

The Outcome of the Laparoscopic Hysterectomy in Al-Yarmouk Teaching Hospital in 2022–2023

Abdallahman Hammad Turfa, Ibtihal Salim Tawfeeq¹, Sattar Jabbar Kadhim

General and Laparoscopic Surgeon, ¹Gynecological Surgeon (FICMOG), Al-Yarmuk Teaching Hospital, Baghdad, Iraq

Abstract

Background: Hysterectomy is a common gynecological procedure used for various benign conditions like abnormal uterine bleeding, uterine prolapse, and fibroids. Different surgical methods, including vaginal, abdominal, laparoscopic, and robotic-assisted approaches, offer unique advantages and disadvantages. Total laparoscopic hysterectomy (TLH), introduced in 1989, offers benefits like smaller incisions, less blood loss, reduced pain, shorter hospital stays, and faster recovery. **Objectives:** The objective of this study was to evaluate patient outcomes, complications, and satisfaction with laparoscopic hysterectomy surgery. **Patients and Methods:** This cross-sectional study was conducted in Al-Yarmouk Teaching Hospital in Baghdad, General Surgery Department, from August 2022 to August 2023. Twenty-five patients who underwent laparoscopic hysterectomy for benign conditions were included. Patients were carefully assessed, ruling out malignancies through extensive clinical and radiological examinations, ultimately qualifying for the procedure. Data on patients' demographics, comorbidities, previous surgical history, uterine size, indication for hysterectomy, type of procedures performed, and postoperative complications were gathered and subjected to analysis. The follow-up duration extended over 3 months, with assessments done on the 3rd day, 10th day, 1st month, and 3rd month postsurgery. **Results:** The mean age was 51.52 ± 9.47 years. Dysfunctional uterine bleeding was the most common indication (44%), followed by postmenopausal bleeding (32%). Most patients underwent TLH with bilateral salpingo-oophorectomy (BSO) (68%), and the mean operative time was 110 min. Complications were observed in 10 (40%) cases, with common issues being blood transfusion, port-site infection, and bladder injury. Hospitalization lasted 2 days, and postoperative pain reduced gradually over time. Patients who underwent concomitant BSO had significantly higher complications than those with isolated TLH. Postoperative pain levels were comparable between the two groups. **Conclusion:** Laparoscopic hysterectomy is an effective option for treating benign gynecological conditions, offering benefits like improved postoperative pain control and shorter hospital stays. However, the potential for complications, particularly in cases involving additional procedures, is to be considered.

Keywords: Al-Yarmouk Teaching Hospital, complications, laparoscopic hysterectomy, outcome, postoperative pain

INTRODUCTION

The choice of surgical technique for hysterectomy significantly influences postoperative morbidity, and each approach comes with its own set of procedure-specific advantages and disadvantages.^[1] Because of its fewer complications and higher access rates, total laparoscopic hysterectomy (TLH) is the preferred approach over other procedures, such as abdominal hysterectomy.^[2] Compared to abdominal hysterectomy, the vaginal approach is linked to a reduced hospitalization period, faster recovery, and a lower incidence of unspecified infections or febrile episodes.^[3] Moreover, it was shown to exhibit lower complication rates compared to the laparoscopic procedure, but its access is limited in many cases.^[4] For instance, the vaginal approach poses greater challenges when dealing with

older women experiencing prolapse, as it can be challenging to achieve pelvic access in this specific population.^[5] Laparoscopic hysterectomy was first described and performed by Reich in 1989.^[6] Some of the benefits it offers to patients include smaller surgical incisions, reduced intraoperative blood loss, diminished postoperative pain, shorter hospitalization,

Address for correspondence: Dr. Abdallahman Hammad Turfa, General and laparoscopic Surgeon, Al-Yarmouk Teaching Hospital, Baghdad, Iraq.
E-mail: alaniabdarrahman2023@gmail.com

