



Research Article

## TREND OF INTRAOPERATIVE COMPLICATIONS DURING LAPAROSCOPIC SURGERY FOR PELVIC ENDOMETRIOSIS AT A PRIVATE SET UP IN NORTH INDIA: A RETROSPECTIVE ANALYSIS OF FOUR YEARS

Preeti Yadav., Rahul Manchanda., Sandhya Deora and Madhumitha A

Department of Obstetrics and Gynaecology, Manchanda Endoscopic Centre, PSRI Hospital, New Delhi, India

### ARTICLE INFO

#### Article History:

Received 14<sup>th</sup> November, 2017

Received in revised form 6<sup>th</sup>

December, 2017

Accepted 18<sup>th</sup> January, 2018

Published online 28<sup>th</sup> February, 2018

#### Key words:

Endometriosis, laparoscopy, Intraoperative

### ABSTRACT

**Background:** Endometriosis is a common chronic disease mostly seen in young women. Endometriosis surgery is associated with a particularly high risk for complications.

**Objectives:** To evaluate complications occurring during laparoscopic surgery for endometriosis

**Methods:** The study was a retrospective observational study of four years done at Manchanda endoscopic centre, PSRI hospital, New Delhi. Inclusion criteria - 119 women who underwent laparoscopic surgical treatment of pelvic endometriosis between October 2013-October 2017 were recruited.

**Results:** 119 patients underwent laparoscopic surgery for pelvic endometriosis during the study period. Mean age and parity were  $29.6 \pm 4.7$  years and  $0.3 \pm 0.92$  respectively. Majority of the patients, 98 (82.35%) presented with complaint of infertility. Dysmenorrhoea was the second most commonly reported complaint, 31(26.05 %). The most commonly done procedure was laparoscopic endometriotic cystectomy, 88 (73.95 %). Only 1 (0.84 %) case had intraoperative complication of complete uterine transection while doing total laparoscopic hysterectomy with bilateral salpingo-oophorectomy. The overall laparoconversion rate was 1/119 (0.84%).

**Conclusion:** The present study concludes that with proper surgical skills and increasing learning curve for laparoscopic surgery for endometriosis, it is possible to decrease the intraoperative complication rate.

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## INTRODUCTION

Endometriosis is a common chronic disease mostly seen in young women. Prevalence of the disease increases in the infertile population. Even though women may be asymptomatic, the most common symptoms are dysmenorrhea, dyspareunia, chronic pelvic pain and infertility. The localization, size, type and amount of the endometriotic lesions are correlated with the severity of the manifestations. Endometriosis surgery may be considered as rather challenging in gynecology. Complications of laparoscopic surgery are in fact fewer than those reported for laparotomy, but their potential severity and the failure to diagnose them quickly and treat them effectively means that the patient can be severely ill before a diagnosis is made, with catastrophic results.<sup>1</sup> Endometriosis surgery is associated with a particularly high risk for complications. Superficial peritoneal disease such as powder burn, sago grain, flame hemorrhages and white scars are frequently found in the ovarian fossae,

along the uterosacral ligaments and in the pouch of Douglas (POD). They overlie the great vessels of the pelvis, the ureter, and possibly the rectum at the peritoneal reflection in the POD. Ovarian involvement may also include the vascular ovarian ligament and the vascular plexus overlying the ureter. Treatment of these areas by ablation, thermocoagulation, or laser vaporization runs the risk of thermal damage to underlying structures causing ischaemic damage, which may not be immediately apparent. More advanced disease and previous surgery lead to marked anatomical distortion. Management of fibrotic nodular rectovaginal endometriosis can lead to large bowel damage, small bowel damage (as small bowel adhesions to this area are not uncommon), ureteric damage and significant hemorrhage. The complication rate after laparoscopic surgery for deeply infiltrating endometriosis is estimated to be 3.4%,<sup>2</sup> rising to 10–22% when colorectal resection is necessary.<sup>3-6</sup> The present study was done with aim to evaluate complications occurring during laparoscopic surgery for endometriosis.

## MATERIALS AND METHODS

The study was a retrospective observational study of four years (2013 - 2017) done at Manchanda endoscopic centre, PSRI

\*Corresponding author: Preeti Yadav

Department of Obstetrics and Gynaecology, Manchanda Endoscopic Centre, PSRI Hospital, New Delhi, India

hospital, New Delhi. The hospital database was reviewed and required data collected. Inclusion criteria - All women who underwent laparoscopic surgical treatment of pelvic endometriosis between October 2013 - October 2017 were recruited.

Diagnosis was initially inferred by clinical history and physical examination. Preoperative imaging assessment included transvaginal ultrasonography and pelvic magnetic resonance imaging (MRI).

