# Total Laparoscopy Hysterectomy: Our Experience at Rural Centre Over Two Years

*Dr. Nidhi Jain, Dr. Jyotsna Kamra*

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*Material and Methods:* A retrospective observational study was done over 2 years in a tertiary care hospital in rural area. A total of 108 women were included who underwent TLH by same operating surgeon. The complaints were abno- rmal uterine bleeding followed by abdominal lump/abdominal pain. Thorough history and examination was done. Ultrasound pelvis was performed. Surgery was done after informed consent.

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*Results: The mean age of female who underwent TLH was 45.76 ± 6.8 years. All females were multiparous (P≥2) with mean parity of 2.55 ± 1.5. The mean BMI was 27.4 ± 5.5 Kg/m². History of previous surgery was found in 38.8% of female. The most common indication of surgery was leiomyoma (55.6%). Mean duration of Hospital stay was 3.77 ± 1.4 days. Among intraoperative complications, 3 cases of bladder injury and 1 ureteric injury was seen. All cases were completed laparoscopically. Among postoperative complications, no major complication was observed.*

*Conclusion: It was concluded that TLH is an upcoming technique in developing countries like India. It is a safe procedure and associated with less intraoperative and post-operative complications.*

*Keywords:* hysterectomy, laparoscopy, leiomyoma, total laparoscopic hysterectomy.

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## I. INTRODUCTION

Hysterectomy is one of the most common surgeries performed in female of perimenopausal age group. It can be done by either vaginal/abdominal or laparoscopic route. Laparoscopic hysterectomies are on the rising trend and being preferred by both patients and surgeons, since it is associated with less post-operative pain, faster recovery, better wound healing and early return to normal activities. Hence, authors are hereby sharing their experience about total laparoscopic hysterectomy (TLH) over a period of two years.

## II. MATERIALS AND METHODS

A retrospective observational study was being conducted over a period of 2 years (January 2018 to January 2020) in a tertiary care hospital in rural area after clearance from institutional ethics committee. A total of 108 women were included in the study that underwent TLH by same operating surgeon. Most of these women presented to gynaecological outpatient department with chief complaints of abnormal uterine bleeding. Few of them presented with abdominal lump/pain in abdomen. Thorough history and examination was done. Routine blood investigations were done. Ultrasound of abdomen and pelvis was performed. The patient was taken for surgery after taking informed consent.

## III. SURGICAL TECHNIQUE

Patient for surgery was admitted a day before the surgery. Bowel preparation was done by Tablet Charcoal (2 tablets) and Tablet Dulcolax (2 tablets)

at night time before surgery. Informed consent was taken. Preoperative antibiotic (injection Mon ocef) was given in morning on the day of surgery.

Surgery was done under general anaesthesia with endotracheal intubation. The patient was placed in dorsal lithotomy position. Per vaginal examination was done, Foley's catheterisation was done. Uterine manipulator (Marvah's) was placed.

One 10 mm trocar was placed at the supraumbilical position by direct insertion technique. Carbon dioxide Insufflation was done to create pneumoperitoneum. Two secondary ports of 5 mm each were inserted under direct vision on left side, as shown in figure 1. Another 5 mm trocar was placed on right side in case of large uterus for uterine manipulation by myoma screw. Trendelenberg position was obtained. Intra abdominal pressure was kept in the range of 12-14 mm of Hg and flow rate at the rate of 3 L/min during surgery.

First of all, the fundal structures (round ligament, tubo-ovarian ligament) were cauterised with bipolar cautery and cut with Enseal /scissors/harmonic blade on one side followed by the other side.

After cutting the fundal structures, vesicouterine fold of the peritoneum was opened by harmonic blade/Enseal/scissors, beginning from central part of lower uterine segment and continued on both sides laterally. During this step, cup of uterine manipulator was pushed inward to delineate vesico-uterine plane. Bladder was pushed downw ards.

After bladder dissection, skeletonization of uterine artery was done on both sides. Uterine artery was cauterised with bipolar cautery on both sides and then cut with scissors/harmonic blade.

The uterosacral ligaments were then cauterised using bipolar cautery and cut on either side using Enseal/ harmonic blade.

The circular colpotomy was done over the cup of uterine manipulator by using monopolar hook [figure 2]. Vaginally, uterine manipulator was rem- oved and uterus specimen was removed outwards half way to prevent emission of gas. Bilateral salpingectomy was done in all cases.