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and quicker return to regular activities.^[7] In spite of the benefits associated with laparoscopic surgery, laparotomy continues to be the predominant approach utilized for performing hysterectomies globally, particularly in cases involving a large uterus.^[8] Furthermore, a study conducted by the American College of Surgeons reported that there was an increase in the frequency of total abdominal hysterectomies, while the rates of total vaginal hysterectomy and laparoscopic-assisted vaginal hysterectomy witnessed a decline concurrently with the rising body mass index (BMI) among their female participants.^[9]

To the best of the researcher's knowledge, most studies concerning approaches to hysterectomy, particularly laparoscopic hysterectomy, were conducted in developed countries; therefore, the current study was carried out in an attempt to contribute to the body of research that focuses on evaluating patient outcomes, complications, and overall satisfaction with the laparoscopic approach in the context of Iraqi health-care settings.

PATIENTS AND METHODS

This cross-sectional study was conducted in Al-Yarmouk Teaching Hospital – General Surgery Department in Baghdad, spanning from August 2022 to August 2023. The study employed 25 patients who underwent TLH for benign causes. Routine assessments, including thorough patient medical history, comprehensive blood tests, ultrasound, computed tomography scan and magnetic resonance imaging assessments, and biopsy evaluations, were conducted to exclude the presence of any malignant conditions.

All laparoscopic surgeries were conducted by two laparoscopic surgeons and one gynecologist. The procedure was done after inducing general anesthesia by placing the patient in the lithotomy position, with the legs spread apart with small flexion at the hip joint (to obtain lateral movements during surgery). The following steps were followed during hysterectomy, using different types of uterine manipulators: coagulation of the upper pedicles, opening of vesicoperitoneal folds, skeletonization of the uterine vessels, coagulation of the vessels by the LigaSure sealing device, colpotomy, followed by specimen retrieval vaginally. For keeping the pneumoperitoneum, vaginal occlusion was done. The vaginal vault was closed by continuous intracorporeal suturing with 3/0 or 2/0 Vicryl Suture.

Following surgery, patients were discharged on the next day following the operation if they were deemed medically suitable for discharge. Data on patient age, BMI, comorbidities, previous surgical history, uterine size, indication for hysterectomy, any concurrent procedures performed with TLH, and postoperative complications were gathered and subjected to analysis. Postoperative pain, as measured by the Visual Analog Scale (VAS) score, was recorded for each patient in a regular time period. The follow-up duration extended over 3 months, with assessments done on the 3rd day, 10th day, 1st month, and 3rd month postsurgery.

Ethical and scientific approval for the research was obtained from the Scientific Committee at the Department of Surgery, Al-Yarmouk Teaching Hospital. Verbal consent was obtained from all patients before starting data collection and after explaining the aims of the study and assuring confidentiality.

Continuous variables were expressed as means and standard deviations. Categorical variables were expressed as frequency and percentages. Welch's *t*-test (for normally distributed variables) was performed. The difference between categorical variables was investigated using either the Chi-square test with Yates' correction or Fisher's exact test, depending on the context. $P < 0.05$ was considered statistically significant. R software packages (dplyr, gt_summery, and ggplot) were used for data processing, visualization, and statistical analysis ("R version 4.2.2, R Foundation for Statistical Computing, Vienna, Austria.")

RESULTS

A total of 25 patients who underwent laparoscopic hysterectomy were included in the study. The mean age was 51.52 ± 9.47 years with an average BMI of 27.76 kg/m^2 . Regarding comorbidities, the majority of patients (64%) did not present with any comorbid conditions. Hypertension was the most prevalent comorbidity, observed in 24% of patients, while a smaller percentage (8.0%) had both hypertension and diabetes mellitus. In terms of previous surgical history, 64% of patients had no prior surgeries, while 36% had a history of cesarean section. The mean uterus size was $289.85 \pm 129.15 \text{ cm}^3$ as detailed in Table 1.

