ORIGINAL ARTICLE

Total Abdominal Hysterectomy Versus Total Laparoscopic Hysterectomy. A Hospital Based Study

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Abstract

Background: Hysterectomy is one of the most surgical procedures performed. It can be performed by abdominal, vaginal or laparoscopic route. Laparoscopic Hysterectomy is reported to have low postoperative morbidity, less blood loss, shorter hospital stay and early return to normal activities. The main limitation to laparoscopic approach are medical or anesthetic disorders that don't allow adequate pneumoperitoneum or proper ventilation.**Aims and Objectives:** This study was conducted to compare intra and postoperative results of Total Abdominal Hysterectomy and Total Laparoscopic Hysterectomy.Study Design: It was a prospective cohort study Materials and Methods:Total abdominal and Total Laparoscopic hysterectomies,with or without bilateral salphingoopherectomy performed for the treatment of benign gynecological disease were included in the study. **Results**:A total of 65 patients were taken in each group.There was no significant statistical difference between the two groups with respect to intraoperative complications.Out of postoperative complications,wound infection[p=0.013],Resuturing [p=0.028],ileus[p=0.038],hemoglobin drop[p<0.001] and postoperative blood transfusion[p=0.032],were found more in TAH group with significant p value of less than 0.05. Also,the duration of surgery[p<0.001],time of ambulation since surgery [p<0.001] and mean days of hospital stay [p<0.001]was found more in TAH group than TLH group,with significant p value of less than 0.05 **Conclusion:**TLH offers many advantages over TAH.

Keywords

Cauda Equine, Lateral Decubitus Position, Unilateral Spinal Anaesthesia

Introduction

Hysterectomy is one of the most common surgical procedures performed.[1-3] On an average,55000 hysterectomies are performed each year in UK. Data from the US Healthcare cost and Utilisation Project State Ambulatory Surgery and Service Database [SASD] suggest that approximatetly 100,000 to 200,000 hysterectomies are performed in ambulatory settings.[4] Hysterectomy can be performed by abdominal,vaginal and laparoscopic route.While TAH is a well-accepted and efficient treatment,it is also quite invasive,leaves a visible scar,and is associated with more blood loss,delayed recovery and longer hospital stay.Total Laparoscopic Hysterectomy was introduced by Reich in 1989.[5] Since then TLH rates have increased significantly across parts of Europe and America.Laparoscopic hysterectomy is reported to have lower postoperative morbidity,less blood loss,shorter hospital stay and early return to normal activities.[6,7]

The main limitations to laparoscopic approach are medical or anesthetic disorders that don't allow adequate pneumoperitoneum or proper ventilation.[8] Extensive and dense pelvic abdominal adhesions from previous surgery and very large uterine size are relative contraindications,although this decision can be made after assessing the peritoneal cavity.

The present study was conducted to compare intra and

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postoperative results of Total Abdominal Hysterectomy [TAH] and Total Laparoscopic Hysterectomy[TLH].

Material and Methods

The study was conducted in the department of Obstetrics and Gynecology SKIMS Medical College Hospital Bemina,over a period of three years from june 2017 to May 2020.Total Abdominal and Total Laparoscopic hysterectomies,with or without bilateral salphingo-opherectomy performed for the treatment of benign gynecological disease during this period were included.Exclusion criteria like uterine size greater than 12 weeks,malignancy,hysterectomy performed primarily for prolapse and all subtotal hysterectomies including conversions from TAH.

The factors studied included demographic details,age distribution,parity and indications of surgery.The outcome measures included intra and postoperative complications,HB drop,postoperative blood transfusion,duration of surgery, time of ambulation from surgery and duration of hospital stay in both groups.The duration of operation was calculated from the first skin incision or insertion of veress needle to the last suture of abdominal wound.Duration of hospital stay was from day of surgery to day of discharge.patients were discharged when they were hemodynamically stable,afebrile, taking orals, voiding urine and passed flatus.

