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Laparoscopic assisted vaginal hysterectomy versus total abdominal hysterectomy for benign uterine pathology: Outcome and complications

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Abstract
Introduction: ACOG acknowledges that the choice of approach should be based on the surgical indication, the patient's condition, and data supporting the approach, informed patient preference, and the surgeon's expertise and training.
Methodology: Written informed consent was taken from patient for pre-operative evaluation, surgical procedure, post operative evaluation and willingness to participate in study. 30 Consecutive Patients who gave consent for LAVH and 30 consecutive patients who gave consent for TAH were taken up for the study.
Results: 26.7% patients in TAH group required blood transfusion because of significant intraoperative blood loss. Only 3 (10%) patients in LAVH group required blood transfusion.
Conclusion: 1 patient in LAVH group required conversion to laparotomy because of dense adhesions, since it is a teaching institute time taken for LAVH was more as interns and PG's were trained about LAVH which took longer time.

Keywords: Vaginal hysterectomy, abdominal hysterectomy, benign uterine pathology

Introduction

Hysterectomy is the surgical removal of the uterus and it is the most common major gynaecological surgical procedure worldwide [1]. Hysterectomy is most often indicated when medical treatment or less invasive methods have failed.

The origins of hysterectomy are unclear but removal of a prolapsed gangrenous uterus is mentioned by Soranus in a manuscript dated almost two thousand years ago [Temkin 1956]. Berengario from Bologna is given credit for the first authentic description of the removal of the uterus through the vagina, a procedure which is dated 1517 [Garrison 1929]. The first abdominal hysterectomy was a subtotal hysterectomy performed by Charles Clay in Manchester 1843 [2]. The procedure was indicated by an adnexal mass that in fact was a large fibroid and the corpus of the uterus was removed. Despite the successful operation the patient died on the 15th postoperative day [Clay 1863] [3]. Since then, focus on the indications and methods for performing a hysterectomy has changed several times. Total abdominal hysterectomy (TAH) was first described 1878 [Freund 1878). The technique of TAH as we know it today was first introduced by Richardsson 1929. He advocated the total procedure in order to prevent the development of cervical carcinoma [Richardsson 1929].

In 1984 Semm suggested the use of laparoscopic technique in hysterectomy7 but the first actual laparoscopic hysterectomy was reported by Reich in 1989. This was a total laparoscopic procedure. The laparoscopically assisted vaginal hysterectomy (LAVH), described by Kovacs in 1990, was soon adopted because of a less demanding surgical technique and shorter operating time. Various classifications of the laparoscopic hysterectomy technique followed leading to the currently accepted classification system which includes, total laparoscopic hysterectomy (TLH), laparoscopic assisted vaginal hysterectomy (LAVH), and vaginally assisted laparoscopic hysterectomy (VALH) [Garry 1994] [4].

ACOG acknowledges that the choice of approach should be based on the surgical indication, the patient's condition, and data supporting the approach, informed patient preference, and the surgeon's expertise and training.

This study allows the comparison of Total Abdominal Hysterectomy and Laparoscopic Assisted Vaginal Hysterectomy for benign uterine pathology in view of various aspects.

Methodology
All patients admitted for hysterectomy for benign uterine pathology meeting the inclusion and exclusion criterion was included.

Inclusion Criteria
Women undergoing hysterectomy for benign uterine pathology.

Exclusion Criteria
Uterine Descent-2nd and 3rd degree. Women with genital malignancy.

Sample Size
60 Patients undergoing hysterectomy for benign conditions of the uterus.
30-Laparoscopic assisted vaginal hysterectomy and 30-Total Abdominal Hysterectomy.

Methods of Collection of Data
Written informed consent was taken from patient for pre-operative evaluation, surgical procedure, post operative evaluation and willingness to participate in study. 30 Consecutive Patients who gave consent for LAVH and 30 consecutive patients who gave consent for TAH were taken up for the study.

Results

Table 1: Intra Operative Complications in two groups of patients studied

Intra Operative Complications	TAH (n=30)		LAVH (n=30)		P value
	No	%	No	%	
Bowel injury	0	0.0	0	0.0	1.000
Bladder injury	2	6.7	1	3.3	1.000
Ureteric injury	0	0.0	0	0.0	1.000

Chi-Square test/Fisher Exact test

Only two (6.7%) patients in TAH group had bladder injury where as in LAVH group 1 (3.3%) patient had bladder injury.
No bowel and ureteric injuries.

Table 2: Blood Loss (ml) in two groups of patients studied

Blood Loss (ml)	TAH		LAVH	
	No	%	No	%
<250	16	53.3	24	80.0
250-500	13	43.3	6	20.0
>500	1	3.3	0	0.0
Total	30	100.0	30	100.0

P=0.054+, significant, Fisher Exact test

Blood loss was more with TAH group (250-500ml) in 43.3% of patients, where as with LAVH group it was <250ml in 80% of patients.
P value is- 0.054 showing that the difference in both the groups is very significant.

Table 3: Laparotomy in two groups of patients studied

Laparotomy	TAH		LAVH	
	No	%	No	%
No	30	100.0	29	96.7
Yes	0	0.0	1	3.3
Total	30	100.0	30	100.0

P=1.000, Not significant, Fisher Exact test

Only 1 patient in LAVH group needed conversion into laparotomy because of adhesions.

Table 4: Blood transfusion in two groups of patients studied

Blood transfusion	TAH		LAVH	
	No	%	No	%
No	22	73.3	27	90.0
Yes	8	26.7	3	10.0
Total	30	100.0	30	100.0

P=0.095+, significant, Fisher Exact test.

