



Original Article

Outcomes of Laparoscopic Hysterectomies: An Assessment of a Learning Curve Experience of Gynae Laparoscopic Surgeries

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ABSTRACT

Among the most frequent gynecological operations conducted is the hysterectomy. **Objective:** To determine the outcome of TLH in benign uterine pathology of up to 12-week size uterus. **Methods:** It was a prospective case series carried out at Obstetrics and Gynecology department of Memon medical institute hospital, Karachi from January 2019 to January 2021. All patients who underwent laparoscopic hysterectomy secondary to benign utero- ovarian pathology were consecutively enrolled. Demographic characteristics of the patients along with the presence of co-morbidities, hospital admission details, surgical procedure and intra and post-operative complications were noted. The surgery performed with similar technique in all cases. If patients were deemed to be fit for release after 48 hours following surgery, they were discharged. The postoperative follow-ups were performed at 10th, 30th, and 3 months. **Results:** Of 50 patients, the mean age was 50.5 years. The main indication of hysterectomy is adenomyosis diagnosed in 20 patients. There were 4 laparoscopic assisted vaginal hysterectomies and 46 were total laparoscopic hysterectomies. History of previous laparotomies was observed in 12, previous cesarean and bilateral tubal ligation in 6 each, history of mesh repair of umbilical hernia in 4 while history of VP shunt was observed in 2 patients. Eight patients converted into laparotomy due to technical difficulty in controlling hemorrhage of uterine artery. Total rate of intra and post-operative complications was 40%. **Conclusion:** Laparoscopic approach for hysterectomy is a safe alternative to conventional hysterectomy for benign uterine pathology of up to 12 weeks size uterus.

INTRODUCTION

Hysterectomy is one of the most common surgical procedures performed in gynecology worldwide [1]. Over the last two decades, the laparoscopic approach for gynecological purposes has grown in prominence. The use of gynecological endoscopy is no longer limited to diagnostic purposes [2]. Abdominal, vaginal, and laparoscopic hysterectomy are all possible methods. The most common procedure is an abdominal hysterectomy, which is more intrusive and is associated with higher blood loss, a longer recovery time, and a longer hospital stay [3, 4]. First reports on laparoscopy within female pelvis was made by Roul Palmer in Paris 1944. From this it was a small

step towards laparoscopic assisted vaginal hysterectomy and finally total laparoscopic hysterectomy was established from 1989 onward [5]. It is reported that the distribution of the surgical approach was abdominal in majority of the cases, followed by vaginal, laparoscopic, while few cases reported robotic and radical hysterectomy [6, 7]. Other cases have reported rate of total laparoscopic hysterectomy increased to approximately 30% while total abdominal hysterectomy rates fell significantly to 7% [8]. Because of the recent improvement of less invasive surgery, the laparoscopic technique to hysterectomy has become more popular. When less invasive treatments are

available, they are generally chosen over more invasive procedures, and surgeons should choose the strategy that best achieves the surgical goal while also optimizing patient safety [9]. The American College of Obstetricians and Gynecologists (ACOG) recommends that surgeons employ a vaginal approach whenever possible, and that laparoscopic hysterectomy should be preferred over open abdominal hysterectomy in patients for whom vaginal hysterectomy is not possible [9]. Total laparoscopic hysterectomy is equivalent to vaginal hysterectomy in terms of postoperative parameters and patient satisfaction when performed by skilled hands with carefully chosen patients [10]. The rationale of this study was that amongst all gynecological procedures, laparoscopic hysterectomies are common surgeries worldwide including Pakistan. There is a need of continuous thorough investigations regarding indication, treatment outcome, and complications in women who underwent these surgeries. As sufficient literature is not available in Pakistan due to lack of training and availability of resources and supervision related to laparoscopic surgeries, this study was conducted with the aim to generate local data and report laparoscopic hysterectomy surgery related outcome. In this study, intra and post operative complications of laparoscopic hysterectomies during initial phases of laparoscopic surgeries was reported.

METHODS

This prospective study was conducted among patients who underwent Laparoscopic assisted vaginal hysterectomies and Total laparoscopic hysterectomies during 7th January 2019 to 30th January 2021. Informed consent about laparoscopic hysterectomy was taken before admission and all participants informed in detail about potential benefits and risk related to laparoscopic hysterectomies. The study proposal was submitted to hospital ethical review board and was granted exemption as patient's identity was not revealed and surgery performed by the author gynecologist with an additional diploma in Gynae Laparoscopy. This research included all adult women, regardless of parity, who weighed less than 100 kg and were diagnosed with abnormal uterine bleeding, fibroids, or adenomyosis with postmenopausal hemorrhage. Furthermore, participants in this research were chosen based on uterine size, which was limited to no more than 12 weeks of pregnancy. There are no serious cardiac or pulmonary conditions. Whereas patients with malignant diseases, cardiac diseases, high risk for prolong anesthesia, and with fused hip joint were excluded. Before admission, routine examinations such as a comprehensive clinical history, a complete blood profile, liver and renal