Statistical Methods

The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Continuous variables were expressed as Mean±SD and categorical variables were summarized as frequencies and percentages. Student's independent t-test or Mann-Whitney U-test, whichever appropriate, was employed for comparing continuous variables. Chi-square test or Fisher's exact test, whichever feasible, was applied for comparing categorical variables. A P-value of less than 0.05 was considered statistically significant.

Results

There were total of 65 patients in both groups.The mean age was 43.7 and 45.2 years in both groups [*Table 1*],with a p value of 0.157,that was statistically insignificant.There was statistically no difference between the two groups with respect to parity.[*Table 1*]

The indication of surgery for TLH group was found as Fibroid [49.2%],Endometrial Hyperplasia [7.7%], Ovarian Cyst [9.2%], Adenomyosis [9.2%], AUB-N [18.5%] and others [4%].While as for TAH group,it was found as Fibroid [53.8%], Endometrial Hyperplasia [9.2%], Ovarian Cyst [7.7%], Adenomyosis [6.2%], AUB-N [13.8%] and others [9.2%].There was statistically no significant difference between the two groups with respect to indications of surgery,with a p value of 0.907. [*Table 2*]

Out of 65 patients in TLH group,intraoperative complications were seen in 4 patients as bladder injury [1.5%], bowel injury [1.5%] and vascular injury [3.1%].While as in TAH group only bladder injury was seen intraoperatively in 2 patients [3.1%].There was no statistical significant difference between the two groups with respect to intraoperative complications,with a p value greater than 0.05. [*Table 3*]

Out of 65 patients in TLH group,Postoperative complications included secondary haemorrhage [3.1%], ileus [1.5%] and febrile morbidity [1.5%].In TAH group,secondary haemorrhage was not seen in any of the patient,but postoperative complications included wound infection [10.8%], resuturing [9.2%], ileus [12.3%] and febrile morbidity [3.1%].There was statistically significant difference between the two groups with respect to wound infection,resuturing and ileus,with a p value of 0.013,0.028 and 0.038 respectively.There was no statistical significant difference between the two groups with respect to post operative complications like secondary haemorrhage and febrile morbidity,with a p value of 0.496 and 0.559 respectively. [*Table 4*]

The mean hemoglobin drop in TLH group was 1.3 g%,while as in TAH group,it was seen as 2.1 g%.There was statistically significant difference between the two groups with respect to hemoglobin drop,with a p value of less than 0.001. [*Table 5*]

Out of 65 patients in TLH group,postoperative blood transfusion was required in 6.2% of patients,while as in TAH group,it was needed in 18.5% of the patients.There was statistically significant difference between the two groups with respect to requirement of postoperative blood transfusion,with a p value of 0.032. [*Table 6*]

The mean duration of surgery for TLH group was found to be 112.7 minutes,while as for TAH group,it was found as 81.9 minutes,with a statistically significant difference with a p value of less than 0.001.

The time of ambulation from surgery was more in TAH group,with a mean of 24.6 hours,whileas for TLH group it was found to be 9.2 hours.There was statistically significant difference between the two groups with respect to time of ambulation from surgery,with a p value of less than 0.001. [*Table 7*]

The mean hospital stay for TLH group was seen as 3.4+_2.19 days.For TAH group,it was found to be 6.5+_3.41 days.There was statistically significant difference between the two groups with respect to mean

Table 1. Distribution of Study Patients as per Age and Parity

Parameter	TLH Group [n=65]		TAH Group [n=65]		P-value
	Mean	SD	Mean	SD	
Age (Years)	43.7	5.43	45.2	6.52	0.157
Parity	3.2	1.95	3.5	1.87	0.372

Table 2. Indications for Surgery in Two Groups

Indications	TLH Group		TAH Group		P-value
	No.	%age	No.	%age	
Fibroid	32	49.2	35	53.8	0.907
Endometrial hyperplasia	5	7.7	6	9.2	
Ovarian cyst	6	9.2	5	7.7	
Adenomyosis	6	9.2	4	6.2	
AUB-N	12	18.5	9	13.8	
Others	4	6.2	6	9.2	
Total	65	100	65	100	