An informed written consent was taken before the surgical procedure. Under general anaesthesia, the laparoscopic procedure started. The abdominal and pelvic cavities were inspected for endometriotic lesions. When necessary, extensive adhesiolysis was performed, including releasing the fallopian tubes, the excision of ovarian cysts (endometriomas), and the resection / coagulation / fulguration of all visible superficial peritoneal implants. Sometimes the disease was extensive, and encased the ureters and uterine artery or invaded into the uterosacral ligaments. Dissection started by identifying both ureters in order to be sure that there was no ureteral involvement or by ureterolysis when there was extensive involvement of periureteral tissue. Primary outcome was rate of intraoperative complications. Descriptive data were described as mean ± SD (standard deviation) or number (percentage).

**RESULTS**

119 patients underwent laparoscopic surgery for pelvic endometriosis during the study period.

**Table 1** shows the demographic characteristics of patients undergoing laparoscopic surgery for endometriosis. Mean age and parity were 29.6 ± 4.7 years and 0.3 ± 0.92 respectively. The incidence was highest in the age group 20-40 (91.6 %).

**Table 1** Demographic characteristics of women undergoing laparoscopic surgery for pelvic endometriosis

	Age (N = 119)		Parity (N = 119)		
	No.	%	No.	%	
< 20 yrs	1	0.8	<1	90	75.63
20 – 40 yrs	109	91.6	1-2	26	21.85
> 40 yrs	9	7.6	>2	3	2.52

**Table 2** shows the presenting complaints with which the patients came and needed treatment. Majority of the patients, 98 (82.35%) presented with complaint of infertility. 71 (89.87%) had primary infertility and 8 (10.13 %) had secondary infertility. Dysmenorrhoea was the second most commonly reported complaint, 31(26.05 %). Out of which, 19 (61.29 %) also complained of infertility and 3 (9.7%) had concomitant menorrhagia. Remaining presented with acute pain in abdomen, 7 (5.88%) and lump in lower abdomen, 2 (1.68%).

**Table 2** Presenting complaints before undergoing laparoscopic surgery for pelvic endometriosis

Presenting complaints	No. (N = 119)	%
Infertility	79	66.38
a.primary	71	89.87
b.secondary	8	10.13
Infertility + dysmenorrhoea	19	16.01
Dysmenorrhoea	9	7.56
Acute pain in abdomen	7	5.88
Dysmenorrhoea + menorrhagia	3	2.52
Lump in lower abdomen	2	1.68

**Table 3** shows the laparoscopic procedures done for the patients with pelvic endometriosis. The most commonly done procedure was laparoscopic endometriotic cystectomy, 88 (73.95 %) with adhesiolysis in 61 (51.26%) and additional fulguration in 27 (22.69%) followed by total laparoscopic hysterectomy with bilateral salpingoopherectomy ( TLH + BSO ), 9 (7.56 %).

**Table 3** Laparoscopic surgical procedures done for the patients with pelvic endometriosis

Procedure	No. (N = 119)	%
Endometriotic cystectomy	88	73.95
a.With adhesiolysis	61	51.26
b.With adhesiolysis and fulguration	27	22.69
Total laparoscopic hysterectomy and bilateral salpingoopherectomy	9	7.56
Oopherectomy with adhesiolysis with fulguration	6	5.04
Fulguration and excision of endometriotic patches	6	5.04
Salpingoopherectomy with adhesiolysis with fulguration	4	3.36
Adhesiolysis with fulguration	3	2.36
Adhesiolysis	1	0.84
Fulguration	1	0.84
Cyst drainage and fulguration	1	0.84

**Table 4** shows that out of 119 cases, only 1 (0.84 %) case had intraoperative complication of complete ureteric transection while doing total laparoscopic hysterectomy with bilateral salpingoopherectomy. This required conversion to laparotomy followed by right ureteric reimplantation with DJ stenting. The overall laparoconversion rate was 1/119 (0.84%).

**Table 4** Intraoperative complication rate and laproconversion rate during laparoscopic surgery for pelvic endometriosis

Procedure	Complication	No. (N = 119)	%
Total laparoscopic hysterectomy and bilateral salpingoopherectomy	Complete right ureteric transection	1	0.84
Laproconversion		1	0.84

**DISCUSSION**

In clinical practice, pelvic endometriosis may be seen as superficial implants, adhesions, ovarian cysts or deep infiltrating forms. The localization, size, amount and depth of the lesions identify the surgical strategies for the disease. The aims of the surgery for endometriosis are to demolish all visible implants, restore the pelvic anatomy by adhesiolysis, ovarian cystectomy if necessary, excision of the deep implants, prevent the recurrences, increase the conception rates and finally improve the quality of life. Endometriosis surgery may be considered as rather challenging in gynecology due to the adhesive perplexity of the pelvic structures caused by the impact of endometriosis.

