

Total Laparoscopic Hysterectomy: A Two-Year Experience in Apollo Hospitals Dhaka

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Abstract

Objective: Aim of our study is to analyze the surgical outcome of total laparoscopic hysterectomy (TLH) in our patient perspective of Apollo Hospitals Dhaka. **Methods:** This is a retrospective, observational study where we have reviewed demographic data, intraoperative and postoperative outcomes, and morbidity data on 100 women who underwent TLH between January 2011 and December 2012. **Results:** Total 100 patients were studied. Among them five patient required conversion to laparotomy due to presence of severe adhesion. The major and minor complication rates were 2% (bladder injury-2 cases) and 0% respectively. The average operating time was 148 ± 40 minutes and the mean length of hospital stay was 3 ± 1 day. The average uterine size was 10 ± 4 weeks. In our cases operating time and duration of hospital stay were very similar with lower procedural complications to other published data elsewhere. **Conclusion:** We have observed that TLH is a safe and acceptable alternative procedure to standard hysterectomy from the patients perspective at Apollo Hospital Dhaka.

Key words

Laparoscopic hysterectomy, complications, laparoscopy, hysterectomy

Introduction

Hysterectomy is the most frequently performed major gynecological surgical procedure.¹ Though there are three approaches in hysterectomy - abdominal, vaginal and laparoscopic, still there are controversies regarding the optimal route for performing it. Even though there are numerous benefits of vaginal over abdominal hysterectomy including lower morbidity and more rapid postoperative recovery,² 70 – 80% of all hysterectomies are performed abdominally.³ Since the first laparoscopic hysterectomy (LH) was described by Harry Reich,⁴ LH has become an option for women and their surgeons to consider. During

the last few years considerable technical advances in this procedure have occurred.⁵⁻⁸ There are many surgical advantages to laparoscopy particularly magnification of anatomy and pathology and access to the uterine vessels. Patient advantages are multiple and are related to avoidance of a painful abdominal incision, reduced duration of hospitalization, faster recovery time and early return to the activities of daily living.⁹⁻¹²

Laparoscopically assisted vaginal hysterectomy (LAVH) was introduced to overcome the technical difficulties of vaginal hysterectomy in case of large uterine size, limited vaginal capacity or presence of pelvic adhesions,¹³ but

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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 procedure of removing the uterus is performed laparoscopically, can overcome some of the limitations of LAVH. Moreover in a study of TLH versus LAVH, it was demonstrated that TLH was associated with a shorter hospital stay.¹⁴



Fig: Colpo-bulger

Since 2011, we have used the Colpo-bulger vaginal fornix delineator to facilitate the TLH procedure. The Colpo-bulger is inserted in the vagina. The device allows clear exposure of the vaginal fornices, which make the TLH procedure simpler and may reduce complication rates. This study reviews our initial two-year experience of TLH using the Colpo-bulger.

Methods

This is a retrospective, observational study. We reviewed the records of 100 women who underwent attempted TLH between January 2011 and December 2012 in Apollo Hospitals, Dhaka. The data were obtained from our departmental database of gynecologic patients and the information was verified via a detailed review of the medical records for each patient.

The inclusion criteria were the indication of TLH for benign disease and the uterine size did not exceed the size equivalent to 20 weeks of pregnancy. The exclusion criteria was if size of the uterus was more than 20 weeks pregnancy size and if the patient had a history of more than two cesarean sections previously. The procedures were performed by the same surgeon. Demographic data of all patients and intraoperative and postoperative outcome data were reviewed. Variables studied included age, parity, menopause, associated co-morbidity, history of previous pelvic operation and indication for operation. Other variables were uterine size and total operating time, estimated blood loss, preoperative and postoperative hemoglobin level, need for blood transfusion, quantity of analgesia use, intra- and postoperative complication rates, patient's recovery and length of hospital stay.

Major complications were considered as haematoma requiring transfusion and (or) surgical drainage, injury to the bowel, bladder or ureter and pulmonary embolus. Minor complications were considered as any infection or temperature of more than 38° C on two occasions six hours apart (excluding the first 24 hours after surgery), hematoma that did not require surgical intervention, deep venous thrombosis.

