

ORIGINAL RESEARCH

Analysis of Effectiveness of Fertility Promoting Laparoscopy Surgery: An Institutional Based Study

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ABSTRACT

Background: Infertility is a major cause of morbidity in women with different pelvic pathologies (like fibroid, endometriosis, tubal defects, etc.). The present study was conducted to analyze the effectiveness of fertility promoting laparoscopy surgery.

Materials and Methods: 400 cases of operative laparoscopies were performed for correction of pelvic pathology by single surgical team over a period of 2 year. Routine preoperative investigations, checkup and preparations for laparoscopy were undertaken. Laparoscopic or open myomectomy is to be decided according to situation. The pregnancy outcome following surgical corrections was noted.

Results: A total of 400 cases of laparoscopic surgeries performed in infertile women. It was observed that tubal defects were found in 195 out of 400 cases i.e., 48.75% (minor tubal defects were 65 out of 195 i.e., 16.25% and 130 out of 195 i.e., 32.5% women had major defects). Ovarian pathologies were found in 78 out of 400 (19.5%) women followed by endometriosis which were found in 58 out of 400 (14.5%) infertile women. It was observed that the pregnancy rate after laparoscopic surgery remained 7.69% (5 out of 65) in major tubal defects and 15.39% (20 out of 130) in minor defects. Pregnancy rate after laparoscopic surgery was maximum in women who recovered from adhesions in POD (44.44% i.e., 8 out of 18) followed by women with ovarian pathology (29.48% i.e., 23 out of 78).

Conclusion: The present study concluded that pregnancy rate after laparoscopic surgery was maximum in women who recovered from POD followed by women with ovarian pathology.

Keywords: Infertility, Laparoscopy Surgery, Endometriosis.

INTRODUCTION

Infertility causes an immense psycho-emotional imbalance in many couples. Despite the enormous improvement in reproductive medicine in the past two or more decades, the challenges are still remarkable. Current indices have shown that childbearing age has increased, mostly in developed countries, in the recent past. Some of the causes of the delay

in childbearing age include higher educational pursuits, industrialization, value change, and the increased participation of women in professional fields. Sadly, women in their prime childbearing age (between 25 and 40 years) are the most affected by endometriosis.¹ Laparoscopy was the final diagnostic procedure of the female fertility exploration, as outlined by the American Fertility Society in 1992 and by the World Health Organization guidelines.² Fertility promoting laparoscopic surgery (FPLS) may be divided in the following groups: Surgeries on fallopian tubes, ovaries, uterus and recovery of the pouch of Douglas (POD).³ Currently, laparoscopy is perceived as a minimally invasive surgical technique that both provides a panoramic & magnified view of the pelvic organs and allows surgery at the time of diagnosis. Laparoscopy has become an integral part of gynaecologic surgeries for the diagnosis and treatment of abdominal and pelvic disorders of the female reproductive organs. Endoscopic reproductive surgery intended to improve fertility may include surgery on the uterus, ovaries, pelvic peritoneum, and the Fallopian tubes.⁴ The present study was conducted to analyze the effectiveness of fertility promoting laparoscopy surgery.

MATERIALS AND METHODS

400 cases of operative laparoscopies were performed for correction of pelvic pathology by single surgical team over a period of 2 year. These patients were aged between 26 and 37 years with infertility between 5 and 7 years duration. Informed consents were taken from the patients. Pelvic assessment was performed primarily by manual pelvic examination, followed by transvaginal ultrasonography (TV-USG). Possibility of presence of endometriosis was screened very meticulously. Many had their tubal status assessed by Hysterosalpingography (HSG) or sonosalpingography (SSG) previously, and some of them had diagnostic laparoscopy too. Routine preoperative investigations, checkup and preparations for laparoscopy were undertaken. All procedures were performed under general anesthesia. Video laparoscopy was must. Laparoscopic or open myomectomy is to be decided according to situation. Laparoscopic ovarian drilling (LOD) is a widely discussed procedure and has not been included in this study. The pregnancy outcome following surgical corrections was noted. The results were collected and data was analysed. p value was considered significant if p value <0.01.

RESULTS

A total of 400 cases of laparoscopic surgeries performed in infertile women. It was observed that tubal defects were found in 195 out of 400 cases i.e., 48.75% (minor tubal defects were 65 out of 195 i.e., 16.25% and 130 out of 195 i.e., 32.5% women had major defects). Ovarian pathologies were found in 78 out of 400 (19.5%) women followed by endometriosis which were found in 58 out of 400 (14.5%) infertile women. It was observed that the pregnancy rate after laparoscopic surgery remained 7.69% (5 out of 65) in major tubal defects and 15.39% (20 out of 130) in minor defects. Pregnancy rate after laparoscopic surgery was maximum in women who recovered from adhesions in POD (44.44% i.e., 8 out of 18) followed by women with ovarian pathology (29.48% i.e., 23 out of 78).