function tests, and detailed imaging are performed. Biopsy taken in suspected cases to rule out malignant uterine pathology before admission. Pre-operative anesthesia review done as it is a protocol of department before doing major surgery. TEDs stocking placed before procedure. Preoperative antibiotic was given before 15 minute of skin incision. After creating and maintaining pneumoperitoneum of 15mmHg and placement of uterine manipulator, coagulation of round ligament and broad ligament done followed by opening of uterovesical fold and skeletonization of uterine vessels, coagulation of vessels, colpotomy. Coagulation of infundibulopelvic ligament done in last for salpingo oophorectomy followed by specimen retrieval vaginally. Vault closed by V-lock continuous suturing technique by laparoscopy. In cases of Laparoscopic assisted vaginal hysterectomy same steps were followed till coagulation of uterine vessels and colpotomy while vault closed vaginally with vicryl 0, followed by Anterior and posterior colpoperineorrhaphy done if needed. After surgery, patients allowed orally and mobilized within 24 hours of procedure, catheter discharged after 24 hours, Complete blood count recheck after 24 hours of surgery to check HB drop and patients were advised to discharge after 48 hours if they were considered as fit for discharge. The data related to age, Parity, weight, co-morbidities, size of uterus, additional procedure along with laparoscopic hysterectomy, duration of surgery from skin incision to skin closure, hospital stay after surgery, intraoperative blood loss, intra and post operative complications were reviewed and entered on predesigned proforma. The outcome measured were divided into major and minor complications. Major complications were defined as hemorrhage requiring blood transfusion, vascular injury, bowel, bladder, and ureteric injury, re operation and complete vault dehiscence. Minor complications were defined as, port site infection, vault and urine infection or patient had temperature of more than 38 degree C after first 24 hours of surgery. After discharge Patient called for follow up on 10th post operative day, thirtieth day and finally at three months after surgery. SPSS version 21.0 was used for statistical analysis. Frequency and percentages were calculated for qualitative variables whereas mean along with the standard deviation was computed for quantitative variables.

RESULTS

During the study period, 50 patients underwent for laparoscopic hysterectomies, out of which 46 (92%) had total laparoscopic hysterectomy while 4 (8%) had laparoscopic assisted vaginal hysterectomy with perineal repair. The mean age of the patient was 50.5 years and

majority were multiparous. Hypertension was the most common morbidity presented in 16 (32%) and diabetes presented in 12 (24%). The main indication of total laparoscopic hysterectomy was adenomyosis diagnosed and confirmed by histopathology in 20 (40%) patients followed by fibroid uterus in 18 cases (36%). Regarding previous surgeries, 12 (24%) had laparotomies and 4 (8%) patients had umbilical hernia mesh repair. The majority primary trocar entry was intra umbilical entry 42 (84%) and followed by supraumbilical entry 4 (8%), and 2 (4%) infraumbilical entry (Table 1). Intraoperative complications were observed in 10 (20%) patients (Figure 1).

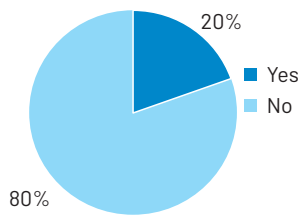


Figure 1: Frequency of intraoperative complications (n=50)

Variables	Mean ±SD
Demographics	
Age, years	50.1 ±6.67
Parity	4.45 ±2.6
BMI, kg/m ²	32.47 ±5.5
Comorbidities	
Diabetes	12 (24%)
Hypertension	16 (32%)
Hepatitis B	2 (4%)
Hepatitis C	4 (8%)
Indication of surgery	
Fibroid	18 (36%)
Adenomyosis	20 (40%)
Endometrial Hyperplasia	2 (4%)
Endometrial Polyp	4 (8%)
Abnormal Uterine Bleeding	0 (0%)
UV Prolapse	4 (8%)
Ovarian Cyst	2 (4%)
Previous surgery history	
Laparotomy	12 (24%)
Umbilical hernia repair	4 (8%)
Cholecystectomy	2 (4%)
Myomectomy	2 (4%)
Primary Trocar entry	
Intra Umbilical	42 (84%)
Supra Umbilical	4 (8%)
Infra Umbilical	2 (4%)
Lee-Huang Entry	2 (4%)

Table 1: Baseline characteristics of the patients (n=50)

The major intraoperative complications were found to be hemorrhage 8 (16%) and 2 (4%) had thermally induced ischemic ureteric injury presented on 14th day after surgery as uretero vaginal fistula which was repaired with

urologist successfully. Conversion of Abdominal hysterectomies were 10 (20%) out of which 8 were due to difficulty in controlling intraoperative hemorrhage and 1 were due to dense adhesions. Port site infection, febrile morbidity, and delayed recovery from anesthesia, and dehiscence were the postoperative complication observed in 2 (4%) patients each (Table 2).