Summary of TLH Techniques

Informed consents were obtained before surgery. Patients were admitted to the hospital one day prior to operation. Blood sugar level was well-controlled (postprandial blood sugar was within 8-10 mmol/l) in diabetic patients. All patients underwent pelvic ultrasound examination and basic blood investigations.

Patients were kept NBM 6 hours preceding surgery and received bowel preparation (lactulose and enema at night before operation). Preoperative intravenous prophylactic antibiotics (ceftriaxone 1 g or ciprofloxacin if allergic to penicillin) was given within 1 hour of incision.

All surgical procedures were performed with the patients under general and spinal anesthesia with endotracheal intubation. Patients were placed in the modified semi-lithotomy position, with knees flexed in Allen stirrups. A Foley's catheter was placed in the bladder. The patient was placed in the deep Trendelenburg position. All laparoscopic instruments used, including the Colpo-bulger and the trocars, were reusable. Carbon dioxide pneumoperitoneum was induced using a Veres needle. The intraperitoneal pressure was maintained at 15 mm Hg throughout the surgery. Five laparoscopy ports were used: 10mm supra-umbilical, 5mm right and left lower quadrant, and 5 mm suprapubic and 5 mm left to umbilicus. Manipulation of the uterus was done with the colpo-bulger vaginally and a 5-mm myoma spiral laparoscopically. The round ligament was desiccated with bipolar and cut with harmonic. The utero-ovarian ligament was desiccated and transected. The vesico uterine peritonium at the level of the vaginal fornix was incised. As the Colpo-Probe device was being pushed into the upper vagina, the cervicovaginal tissue was put under tension, resulting in the separation of the bladder from the cervix and upper vagina. Therefore, the bladder was kept safely below the area of dissection, with clear exposure of the vaginal fornices. Posterior broad ligament was incised upto uterosacral ligament and uterine vessels were skeletonized.

The uterine vessels were then thoroughly desiccated by bipolar diathermy and cut with harmonic. The colpotomy was completed circumferentially lateral to the level of the utero-sacral ligaments and the uterus was freed from its vaginal attachments. Then if the ovary was to be removed, the infundibulo pelvic ligament was desiccated and transected. The specimen was removed vaginally. Then the vault was closed with V-loc.

The length of operating time was recorded as the time from the first surgical incision to the time at which all wounds were closed and dressed. The total blood loss is calculated from the suction apparatus deducting the irrigation fluid. The blood in the suction tube is also measured to give the accurate value.

Liquids were started after peristalsis is established and the catheter was removed when oral done. The patient was assessed for discharge from hospital on the 2nd postoperative day and was seen again in the surgeon's office one week postoperatively.

Result

Of the 100 women who underwent attempted TLH during the study period, the mean age± standard deviation of patients was 46.20±8.96 years, the mean parity was 2.74±1.38, nulliparous 1 (1%), 23 women were menopausal (23%). Seventeen women (17%) had one or more previous caesarean sections. Thirty four patients (34%) had associated medical problem—diabetes and seven patients with diabetes had delayed discharge from hospital to achieve postoperative stabilization of blood sugar.

Table 1. Characteristics of 100 patients

Variables	mean value \pm SD
Age (in year)	46.20 \pm 8.96
Parity	2.74 \pm 1.38
Uterine size (in gestational week)	9.54 \pm 3.94
Operating room time (in min)	147.80 \pm 38.54
Estimated blood loss (in ml)	67.00 \pm 52.15
Preoperative Hb (in gm/dl)	11.91 \pm 1.28
Postoperative Hb (in gm/dl)	11.01 \pm 1.15
Need of narcotic analgesic (in mg)	115.70 \pm 57.06
Length of hospital stay (in days)	2.89 \pm 1.26

