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Original Research Article

## Total laparoscopic hysterectomy: an experience at a tertiary care hospital

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### ABSTRACT

**Background:** This study is aimed to review indications, demographic data of patients, clinical outcomes and safety of total laparoscopic hysterectomy.

**Methods:** This is a prospective observational study of total 150 patients who underwent total laparoscopic hysterectomy (TLH) from 1<sup>st</sup> June 2017 to 30<sup>th</sup> November 2018 in GMERS Civil Hospital Sola.

**Results:** ~45% patients were between 40-50 years age group; 60% patients had 2 or more deliveries; commonest indication was symptomatic adenomyosis ; uterine size in ~57% of patients were up to 6 weeks; duration of surgery in ~91% of patients <120 minutes; intraoperative blood loss in all cases <200ml; no intra-operative and postoperative complications were encountered.

**Conclusions:** TLH is safe procedure with minimal blood loss, minimal postoperative pain and discomfort and shorter duration of hospital stay when performed via expert hands.

**Keywords:** Complications, Gynaecological surgery, Hysterectomy, Laparoscopy, Minimally invasive, Outcome, Safety, Total laparoscopic hysterectomy

### INTRODUCTION

Hysterectomy is the most frequently performed major gynaecological surgical procedure.<sup>1</sup> Hysterectomy can be performed via 3 routes: open abdominal, vaginal and laparoscopic.

Total laparoscopic hysterectomy (TLH) is defined as a hysterectomy performed entirely through laparoscopic ports, including vaginal closure.<sup>2</sup>

In 1989, first total laparoscopic hysterectomy (TLH) was performed and published by Reich et al.<sup>3</sup> Presently TLH is considered to be the day care surgery with minimal complications.<sup>4</sup> In general, LH has clear advantages over abdominal hysterectomy (AH) with respect to length of hospital stay and recovery time.<sup>5-8</sup> Although vaginal hysterectomy (VH) is considered to be the least invasive

method of hysterectomy, it has its own technical limitations arising from, for example, large uterine size, limited vaginal capacity or presence of pelvic adhesions.<sup>9,10</sup>

Laparoscopic assisted vaginal hysterectomy (LAVH) was introduced to overcome the technical difficulties of vaginal hysterectomy, but the vaginal phase of the procedure can still be difficult occasionally in women with limited vaginal capacity or in morbidly obese women. Total laparoscopic hysterectomy (TLH), in which the entire process of removing the uterus is performed laparoscopically, can overcome some of the limitations of LAVH.

In this study, authors have evaluated the safety and benefits of total laparoscopic hysterectomy in a tertiary care hospital.

## METHODS

This is a prospective observational study of total 150 patients who underwent total- laparoscopic hysterectomy (TLH) beginning from the period of 1<sup>st</sup> June 2017 to 30<sup>th</sup> November 2018 in GMERS Civil Hospital Sola.

In this study, we included all patients who required hysterectomy for benign conditions. In our exclusion criteria were patients with lesions which were either proven or suspicious to be malignant. Preoperative patients admitted to gynecology ward for total laparoscopic hysterectomy were enrolled with their consent to participate into this study. Detailed history of patients taken and thorough examination done and data on age, parity, history of previous surgery, indication of TLH and size of uterus were recorded. Patients were followed up during surgery to record intra operative events. Duration of surgery was considered the time between the umbilical incision and the last port closure. Intra operative blood loss during was calculated from the difference between the volume of fluid introduced into the cavity and volume of fluid aspirated from the abdominal cavity.



**Figure 1: Instrument trolley.**



**Figure 2: Clermont-ferrand uterine manipulator.**



**Figure 3: Harmonic cautery (energy source).**

All TLH were done under general anaesthesia with modified lithotomy (operation table in 15-degree trendelenburg). Figure 1 shows instrument trolley of TLH. Clermont-ferrand uterine manipulator was used (Figure 2). Harmonic (Figure 3) and bipolar cautery were used as energy sources. In all cases, uterus was retrieved via vaginal route. Technique of morcellation was used for uteri >20-week size. Vault closure were done by endosuturing via either V-loc suture or via Vicryl no.1.

Patients were assessed post operatively for presence of any complaint or complication. Intensity of pain was assessed with Visual Analog Score (VAS). Clinical condition of patients during hospitalization was assessed hourly in first 24 hours and then twice a day on second day. Duration of hospital stay was noted. Patients were followed up after 1 week of the day of discharge from hospital.

