

DOI: <http://dx.doi.org/10.18203/2320-1770.ijrcog20193633>

Original Research Article

Laparoscopic cervicopexy in uterine prolapse: a prospective study

Anu Aliyar, Saphina Palakkan*, Abdul Vahab, Mumtaz P.

Department of Obstetrics and Gynaecology, M.E.S. Medical College, Perinthalmanna, Kerala, India

Received: 10 July 2019

Revised: 24 July 2019

Accepted: 29 July 2019

***Correspondence:**

Dr. Saphina Palakkan,

E-mail: drcamans@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Pelvic organ prolapse is a common condition and a major cause of gynecological surgery. The lifetime risk of having an operation for prolapse may be 11%. Uterine conserving surgeries using synthetic mesh, especially in younger age group can restore normal anatomy relieving their pelvic symptoms. To evaluate the safety, intra operative and postoperative complications and efficacy of the laparoscopic cervicopexy.

Methods: This Prospective observational study was carried out on women aged below 45 years attending gynaecology outpatient department with uterine prolapse at MES Medical College, Perinthalmanna between January 1st and December 31st, 2015. 39 women underwent laparoscopic cervicopexy and follow up assessments was done among them at 2 weeks, 3 months and 6 months.

Results: The mean operative time was 27.6 minutes and blood loss was 0.4 gm/dl. No intraoperative and postoperative complications occurred. Short duration of hospital stay with mean of 1.4 days. 7.7% patients and 5.5% had mersilene tape reaction at 3 months and 6 months. The POP Q score C was significantly away from hymen at 2 weeks, 3 months and 6 months (+4.4 - -4.3). 7.7% and 2.6% had recurrence at 3 month and 6 months. 5.1% underwent vaginal hysterectomy to get relieved from symptom.

Conclusion: Laparoscopic cervicopexy is an effective option for women with pelvic organ prolapse who desire uterine preservation.

Keywords: Intraoperative complications, Laparoscopic cervicopexy, Pelvic organ prolapsed, Postoperative complications, Synthetic mesh, Uterine prolapsed

INTRODUCTION

Pelvic organ prolapse (POP) defined as the downward displacement of the structures that are normally located at the level or adjacent to the vaginal vault.¹ Uterine prolapse is a common problem which affects the quality of life of a woman. For many years vaginal hysterectomy has been the surgical treatment for uterine prolapse. Although prolapse is not a life threatening condition, this causes serious discomfort in life. Utero vaginal prolapse results from defect in various level of supports of uterus.

Today however an increasing number of women are choosing not to undergo hysterectomy for reasons of personal identity, perceived sexual satisfaction or childbearing potential. Because of the improved surgical technique and availability of appropriate suture material uterine preservation has become a viable and safe option and is a simple alternative to hysterectomy.

The objective of uterine suspension procedures is to restore normal uterine support while maintaining and relieving any associated pelvic symptoms. Several procedures using vaginal, open abdominal and

laparoscopic approaches have been described with varying success rates are reported. Most of the procedures are performed either vaginally, abdominally or abdomino vaginally.

The advantages of laparoscopic approach include superior visualization of the pelvic anatomy, minimally invasive access provides the benefit of shorter hospital stay, decreased post-operative pain and more rapid recovery. Moreover, the laparoscopic approach minimizes the possibility of mesh contamination during operation and induces less vaginal fibrosis postoperatively.

Laparoscopic management of uterine prolapse including uterosacral ligament plication, mesh sacral hysteropexy or colpopexy have been described. However most appropriate surgical approach for uterine preservation remain controversial. Here we are describing a surgical procedure of laparoscopic uterine suspension in which the synthetic mesh is used to suspend the uterus to the anterior abdominal wall.

METHODS

This was a Prospective observational study was carried out on women aged below 45 years attending gynecology outpatient department with uterine prolapse at a tertiary care hospital (M.E.S Medical College, Perithalmanna) in south India between January 1st and December 31st in 2016 after obtaining approval from the institutional Ethical Committee .

Inclusion criteria

- Women aged below 45 years
- Normal BMI
- Women without elongation of cervix.

Exclusion criteria

- Women with vaginal prolapse
- Abnormal uterine bleeding
- Women with co morbidities like CAD, Chronic cough
- Women with fibroid uterus
- Abnormal pap smear.