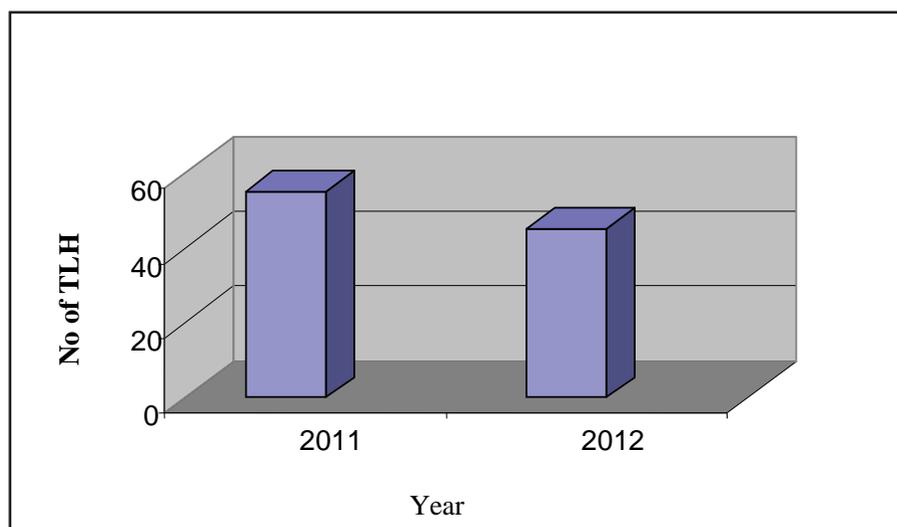
**Fig. 1: Number of attempted TLH performed annually between 2011 and 2012**

Table 2. Indications of TLH*

Indications	n
Fibroid Uterus	39
Adenomyosis	23
Recurrent postmenopausal bleeding	13
Endometriosis	5
Dysfunctional uterine bleeding	6
Cervical intraepithelial neoplasia	5
Ovarian tumor	5
Pelvic inflammatory disease	4

* TLH: Total laparoscopic hysterectomy

The indications of TLH are shown in Table 2. The most common indications for the procedure were fibroids (39%), followed by adenomyosis (23%) and recurrent postmenopausal bleeding (13%).

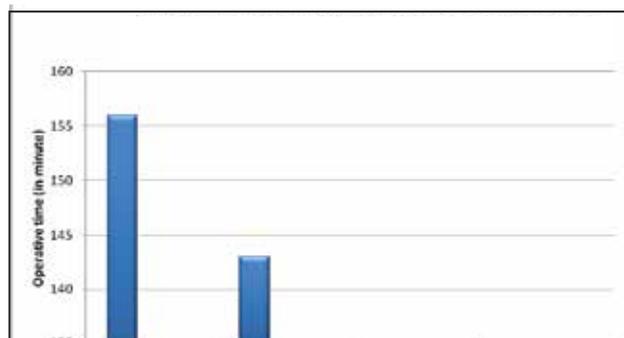


Fig. 2: Mean operative time for procedures performed annually between 2011 & 2012

Mean operating time (from first incision to final closure suture) in each studied year is shown in Figure 2; the overall mean duration was 147.80 minutes \pm SD 38.54 minutes (range 75-330 minutes). The mean uterine size (in gestational

week) \pm standard deviation was 9.54 weeks \pm SD3.94 weeks. The largest specimen was 20 weeks & the range was 6 to 20 weeks. The mean estimated blood loss was 67.00 ml \pm SD 52.15 ml. The preoperative hemoglobin concentration was compared with that observed on the first day after the operation. The postoperative hemoglobin levels in all patients were above 9 g/dL. None of them required post operative blood transfusion.

A total of 100 patients who underwent attempted TLH, the procedure were successfully completed by laparoscopy in 93 patients (93%). Five patient required conversion to laparotomy due to presence of severe adhesion. Two cases needed laparotomy due to bladder injury (2 patients). There was no bowel injury, no minor complications.

Most patients (77%) had mild post operative

pain, needed only single dose narcotic on the day of operation followed by NSAIDs. The mean length of hospital stay, defined as the total number of inpatient hospital days excluding the day of admission was 2.89 days \pm SD1.26 days.

Forty five patients (45%) were discharged on the 2nd postoperative day. In no case redo surgery or readmission to the hospital was necessary.