Table 3. Intra-operative Complications in Two Groups

Intra-operative complications	TLH Group [n=65]		TAH Group [n=65]		P-value
	No.	%age	No.	%age	
Bladder injury	1	1.5	2	3.1	0.559
Bowel injury	1	1.5	0	0.0	1.000
Vascular injury	2	3.1	0	0.0	0.496

Statistically Significant Difference (P-value<0.05)

Table 4:. Postoperative Complications in Two Groups

Postoperative complications	TLH Group [n=65]		TAH Group [n=65]		P-value
	No.	%age	No.	%age	
Secondary hemorrhage	2	3.1	0	0.0	0.496
Wound infection	0	0.0	7	10.8	0.013*
Resuturing	0	0.0	6	9.2	0.028*
Ileus	1	1.5	8	12.3	0.038*
Febrile morbidity	1	1.5	2	3.1	0.559

Statistically Significant Difference (P-value<0.05)

Table 5. Comparison Based on Drop in Hb (g%) in Two Groups

Group	N	Mean	SD	P-value
TLH	65	1.3	0.572	<0.001*
TAH	65	2.1	0.714	

Statistically Significant Difference (P-value<0.05)

Table 6. Requirement of Postoperative Blood Transfusion in Two Groups

Postoperative blood transfusion	TLH Group		TAH Group		P-value
	No.	%age	No.	%age	
Required	4	6.2	12	18.5	0.032*
Not required	61	93.8	53	81.5	
Total	65	100	65	100.0	

Statistically Significant Difference (P-value<0.05)

days of hospital stay,with a p value of less than 0.001. [*Table 8*]

Discussion

In our study,the mean age of the patients in TLH group was 43.7 years versus 45.2 years in TAH group.This was comparable to the findings of Dogra A et al [9],where mean age of patients in TLH group was 45.73 years and 45.16 years in TAH group.Similar findings were observed

Table 7: Duration of Surgery and Ambulance from Surgery in Two Groups

Parameter	TLH Group		TAH Group		P-value
	Mean	SD	Mean	SD	
Duration of surgery (Minutes)	112.7	15.87	81.9	12.79	<0.001*
Ambulance from surgery (hours)	9.2	3.47	24.6	1.89	<0.001*

Table 8. Comparison based on hospital stay (Days) in two groups

Hospital stay (Days)	TLH Group [n=65]		TAH Group [n=65]		P-value
	No.	%age	No.	%age	
1-3 Days	45	69.2	6	9.2	<0.001*
4-6 Days	15	23.1	21	32.3	
7-9 Days	5	7.7	28	43.1	
= 10 Days	0	0.0	10	15.4	
Total	65	100	65	100	
Mean±SD	3.4±2.19		6.5±3.41		

Statistically Significant Difference (P-value<0.05)

in studies conducted by Loh *et al* [10] ,Shrestha *et al* [11] ,and Kanmani M. [12]

In our study the differences in terms of parity were insignificant.This was in accordance with study conducted by Dogra A *et al* [9] .

The most common indications of surgery in both groups was fibroid followed by AUB-N.This was similar to observations made by Dogra *et al* [9]. In contrast in a study conducted by R Mallick *et al* [13],the indications were studied in terms of symptpoms,and in TLH group,pain was most common indication in TLH group [42.2%] and heavy menstrual bleeding [HMB] in the TAH group [68.8%]

In our study,thev most common intraoperative complication found was vascular injury[3.1%],bladder injury and bowel injury [1.5% each] in TLH group.While as in TAH group,the only intraoperative complication found was bladder injury [3.1%].There was no statistical significant difference between the two groups with respect to intraoperative complications, with a p value greater than 0.05.Similar results were found in the study conducted by Dogra A *et al* [9],where vascular injury was most common intraoperative complication in TLH group and bladder injury was most common in TAH group [0.1 % each],and no statistical significance was seen. In contrast in a study conducted by R Mallick *et al* [13],intraoperative complications were significantly less in TLH group[1.9versus 7.0%,p=0.029].Two bladder injuries were noted in TLH group compared to one bladder injury and one ureteric injury in the TAH group.

