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Endoscopic Techniques and Minilaparotomy for Tubal Sterilization

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Abstract **Original Research Article**

Background: In recent times expert surgeons and medical technology companies advertise and promote laparoscopic surgeries as modern and safe alternatives to laparotomy. ***Objective:*** In this study our main goal is to evaluate the efficacy between Mini-Laparotomic and Laparoscopic Surgery for Tubal Ligation**.** ***Method:*** This retrospective study was conducted at Mohammadpur fertility services & Training center between January 2018 and January 2019. Informed consent was obtained from all patients. In total of 41 women, 18 in the laparoscopy and 23in the mini laparotomic surgery group participated in the study. ***Results:*** During the study, where in both minilaparotomy and Laparoscopic group majority were belonging to >35-40 years age group, 52.17% and 50%. In addition, majority were belonged to multiparas (P>2) in both groups. However, in Minilaparatomy group majority cases duration of operation was >20-25min whereas laparoscopic group need less time, 15-20 min most, 55.55%. Moreover, longer hospital staying period notice in minilaparotomy cases, 21.74% where as in laparoscopic cases it was 11.11%. Besides that, secondary infection only seen in minilaparotomy group, 4.34%. ***Conclusion:*** Apart from some technical disadvantages, according to our results laparoscopic surgery seems a safe and feasible alternative to mini laparotomy for surgical tubal sterilization**.**

Keywords: Mini laparotomic surgery, laparoscopy, tubal sterilization.

INTRODUCTION

Tubal ligation also known as having your fallopian tubes tied or tubal sterilization — is a type of permanent birth control. During tubal ligation, the fallopian tubes are cut, tied or blocked to permanently prevent pregnancy.

Tubal ligation prevents an egg from traveling from the ovaries through the fallopian tubes and blocks sperm from traveling up the fallopian tubes to the egg. The procedure doesn't affect your menstrual cycle.

Tubal ligation can be done at any time, including after childbirth or in combination with another abdominal surgery, such as a C-section [1-3].

Laparoscopic surgery is minimally invasive surgery that is as-sociated with several advantages over traditional open surgery. Less post-operative pain and disability, a shorter hospital stay, and a quicker recovery period are major advantages that laparoscopic surgery offers when compared with traditional operations. Due to the rapid development of modern laparoscopic surgery, surgeons now have more opportunities to use minimally invasive techniques for almost all kinds of surgeries. Laparoscopic sterilization techniques are highly effective. Depending on how the fallopian tubes are closed, pregnancy rates within 10 years after the procedure range from 18/1000 women to 37/1000 women [1]. Mini laparoscopy is defined as surgery with instruments 2-5mm in diameter, with the only possible exception of using larger diameter optics at the umbilicus [2]. During the last years, several mini-laparoscopic procedures have been successfully performed in various surgical fields [3].

Expert surgeons and medical technology companies advertise and promote single-port laparoscopic surgeries as modern and safe alternatives

to mini laparotomic tubal ligation. However, little scientific evidence supports the proposed advantages of these alternatives, especially in patients with endometriosis.

In this study our main goal is to evaluate the efficacy between Mini-Laparotomic and Laparoscopic Surgery for Tubal Ligation.

OBJECTIVE

- To evaluate the efficacy between Mini-Laparotomic and Laparoscopic Surgery for Tubal Ligation.

METHODOLOGY

This retrospective study was conducted at Mohammadpur fertility services and training Centre, a tertiary centre of family planning between January 2018 and January 2019. Informed consent was obtained from all patients. In total of 41 women, 18 in the laparoscopy and 23in the mini laparotomic surgery group participated in the study. All patients were called to the hospital by telephone for skin scar formation assessment using the patient scale and observer scale (POSAS).

Data entry, quality control and data cleaning had been done following standard method. All data forms and questionnaires had been checked for errors and necessary correction had been made before data entry. Data had been entered using data entry program with built in range and consistency checks (SPSS). The prevalence rate had been determined by simple percentages.

