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Original Research Article

Laparoscopic assisted vaginal hysterectomy: an experience at a Fortis Escorts hospital

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ABSTRACT

Background: The objective of this study was to evaluate the laparoscopic assisted vaginal hysterectomy (LAVH) in terms of demographic data of patients, indications, uterine size, intraoperative and postoperative complications, amount of blood loss, operative time and duration of hospital stay.

Methods: A retrospective study was conducted on 160 cases, who underwent laparoscopic assisted vaginal hysterectomy in the period between October 2018 to November 2019 at the Fortis Escorts Hospital, Faridabad, Haryana, India.

Results: Majority of patients (58.75%) belongs to age group between 40-50 year. Only 30.62% cases had a history of one previous abdomino-pelvic surgery. Majority of cases (52.5%) in the study group had uterine size between 6-12 weeks. Most common indication of hysterectomy in this study was fibroid uterus which account for 49.37% of cases followed by dysfunctional uterine bleeding (16.87%) cases. Mean time of surgery in this study was 114.4±0.59 min and average blood loss was 135.62±47.63 ml. The mean weight of uterus was 243.75±82.94 gm. 5% cases had major intraoperative complications while minor postoperative complications were seen in 16.87% cases. Bladder injury was seen in 1.25%. Major haemorrhage occur in 1.25%. In this study conversion to laparotomy rate was 1.25%. Only one case of ureteric injury and one case of bowel injury was noted. Among minor complications fever (6.25%) and urinary tract infection (5.62%) were mainly seen. Mean duration of hospital stay was 2.82±1.17 days.

Conclusions: LAVH enables the surgeon to convert most of the abdominal hysterectomies into vaginal ones and hence decreases postoperative pain, decreases complications, lesser duration of hospital stay and rapid return to normal activity.

Keywords: Hysterectomy, Laparoscopic assisted vaginal hysterectomy, Haemorrhage

INTRODUCTION

Hysterectomy is the most commonly performed major gynaecological surgical procedure. Benign diseases are responsible for more than 70% indications for hysterectomy and include menstrual disorders, myomas, pelvic pain, and uterine prolapsed.¹ Hysterectomy can be performed via 3 routes: open abdominal, vaginal and laparoscopic, but yet there are controversies regarding the optimum route for the procedure.²

In 1989, first total laparoscopic hysterectomy (TLH) was performed and published by Reich et al.³

The advantages of laparoscopic hysterectomy over abdominal hysterectomy have been reported to be less postoperative pain, shorter hospital stay and more rapid return to normal activities and work.^{3,4}

Laparoscopically assisted vaginal hysterectomy (LAVH) was introduced to overcome the technical difficulties of

vaginal hysterectomy in case of large uterine size, fixation of the uterus by adhesions, previous pelvic surgery, endometriosis, restricted uterine mobility and adnexal pathology.^{5,6} In addition, it allows one to combine this surgery with other indicated laparoscopic procedures like appendectomy, cholecystectomy, herniorrhaphy etc. Also, the gynaecologist is able to examine the pelvis thoroughly after completion of surgery to ensure complete haemostasis.

The main aim of laparoscopically assisted vaginal hysterectomy (LAVH) is to enable the surgeon to overcome as many as possible from these contraindications, and hence converting most of the abdominal hysterectomies into vaginal ones.

METHODS

This is a retrospective observational study of 160 cases, who underwent laparoscopic assisted vaginal hysterectomy in the period between October 2018 to November 2019 at the Fortis Escorts Hospital, Faridabad, Haryana, India.

Inclusion criteria

In this study, authors included all patients who required hysterectomy for benign conditions.

Exclusion criteria

In this exclusion criteria, patients with lesions which were either proven or suspicious to be malignant and patients who are candidate for vaginal hysterectomy i.e., having uterine prolapsed.

The LAVH procedure, with its advantages and possible complications, was explained to the patient in the office before deciding on surgery. Detailed demographic details were recorded.

Under general anesthesia, pneumoperitoneum was established. A 10 mm laparoscope with a Storz endovision camera was inserted in a sub umbilical position. The secondary 5-mm punctures were made, one suprapubic and the other two in both iliac fossae or in both hypochondria regions if the uterus is more than 12 weeks size.

Initial careful inspection of abdomen and pelvis done. If there were adhesions, lysis was done. Round ligaments were coagulated, then cut. Similarly, infundibulopelvic and broad ligaments also coagulated and cut. Vesicouterine peritoneum was dissected and the bladder was displaced inferiorly. Using unipolar hook/scissors, posterior fornix was entered. Anterior fornix was routinely opened vaginally. Bilateral uterine arteries were routinely dealt via vaginal route. Remainder of the surgery was completed vaginally and vaginal cuff closed by interrupted vicryl number 1 sutures. After closing the vaginal cuff, a pneumoperitoneum was recreated to confirm hemostasis. The patients were discharge after 48-72 hours. Follow-up visit done after one and six weeks of surgery.