Intra Operative Morbidities	n (%)
Hemorrhage	8 (16%)
Bladder Injury	0 (0%)
Ureteric Injury	2 (4%)
Bowel Injury	0 (0%)
Vascular Injury	0 (0%)
Conversion to Laparotomy	10 (20%)
Post-Operative Morbidities	
Secondary Hemorrhage	0 (0%)
Port Site Infection	2 (4%)
Vault Infection	0 (0%)
Febrile Morbidity	2 (4%)
Deep Venous Thrombosis	0 (0%)
Pulmonary Embolism	1 (2%)
Delayed Recovery from Anesthesia	2 (4%)
Vault Resuturing/Dehiscence	2 (4%)
Vault Hematoma	0 (0%)

Table 2: Distribution of patients according to intra & post-operative complications (n=50)

Average duration of surgery was 164.46 ±30 minutes and average duration of admission was total of 3.3 days (Table 3).

Variables	Mean ±SD
Duration of surgery, minutes	164.6 ±30
Post-Operative Ambulance Time	18 hours
Total days of Hospital admission	3.3 days
Type of surgery	
TLH	10 (20%)
LAVH+ Perineal Repair	4 (8%)
TLH + BSO	36 (72%)

Table 3: Distribution of patients according to duration of surgery, ambulance from surgery, total days of hospital admission

DISCUSSION

The potential benefits and risks of laparoscopic hysterectomy have been widely reported since the first paper on total laparoscopic hysterectomy was published [10]. This study included a series of 50 consecutive laparoscopic hysterectomies. In this study we reported a single surgeon experience of intra operative and post-operative outcomes of Laparoscopic hysterectomies in benign uterine diseases. There is similarity among demographic characters in regards to age and parity in between this and other studies. The mean age of patient in this study was 50 years. Mereu et al., reported a mean age of 49.6 ±6.5 years [11]. Kim et al., reported 46.42 ±5.0 years. BMI in our study was 32.4 ±5.5. Kim et al., also mentioned

same demographic details [12]. The most common indication of total laparoscopic hysterectomies in the present study is adenomyosis presented in 40% of the cases and followed by fibroids in 36% of the cases. Istre et al., reported fibroid uterus followed by abnormal uterine bleeding as the most common indication of surgery. Dojki et al., reported Heavy menstrual bleeding 31% and fibroid 29.7% as the causes of surgery in their study. According to the current study findings, the mean operative time was 164.46 minutes \pm 30.23 minutes. Different studies reported differences in mean operative time. Istre et al., reported 124.26 \pm 44.74 minutes. Dojki et al., from Patel Hospital Karachi reported median and interquartile value of operative time was 175 (120–225 minutes). In Our study the major intraoperative complication was hemorrhage 16% and there were 10 out of 50 laparoscopic conversions secondary to difficulty in controlling hemorrhage due to technical difficulties. Istre et al., reported 16 TLH converted to laparotomy, 5 patients had dense adhesions, 4 patients had vascular injury and 1 patient had bowel injury [13]. In our study there was one thermal left ureteric injury (2%) which was presented as ureteric vaginal fistula after 14 day of surgery and repaired by urologist successfully. Dojki et al., reported one ureteric injury (0.47%) [14] and another research reported ureteric injury of 2% [15]. The overall major and minor complication rate was 20% in our study and 80% patients had not any complications. A study reported overall complication rate of 10% [16, 17]. There is a case of one pulmonary embolism in our study while other had not mentioned it. Anesthesia related complications also had not mentioned in other studies while there was delayed anesthesia recovery in our study. There were no bladder, bowel, vascular injury and port site infections in our study while other studies mentioned these complications [18]. There was one case of vault dehiscence (2%) reported in 3rd week of post-operative period. Meru et al., reported bladder injury of 0.3%, wound infection of 1.1% and vaginal cuff dehiscence of 0.3% [11]. Dojki et al., reported 1% vault dehiscence and vault infections [14]. In short, various studies have reported that laparoscopic hysterectomies are possible with equivalent advantages. A good laparoscopic experience for surgeons and a careful selection of the cases are the obligatory prerequisites [19–21]. The major limitations of this study are non-randomized nature and small sample size because of low volume of patient flow and affordability of procedure in our hospital. Despite of this limitation, this study is a significant effort in reporting the local estimates.

CONCLUSIONS

This study showed that laparoscopic hysterectomies can be safely performed by the surgeon with an appropriate

training in minimal invasive surgery. Total laparoscopic hysterectomies take longer operative time and higher cost. However, it offers several benefits such as earlier ambulation, shorter hospital stays, faster recovery time and minimal incisions. This procedure can be offered in patients as the preferable approach with benign pathology of up to 12-week size uterus by a Gynae surgeons who have laparoscopic surgical skills.

Conflicts of Interest

The authors declare no conflict of interest

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