In cases where age was more than 50 years or ovaries were unhealthy or had complex ovarian cysts, oophorectomy was also done.

Specimen was removed. Vault closure was done vaginally with Vicryl number 1 in initial cases (appoximately 40 cases). However, with time and surgical expertise, we have started doing endosuturisuturing. Now in all cases, vault was closed laparoscopically by endosuturing using Vicryl number 1. Haemostasis was checked. Ports were removed and patient was shifted to post-operative room.

## IV. RESULTS

The demographic profile is shown in table 1. The mean age of female who underwent TLH was found to be 45.76 ± 6.8 years. Among parity, it was found that all females were multiparous (P≥2) and none of them were nulliparous with mean parity of 2.55 ± 1.5.

Weight was not criteria to decide mode of hysterectomy, rather, in obese female's TLH was preferred over abdominal hysterectomy. The mean BMI of patients who underwent total laparoscopic hysterectomy were 27.4 ± 5.5 Kg/m$^2$.

History of previous surgery was found in 42 (38.8%) of female, of which most common procedure was tubal ligation (52.4%), followed by caesarean section (30.95%). In two cases, females had history of previous 2 LSCS while in one case there was a history of previous 3 LSCS.

*Table 1:* Demographic profile of women who underwent TLH

| Sr No | Parameters | | Values (mean ± SD) |
|---|---|---|---|
| 1 | Age | | 45.76 ± 6.8 years |
| 2 | Parity | | 2.55 ± 1.5 |
| 3 | BMI | | 27.4 ± 5.5 Kg/m² |
| 4 | History of previous surgeries: | | 42 (38.8 %) |
| | a | Tubal ligation | 22 (52.4 %) |
| | b | LSCS | 13 (30.9 %) |
| | c | Myomectomy | 2 (4.8 %) |
| | d | Cystectomy | 5 (11.9 %) |
| | Total | | 42 (100%) |

Indications of surgery are shown in table 2. The most common indication for performing surgery was uterine leiomyoma (60 cases, 55.6 %), followed by dysfunctional uterine bleeding (35.3%). There were 6 cases of ovarian cyst (5.6%) and 3 cases (2.8%) of adenomyosis.

*Table 2*: Indication of surgery in females who underwent TLH

| Sr No. | Indication of surgery | Number of cases (%) |
|---|---|---|
| 1 | Leiomyoma | 60 (55.6 %) |
| 2 | DUB | 38 (35.3 %) |
| 3 | Ovarian cyst | 6 (5.6 %) |
| 4 | Chronic pelvic inflammatory disease | 1 (0.9 %) |
| 5 | Adenomyosis | 3 (2.8 %) |
| 6 | Postmenopausal bleeding | 1 (0.9 %) |
| 7 | Endometrial hyperplasia | 1 (0.9 %) |

The uterine size was not the criteria to decide the mode of surgery. We have done total laparoscopic hysterectomy even in the female of uterine size 18-20 weeks. Most common uterine size was 6-12 weeks. Mean uterine size for which total laparoscopic hysterectomy was done was 11.5 ± 1.9 gestational weeks [table 3].

*Table 3:* Size of uterus in females who underwent TLH

| Sr No. | Size of uterus (weeks) | Number of cases (%) |
|---|---|---|
| 1 | 6-12 | 74 (68.5 %) |
| 2 | >12-16 | 31 (28.7 %) |
| 3 | >16-20 | 3 (2.8 %) |
| | Total | 108 (100%) |
| | Mean size | 11.5 ± 1.9 weeks |

Intraoperative and post - operative complications are shown in table 4. The patient who underwent TLH were usually admitted a day before surgery and were discharged within 4 days after removal of Foley's catheter and under satisfactory condition. Mean duration of Hospital stay was 3.77 ± 1.4 days.