This study was done on 119 cases to evaluate the intraoperative complications during laparoscopic surgery for pelvic endometriosis. In this study, the incidence of endometriosis was highest in the age group 20-40 (91.6 %). Guidice *et al* found that endometriosis is a common chronic disease found in 10% women of reproductive age group.<sup>7</sup> Most of the patients were infertile, 90 (75.63%). In accordance, Peterson *et al* also concluded that infertility history increases the odds of diagnosing endometriosis (AOR, 2.43; 95% CI, 1.57-3.76).<sup>8</sup>

In this study, majority of the patients had infertility before diagnosis, 79 (66.38). Other complaints were dysmenorrhoea 31(26.05 %), acute pain in abdomen, 7 (5.88%), menorrhagia 3 (2.52%) and lump in lower abdomen, 2 (1.68%). Similarly, Koninckx *et al* found that in women with pelvic pain or infertility, there is a high prevalence of endometriosis (from a low of 20% to a high of 90%).<sup>9</sup>

Treatment whether medical or surgical must be individualized, taking into consideration the clinical problem in its entirety, including the impact of the disease and the effect of its treatment on quality of life. In most women with endometriosis, preservation of reproductive function is desirable. Therefore, the least invasive and least expensive approach that is effective should be used. Depending on the severity of disease, diagnosis and removal of endometriosis should be performed simultaneously at the time of surgery provided preoperative consent has been obtained. The goal of surgery is to excise all visible endometriotic lesions and associated adhesions-peritoneal lesions, ovarian cysts, deep rectovaginal endometriosis-and to restore normal anatomy. In most women, laparoscopy can be used and this technique decreases cost, morbidity, and the possibility of recurrence of adhesions postoperatively. In present study, the type of laparoscopic surgical procedure done was individualised taken into consideration age, parity, symptoms/sign, previous medical/surgical history, patient wish and intraoperative findings. Most commonly employed procedure was endometriotic cystectomy with adhesiolysis in 88 (73.95%) and additional fulguration in 27 (22.69%). There are several surgical techniques to treat ovarian endometriomas; ultrasound-guided aspiration, excision or stripping and coagulation or vaporization. USG-guided aspiration may solely be an alternative in cases of patients with contraindication for surgery/anaesthesia and in those who are not willing for surgery. Chan *et al* reported high recurrence rates (60-90%) after USG-guided aspiration.<sup>10</sup> Laparoscopic drainage and coagulation/vaporization technique may be another alternative; however, there is an increased recurrence rate of endometrioma and has a disadvantage in terms of conceiving when compared with excision methods as found by Hart *et al* in their study.<sup>11</sup> In this study, only 1 (0.84%) patient had undergone cyst drainage and 4 (3.36%) had fulguration. Laparoscopic cystectomy still remains the first-line therapy for ovarian endometriomas.<sup>12</sup>

The overall intraoperative complication rate in our study was 1/119 (0.84%). The complication occurred was complete right ureteric transection while doing ureterolysis by harmonic scalpel in ureteric tunnel in a case of severe endometriosis. The injury was identified intraoperatively. Laparotomy was done followed by ureteric implantation with DJ stenting. Her postoperative period and follow up at 6 months was uneventful. Kondo *et al* had 2.1% overall intraoperative complication rate and 2/560 (0.36%) cases of ureteric injury.<sup>13</sup> One lesion was repaired by laparoscopic suturing and placement of a DJ catheter and the other was managed by laparoscopic ureteral reimplantation. Rozsnyai *et al* reported surgical complications after removal of ureteral and bladder endometriosis.<sup>14</sup> They have reported four complications in 16 women treated for ureteral endometriosis and two complications in 15 women treated for bladder endometriosis. Urinary tract endometriosis may be found in 6% of women

presenting with pelvic endometriosis. Either ureters or bladder may be involved.<sup>15</sup> For ureteral lesions; ureterolysis, ureteral resection and end-to-end anastomosis or ureterocystostomy are considerable. Ureteral involvement is usually secondary to uterosacral or rectovaginal spread of DIE.

## CONCLUSION

The present study conclude that with proper surgical skills and increasing learning curve for laparoscopic surgery for endometriosis, it is possible to decrease the intraoperative complication rate. In case of complication, every possible effort should be made to identify and treat it intraoperatively. In scenario of major complication, the patient should be managed by specialised multidisciplinary teams.

## Acknowledgements

Not Applicable

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**How to cite this article:**

Preeti Yadav *et al* (2018) 'Trend of Intraoperative Complications During Laparoscopic Surgery for Pelvic Endometriosis At A Private Set Up In North India: A Retrospective Analysis of Four Years', *International Journal of Current Advanced Research*, 07(2), pp. 10014-10017. DOI: <http://dx.doi.org/10.24327/ijcar.2018.10017.1677>

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