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Original Research Article

Study to analyse the intraoperative and post-operative complications of total abdominal hysterectomy and total laparoscopic hysterectomy

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ABSTRACT

Background: Laparoscopic hysterectomy is preferable due to faster recovery, decreased morbidity and absence of an abdominal incision. The aim of the study was to compare the risks and complications of total laparoscopy hysterectomy and total abdominal hysterectomy in terms of intra-operative and post-operative complications.

Methods: A retrospective observational study was conducted in the Gynaecology department at Department of Obstetrics and Gynecology, Central Railway Hospital, Jabalpur, Madhya Pradesh, India. The data for the past 2-year record was taken for analysis. A total of 72 subjects were included in the study and were divided into two groups with 36 patients under TAH (total abdominal hysterectomy) group and 36 under TLH (Total Laproscopic hysterectomy) group. The primary outcome of the present analysis were incidence of perioperative complications like blood loss and the secondary outcomes were operating time, blood loss, urinary tract injury, rate of conversion to laparotomy, postoperative pain, and length of post operative stay.

Results: The mean intra-operative blood loss was measured among both the groups and it was found to be very high among TAH group (215 ml) compared to TLH group (124 ml) and the difference was found to be statistically significant ($p < 0.05$). Similarly, the duration of operative procedure was found to be less in TLH group (46.5 mins) compared to TAH group (76.8 mins) and the difference was found to be statistically significant ($p < 0.05$). Post-operative wound infection (14 vs 0) was found to be more among the patients in TAH group than that of the TLH group and the difference was found to be statistically significant ($p < 0.05$).

Conclusions: TLH is a safe and effective surgical treatment for benign gynaecological diseases and should be offered whenever possible, taking into account the low rate of complications and cost-effectiveness.

Keywords: Intra and post-operative complications, Total abdominal hysterectomy, Total laproscopic hysterectomy

INTRODUCTION

Hysterectomy is universally the most common surgery performed in the field of gynaecology.¹ In India, the incidence of hysterectomy is about 4-6% of adult Indian women out of which 90% are performed for benign indications.²

In recent years there have been enormous advances in our ability to use minimal invasive surgeries.^{3,4} With regard to hysterectomies performed for benign disease, the

number of abdominal hysterectomies is decreasing but laparoscopic and robotic assisted laparoscopic procedure are on the increase.⁵ Benign diseases are the most common indication in which more than 70% of them result in hysterectomies. These include menstrual disorders, fibroids, pelvic pain.^{6,7} The route of hysterectomy is generally based on multiple factors like indication of surgery, size of the uterus, presence of other co-morbidities, individual surgeon's expertise and preference, and these days, also the patient's preference. Initially TLH was associated with longer operating time

and higher intra-operative injuries. However, with time and practice, the skills of the surgeon improved and today in expert hands both these concerns have been allayed. Keeping all these factors in mind we planned to carry out a study comparing TAH and TLH and evaluate their pros and cons

The first laparoscopic hysterectomy was performed and published in 1989 by Harry Reich for endometriosis, but it was only from 1991 onwards that this surgical method became common in use.⁸ As of today few studies had been conducted on comparing the different procedures for hysterectomy all over the world but in this part of the country not much study had been performed in comparing total abdominal hysterectomy with total laparoscopic hysterectomy and so the present study was undertaken. The aim was to compare the risks and complications of total laparoscopic hysterectomy and total abdominal hysterectomy in terms of intra-operative and post-operative complications.

METHODS

A retrospective observational study was conducted in the Gynaecology ward at Central Railway Hospital, Jabalpur, Madhya Pradesh, India. The data for the past 2-year record (January 1st 2021 to December 31st 2023) was taken for analysis.

Study population

Patients presenting with various gynaecological symptoms such as lower abdominal pain, menorrhagia, irregular menstruation were examined for uterine anomalies.

Inclusion criteria

Patients with uterus size less than or equal to 16 weeks without adnexal masses, with adequate uterine mobility, non-malignant conditions and no contraindications to laparoscopic study were included for the study.

Exclusion criteria

Patients presenting with uterus size more than 16 weeks, restricted mobility, prolapsed uterus, history of previous surgeries on uterus, malignancy, fused hip joint and known case of cardiopulmonary diseases were excluded from the study.