### *Statistical analysis*

Statistical analysis was done through Microsoft Excel. Descriptive analysis done in which for continuous variables, mean and standard deviation (SD) were calculated and for categorical variables, percentages were calculated.

## RESULTS

Among 150 patients who undergoing TLH, more than 45% patients belonged to age group 40-50 years (Table 1). Among 150 patients, 90 patients had given birth to 2 or more children i.e. parity status of 60% study participants was >2 (Figure 4). 86% of total study subjects had at least 2 childbirths and no patient in our study was nulliparous (Table 2). Among 150 patients, history of previous abdominal surgery (caesarean section, abdominal tubal ligation, other laparotomy) was present in ~68% patients of which history of previous 1 surgery was present in 56% patients (Table 3). Size of uterus was normal to 12 weeks in 90% of patients out of total 150 patients and only in 10% patients, uterine size was >12 weeks (Table 4). Among 150 patients, most common indication was symptomatic adenomyosis accounting for TLH in 42% of total patients followed by symptomatic fibroid being second most common indication in ~37% patients. Other common indications for TLH were ovarian cyst, endometrial hyperplasia and prolapse in descending order (Table 5).

**Table 1: Age distribution among study participants (n=150).**

Age in years	Number	Percentage (%)
30-40	54	36.0
40-50	68	45.3
50-60	25	16.7
>60	03	2.0
Mean age in years	44.46±8.33	

**Table 2: Parity among study participants (n=150).**

Parity	Number	Percentages (%)
1	21	14
2	39	26
>2	90	60

**Table 3: History of previous surgery among study participants (n=150).**

History of previous surgery	Number	Percentage (%)
No history	47	31.3
1	84	56
2	13	8.7
>2	06	4.0

**Table 4: Size of uterus among study participants (n=150).**

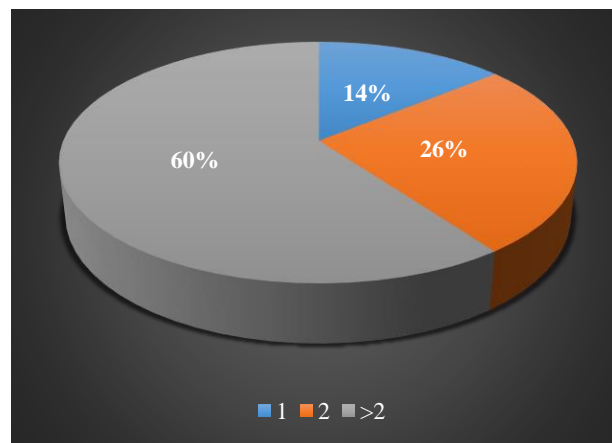
Size of uterus	Number	Percentage (%)
Normal	25	16.7
Bulky (up to 6 weeks)	85	56.7
6-12 weeks	25	16.7
12-16 weeks	10	6.7
>16 weeks	05	3.3

**Table 5: Indication of hysterectomy parity among study participants (n=150).**

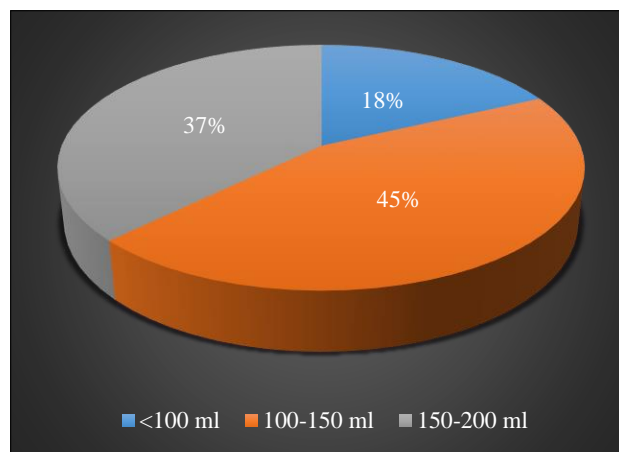
Indication	Number	Percentage (%)
Adenomyosis	63	42
Fibroid	56	37.4
Ovarian cyst	10	6.6
Endometrial hyperplasia	08	5.3
Prolapse	06	4.0
Endometriosis	02	1.3
Ovarian mass	02	1.3
Tubo-ovarian mass	02	1.3
Isthmocolle	01	0.7

Intraoperative blood loss was <200 ml in all patients with 100-150 ml of blood loss in ~45% of participants (Table 6). Figure 2 shows blood loss during surgery in form of pie chart. Note that ~63% patients had intraoperative blood loss <150ml (Figure 5). In >90% patients, TLH procedure took <2 hours with <1-hour time was taken in

~55% patients and average duration of surgery was around 1 hour among 150 subjects (Table 7). On completion of TLH, in immediate postoperative period, during hospital stay and during follow up visits, there was not any complaint in 64% patients; only ~35% patients complained of minimal pain on the same day after surgery which was well controlled with regular minimal analgesics and resolved within 24 hours; no analgesics required after 24 hours of surgery. Only in 1 patient, there was fever on second postoperative day which turned out to be due to urinary tract infection which resolved on antibiotic treatment (Table 8; Figure 6).