Statistical analysis

Statistical analysis was done through Microsoft excel. Descriptive analysis done in which for continuous variables, mean and standard deviation (SD) were calculated and for categorical variables, percentages were calculated.

RESULTS

Table 1 shows majority of patients (58.75%) belongs to age group between 40-50 year. Out of 160 cases, only 7 cases (4.37%) were nulliparous while 95.63% cases were parous and majority of cases (54.37%) had no history of previous surgery. And 30.62% cases had a history of one previous abdomino-pelvic surgery.

Table 1: Demography.

Age	No. of cases N=160	%	Parity	No. of cases N=160	%	H/o of previous surgery	No. of cases N=160	%
30-40	36	22.5	Null	7	4.37	0	87	54.37
40-50	94	58.75	Para-1	32	20.0	1	49	30.62
50-60	26	16.25	Para-2	50	31.25	2	16	10.0
>60	4	2.5	>para-2	71	44.37	>2	8	5

Table 2: Size of the uterus and hysterectomy.

Size of uterus	No. of cases (N=160)	%
Normal	8	5
Bulky (up to 6 weeks)	22	13.75
6-12 weeks	84	52.5
12-16 weeks	34	21.25
>16 weeks	12	7.5

Table 3: Indications of hysterectomy.

Indications	No. of cases (N=160)	%
Fibroid	79	49.37
Dysfunctional uterine bleeding	27	16.87
Adenomyosis	15	9.37
Postmenopausal bleeding	11	6.87
Endometriosis	10	6.25
Ovarian mass	5	3.12
Cervical dysplasia	5	3.12
Tuboovarian mass	3	1.87
Prolapse	3	1.87
Chronic pelvic pain	2	1.25

Table 2 shows majority of cases (52.5%) in the study group had uterine size of 6-12 weeks. Only 7.5% cases were beyond 16 weeks of uterine size. Table 3 shows most common indication of hysterectomy in this study was fibroid uterus which account for 49.37% of cases

Table 5: Intraoperative events.

Duration of surgery	No. of cases (N=160)	%	Amount of blood loss	No. of cases (N=160)	%
<1 hour	65	40.62	<100 ml	26	16.25
1-2 hours	89	55.62	100-150 ml	71	44.37
2-3 hours	4	2.5	150-200 ml	53	33.12
>3 hours	2	1.25	>200 ml	10	6.25
Mean time	114.4±0.59 min		Average blood loss	135.62±47.63 ml	

Table 6: Weight of uterus.

Weight of uterus	No. of cases (N=160)	%
<100 gm	5	3.12
100-200 gm	36	22.5
200-300 gm	92	57.5
300-400 gm	18	11.25
>400 gm	9	5.62
Mean weight of uterus	243.75±82.94 gm	

Table 5 shows mean time of surgery in this study was 114.4±0.59 min and average blood loss was 135.62±47.63 ml.

Table 6 shows the mean weight of uterus was 243.75±82.94 gm. 5.6% cases had uterus weight >400 gm.

Table 7 shows 35 cases (21.8%) had complication peri-operatively. 5% cases had major intraoperative complications while minor postoperative complications were seen in 16.87% cases. Bladder injury noted in 2 cases (1.25%). Major haemorrhage seen in 2 cases

followed by dysfunctional uterine bleeding (16.87%) cases. Adenomyosis account for 9.37% of cases, postmenopausal bleeding (6.87%) cases and endometriosis (6.25%) cases. No malignant cases were operated by laparoscopy in this study.

Table 4 shows oophorectomy done in 51.25% cases, pelvic floor repair in 31.87% cases, and adhesiolysis in 26.25% cases. Appendicectomy done in 5% cases, cholecystectomy and mesh hernioplasty done in 3.12% cases.

Table 4: Concomitant surgeries.

Concomitant surgeries	No. of cases	%
Oophorectomy	82	51.25
Pelvic floor repair	51	31.87
Adhesiolysis	42	26.25
Appendicectomy	8	5
Cholecystectomy	5	3.12
Herniorrhaphy	5	3.12

(1.25%). In this study conversion to laparotomy rate was 1.25%.

Table 7: Operative complications.

Complications	No. of cases (N=160)	%
Major		
Bladder injury	2	1.25
Haemorrhage (major vessel)	2	1.25
Conversion to laparotomy	2	1.25
Ureter injury	1	0.62
Bowel injury	1	0.62
Deep vein thrombosis	0	0
Total no of cases with major complications	8	5
Minor		
Fever	10	6.25
Urinary tract infection	9	5.62
Port site infection	3	1.87
Vaginal vault abscess	3	1.87
Paralytic ileus	2	1.25
Total no of cases with minor complications	27	16.87

Only one case of ureteric injury noted. One case of bowel injury was seen, occur due to use of scissor during adhesiolysis, which was repaired primarily. Among minor complications fever (6.25%) and urinary tract infection (5.62%) were mainly seen.

Table 8 shows that 73.75% patients discharge within 2-4 days. Mean duration of hospital stay was 2.82 ± 1.17 days.

Table 8: Duration of hospital stay.