Febrile morbidity was defined as an oral temperature of 100.4°F/38.0°C or higher, excluding the first 24 hours postoperatively. Duration of hospital stay was calculated from the day of surgery to the day of discharge.

A total of 72 subjects were included in the study and were divided into two groups with 36 patients under TAH group and 36 under TLH group. Patients undergoing TAH were given either spinal or epidural anaesthesia, while TLH was done under general anaesthesia. Total abdominal

hysterectomy being the traditional technique for hysterectomy was performed as per the routine procedure whereas TLH was performed as follows.

After creating pneumoperitoneum with carbon dioxide, exploration of the upper abdomen and pelvic adhesiolysis were done, if necessary. When the ovaries were to be conserved, the fallopian tubes, round and utero-ovarian ligament were resected with bipolar forceps and harmonic. Coagulation and dissection of the round ligament is done. After dissecting folds of the broad ligament coagulation of Infundibulo Pelvic ligament is done. Vesico-uterine space is dissected. Posterior peritoneum (left and right) is opened and uterine vessels are coagulated and divided. Ureter is identified before coagulation and the section of the uterine vessels cervical attachments of the paracervix should be divided. After cervico-vaginal identification the vaginal ring is dissected, colpotomy is done and vaginal ring dissected. The vaginal vault is sutured with interrupted or continuous sutures, laparoscopically. Vascular pedicles, vaginal vault, ureters and bladder are checked. Pneumoperitoneum is evacuated and skin incisions closed.

The primary outcomes of the present analysis were incidence of perioperative complications (defined as intraoperative and post operative complications presenting within 6 weeks of hysterectomy). Secondary outcomes were, blood loss, operating time, rate of conversion to laparotomy, urinary tract injury, post operative pain, and length of post operative stay. All the data were entered and analysed using SPSS version 22. Mean and standard deviation was calculated for all the parametric variables and percentage was derived for all the frequency variables. Student t-test was utilized for deriving the statistical inference between parametric variables, whereas for non-parametric variables Man-whitney U test and Fischer exact test along with chi-square test was used for deriving the statistical Inference.

RESULTS

The age wise distribution of this study subjects shows that majority of the patients were in the age group between 40 and 50 years and no statistical significant difference in age group was observed between the two groups ($p>0.05$) (Table 1).

The uterine size was measured in terms of gestational weeks and it was found that the mean uterine size was 7.5 weeks among patients in TAH group whereas it was 8.2 weeks in TLH group and the difference was found to be statistically significant ($p<0.05$) (Table 2).

The most common uterine pathology was fibroid followed by DUB and adenomyosis and no statistically significant difference was observed between the two groups ($p>0.05$) (Table 3).

The mean intra-operative blood loss was measured among both the groups and it was found to be very high among

TAH group (215 ml) compared to TLH group (124.5 ml) and the difference was found to be statistically significant ($p<0.05$). The duration of operative procedure was found

to be less in TLH group (46.5 mins) compared to TAH group (76.8 mins) and the difference was found to be statistically significant ($p<0.05$) (Table 4).

Table 1: Age wise distribution of the study subjects.

Age group	TAH (n=36)		TLH (n=36)		P value
	N	%	N	%	
30-40	14	38.88	8	22.22	>0.05
41-50	20	55.55	21	58.33	
51-60	2	0.05	7	19.44	

Table 2: Mean and SD of the uterine size and volume between the two groups.

Parameters	TLH		TAH		P value
	Mean	SD	Mean	SD	
Uterine size (in weeks)	7.5	1.9	8.2	1.5	>0.001

Table 3: Distribution of the study subjects based on the diagnosis.

Diagnosis	TAH (n=36)		TLH (n=36)		P value
	N	%	N	%	
Fibroid	20	55.55	18	0.50	>0.05
Adenomyosis	6	16.66	8	22.22	
DUB	7	19.44	6	16.66	
Chronic cervicitis	1	0.03	2	0.05	
PID	1	0.03	1	0.03	
Others	1	0.03	1	0.03	

Table 4: Mean and SD of the amount of blood loss during the procedure and the duration of operation.

