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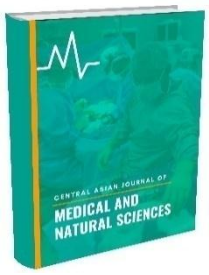

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Role of Laparoscopic Surgery in the Treatment of Uterine Fibroids

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Abstract: Background: With a lifetime prevalence of around 30%, uterine fibroids are the most common type of tumours in women.

Objective: To evaluate the outcomes of laparoscopic surgery for uterine fibroids.

Patients and methods: Data was presented baseline clinical characteristics of patients who underwent laparoscopic myomectomy between 16th July 2022 and 24th October 2023 and where enrolled in a cross-sectional study to investigate laparoscopic surgery effect in the treatment of uterine fibroids, which include 75 cases with age range (25-40) years. Our study was conducted to determine the distribution of clinical outcomes for patients with uterine fibroids, which include age, BMI, and symptoms.

Results and discussion: Our study showed that the rate of uterine fibroids in patients with age (33-40) years got 44% where; this percentage was considered greater in comparison with patients' lower hat 30 years. According to BMI results, our study noticed that the rate of patients who have BMI >27.5 was 60%, which patients with BMI <27.5 was 40%. Our study found that 27% of patients were affected by heavy or prolonged menstrual periods, while 18.67% experienced pelvic pain. To further analyse the outcomes, we determined the size, number, and type of fibroids. Patients with fibroids less than 30mm in size accounted for half of the total patient

percentage, and 70% of patients had less than three myomata. In 67% of all cases and based on clinical outcomes, intramural was the most prevalent type of fibroid among patients with uterine fibroids, with 52% of total cases. Additionally, the duration of surgery and the corresponding decrease in haemoglobin levels, as well as the estimated blood loss rate (114.6±43.2), were used to assess surgical outcomes. These parameters contributed to a postoperative hospitalization period of 3.2±1.8 days.

Conclusion: Laparoscopic surgery is a feasible treatment for uterine fibroids among Iraqi women. Our study discovered benefits, including decreased blood loss and shorter hospital stays.

Key words: Laparoscopic surgery; uterine Fibroids; infertility; and myomectomy.

Introduction

Laparoscopic surgery, also referred to as minimally invasive surgery, has been found useful in treating uterine fibroids [1]. Uterine fibroids are noncancerous growths that arise in the uterus and can cause symptoms such as heavy menstrual bleeding, pelvic pain, and pressure on the bladder or rectum [2]. Moreover, laparoscopic surgery for uterine fibroids entails creating small incisions in the abdomen and inserting a laparoscope. The laparoscope is a flexible tube with a camera attached that permits the surgeon to view the uterus and fibroids on a monitor. Additional small incisions are used to insert other instruments to remove or treat the fibroids. There are some ways in which laparoscopic surgery is used in the treatment of uterine fibroids, which are [3,4]

Myomectomy: Laparoscopic myomectomy entails fibroid removal while conserving the uterus. This operation is advisable for women who desire to maintain their fertility or who do not have debilitating symptoms. The fibroids are removed via small incisions utilizing specialized equipment. This technique minimizes scarring and recovery time when compared to traditional open surgery.

Hysterectomy: In instances where fibroids are extensive, numerous, or causing severe symptoms, medical professionals may suggest laparoscopic hysterectomy. This surgical procedure entails removing the uterus and, in some cases, the cervix, where laparoscopic hysterectomy has more features in comparison with methods of traditional hysterectomy in terms of smaller incisions, minimal pain, shorter hospital stays, and faster recovery times. [5-10]

Therefore, as a non-surgical technique for treating fibroids, laparoscopic surgery can be combined with uterine artery embolisation. UAE blocks the blood supply to the fibroids, leading to their shrinkage. Laparoscopy facilitates the placement of catheters into the uterine arteries, thereby enabling the fibroids' precise embolization [11,12]. Radiofrequency ablation: This laparoscopic

procedure entails applying radiofrequency energy to heat and eliminate the fibroid tissue. It is a less invasive option to surgical removal. [13]

Overall, laparoscopic surgery provides various benefits for the treatment of uterine fibroids. These advantages comprise smaller incisions, fewer scars, decreased bleeding, shorter hospital stays, and faster recovery periods compared to conventional open surgery [14,15]. This paper was contributed to assess outcomes of laparoscopic surgery in the treatment of uterine fibroids.

Patients and methods

Data was presented baseline clinical characteristics of patients who underwent laparoscopic myomectomy between 16th July 2022 and 24th October 2023 and where enrolled in a cross-sectional study to investigate laparoscopic surgery effect in the treatment of uterine fibroids, which include 75 cases with age range (25-40) years. Our study was conducted to determine the distribution of clinical outcomes for patients with uterine fibroids, which include age, BMI, and symptoms.