**Figure 4: Parity distribution among study participants (n=150).**



**Figure 5: Intra operative blood loss during TLH in participants (n=150).**

**Table 6: Blood loss during surgery among study participants (n=150).**

Blood loss (ml)	Number	Percentage (%)
<100	27	18.00
100-150	67	44.67
150-200	56	37.33
Mean blood loss (ml)	85.07±30.20	

Figure 3 shows postoperative outcomes among total 150 study subjects (Figure 3). All patients were discharged on 3<sup>rd</sup> postoperative day except 1 patient who had fever was kept for 5 days (Table 9).

**Table 7: Duration of surgery among study participants (n=150).**

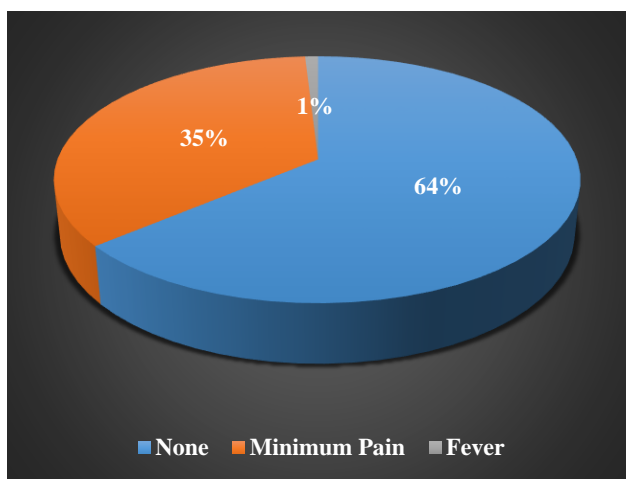
Duration of surgery	Number	Percentage (%)
<1 hour	82	54.67
1-2 hour	55	36.67
2-3 hour	13	08.66
Mean duration of surgery in minutes		63.39±11.13

**Table 8: Postoperative complaints among study participants (n=150).**

Post-operative complaints	Number	Percentage (%)
None	96	64
Minimum pain	53	35.4
Fever	01	0.7

**Table 9: Duration of hospital stay among study participants (n=150).**

Duration of hospital stay	Mean	Standard deviation
	3.013	0.16
Duration of hospital stay (days)	Number	Percentage (%)
3	149	99.33
5	1	0.66



**Figure 6: Postoperative complications/complaints among study participants (n=150).**

## DISCUSSION

Despite the fact that hysterectomy is the most frequently performed major gynaecologic surgical procedure, there are still controversies regarding the optimal route for performing it.<sup>1</sup> Many studies criticized laparoscopic

hysterectomy for its prolonged duration of surgery and its complications.<sup>11,12</sup> In 1998, Garry reported that the prolonged duration of laparoscopic surgery in most of studies is due to the fact that all the studies were conducted during the world of learning curve of laparoscopic hysterectomy.<sup>13</sup>

Mean age of patients in our study 44.46±8.33 with most common age group 40-50 years and most common indications were symptomatic adenomyosis and symptomatic fibroid with 86% patients having 2 or more childbirths. This may be because symptomatic adenomyosis and fibroid are more common in this age group. As patients did not wish for any future child bearing and they believed uterus to be as vestigial organ plus because they wanted permanent relief of their symptoms without any medications, patients had given written, informed consent for hysterectomy. Due to poor descent and/or large size of uterus, availability of experienced laparoscopic surgeon laparoscopic route was chosen in these patients.

Minimal intraoperative blood loss, no intraoperative complication and no postoperative complication except UTI in 1 patient indicate safety of total laparoscopic hysterectomy if performed properly. 69% patients had history of previous ≥1 open abdominal surgery (caesarean section, abdominal tubal ligation, myomectomy etc.) which indicate safety of TLH in presence of previous surgical history.

## CONCLUSION

TLH is an effective and safe procedure with minimal blood loss, minimal postoperative pain and almost no complications with shorter duration of hospital stay when performed via expert hands.

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*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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