All the women attending the gynecology OPD with complaints of uterine prolapse between 1.1.2015 to 31.12.2015 who meet the inclusion criteria were included in the study after explaining the procedure. An informed written consent was obtained from those enrolled for the study. Patients selected for the study underwent a detailed clinical examination and all the findings were documented. Details were noted preoperatively, intraoperatively and post operatively and follow up was scheduled in two weeks, three months and six months, to evaluate the safety and efficacy. After initial evaluation the procedure was explained to the patient and those who

were willing for the surgery were subjected to the pre-operative evaluation and pre anaesthetic checkup.

All the patients with uterine prolapsed were explained about the available mode of treatment including nonsurgical and surgical options. Patient who opted for uterus conserving surgical management were counseled about the ease, simplicity and safety of the procedure, and those desirous of laparoscopic cervicopexy were included. Anemia and vaginal infections corrected before surgery. Blood was arranged and cross matched. After they were declared fit for anaesthesia, surgery was planned on a mutually convenient date and patient was admitted the day before. Taking into consideration surgery was planned on the first half of the menstrual cycle. An informed consent was taken. Pre-operative prophylactic antibiotic were given before surgery. The surgery was performed under general anaesthesia. The patients were placed in modified lithotomy position with feet placed squarely in the boots of Allen's stirrup. Patients are catheterized with Foley's self-retaining catheter to empty the bladder. A 10 mm port was introduced at a point 4 cm above the umbilicus. Two 5 mm port at the level of umbilicus on either side around 10-15 cm away from umbilicus for manipulating mersilene tape with ancillary instruments.

Two stab incision of 5mm over the skin at the level of inguinal ring made on either side, the position of this incision is confirmed and decided by laparoscopic view of internal inguinal ring and exit point of round ligament. Put the tape without the needle through the 10mm port. The laparoscopic needle holder with the closed tip through the right or left stab incision through the skin through the inguinal ring with intermittent/continuous gentle pressure ,piercing the rectus sheath, rectus muscle bluntly with lap needle holder ,till tip of the instrument visualized at the level of internal inguinal ring retroperitoneally at the exit point of round ligament. With further gentle pressure laparoscopic needle holder was passed under vision through leaves of broad ligament and in between cervix and uterosacral ligament complex, to reach the centre point in between two utero sacral ligamenst. An incision was made over the tip of lap needle holder to expose the tip using the lap scissors pass through opposite port. Same procedure is repeated on the opposite side through the tunnel created by the needle holder. Then catch the one end of tape and withdrew the one end and hold carefully with good grip artery forceps. Repeat the same procedure on opposite side. Free ends brought to one side and pulled and tie in such a way to correct the descent of the uterus. All the incision sites sutured. Post-operative analgesics and antibiotics were given. Foley's self-retaining catheter removed on post-operative day. After ensuring there is no retention of urine and if the patient is comfortable discharge is planned on the same day. Patients were advised to start normal daily activities after the discharge from the hospital, to maintain local hygiene, to avoid straining and lifting heavy weights for 3-4 weeks.

Evaluation of outcome

Safety of the surgery during the procedure was assessed by:

- Duration of surgery.
- Blood loss during the surgery assessed by the fall in hemoglobin level on post operative day 1.
- Presence of broad ligament haematoma and uterine artery injury.

Post-operative complications are evaluated in terms of:

- Urinary retention
- Duration of hospital stay
- Post-operative pain (assessed by behavioural pain scale score) and number of analgesic doses given to the patient
- Port site infection.

Efficacy evaluation in the follow up in the post-operative period was done at third and sixth month post operatively to evaluate tape rejection, pre-operative and post-operative comparison of point c, recurrence (any stage of Uterine prolapse by POP Q).

For the statistical analysis, the statistical software SPSS version 16.0 for windows (SPSS Inc., Chicago, IL, USA) was used. Descriptive statistics like percentage mean and standard deviation was used to describe the parameters used in the study. For inferential statistics, Wilcoxon signed rank test was used to find the efficacy of laparoscopic cervicopexy on various parameters and also used to compare the associated complications at different time interval. P value <0.05 was considered statistically significant.

RESULTS

There were 39 women were included in the study. 4 patients (10.3%) were in between 31-35 years of age, 16 patients (41%) were in between 36-40 years of age and 19 patients (48%) were in between 41-45 years of age. The mean age was 40 years. Out of 39 patients, 13 patients (33.3%) had two vaginal delivery, 14 patients (35.9%) had three vaginal delivery, 11 patients (28.2%) had 4 vaginal delivery and 1 patient (2.6%) had 5 vaginal delivery. 5 patients (12.8%) had one home delivery and 2 patients (5.1%) had 2 home deliveries. 22patients (56.4%) were having stage 2 prolapse and 17 patients (43.6%) were had stage 3 prolapse. All the 39 patients have normal BMI (21.6±1.4).