RESULTS

In table-1 shows age distribution of the patients where in both minilaparotomy and Laparoscopic group majority were belonging to >35-40 years age group, 52.17% and 50%. The following table is given below in detail:

Table-1: Age distribution of the patients

Age	Minilaparotomy BLTL, n=23, %	Laparoscopic BLTL, n=18, %
30-35	8, 34.78%	5, 27.78%
>35-40	12, 52.17%	9, 50%
>40-45	3, 13.05%	4, 22.22%

In table-2 shows demographic status of the patients where majority were housewife in both minilaparotomy and laparoscopic group, 52.17% and 50%. Majority were belonged to multiparas more than three children. The following table is given below in detail:

Table-1: Demographic status of the patients

Socioeconomic status	Minilaparotomy BLTL n=23, %	Laparoscopic BLTL, n=18, %
House wife	12, 52.17%	9, 50%
Garments worker	8, 34.78%	2, 11.11%
Other profession	5 13.05%	7, 38.89%
Educational status:	**Minilaparotomy BLTL n=23, %**	**Laparoscopic BLTL, n=18, %**
<ClassV	6, 26.08%	5, 27.78%
>Class V-SSC	8, 34.78%	5, 27.78%
>SSC- Graduate	7, 30.43%	6, 33.33%
Post graduate	2, 8.71%	2, 11.11%
Parity	**Minilaparotomy BLTL n=23, %**	**Laparoscopic BLTL, n=18, %**
Multipara (P-2)	7, 30.44%	3, 16.67%
Multiparas (P>2)	16, 69.56%	15, 83.33%

In table-3 shows duration of operation where in Minilaparatomy group majority cases duration of operation was >20-25min whereas laparoscopic group need less time, 15-20 min most, 55.55%. The following table is given below in detail:

Table-3: Duration of operation

Duration of Operation:	Minilaparotomy BLTL	Laparoscopic BLTL
15-20 min	6, 26.08%	10, 55.55%
>20- 25min	12, 52.17%	5, 27.78%
>25-30 min	5, 21.73%	3, 16.67%

In figure-1 shows per-operative complication status of the patients where in minilaparotomy group, per-operative bleeding was 5 cases, injury in bladder 1 cases and transection of fallopian tube in 1 case whereas in laparoscopic cases per-operative bleeding found in 2 cases, transection of fallopian tube in 2 cases and electrocautery injury 1 cases. The following figure is given below in detail:

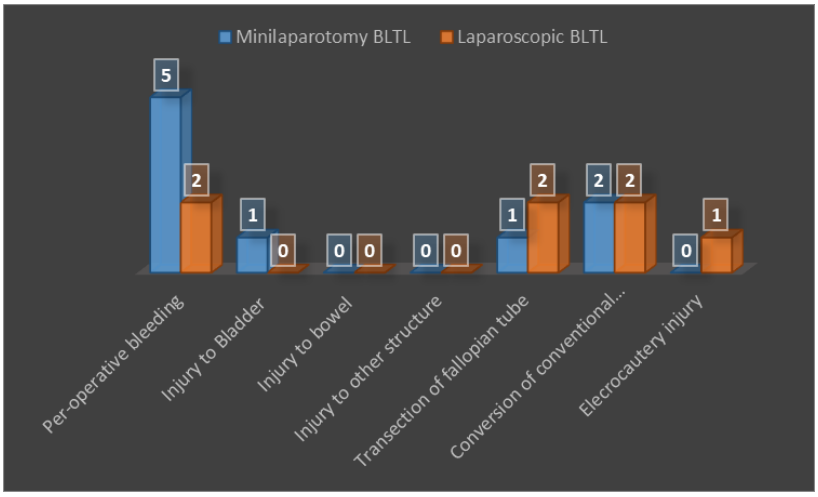

Fig-1: Per-operative complication status of the patients

In table-4 shows post-operative status of the patients where longer hospital staying period notice in minilaparotomy cases, 21.74% where as in laparoscopic cases it was 11.11%. Besides that, secondary infection only seen in minilaparotomy group, 4.34%. The following table is given below in detail:

Table-4: Post-operative status of the patients

Post-operative status	Minilaparotomy BLTL	Laparoscopic BLTL
Longer Hospital stay (> 24 hr)	5, 21.74%	2, 11.11%
Significant difference between Pre and Post-operative Hematocrit level (> 5%)	8, 34.78%	2, 11.11%
Secondary infection	1, 4.34%	0

DISCUSSION

In the literature, there are studies comparing gasless, single-incision, and conventional laparoscopy for surgical sterilization [7, 8]. However, to our knowledge, this study is the first to compare mini-laparoscopic and conventional laparoscopic surgical sterilization. We believe that our study has significance in this regard. One of the main advantages of MLS is the cosmetic result of the surgery. In the setting of general surgery, a meta-analysis has recently shown that mini-laparoscopy holds the advantage of eliciting a reduced level of wound pain compared with conventional laparoscopy, with better cosmetic results and decreased incisional hernia [9]. Ghezziet *et al*. evaluated MLS in terms of hysterectomy and salpingoo pherectomy in different studies and reported that was more advantageous [10, 11]. Fanfani *et al*. reported that fewer ports and smaller port diameter were strongly related with less post-operative pain and requirement for analgesics [11]. Ardovino *et al*. reported no difference in operation time and difficulty in surgery but they had better results regarding postoperative pain and cosmetic results [12]. Although evaluating skin scar formation is challenging because of inadequate objective scales, the majority of studies in the literature demonstrated that cosmetic results were better after using smaller trocar sizes [13, 14]. In the literature, there are studies comparing gasless, single-incision, and conventional laparoscopy for surgical sterilization [7, 8]. However, to our knowledge, this study is the first to compare mini-laparoscopic and conventional laparoscopic surgical sterilization. We believe that our study has significance in this regard. One of the main advantages of MLS is the cosmetic result of the surgery. In the setting of general surgery, a meta-analysis has recently shown that mini-laparoscopy holds the advantage of eliciting a reduced level of wound pain compared with conventional laparoscopy, with better cosmetic results and decreased incisional hernia [9]. Ghezziet *et al*. evaluated MLS in terms of hysterectomy and salpingoo pherectomy in different studies and reported that was more advantageous [10,11]. Fanfani *et al*. reported that fewer portsand smaller port diameter

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In the literature, there are studies comparing gasless, single-incision, and conventional laparoscopy for surgical sterilization [5, 6].

However, according to many studies one of the main advantages of laparoscopic surgery is the cosmetic result of the surgery [7, 8].

In the setting of general surgery, a meta-analysis has recently shown that laparoscopy holds the advantage of eliciting a reduced level of wound pain compared with mini- laparotomy, with better cosmetic results and decreased incisional hernia [9].

Another study evaluated laparoscopy in terms of hysterectomy and salphingoo-pherectomy in different studies and reported that was more advantageous [10]. Other study reported that fewer ports and smaller port diameter were strongly related with less post-operative pain and requirement for analgesics [11].

Whereas another study reported no difference in operation time and difficulty in surgery but they had better results regarding post-operative pain and cosmetic results [12].

Although evaluating skin scar formation is challenging because of inadequate objective scales, the majority of studies in the literature demonstrated that cosmetic results were better after using smaller trocar sizes [13, 14]. Thus according to our study secondary infection only seen in minilaparotomy group, 4.34%, however higher percentage of Pre and Post-operative Hematocrit level difference were seen in minilaparotomy group than laparoscopy.

Besides that, in our study longer hospital staying period notice in minilaparotomy cases, 21.74% where as in laparoscopic cases it was 11.11%. Which was quite similar to other studies where reason can be link with less invasive and uncomplicated procedure performed in laparoscopy than mini-laparotomy [15].

CONCLUSION

Apart from some technical disadvantages, according to our results laparoscopic surgery seems a safe and feasible alternative to mini- laparotomy for surgical tubal sterilization.

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