The most common indication for TLH was dysfunctional uterine bleeding (DUB), accounting for 44% of cases. Postmenopausal bleeding was the second-most prevalent indication, seen in 32% of patients, followed by fibroids (12%), uterine Mass (8.0%), and uterine prolapse (4.0%).

In Table 2, in terms of the type of surgical procedure performed, TLH combined with bilateral salpingo-oophorectomy (BSO) was the predominant approach, constituting 68% of cases.

The mean operative time for TLH procedures was 110 ± 16.8 min. Complications following TLH were observed

Table 1: Description of patient's characteristics

Characteristic	<i>n</i> = 25
Age (years)	51.52±9.47 (38–70)
BMI (kg/m ²)	27.76±4.63 (20–37)
Comorbidities	
No comorbidities	16 (64)
Hypertension	6 (24)
Hypertension and DM	2 (8.0)
Parkinson's disease	1 (4.0)
Previous surgery	
Negative	16 (64)
C/S	9 (36)
Uterus size (cm ³)	289.85±129.15 (99.84–533.52)

^aMean±SD (range), *n* (%). BMI: Body mass index, DM: Diabetes mellitus, SD: Standard deviation

in 40% of cases, while more than half of patients (60%) did not experience any complications. The most common complications included blood transfusion (20%), port-site infection (16%), and bladder injury (4.0%). Conversion to laparotomy was not required in any of the cases. All patients in the study had a duration of hospitalization of 2 days. Postoperative pain, as measured by the VAS score, decreased over time, with scores of 3.04 ± 1.59 at 3 days postsurgery, 1.20 ± 1.12 at 10 days, 0.60 ± 0.58 at 1 month, and 0.12 ± 0.33 at 3 months, indicating a gradual improvement in pain levels during the postoperative period.

The mean duration of surgery was comparable between those who underwent isolated TLH as opposed to those with additional procedure TLH + BSO (TLH + BSO). A statistically significant difference was observed in the incidence of complications between TLH and TLH + BSO groups ($P = 0.045$). Among patients undergoing TLH, 87.5% had no complications, while 12.5% experienced a bladder injury. In contrast, for those who underwent TLH + BSO, more than half had some complications, 29.4% required blood transfusion and 23.5% had a port-site infection. No statistically significant differences in postoperative pain (as indicated by the VAS score) were found at any of the time points between those who underwent TLH alone and those who had TLH + BSO as illustrated in Table 3.

DISCUSSION

In recent years, laparoscopic hysterectomy has emerged as a promising surgical approach in the field of gynecology, offering potential benefits such as reduced postoperative pain, shorter hospital stays, and faster patient recovery.^[10] While this minimally invasive technique has gained widespread recognition and adoption in many parts of the world that is evident in research from various countries and regions, confirming its applicability across diverse healthcare settings,^[11] its utilization and outcomes within the context of Iraqi hospitals have been relatively understudied.

The current study findings align with those of Salman *et al.*,^[12] who reported menorrhagia in 33.7% and fibroids in 27.7% of cases. Similarly, Ahmed *et al.*^[13] noted that heavy menstrual bleeding and fibroids comprised 40% of indications, suggesting a substantial overlap with our results. Furthermore, Dojki and Bano^[14] observed DUB as the leading indication representing 31% of cases. On the other hand, Ashfaq *et al.*^[13] and Kim *et al.*^[15] reported fibroids as the major indication in 54% and 61% of their respective studies, whereas Agarwal *et al.*^[2] found fibroids to be the most prevalent indication in 51% of cases, followed by abnormal uterine bleeding in 28%. In addition, Mereu *et al.*^[16] reported uterine fibroids as the dominant indication in 78.7% of patients, which significantly exceeds the prevalence found in our study. The diverse indications for TLH across these studies underscore the multifaceted nature of patient presentations and the influence of regional or institutional variations.