Variable	TAH	TLH	P value
Blood loss during procedure (in ml) (mean±SD)	215.6±36.5	124.5±24.3	<0.05
Duration of the procedure (in mins) (mean±SD)	76.8±18.2	46.5±15.5	<0.05

Table 5: Post-operative complications among the study subjects between the two groups.

Variable	TAH	TLH	P value
Pain score (mean±SD)	5±0.7	1.5±0.5	<0.001
Post-operative duration of stay (mean±SD)	8±2.1	4.5±0.2	<0.001
Post-operative wound infection	14	0	<0.001
Fever with UTI	13	1	<0.001

Table 6: Distribution according to intra operative complications.

Complication	TAH	TLH	P value
Bladder injury	2	1	>0.001
Bowel injury	0	1	
Vascular injury	3	0	
Ureteric injury	0	0	

The average duration of stay in the hospital post-operatively was found to be more in TAH group (8 vs 4.5 days). Similarly the mean pain score (5 vs 1.5), the incidence of post-operative infections like fever with urinary tract infection (13 vs 1) and the post-operative

wound infection (14 vs 0) was found to be more among the patients in TAH group than that of the TLH group and the difference was found to be statistically significant ($p<0.05$) (Table 5).

There were 2 cases of bladder injury and 3 cases of vascular injury in case of TAH whereas 1 case of bladder injury and 1 case of bowel injury in case of TLH. The difference was not statistically significant. There was no case of ureteric injury in either TAH or TLH.

DISCUSSION

Hysterectomy is a frequently performed gynaecological procedure and it is vital to make an evidence-based decision to choose an appropriate technique.

In this study, the mean age of patients in TAH group was 44 years and in TLH group it was 46.2 years. This is comparable to studies done by Metal et al, Metal et al, Fetal et al which showed mean age of 45years, 42.3 years, 45 years respectively.⁹⁻¹¹

In the present study, mean uterine size in gestational weeks was 8.2 in TAH and 7.5 in TLH and this is comparable to study of Kulvanitchaiyanunt et al which had 7.8 weeks in TLH as compared to 6.9 weeks in TAH group.¹²

The post operative duration of stay was 8 days in TAH while it was only 4.5 days in case of TLH. 14 cases of TAH had some form of post operative wound infection while none of the cases of TLH had wound infection and only 1 case had UTI with fever which is significantly lower than TAH. A systematic review by Kluivers et al observed that laparoscopic hysterectomy performs equally or better in terms of post operative health and quality of life in the first weeks after surgery.¹³ Since in TLH there is only a small skin incision, there is less postoperative pain and the blood loss is also minimal. This enables the patients to quickly resume the activities of daily living and thus TLH could contribute to patients' quality of life as also observed by Komatsu et al.¹⁴ Most of the studies which compared the clinical outcomes between total laparoscopic hysterectomy and abdominal hysterectomy reported to have shorter hospitalization, reduced blood loss and longer operative time in TLH. Their complication rates were insignificant between the two groups but the skin wound infection rates in our study were extremely significant in TAH than TLH ($p < 0.001$).¹⁵⁻¹⁷

In this study, the duration of operation is less for TLH than TAH in this study which may be attributed to the higher experience of surgeons in laparoscopic surgeries nowadays. None of the TLH cases were converted into laparotomy also. It is generally accepted that TLH is a better route of surgery for obese patients in whom TAH may be difficult and TLH can be considered as an alternative to abdominal hysterectomy.

CONCLUSION

TLH is a safe and effective method of doing hysterectomy and it is a good alternative of conventional abdominal hysterectomy, especially after good training about the procedure, proper case selection, day to day

practice of the technique and application of sound surgical principles. TLH is definitely a better procedure owing to lesser tissue trauma, better cosmesis, reduced hospitalized duration, less postoperative pain and analgesic requirement, and early ambulation as compared to TAH. It can be concluded that TLH is a safe and effective surgical treatment for benign gynaecological diseases and should be offered whenever possible, taking into account the low rate of complications and cost-effectiveness. At the end, the choice of surgery is will depend upon the nature of the pathology, skills of the surgeon, availability of resources, and most importantly the desire of the patient.

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