Duration of hospital stay	No. of cases (N=160)	%
<2 days	31	19.37
2-4 days	118	73.75
4- 8 days	11	6.87
Mean duration of stay	2.82 ± 1.17 days	

DISCUSSION

Mean age of patients in this study was 40-50 year. Majority women were parous. A critical factor in considering the degree of difficulty of a laparoscopic operation is the number of previous surgeries the patient has had. Previous surgeries cause adhesions, and adhesions can make the next operation much more difficult. Severe adhesion cases can be so long and time consuming that the surgeon makes no progress and converts to a laparotomy.⁷ In this study, although majority of women had not undergone any surgery in the past, there were 49 women with previous 1 LSCS, 16 women with previous 2 LSCS and 8 cases with more than 2 previous LSCS.

Majority of study group cases had uterine size 6-12 weeks. Most common indication of hysterectomy in this study was fibroid uterus (49.37%) followed by dysfunctional uterine bleeding (16.87%). All specimen was sent as a routine for pathological examination. The most common finding was myoma. According to Kapoor Nisha et al in their study, commonest indication of hysterectomy was fibroid (44.9%).⁸ Ramesh et al reported fibroid (54.4%) to be the most common cause of hysterectomy.⁹ The concomitant surgical procedures that were done with this LAVHs didn't prolong the operative time except in cases of vaginal repair. The same was noticed by other surgeon.^{10,11} Most of the patients accepted concomitant surgery more readily with LAVH as compared to open surgery due to cosmetic reasons.

Operation time and blood loss

The duration of surgery was calculated from the first surgical incision to the time when the last skin suture was applied. The average operative time in this study was 114 min. Meikle et al in their study mentioned average operative time was 115 min.¹² In another study by Sadik et al the average operating time was 118 min.¹³ Both studies results are comparable to this study. Actually, the

duration of surgery depends on the expertise of the surgeon, better illumination sources and also on the vessel sealing device. The operative time is also affected by adhesions, increased uterine size and obesity.¹⁴ In this study average blood loss as determined by the anesthesiologists was 135 ml which is similar to result reported by Johns et al in their study.¹⁰ Kapoor Nisha et al reported blood loss around 116 ml which was lesser than this study.⁸ The blood loss was calculated accurately by subtracting the volume of irrigation fluid from the amount of fluid collected in suction apparatus. Usually the blood loss in LAVH is less as in laparoscopy the vision is magnified and the skin incision length is very small. The bleeding also very much dependent on the coagulation device used.

The mean weight of removed uterus as estimated by pathologist was 243 gm.

Complications

The intraoperative major complication rate of in this study was 5% which is significantly lower than 8.6% reported by one study and 22% reported by another study.^{15,16} Among major complications, bladder injury occurs in two cases (1.25%) of previous LSCS. In one case there was thermal injury to urinary bladder following use of electro-cautery. Another case of bladder perforation due to thick dense adhesions to the lower uterine segment after two previous caesarean sections. It was easily repaired during the vaginal part of the procedure. Bladder injury is the most common complication of LAVH. The incidence of bladder complications occurring in LAVH is quite higher than other surgical methods such as open hysterectomy or vaginal hysterectomy i.e., 0.02% and 8.3%.¹⁷

Thermal ureteric injury occurs in one patient (0.62%) and was detected 10 days after surgery when the patient presented with left renal pain and hydronephrosis. This was managed by DJ stenting of left ureter for three months. Ureteral injury complication is reported to have a low incidence in LAVH, ranging from 0% to 2%.¹⁸

Major haemorrhage were seen in two cases (1.25%). Two cases (1.25%) were converted to laparotomy procedure due to massive bleeding from the uterine artery, in one case, and in another case there was dense adhesion with bowel. One case of bowel injury was seen, occur due to use of scissor during adhesiolysis, which was repaired primarily.

Among postoperative minor complications fever (6.25%) and urinary tract infection (5.62%) were mainly seen. Port site infection seen in 3 cases (1.87%), vaginal vault abscess seen in 3 cases (1.87%), paralytic ileus seen in 2 cases (1.25%).

Mean duration of hospital stay was 2.82 ± 1.17 days which is almost similar to study done by Nanavati et al.¹⁹ Other

authors have reported hospital stay varying from 23 hours to 2.5 days.

The limitation of this study is that in this study the operations were done by different surgeon with different level of expertise and authors have not taken the post-operative pain evaluation. Post-operative pain evaluation could not be done as this was a retrospective study and pain scoring was not done in none of the cases.

CONCLUSION

LAVH enables the surgeon to convert most of the abdominal hysterectomies into vaginal ones and hence decreases postoperative pain, lower incidence of overall complications compared to open hysterectomy, lesser duration of hospital stays and rapid return to normal activity. It is also feasible and safe procedure in patients with large uterine size, fixation of the uterus by adhesions, previous pelvic surgery and adnexal pathology. Higher costs and learning curve are the major constraints at present, which in future hopefully would be taken care of, as has happened in other laparoscopic procedures.

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