To build the methodology, our study analysed the distribution of clinical outcomes for patients with uterine fibroids, including age, BMI, and symptoms. Moreover, our study was determined the quantity of patients who have undergone laparoscopic myomectomy by categorising them according to the size, number, and type of fibroids, as well as their main complaints, where types included intramural, subserous, combined, and cervical. Clinical outcomes were also categorised according to the size of fibroids (mm), which included < 30, 31-60, and > 60, and the number of fibroids, which included < 3 and ≥ 3. Our data defined patients who discussed their main complaints, which included abnormal uterine bleeding, pain, infertility, and abdominal mass. According to anaesthesia, clinical data outcomes for patients who underwent laparoscopic myomectomy were classified into general anaesthesia and local anaesthesia in terms of the anaesthesia used during surgery.

In the course of outcome development, laparoscopic myomectomy was performed for 135.1 minutes, where haemoglobin drop, blood loss, and postoperative hospital stay were measured. Our study registered an assessment of the quality of life and function after laparoscopic surgery in women with symptomatic myomectomy with the following inclusion criteria which are FSFI, EQ-5D, and VAS.

Our study analysed the postoperative quality of life based on FSFI to assess the sexual function of women where inclusion criteria included (sexual desire, sexual arousal, lubrication, orgasm, satisfaction, and pain) while EQ-5D measured the postoperative psychological status of women in terms of pain, depression, and anxiety. Because of its flexibility in practical application, the VAS score was used to assess health-related quality of life in patients with uterine fibroids.

Results

Table 1*: Baseline characteristics of patients with uterine fibroids.*

Variables	***Number of patients (75)***	***Percentage (%)***
Age	**N (%)**	**N (%)**
25-29	18	24%

30-34	24	32%
35-40	33	44%
BMI	**N (%)**	**N (%)**
< 27.5	30	40%
> 27.5	45	60%
Symptoms	**N (%)**	**N (%)**
Heavy or prolonged menstrual periods	20	26.67%
Difficulty emptying the bladder	9	12%
Pelvic pain	14	18.67%
Frequent urination	10	13.33%
Backache pain	9	12%
Enlarged abdomen	7	9.33%
Pain during sexual intercourse	6	8%
Education level	**N (%)**	**N (%)**
Primary school	13	17.33%
Secondary School	27	36%
Graduated	35	46.67%

Table 2: *Determine the quantity of patients who have undergone laparoscopic myomectomy by categorising them according to the size, number, and type of fibroids, as well as their chief complaints.*

Variables	**Number of patients (75)**	**Percentage (%)**
Types of fibroids		
Intramural	39	52%
Subserous	20	26.67%
Combined	10	13.33%

Cervical	6	8%
Size of myomata (mm)		
< 30	40	53.33%
31-60	20	26.67%
> 60	15	20%
Number of myomata		
< 3	53	70.67%
≥ 3	22	29.33%
Chief complaints		
Abnormal uterine bleeding	38	50.67%
Pain	18	24%
Infertility	12	16%
Mass abdomen	7	9.33%
Types of anaesthesia		
General anaesthesia	57	76%
Local anaesthesia	18	24%