Table 2: Procedure-related parameters

Characteristic	n=25
Type of surgical procedure	
TLH + BSO	17 (68)
TLH	8 (32)
TLH + RSO	0
TLH + LSO	0
Operative time (min)	110±16.8 (85–150)
Complications	
None	15 (60)
Blood transfusion	5 (20)
Port-site infection	4 (16)
Bladder injury	1 (4.0)
Rate of complications	10 (40)
Duration of hospitalization (days)	
2	25 (100)
Postoperative pain (VAS score)	
3 days	3.04±1.59 (0–7)
10 days	1.20±1.12 (0–4)
1 month	0.60±0.58 (0–2)
3 months	0.12±0.33 (0–1)
<i>p</i> ^b	<0.001

^aMean±SD (range), *n* (%), ^bRepeated-measures ANOVA. TLH: Total laparoscopic hysterectomy, BSO: Bilateral salpingo-oophorectomy, RSO: Right salpingo-oophorectomy, LSO: Left salpingo-oophorectomy, VAS: Visual Analog Scale, SD: Standard deviation

Table 3: Operative time, rate of complications, and postoperative pain in different surgical approaches

Characteristic	TLH (n=8) ^a	TLH + BSO (n=17) ^a	<i>P</i> ^b
Operative time (min)	114±24	108±12	0.408
Complications			
Uncomplicated	7 (87.5)	8 (47.1)	0.055
Complicated	1 (12.5)	9 (52.9)	
Blood transfusion	0	5 (29.4)	
Port-site infection	0	4 (23.5)	
Bladder injury	1 (12.5)	0	
Postoperative pain (VAS score)			
3 days	3.0±1.5	3.1±1.7	0.888
10 days	1.3±1.4	1.4±1.2	0.885
1 month	0.4±0.5	0.7±0.6	0.233
3 months	0.1±0.4	0.1±0.3	0.945

^a*n* (%); mean±SD, ^bFisher's exact test, Welch's two-sample *t*-test. TLH: Total laparoscopic hysterectomy, BSO: Bilateral salpingo-oophorectomy, VAS: Visual Analog Scale, SD: Standard deviation

In this study, TLH combined with BSO was the dominant approach, comprising 68% of cases, while 32% of patients underwent TLH alone. This is in agreement with Mereu *et al.*^[16] and Bonilla *et al.*,^[17] where TLH + BSO was the most commonly performed procedure, accounting for 58.4% and 65% of cases, respectively. Ng *et al.*^[18] reported a nearly equal distribution between TLH (50.6%) and TLH + BSO (47.6%). In contrast, Ashfaq *et al.*^[19] reported a higher proportion of isolated TLH in 62% of cases, while TLH + BSO was

performed in 24% of patients. These discrepancies in the choice of surgical procedure may be influenced by factors such as patient demographics, indications, and clinical preferences. Differences in the distribution of surgical techniques may also reflect regional variations in clinical practice.

The mean operative time for TLH was 110 ± 16.8 min. This closely aligns with the duration reported by Mereu *et al.*^[16] of 113 ± 36 min. A slightly longer mean surgery duration of 124.26 ± 44.74 min was mentioned by Ashfaq *et al.*^[19] Kim *et al.*,^[15] on the other hand, reported a longer mean operative time of 149.3 ± 59.5 min. The variations in operative times may be attributed to several factors, including surgeon experience, patient complexity, and variations in surgical techniques. It is worth noting that Salman *et al.* suggested that shorter durations could be achieved with increased team experience, a point that was also evaluated by Agarwal *et al.* who examined the learning curve over 3 years of experience, showing that the operative time was getting shorter with each successive year.