Out of 39 people who underwent this surgery, for 23patients (59%) the surgery finished within 27 min, for 15 patients (38.5%), the surgery finished within 34 min and only for 1 patient (2.6%) it took more than 35 min with a Mean±SD 27.6±3.1 minutes. Among the 39 patients who underwent surgery none of them had uterine artery injury and broad ligament haematoma 28 patients

(79.8%) had less than 0.5 gm/dl Hb fall and 11 patients (28.2%) had less than 1gm/dl Hb fall with a mean blood loss of 0.4±0.3 g/dl. And none of the patient received blood transfusion following the procedure.

Post-operative assessment

There were 2 patients (5.1%) had no pain and 23 patients (59%) had mild pain and 14 patients (35.9%) had moderate pain. All the 39 patients received first dose of analgesic from the recovery room. 11 patients (28.2%) received one extra dose of analgesic and 14 patients (35.9%) received two doses of analgesic and 35.9% people received three analgesic doses during whole hospital stay.

There were 24 patients (61.5%) got discharged from the hospital on postoperative day 1 and 15 patients (38.5%) discharged from the hospital within 2-4 post-operative day with a mean duration of hospital stay of 1.4±0.6.

There were 3 patients (7.7%) had port site infection who treated by oral antibiotic and dressing of the wound twice daily and managed on outpatient basis only. None of them had urinary retention after the removal of catheter. Of the 39 patients none of them had tape reaction at 2 weeks. And on further follow up 3 patients (7.7%) patients at 3 months and 2 patients (5.1%) had tape rejection at 6 month and removal of tape done in an OP basis (Table 1).

Table 1: Distribution of major post-operative problems during follow-up.

Post-operative complication	Follow up period	Percentage of patients with complication
Tape rejection rate	2 weeks	nil
	3months	7.7%
	6months	5.1%
Recurrence of prolapse	2 weeks	nil
	3months	7.7% stage 3 prolapse
	6months	2,6% stage 1 prolapse

Those whose Point C was in between +1 - +2 (9 patients) receded to -5, -5 and -5 at 2 weeks, 3 months and 6 months respectively. The patients who had Point C between +2-+3 (21 patients) receded to -3.5, -4 and -5 respectively. The patients who had +3 - +4 (5 patients) the Point C was receded to -3, -4 and -4. The patients who had +4- +5 (4 patients) the Point C receded to -3.5, -4 and -5 at 2 weeks ,3 months and 6 months respectively. At two weeks Point C improved significantly with a mean value of -4.1±0.7 and on 3 months Point C had a mean value -4±1.7 and at 6 months the Point C was -4.3±2.

Among the 39 patients, none had prolapsed at 2 weeks, and at 3 months 3 patients (7.7%) had stage 3 prolapse and at 6 weeks, 1 patient (2.6%) had stage 1 prolapse

(Table 1). 2 patients (5.1%) had underwent vaginal hysterectomy to get relieved from the symptoms.

DISCUSSION

Utero vaginal prolapse is a worldwide health issue for the women with an 11% risk of a woman undergoing surgery to treat the prolapse.¹ Vaginal hysterectomy was often recommended for the treatment of uterine prolapse, along with concomitant procedures for coexisting pelvic floor relaxation. Vaginal hysterectomy however associated with significant morbidity including intra operative haemorrhage, ureteral injury, and cuff cellulitis. Uterine preservation in prolapse surgery is an attractive option for women for a variety of reasons,

Including the ability to retain fertility, the desire not to remove a normal organ. All the procedures can be performed either vaginal, open abdominal or laparoscopic methods. Three types of laparoscopic procedure have thus far been described including suspension of uterus to the round ligaments, uterosacral ligaments and sacral promontory. A good understanding of pelvic anatomy demonstrates that the round ligaments have no role in uterine suspension or support. Laparoscopic uterosacral ligament plication was described by Wu in 1997. He placed 3 purse string sutures from uterosacral ligaments to posterior cervix.²

Authors evaluated 39 women who underwent laparoscopic cervicopexy and were followed up for a period of 6 months to study the safety, efficacy and complication associated with surgery. None of the patient lost followup. The 39 patients who underwent the surgery 98% had taken a duration of less than 35 min, and only 2% taken more than 35 minutes with a mean of 27.6 ± 3.1 minutes. This was comparable to a study conducted by Uccella et al, in 2007 and the mean operating time was 22.5 min.³ This is also comparable with the study conducted by Wu et al in 1997 (mean operating time of 22.5 minutes).²