P value was found to be significant for major and minor tubal defects, ovarian pathology and Endometriosis III/IV.

Table 1: Common pathologies for FPLS

Nature of pathologies	N(%)
Tubal defects	195(48.75%)
Major	65(16.25%)
Minor	130(32.5%)
Ovarian	78(19.5%)

Uterine fibroid	15(3.75%)
Endometriosis III/IV	58(14.5%)
Adhesion in POD	18(4.5%)
Others	36(9%)
Total	400(100%)

Table 2: Pregnancy outcome following laparoscopic surgery

Laparoscopic surgery		Non-ART pregnancy outcome		p-value
Operation	No.	Pregnancy (non-ART)	%	
Tubal defects	195			
Major	65	5	7.69%	< 0.01
Minor	130	20	15.39%	< 0.01
Ovarian	78	23	29.49%	< 0.01
Uterine fibroid	15	4	26.66%	< 0.02
Endometriosis III/IV	58	14	24.13%	< 0.01
Recovery of POD	18	8	44.44%	< 0.02
Others	36	3	8.33%	< 0.02

DISCUSSION

Operative laparoscopy is an important procedure to achieve pregnancy in infertile women. It is mostly required for the anatomical correction of pelvic organs to remove any mass from pelvis, hindering fertility.³

A total of 400 cases of laparoscopic surgeries performed in infertile women. It was observed that minor tubal defects were found in 32.5% women and 16.25% women had major defects. Ovarian pathologies were found in 19.5% women followed by endometriosis which were found in 14.5% infertile women. The present study found that the pregnancy rate after laparoscopic surgery remained 7.69% (5 out of 65) in major tubal defects and 15.39% (20 out of 130) in minor defects. Pregnancy rate after laparoscopic surgery was maximum in women who recovered from adhesions in POD (44.44% i.e., 8 out of 18) followed by women with ovarian pathology (29.48% i.e., 23 out of 78). However, a higher pregnancy rate after laparoscopic surgery as comparative to our study was reported by Chatterjee Set al³i.e., pregnancy rate following the surgical correction of minor tubal defects, ovarian cyst and uterine fibroids was between 25 and 30%, major tubal defects (5.7%) and severe endometriosis 18.5%.

On the contrary, Parazzini F did not find a pregnancy rate in the resection/ablation group (24%) significantly different from the no treatment group (29%).⁶

Furthermore, in supportive data to success rate of pregnancy rate after laparoscopic surgery, Marcoux et al⁵ did study and found that in the 36 weeks after laparoscopic resection or ablation of endometriosis, the cumulative pregnancy rate was 30.7%, compared with 17.7% in the controls. As a well-designed trial engaging 172 patients, it provided a solid level of evidence supporting surgery for early-stage endometriosis. Another retrospective cohort study by Littman et al⁷ in a series of 29 patients with several failed IVF cycles and endometriosis, a radical treatment of all endometriotic lesions was performed by one very experienced laparoscopic surgeon. After surgery, 22 pregnancies were obtained, including 15 spontaneous pregnancies and 7 pregnancies after repeated IVF treatment.

In another similar study conducted by Bonneau C et al,⁸ laparoscopy revealed pelvic pathology in 95 patients. Endometriosis, pelvic adhesions and tubal disease were observed and treated in 72, 46 and 24 patients, respectively. Following laparoscopy, bilateral and unilateral tubal patencies were observed in 107 and five patients, respectively. Pregnancy was

observed in 77 out of 102 patients who tried to conceive after surgery, 35 of whom conceived using their own tubes. Furthermore, Moayeri SE et al⁹ performed a cost-effectiveness analysis using a computer-generated decision analysis tree and the incremental cost-effectiveness ratio (ICER) was calculated as well as one-way sensitivity analyses assessed the impact of varying base-case estimates and revealed that laparoscopy is cost effective in the initial management of young women with infertility, particularly when infertility treatment dropout rates exceed 9% per cycle.

Thus, as per present study and other available literature, there are potential benefits to routinely performing laparoscopy in infertile women. Firstly, intraoperative findings can guide postsurgical management, circumventing treatments that are of low benefit and costly.¹⁰ Secondly, it is possible to avoid fertility treatments and their direct as well as indirect financial and social costs, such as multiple gestation pregnancy.¹¹ Besides, surgically correcting endometriosis may enhance response to fertility treatments or mitigate the effects of comorbidities such as pelvic pain.^{12,13} Therefore, diagnostic laparoscopy is thus essential in determining the optimal management plan.¹³

CONCLUSION

The present study concluded that pregnancy rate after laparoscopic surgery was maximum in women who recovered from POD followed by women with ovarian pathology.

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