26.7% patients in TAH group required blood transfusion because of significant intraoperative blood loss.
Only 3 (10%) patients in LAVH group required blood transfusion.

Table 5: Post op Complications in two groups of patients studied

Post op Complications	TAH (n=30)		LAVH (n=30)		P value
	No	%	No	%	
Fever	6	20.0	1	3.3	0.103
Wound infection	6	20.0	2	6.7	0.254
Bowel disturbances	0	0.0	0	0.0	1.000
UTI	3	10.0	2	6.7	1.000
RTI	2	6.7	1	3.3	1.000

Chi-Square test/Fisher Exact test

Fever and wound infection was more with TAH group 20% compared to LAVH group 3.3% and 6.7%.
UTI and RTI was also comparatively more with TAH group.
Which was the reason for longer hospital stay in TAH group.

Table 6: Pain Scale day 3 in two groups of patients studied

Pain Scale day 3	TAH		LAVH	
	No	%	No	%
2-5	7	23.3	29	96.7
6-10	23	76.7	1	3.3
Total	30	100.0	30	100.0

P<0.001**, significant, Fisher Exact test

Postoperatively pain was less with LAVH group and there was no requirement of additional analgesia.
In TAH group patients complained of pain even on 3rd- 5th post op day and required additional analgesia and hence mobilization was late in TAH group.
Data compared shows that this is very much significant.

Table 7: Hospital Stay (days) in two groups of patients studied

Hospital Stay (days)	TAH		LAVH	
	No	%	No	%
1-2	0	0.0	0	0.0
2-5	0	0.0	22	73.3
6-10	20	66.7	8	26.7
>10	10	33.3	0	0.0
Total	30	100.0	30	100.0

P<0.001**, significant, Fisher Exact test

Number of days in hospital was less in LAVH group 2-5 days in 73.3% patients because of less post op complications, pain and need for blood transfusion.
LAVH group patients ambulated earlier and hence got discharged early.
Where as TAH group patients had little longer stay >10days in 33.3% patients because of wound infection and pain in

postoperative period.

Table 8: Return to work (weeks) in two groups of patients studied

Return to work (weeks)	TAH		LAVH	
	No	%	No	%
1	0	0.0	3	10.0
2	2	6.7	15	50.0
3	7	23.3	11	36.7
4	11	36.7	1	3.3
5	4	13.3	0	0.0
6	6	20.0	0	0.0
Total	30	100.0	30	100.0

P<0.001**, significant, Fisher Exact test

Recovery and return to work after discharge from hospital was early with LAVH group as early as 2 weeks in 50% of patients.
In TAH group it was late by 4 weeks in 36.7% of patients and by 6 weeks in 20% of patients.

Discussion

Table 9: Comparison of intraoperative injuries

Study By	Tah	Lavh
Kapoor Nisha *et al*. [5]	5- 3-Bladder -1- Bowel -1- ureteric Injury.	4- 3- Bladder -1-Bowel injury.
Present Study	2-Bladder	1- Bladder

Intra op injuries were more with TAH group and this was supported by Kapoor Nisha *et al* study which had 3 Bladder injuries in TAH group because of Previous LSCS and 1 thermal ureteric injury.
In our study 1 patient patient had bladder injury because of dense adhesions which was converted to laparotomy and managed.

Table 10: Comparison of conversion to laparotomy

Study By	Tah	Lavh
Ottosen *et al*. [6]	No	4
Jyotsna *et al*. [7]	No	No
Kapoor Nisha *et al*. [8]	2	2
Kongwattanakul K *et al*. [9]	No	No
Present Study	-	1

In present study only one LAVH was converted to laparotomy because of dense adhesions.
Conversion to laparotomy was 4 in LAVH group in Ottosen *et al* study because of – dense adhesions in 2 cases, excessive bleeding in one abd large uterus in the other.
In Kapoor Nisha *et al* study 2 LAVH cases were converted to laparotomy-because of dense adhesions with Bowel.

Table 11: Comparison of Intraoperative Blood Loss

Study By	Tah	Lavh
Ottosen *et al*. [6]	225(25-800)Ml	311(50-1400)Ml
Jyotsna *et al*. [7]	200-300ml	450-600ml
Kapoor Nisha et *al*. [8]	150	116
Kongwattanakul K *et al*. [9]	250	120
Present Study	250-500ml	<250ml

Intra op blood loss was more in TAH group than LAVH group and our present study was supported by kapoor *et al* and Kongwattanakul k *et al* study.
In other two studies blood loss was more with LAVH group.

Table 12: Comparison of Post operative complications

Study By	Tah	Lavh
Jyotsna *Et al*. [7]	6	2
Kapoor Nisha *Et al*. [8]	12	18
Present Study	6-Fever 6- wound infection 3- UTI 2-RTI	1-Fever 2- wound infection 2-UTI 1-RTI.

Most common complication in present study is fever then wound infection.
All post op complications responded to antibiotics.
These complications were more with TAH group than LAVH group.
Jyotsna *et al* study supports our study in this was the reason patient had longer hospital stay in TAH group.
Duration of stay in hospital was more in TAH group in present study and this is similar to all the other four studies.
Patients in LAVH group were discharged faster because of less post op pain, complications and early ambulation.

Conclusion

- Statistically significant difference was noted in the duration of surgery, blood loss, need for blood transfusion, pain on day 3 and duration of stay in the hospital. All these were significantly less in LAVH group than the TAH group.
- Intra operative complications were more in TAH group, which required additional analgesics post operatively, blood transfusion and hence stay was more.

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