*Table 4*: Intra and post operative complication in women who underwent TLH

| Sr no | Complications | Number of cases (%) |
|---|---|---|
| | Duration of hospital stay | 3.77 ± 1.4 days |
| Intra-operative complications | | |
| 1 | Bladder injury | 3 (2.8%) |
| 2 | Ureter injury | 1 (0.9 %) |
| 3 | Bowel injury | 0 (0 %) |
| 4 | Vascular injury | 0 (0 %) |
| 5 | Conversion to laparotomy | 0 (0 %) |
| Post operative complications | | |
| 1 | Need of blood transfusion | 20 (0.9%) |
| 2 | Fever | 8 (7.4%) |
| 3 | Abdominal distension | 5 (11.9 %) |
| 4 | Prolonged catheterization | 10 (9.3 %) |
| 5 | Wound sepsis | 0 (0%) |
| 6 | Subcutaneous emphysema | 1 (0.9%) |
| 7 | Vaginal bleeding | 1 (0.9%) |

Among intraoperative complications, visceral injuries were seen in four cases (3.7%). 3 cases were of bladder injury (2.8%) and one case was of ureteric injury (0.9%).

Among these 3 cases of bladder injury, all cases were diagnosed during the surgery and simultaneous repair was done with the Vicryl number 2-0 in two layers. Bladder integrity was checked followed by which TLH was done in the same sitting. Post-operative catheter was placed for 21 days. After 21 days, catheter was removed and patients had no complaint in micturition. All of these 3 cases had history of previous surgeries of which one had history of previous 2 LSCS, another case had history of previous 3 LSCS and last one was with previous history of LSCS and tubal ligation.

One case had ureteric injury which was diagnosed post operatively on day 7. Patient came with complaints of urinary incontinence for which she was readmitted and evaluated. CT urography was done and diagnosis of right uretero-vaginal fistula (small, in lower one third of the ureter) was made. High risk factor seen in this case was obesity (BMI 29.3 Kg/m$^2$). Patient was referred to urosurgeon and DJ stent was placed but patient did not improve. So, decision of surgery was taken. Patient underwent laparotomy with neoureterostomy (via urinary bladder flap). Post operatively, Foley's catheter was placed for 3 weeks. After 3 weeks, Foley's catheter was removed and patient passed urine normally. Till date, patient is comfortable and asymptomatic.

No case of bowel injury or vascular injury was seen. All cases were completed laparoscopically and in none of the cases, laparotomy conversion was required.

Among post-operative complications, no major complication was observed. Blood transfusion was done in 20 cases (18.5%). This high number of transfusions could be explained on the basis that we are doing surgeries at the rural level where patient has poor nutritional status and most of them suffer from anaemia. 8 patients (7.4%) had fever which were managed symptomatically. 5 patients (11.9%) had complains of abdominal distension post-operatively. All of these cases were managed conservatively.

Prolonged catheterisation (≥ 48 hours) was done in 10 cases (9.3%). Out of these 10 cases, 3 cases were of per-operative bladder injury and 1 case was of ureteric injury. In rest of the 6 cases, the bladder was adherent, separated by sharp and blunt dissection and hence prophylactically prolonged catheterisation was done.

One patient had subcutaneous emphysema which was managed conservatively.

One patient had vaginal bleeding on post-operative day 2. Patient was shifted to operation theatre. Under intravenous anaesthesia, vault was explored vaginally and bleeder was found, suture was taken vaginally and vaginal packing was done for 48 hours. Patient was comfortable thereafter and discharge was done under satisfactory condition on post-operative day 7.

No wound sepsis occurred after laparoscopic procedure showing that wound healing is better after laparoscopic procedure.

## V. DISCUSSION

The present study included 108 cases that underwent TLH. All of these cases were done for benign indications, most common of which was uterine leiomyoma (55.6%) followed by dysfuncti- ional uterine bleeding (35.3%).

Among patients demographic profile, mean age and parity was 45.76 ± 6.8 years and 2.55 ± 1.5 respectively. Obesity was not the criteria to defer laparoscopy. Rather, it was preferred by operating surgeon to do TLH in obese patients for better wound healing and easy surgery as compared to open technique. Also, it was observed that most common size of uterus on which we operated was 6-12 weeks (68.5%).

Similar results were seen in study by Bettaiah Ramesh et al [1] who evaluated association between outcomes of laparoscopic hysterectomy with respect to clinical factors, intra-operative variants and post-operative complications. Their study included 858 females who underwent total laparoscopic hysterectomy. All surgeries were performed by same surgeon by same technique. Average age of female who underwent surgery was 44.9± 6.2 years. Most common indication of surgery was leiomyoma (54.4%) followed by dysfunctional uterine bleeding (17.8%). In most of the cases (57.6%) size of uterus operated was 6-12 weeks followed by 12-16 weeks (16.3%). It was concluded that total laparoscopic hysterectomy is associated with less complication rate and early post-operative recovery.