Authors had 39 patients who underwent surgery during the study period, and authors have not observed any uterine artery injury during the procedure. This is one factor which shows that laparoscopic cervicopexy is a safe treatment for uterine prolapse. Curtner et al, and Uccella et al, conducted prospective cohort studies and observed no complications during the procedure.^{3,4} In a prospective study on laparoscopic suture hysteropexy in 43 women 2% patient had uterine artery lacerations and required lapotomy and blood transfusions which also shows the safety of laparoscopic cervicopexy.⁵

In our study authors haven't observed any case of broad ligament hematoma during the surgery which also shows the safety of the surgery. This can be comparable with the study conducted by Wu et al, Rahmanou et al, done laparoscopic hysteropexy in 51 women and had an

incidence of 4% of broad ligament vascular injury which required intervention.^{2,6}

The mean blood loss was 0.4 mg/dl (EBV =200 ML) in the present study. This is comparable with the study conducted by Maher et al in a 43 non obese women and the average blood loss was 185 ml.⁵ Authors assessed the pain by behavioural pain scale score, in which 5.2% patients had no pain, 59% patients had mild pain and 35.9% had moderate pain. All that 39 patients received first dose of analgesic from recovery room. 11 patients (28.2%) received one extra dose of analgesic and 14 patients (35.9%) received two extra doses of analgesics during the hospital stay. This dragging pain was thought to be related to the mesh sutured to the anterior abdominal wall.

In our study out of 39 patients, 24 patients (61.5%) discharged from the hospital on post-operative day 1 itself and 15 patients 38.5% patients on post op day 2-4 with a mean of 1.4. This can be comparable with the study by Wu et al in seven women had hospital stay with a mean of 1 day.² The study conducted by James et al in 10339 women underwent mesh surgeries for uterine prolapse also had a hospital stay of 1 day only.⁷ But in the study conducted by Maher et al, patients had a longer duration of hospital stay with mean hospital stay of 5 days.⁵ The study conducted by Chin-ku Liu in 69 female who underwent laparoscopic sacrocolpexy had a prolonged hospital stay with mean of 4.6 days.⁸

There were 3 patients (7.7%) had port site infection in our study, which was treated by the oral antibiotics and two times dressing daily. This is comparable with laparoscopic sacrocolpexy by Elliot et al, with 7% port site infection⁹. This is comparable with the port site infection of 4% by Sierra et al,¹⁰ Our study can be compared with Lin LL et al, evaluated the safety of laparoscopic sacral hysteropexy in 33 patients and none of them had urinary retention postoperatively.¹¹ Heffini et al, conducted sacrospinous cervicocolpexy in 48 women and 4% of the women had urinary retention.¹²

Among the study population 3 patients (7.7%) had tape rejection at 3 months and at 6 months follow up 2 patients (5.1%) had tape rejection. Mesh rejection rates generally vary and are in the range 3.6-18%. Dwyer and O'Reilly reported a rate of 9%.¹³ Davila and Jijon estimated the rate as 10% and Khandwala and Jayachandran reported a rate of 3.6%.¹⁴ Authors measured Point C at 2 weeks, 3 months and 6 months. The Point C was significantly above the hymen at 2 weeks, 3 months and 6 months follow up compared with the pre op value. This can be comparable with the study conducted by Rosenblatt et al, in 2008, 40 women underwent laparoscopic uterosacral fixing using polypropylene and on 1 year follow up the mean C was -4.84.¹⁵ The study conducted by Lin lin et al, conducted modified laparoscopic hysteropexy and improvement of Point C from 2.06 to -5.94 from preoperatively to post

operatively.¹¹ Clinical examination at 2 weeks showed a 100% objective cure, and at 3 months 3 patients (3 of 39 patients) had prolapse and at 6 months one patient had prolapse (1 of 39) in the present study. Fatton et al, conducted a study among 110 women who underwent trans vaginal mesh repair and observed a recurrence rate of 4.7%.¹⁷ Maher et al conducted a study of laparoscopic suture hysteropexy in 43 women observed a recurrence rate of 16%.⁵ Rimailho et al, observed a reoperation rate 4%.¹⁸