Table 3. Operative complications

Complications	n
Major complications	
Hemorrhage (requiring transfusion)	0
Hematoma (requiring transfusion and/or surgical drainage)	0
Pulmonary embolism	0
Injury to bladder	2
Injury to bowel or ureter	0
Minor complications	
Hemorrhage (attended emergency room, not requiring transfusion)	0
Urinary infection	0
Vaginal vault abscess	0

Discussion

Total laparoscopic hysterectomy is currently accepted as an alternative to standard abdominal hysterectomy. Several randomized trials have shown the advantages of operative laparoscopy as compared with laparotomy.¹⁵ This study reports the outcomes for 100 TLH procedures carried out after the introduction of the Colpo-bulger device. Our data are similar to those reported elsewhere with respect to patient demographics, uterine size, operation time, and operative morbidity.¹⁶⁻¹⁷ By reducing the amount of time spent as an inpatient, patients are exposed to fewer nosocomial infections, in theory decreasing the risk of

iatrogenic infections.⁶ TLH also could be performed successfully in most obese patients,¹⁸⁻¹⁹ and operating room times are comparable to those of abdominal hysterectomies.²⁰ Some authors agree that TLH is safe and feasible in the presence of enlarged uteri.²¹⁻²² There is another potential benefit of TLH using colpo-bulger is related to the preservation of pelvic tissue. Preservation of the uterosacral ligament may maintain vaginal innervations. Moreover, laparoscopic closure of vaginal vault without inversion minimizes granulation formation, and incorporation of pubocervical fascia gives excellent vault support.²³

Patient safety during LH has always been a major concern. Liu and Reich in 1994 assessed 518 patients undergoing LH and found that the risk of LH was no greater than either AH or VH in appropriately trained hands.²⁴ The complication rate in our series compares favorably with rates reported in the literature.^{9,11,25-28} We had no instances of major hemorrhage, ureteric injury or bowel injury. Major complications were bladder injury (2%), rate of which were similar to those reported in other studies.^{9,22,25-28} A study in France, in which 29 of 416 (7%) of TLH cases were converted to laparotomy, determined that increased body mass index, uterine width more than 10 cm and adhesions from previous abdominal and pelvic surgery were predictive factors for laparotomy.²⁹

Although our data do not show an association between a history of pelvic surgery, caesarian section or increased body weight and a higher risk of conversion to laparotomy, significant conclusions cannot be made because of the retrospective nature of our study and the relatively small number of subjects. As with many other surgical procedures, proper selection of patients plays an important role in determining the success of the surgery. For TLH, the selection process depends predominantly on the experience and expertise of the surgeon; with experience, more patients can be offered TLH with confidence. Currently, in our practice about 70% to 80% of hysterectomies can be done laparoscopically.³⁰ Prolonged operating and anesthesia times have always been considered to be an important drawback of LH.^{9-11,25,31} Although most studies have reported that LH takes longer to perform, it has been associated with shorter hospital stay

and shorter recovery time than AH.^{9-11,25,31} LH offers reduced risk of intra-abdominal adhesions, an extremely low rate of infection and ileus. Patients who undergo LH also experience significantly less pain and require less analgesia than patients require after AH.^{9,11,25,31} The operating time in our series was similar to times reported in the literature.^{9,11,16,17,32} Our results are similar to those reported to date, showing that TLH can be performed safely with shorter hospitalization. LH performed on an outpatient basis has been reported to be safe, well tolerated and cost effective, and is therefore advocated by some authors.^{33,34}

It is well established that performing TLH involves a learning curve that, with improved skills and technique, will result in a safer procedure with improved outcomes.^{27,35} In a series of 1647 cases of TLH, the incidence of major complications and laparotomy conversion decreased significantly between two study periods (1989-1995 and 1996-1999).³⁵ This study clearly indicate that complication rates decrease significantly as surgeons gain experience. Therefore, it is important for the surgeon to learn from his or her own experience and complications and to refine his or her own technique to lower morbidity. In our present study, we managed to shorten the operating time progressively and became capable of removing bigger uteri and performing more complicated cases. However, operating time is not always a reliable indicator of the surgeon's technical capability; it is also influenced by the complexity of the case, the familiarity of assistants and nurses with the procedure, and the availability of equipment. Continuing review of performance and outcome data will facilitate the

learning process and help the surgeon to improve the safety of TLH.

Conclusion

TLH can be performed successfully in most patients with benign indications. Morbidity is comparable to that of other types of hysterectomies, and this technique may be a more reasonable approach under some circumstances. With adequate training in laparoscopic surgery, TLH can be performed in all cases with minimal blood loss and decreased operative time, irrespective of the size of the uterus. Study results in the literature continue to be encouraging and this procedure should be part of gynecologist's training, offering patients alternatives that are associated with low morbidity and rapid recovery.

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