In our study, history of previous abdominopelvic surgery was present in 38.8% cases of which most common procedure was tubal ligation (52.4%) followed by LSCS (30.9%).

Similar results were seen in study by Mereu et al [2] in which 41.3% females who underwent total laparoscopic hysterectomy had history of previous laparotomy including 24.1% woman who had history of previous one or more LSCS. Thus, it can be seen that we can do TLH in females with history of abdominopelvic surgery safely depending on the surgical expertise.

TLH can be done in obese women. In our study, mean BMI of patient undergoing surgery was 27.4 ± 5.5 kg/m². Results were in concordance with that obtained by Twijnshtra et al [3] in 2012. They did one year cohort analysis including 1534 laparoscopic hysterectomy done by 79 surgeons. Mean BMI of patient undergoing surgery was 27.5 ± 5.7 kg/m². It was found that success of surgical outcome was significantly associated with BMI, uterine weight and previous abdominal surgery.

Now days, concept of the day care hysterectomy is on rising trend. In this, patient is being discharged on the same day of surgery (within 24 hours). However, in our study, mean duration of hospital stay was 3.77 ± 1.4 days. Patients were admitted a day before surgery and discharged within 4 days in most of the cases. Longer hospital stay in our study could be because of the fact that this study is done in the rural area where myth is prevalent that patient care is better in the hospital and will have more complications if discharged early. The results were compared to the study done by Jinhwa Lee et al in 2015[4]. In their study, 50 cases were included in which 25 patients underwent conventional multiport total laparoscopic hysterectomy. The duration of postoperative hospital stay was 4-7 days, average being 3 days.

In our study, among intraoperative complications, bladder injury was seen in 3cases (2.8%), ureteric injury in 1 case (0.92 %) and no bowel or vascular injury was observed. None of the cases were converted to laparotomy. All urinary bladder injuries were diagnosed and repaired during the proce-

dure. All of these 3 cases had history of previous abdominal surgeries. Ureteric injury was diagnosed post-operatively and managed by urosurgeon via laparotomy with neoureterostomy. The only risk factor in the patient with ureteric injury was obesity.

The results were in accordance seen in the study done by Boosz 2011 et al [5]. It was a retrospective analysis done over 7 years including total of 867 cases of which 567 underwent total laparoscopic hysterectomy and remaining 300 underwent laparoscopic assisted Supracervical hysterectomy. Urinary bladder injury occurred in 4 cases; ureteric injury in 1 case and1 patient had bowel injury.

Another study was done by Morelli et al in 2007[6] who reported significantly higher percentage of bladder injuries (3.5%), probably related to the high number of patients with previous LSCS (more than 50%).

Thus, it can be observed that TLH is a safe procedure and associated with less intraoperative complications. Furthermore, the complication rates are decreased with time and surgical expertise. Also, risk is more in females with previous abdominal surgeries and who are obese, however, no statistically significant association was found.

Among post-operative complications, no major complication was found. Blood transfusion was done in 20 females (18.5%). Abdominal distension occurred in 5 cases, all of which were managed conservatively. However, in other studies [2,6,7], lesser number of blood transfusions were given post operatively. This discrepancy can be explained on the basis of preoperative nutritional status of the patient included in our study.

Minor vaginal bleeding occurred in 1 case, diagnosed on post-operative day 2 and was managed by applying haemostatic suture vaginally. No blood transfusion was required in this case.

None of the patient had a wound sepsis showing that TLH is associated with better wound healing. No case of vault dehiscence was observed.

## VI. CONCLUSION

This study concluded that total laparoscopic hysterectomy is an upcoming technique in developing countries like India. It is a safe procedure and associated with less intraoperative and post-operative complications. The complication rate can be further decreased with surgical expertise. Hence, laparoscopic procedure should be a part of training for all gynaecologists.

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Figure I: Image showing 10 mm supraumbilical port and two 5 mm ancillary ports.

*Figure 1*: Image showing one supraumbilical port of 10 mm and two ancillary ports of 5 mm each


Fig II: Image showing circular colpotomy by monopolar hook.

*Figure 2*: Image showing circular colpotomy by monopolar hook