In our study, the major postoperative complications in TLH group were secondary haemmorhage [3.1%], ileus and febrile morbidity [1.5% each].wound infection and resuturing were not seen in TLH wound infection [10.8%], resuturing [9.2%] and febrile morbidity [3.1%].secondary haemorrhage was not seen in TAH group.There was statistical significant difference in two groups with respect to postoperative complications like wound infection[p=0.013], resuturing [p=0.028] and ileus [p=0.038].Febrile morbidity [p=0.559] and secondary haemorrhage [0.496] were found to be statistically insignificant between the two groups.In a study conducted by Dogra *et al* [9], postoperative complications like secondary haemorrhage, wound infection, resuturing, ileus, febrile morbidity and DVT were found to be statistically significant between two groups with p value of less than 0.0001.The rate of postoperative complications in our study in TLH group was 6.1%,while as in TAH group,it was 35.4%.Pernio et al14 observed 3.9% complications in TLH group and 10.5% in TAH group.

In our study,the mean hemoglobin drop in TLH group was 1.3 gm%,while as in TAH group,it was 2.1 gm%.There was significant statistical difference between the two groups ,with a p value of less than 0.001.These results were similar to the results of Pernio *et al* [14],they observed significant difference in Hb drop in both the groups.Whereas,in study by Marana R *et al* [15], the Hb drop in both groups didn't have significant difference.

In our study,postoperative blood transfusion was required in 4 patients [6.2%] in TLH group,and 12 patients [18.5%] in TAH group with statistically significant difference between the two groups[p=0.032].This was similar to observations made by Dogra A *et al* [9],where 9 patients [7.14%] of TLH were given post-op blood transfusion whereas 25 patients[19.8%] of TAH received blood postoperatively and this difference was found statistically

significant.

In our study,the mean duration of surgery for TLH group was 112.7 minutes,whileas for TAH group it was 81.9 minutes.This difference was statistically significant [p<0.001].This was similar to the findings of Dogra A et al9,Shrestha *et al* [11] and Kanmani M *et al* [12],where mean operating time for TLH was more than that of TAH.Historically it is suggested that the operating time for TLH is likely to be increased when compared with TAH and this is the conclusion of most recent Cochrane review [16]. In contrast in a study conducted by R Mallick *et al* [13],TLH was associated with a significantly low mean operating time [63.4 versus 75.3 min,p<0.001].one key feature to take into account is surgeon expierence and as described by Pather et al17,there doesnot appear to be any difference in operating times once the intial learning curve has been passed.

In our study,the mean ambulation time since surgery was 9.2 hours in TLH group and 24.6 hours for TAH group,with statistically significant difference between the two groups [p<0.001].This was similar to the observations made by Dogra A et al 9,where the mean ambulation time for TLH group was shorter than TAH group [9.94+-4.29 hours versus 23.03+-1.28 hours],that was statistically significant [p<0.0001]

In present study,the mean hospital stay for TLH group was 3.4+-2.19 days,whereas for TAH group,it was 6.5+-3.41 days.This was statistically significant between the two groups [p<0.001].Similarly Dogra A et al9,observed that mean duration of hospital stay for TLH group was significantly shorter as compared to TAH group[3.38+-1.71 days in TLH group versus 7.52+-3.35 days in TAH group.Kanmani M *et al* [12] in their study also reported same findings.Similarly R Mallick *et al* [13],found that mean inpatient stay in TLH group was low [1.7 versus 3.0 days,p<0.001].

Conclusion

Our study concluded that TLH offers many advantages over TAH,like smaller incision,early ambulation,shorter hospital stay,small drop in Hb.Though TLH is costly and takes longer operating time.In presence of ample resource availability to circumvent its cost and the skilled and expierenced surgeon,TLH can replace TAH in majority of benign gynecological diseases.

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Conflicts of Interest

There are no conflicts of interest.

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