Complications following TLH were observed in 40% of cases in the current study, while 60% of patients did not experience any complications. The most common complications included blood transfusion (20%), port-site infection (16%), and bladder injury (4.0%), and no conversion to laparotomy was required. Nevertheless, the overall complication rate was noticed to be lower in many other studies. Ashfaq *et al.*^[19] reported a complication rate of 10%, with ureteric injury occurring in 2% of patients and port-site infections in 4%, with none of their patients requiring conversions to laparotomy. Mereu *et al.*^[16] and Ahmed *et al.*^[13] reported similarly low rates of intra- and postoperative complications. Although to a lower rate than that in the current study, significant bleeding requiring blood transfusion was reported by Morelli *et al.*^[20] and Ng *et al.*^[18] While Kim *et al.*^[15] reported an overall complication rate of 9%, up to 5% of their patients required conversion to laparotomy. Salman *et al.*^[12] mentioned that 6% of their patients ultimately underwent laparotomy due to difficult manipulation or uncontrolled intraoperative bleeding. Mäkinen *et al.*^[21] concluded that surgeons who had performed more than 30 laparoscopic hysterectomies had a significantly lower incidence of certain complications, like ureteric and bladder injuries, highlighting the value of the surgeon's experience in the context of laparoscopic hysterectomy. It is worth noting that although the overall complication rate is higher in the current study than that observed by other authors, the greatest proportion of those complications were easy to manage with simple blood transfusion or antibiotic medications as in the case of port-site infection. On the other hand, some authors like Salman *et al.*^[12] and Kim *et al.*^[15] had major complications that necessitated conversion to laparotomy. Therefore, it is reasonable to consider the specific type of complications rather than the overall rate when comparing the studies.

In the current study, all patients had a postoperative hospital stay of 2 days. This is identical to the studies by Ashfaq

et al.,^[19] Ng *et al.*,^[18] and Morelli *et al.*^[20] Ahmed *et al.*^[13] as well reported that 90% of patients stayed for <48 h. In contrast, Kim *et al.*^[15] reported a mean hospitalization duration of 5.5 days. Such variations might be attributed to factors such as postoperative care protocols, health-care infrastructure, and surgeon preferences.

A progressive decrease in the VAS scores was observed over time, indicating a gradual improvement in pain levels during the postoperative period. At 3 days postsurgery, the VAS score was 3.04 ± 1.59 , which further reduced to 1.20 ± 1.12 at 10 days, 0.60 ± 0.58 at 1 month, and 0.12 ± 0.33 at 3 months. Donnez *et al.*^[22] reported a mean VAS score of <4 assessed 1 h after surgery; the score then dropped to <2 by 4 h after surgery and was maintained throughout the 1st day of recovery. This further supports a good overall pain profile following the laparoscopic approach for hysterectomy.

The mean duration of surgery was comparable between those who had isolated TLH and those who had TLH + BSO. However, a significant difference in the incidence of complications was observed between these two groups, favoring TLH over TLH + BSO. While 87.5%, of those who underwent TLH experienced no complications. More than half of those who had TLH + BSO experienced some complications. Ashfaq *et al.*^[19] reported similar findings regarding the mean surgery time, indicating no significant difference between TLH alone and TLH with concurrent procedures. This was not the case with Bonilla *et al.*^[17] who concluded that the type of surgical procedure would have no significant association with the rate of complications. Further research is encouraged to evaluate the presence of such an association that might help in estimating and controlling the complications associated with TLH.

Although the current study has provided valuable insights into the outcome related to the laparoscopic approach to total hysterectomy, particularly among the Iraqi population, it is essential to acknowledge some limitations that may affect the interpretation of the findings. Those may include the small sample size as well as being a single-center study that may limit the generalizability of the results.

CONCLUSION

Laparoscopic hysterectomy is utilized for treating benign gynecological conditions such as dysfunctional and postmenopausal uterine bleeding and fibroids, offering benefits like improved postoperative pain management, shorter hospital stays, and quicker recovery. However, caution is warranted due to notable complication rates, especially in cases involving additional procedures like BSO.

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Conflicts of interest

There are no conflicts of interest.

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