CONCLUSION

Minimally invasive mesh techniques for treatment of uterine prolapse have minimized operative time and complications rates. Laparoscopic cervicopexy is an effective procedure in managing patients with symptomatic uterine prolapse. It is not associated with any intraoperative complications even though few post-operative complications like port site infection, dragging pain, tape rejection and recurrence of prolapsed are seen. Laparoscopic cervicopexy can be recommended in the treatment of uterine prolapse as it is effective and least complication in expert hands.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Williams gynecology second edition. Chapter 24:633-658.
2. Wu MP. Laparoscopic uterine suspension for the treatment of uterovaginal prolapse. Inter J Gynecol Obstetr. 1997 Dec;59(3):259-60.
3. Uccella S, Ghezzi F, Bergamini V, Serati M, Cromi A, Franchi M, et al. Laparoscopic uterosacral ligaments plication for the treatment of uterine prolapse. Archives of gynecology and obstetrics. 2007 Sep 1;276(3):225-9.
4. Cutner A, Kearney R, Vashisht A. Laparoscopic uterine sling suspension: a new technique of uterine suspension in women desiring surgical management of uterine prolapse with uterine conservation. BJOG: Int J Obstetr Gynaecol. 2007 Sep ;114(9):1159-62.
5. Maher CF, Carey MP, Murray CJ. Laparoscopic suture hysteropexy for uterine prolapse. Obstetr Gynecol. 2001;97:1010-4.
6. Grimminck K, Mourik SL, Tjin-Asjoe F, Martens J, Aktas M. Long-term follow-up and quality of life after robot assisted sacrohysteropexy. European J Obstet Gynecol Reprod Biol. 2016 Nov 1;206:27-31.
7. Forde J, Chughtai B, Stone B, Hsu WC, Mao J, Te A. Role of uterine preserving surgery in mesh based pelvic organ prolapsed repair. J urol. 2016;195: e105.
8. Liu CK, Tsai CP, Chou MM, Shen PS, Chen GD, Hung YC, et al. A comparative study of laparoscopic sacrocolpopexy and total vaginal mesh procedure using lightweight polypropylene meshes for prolapse repair. Taiwanese J Obstetr Gynecol. 2014 Dec 1;53(4):552-8.
9. Elliott DS, Frank I, Dimarco DS, Chow GK. Robotically assisted laparoscopy: sacrocolpopexy for the treatment of uterine prolapsed. Am J Surg. 2004 Oct;188(4A Suppl):52S-56S.
10. Swan K, Advincula AP. Advances in urogynaecological robotic surgery. BJU International. 2011 Sep;108(6 Pt 2):1024-7.
11. Lin LL, Ho MH, Haessler AL, Betson LH, Alinsod RM, Liu CY, et al. A review of laparoscopic uterine suspension procedures for uterine preservation. Current Opinion in Obstetr Gynecol. 2005 Oct 1;17(5):541-6.
12. Morgan DM, Rogers MA, Huebner M, Wei JT, DeLancey JO. Heterogeneity in anatomic outcome of sacrospinous ligament fixation for prolapse: a systematic review. Obstetr Gynecol. 2007 Jun 1;109(6):1424-33.
13. Dwyer PL, O'Reilly BA. Transvaginal repair of anterior and posterior compartment prolapse with Atrium polypropylene mesh. BJOG: An International J Obstetr Gynaecol. 2004 Aug;111(8):831-6.
14. Davila GW, Jijon A. Managing vaginal mesh exposure/erosions. Current Opinion in Obstetr Gynecol. 2012 Oct 1;24(5):343-8.
15. Rosenblatt PL, Chelmow D, Ferzandi TR. Laparoscopic sacrocervicopexy for the treatment of uterine prolapse: a retrospective case series report. J minimally invasive gynecol. 2008 May 1;15(3):268-72.
16. Asgharnia M, Faraji R, Salamat F, Ashrafkhani B, Heirati SF, Naimian S. Perinatal outcomes of pregnancies with borderline versus normal amniotic fluid index. Iranian journal of reproductive medicine. 2013 Sep;11(9):705.
17. Fatton B, Amblard J, Debodinance P, Cosson M, Jacquetin B. Transvaginal repair of genital prolapse: preliminary results of a new tension-free vaginal mesh (Prolift™ technique)-a case series multicentric study. Int Urogynecol J. 2007 Jul 1;18(7):743-52.
18. Rimailho J, Talbot C, Bernard JD, Hoff J, Becue J. L'hystéropexie antérolatérale par voie abdominale. Résultats et indications. A propos d'une série de quatrevingt-douze patients. In Annales de chirurgie 1993;47(3):244-9.

Cite this article as: Aliyar A, Palakkan S, Vahab A, Muntaz P. Laparoscopic cervicopexy in uterine prolapse: a prospective study. Int J Reprod Contracept Obstet Gynecol 2019;8:3492-6.