder injury was found in one case of NDVH and 2 cases of LH group and bowel injury in 1 case of LH which was managed by expert by laparotomy. 2 patients of LH and 4 of NDVH had vaginal bleeding but it was minimal and did not require any surgical management. No other significant complication found. The average duration of surgery was 2 to 4 hours in TLH group, 30 minutes to 2 hours in LAVH group and 1 to 2 hrs in NDVH patients. This means in laparoscopic surgery when all clamps were applied laparoscopically as in TLH the duration of surgery increased significantly due to greater technological difficulties. In this study, he concluded that the operating time in LAVH was less than that in TLH.^[9] The difference between duration of surgery for TLH and NDVH is statistically significant showing 5.71 Z value. The duration of surgery in LAVH and NDVH is not proved to be statistically significant showing 0.05 Z value. Average amount of blood loss in LH was 100 to 200 ml and it was 100 to 300 ml in NDVH group. Blood loss was more than 400 ml in 3 patients of LH, 2 of which had bladder injury and 1 had bowel injury. Blood loss in NDVH group was less due to the traditional technique of saline infiltration with adrenaline. Patients in LH group experienced less pain than NDVH and hence they required mild analgesics as compared to NDVH patients. The greater incidence of post-operative pain in NDVH group may be attributed to more stretching of ligaments during the surgery. Patients undergoing TLH experienced less post-operative pain and required less analgesic drugs as compared to NDVH patients. They concluded that there was no significant difference in pain scores between LAVH and TLH.^[11] The difference in the pain scores of LH and NDVH is statistically significant showing 2.24 Z value. Hence the patients undergoing laparoscopic hysterectomy experience less pain as compared to those undergoing NDVH.

Conclusion

NDVH is associated with less handling of intestines, less exposure to general anaesthesia, no need of any specialized instruments, as compared to LH. On the other hand LH is associated with small scar of surgery, less morbidity and less post-operative pain. LH can be a better route of surgery in obese patients in whom NDVH may be difficult. LH can be considered an alternative to AH for those in whom VH is not feasible. TLH may be comparable to NDVH in terms of post-operative parameters and satisfaction, but it has significantly longer operating time and requires laparoscopic surgical skills. Recent advances in equipment, surgical techniques and training have made TLH a well-tolerated and efficient technique. The future place of LH will be determined by the increased familiarity and skill of surgeons with vaginal procedure, stimulated by doing the difficult part of LAVH. Hence in normal uncomplicated uterus LAVH or even VH has no disadvantages and remain an excellent option.

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