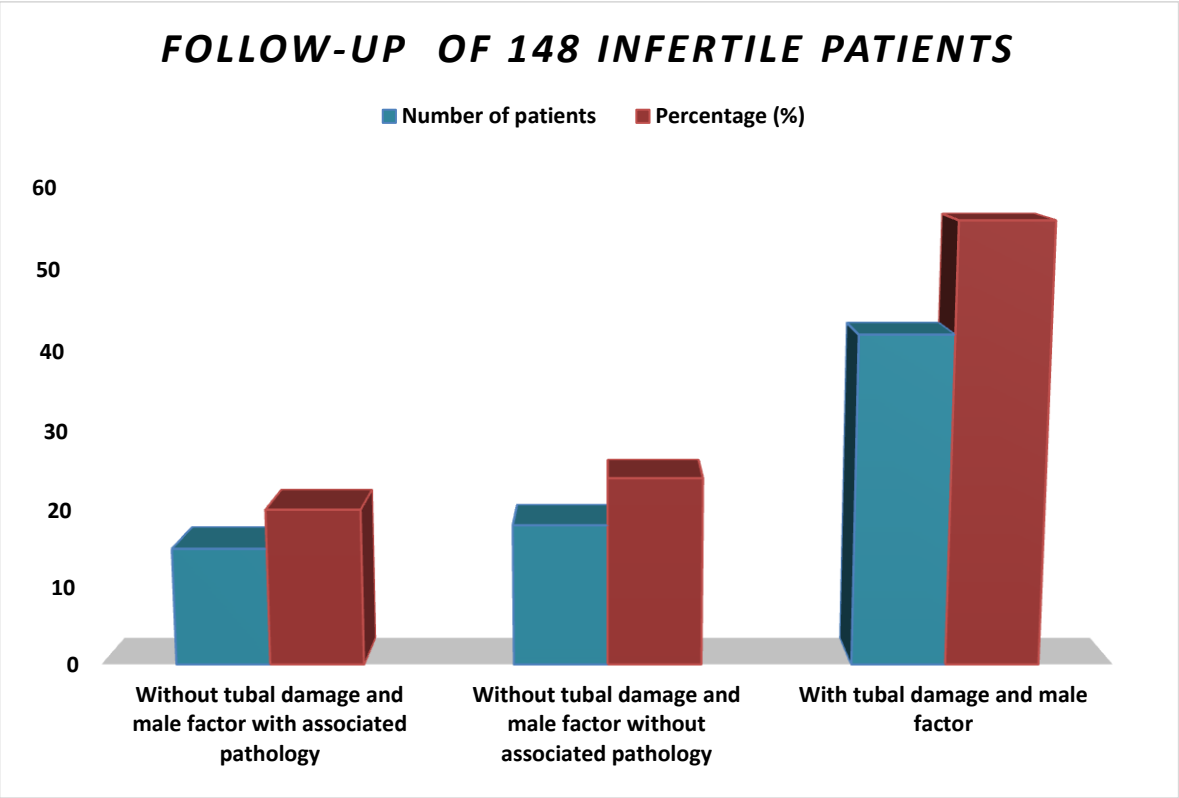

***Figure 1**: Follow-up of 148 infertile patients with undergone laparoscopic myomectomy more than 30 mm.*

***Table 3**: Surgical outcomes of patients with laparoscopic myomectomy.*

Surgical outcomes	***Mean***	***SD***
Duration of surgery (minutes)	*111.5*	*23.6*
Hemoglobin drop (g/dl)	*0.7*	*0.4*
Postoperative hospitalization (days)	*3.2*	*1.8*
Estimated blood loss (mL)	*114.6*	*43.2*

***Table 4:** Quality of life and function after laparoscopic surgery in women with symptomatic myomectomy.*

Scores	***Preoperative***	***Postoperative***

FSFI	*23.4 [6.1-36.2]*	*26.73 [12.4-36.5]*
EQ-5D	*0.4 [0-1]*	*0.74 [0-1]*
VAS	*75.6 [10-100]*	*84.2 [10-100]*

Discussion

Our study was interested in the role of laparoscopic surgery in the treatment of uterine fibroids in terms of baseline characteristics parameters that include age, BMI, types of fibroids, size of myomas, and number of myomas. Our study showed that the rate of uterine fibroids in patients with age (33-40) years got 44% where this percentage was considered greater in comparison with patients' lower hat 30 years. According to BMI results, our study noticed that the rate of patients who have BMI >27.5 was 60%, which patients with BMI <27.5 was 40%.

Our study found that 27% of patients were affected by heavy or prolonged menstrual periods, while 18.67% experienced pelvic pain. Furthermore, 8% of patients reported experiencing pain during sexual intercourse. To further analyse the outcomes, we determined the size, number, and type of fibroids. Patients with fibroids less than 30mm in size accounted for half of the total patient percentage, and 70% of patients had less than three myomata. In 67% of all cases and based on clinical outcomes, intramural was the most prevalent type of fibroid among patients with uterine fibroids, with 52% of total cases. We also classified patients into types of anaesthesia and found that general anaesthesia was more commonly used than local anaesthesia, with 76% of patients receiving general anaesthesia and 24% receiving local anaesthesia. Additionally, the duration of surgery and the corresponding decrease in haemoglobin levels, as well as the estimated blood loss rate (114.6±43.2), were used to assess surgical outcomes. These parameters contributed to a postoperative hospitalization period of 3.2±1.8 days.

From 2010 to 2021, studies discussed the success rate of laparoscopic myomectomy for uterine fibroids [16]. Laparoscopic myomectomy has effective obstetric outcomes, and the study reported a 50% case rate of pregnancies where laparoscopic myomectomy was performed [17]. Furthermore, other studies indicated that laparoscopic myomectomy was successful in reducing rates of trauma and bleeding, as well as minimizing complications. However, the laparoscopic myomectomy procedure carries certain risks related to anaesthesia during surgery for uterine fibroids, including extended anaesthesia time [18]. Additionally, the studies have shown that regional anaesthesia is the preferred mode of anaesthesia for fibroid surgeries, with a sustained increase in the use of combined spinal epidural anaesthesia and a sustained decrease in the use of general anaesthesia [19,20].

Quality of life was assessed following previous research guidelines using the FSFI, EQ-5D, and VAS. Our results demonstrate a significant increase in postoperative FSFI domain scores compared to preoperative values [21]. In French studies [22], no significant increase was observed in those with normal preoperative FSFI scores when compared to postoperative FSFI and EQ-5D outcomes. [23] A 2018 study found that individuals receiving treatment for lower abdominal pain had the lowest preoperative FSFI scores and the greatest increase in FSFI values compared to patients receiving

treatment for other conditions. Patients with preoperative FSFI scores and those receiving treatment for abnormal uterine hemorrhage and infertility also experienced reduced preoperative sexual function. [24]

Conclusion

Our study revealed that laparoscopic surgery is an effective treatment for uterine fibroids in Iraqi women. The success rate of laparoscopic myomectomy was presented, indicating a lower rate of trauma, shorter operative time, less bleeding, and quicker recovery. As a result, our study confirmed that laparoscopic surgery is a safe, reliable treatment with low mortality rates and prompt recovery.

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