

# A novel hysteropexy for apical pelvic organ prolapse: laparoscopy orientated hysteropexy with adjustable suture (LOHAS) and its comparison with laparoscopic sacrohysteropexy

Prof. KuoHu Chen. MD, PhD

<sup>1</sup> Department of Obstetrics and Gynecology, Taipei Tzu-Chi Hospital, Taiwan

<sup>2</sup> School of Medicine, Tzu-Chi University, Taiwan

## Hypothesis / aims of study

Uterovaginal prolapse has a considerable impact on the daily life of the affected women. Traditional or minimally invasive sacrohysteropexy using unabsorbable meshes for suspension and fixation, remains the golden standard for treating women with apical prolapse [1]. However, sacrohysteropexy is a somewhat difficult technique to many pelvic surgeons and laparoscopists, and time-consuming when compared with hysteropexy. Furthermore, some patients undergoing sacrohysteropexy experience pain during/ after intercourse due to the position of mesh fixation on the sacrum. Moreover, mesh use may always carry a risk of mesh extrusion, erosion and subsequent bowel injury, even if the risk is low.

Inspired from the past experiences of ovarian and uterine suspension with adjustable sutures [2,3], herein we describe a novel mesh-free laparoscopic orientated hysteropexy with absorbable sutures (LOHAS) for women with symptomatic uterovaginal prolapse, who desire preservation of the uterus.

The longitudinal cohort study aims to compare the perioperative and postoperative outcomes and complications of pelvic organ prolapse (POP) grade  $\geq 2$  women undergoing LOHAS (LOHAS group) with those undergoing laparoscopic sacrohysteropexy (LSHP group).

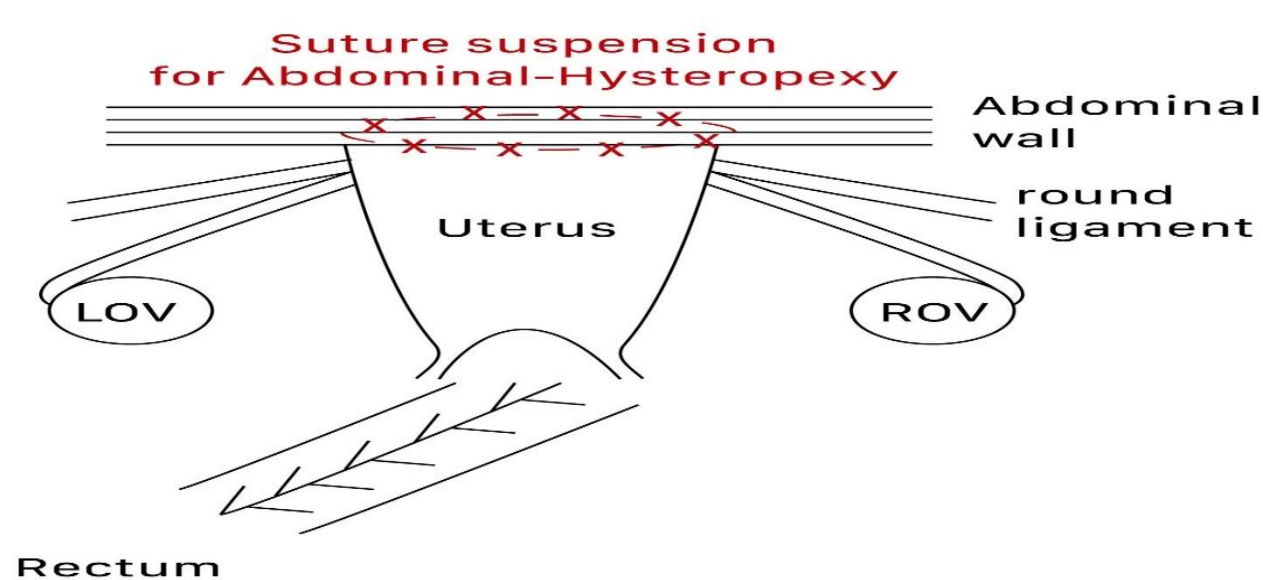


Figure 1

## Study design, materials and methods

Basic information of the patients including age, BMI, parity, types of delivery, previous pelvic surgeries, POP grade, associated symptoms of SUI, and co-morbidities were surveyed. For women in the LOHAS group, the assistant manipulated the uterus inside under laparoscopic inspection until the uterine fundus reached the anterior abdominal wall to determine the appropriate site, which was marked for subsequent suspension and fixation. The pelvic surgeon then sliced off the top of the uterine fundus to create a rough surface for further adhesion to the anterior abdominal wall (Figure 1). Finally, the remaining part of the uterine fundus was suspended and fixed to the anterior abdominal wall by suturing them together with absorbable stitches (Figure 2). Before the permanent adhesion between the uterine fundus and anterior abdominal wall is formed, 8-12 stitches can be made for temporary suspension and fixation.

## Results and interpretation

### Results

A total of 81 consecutive patients (the LOHAS group, n = 42; the LSHP group, n = 39) were evaluated in the study. The average days of hospitalization were similar (3.83 vs. 3.87, p = 0.81), however there were quite different in total time of surgical technique (21.93mins [LOHAS] vs. 87.08mins [LSHP], p < 0.001), total time of operation (47.55mins vs. 105.94mins, p < 0.001), and total blood loss (62.14mL vs. 81.49mL, p < 0.01) between the two groups. There was no significant difference in the incidence of overall complications (4.76% vs. 10.26%, p = 0.42) and the 3-year recurrence (7.14% vs. 7.69%, p = 1.00) between the two groups. Although the incidence of abdominal pain (7.14% vs. 5.13%), flatulence or constipation (9.52% vs. 12.82%) at a 6-month follow-up was similar, the incidence of dyspareunia at a 6-month follow-up was quite different between the two groups (2.38% vs. 8.51%, p < 0.05). After adjustment, logistic regression analysis revealed that patients in the LOHAS group had significantly lower occurrence of dyspareunia (adjusted OR 0.29; 95%CI 0.23-0.35, p = 0.047) compared with those in the LSHP group. On a follow-up of 3 years after the surgery, the POP-Q values (Aa, Ba, C, D, Ap, Bp, TvI) were comparable between the LOHAS and LSHP group (all p > 0.05).

### Interpretation of results

Adhesion is not always bad; sometimes it can do good to females. The artificial adhesion between the uterine fundus and anterior abdominal wall may provide a force for suspension and fixation of the uterus. The artificial adhesion is created by both making a rough surface on the uterine fundus and connecting tissues together with absorbable sutures.

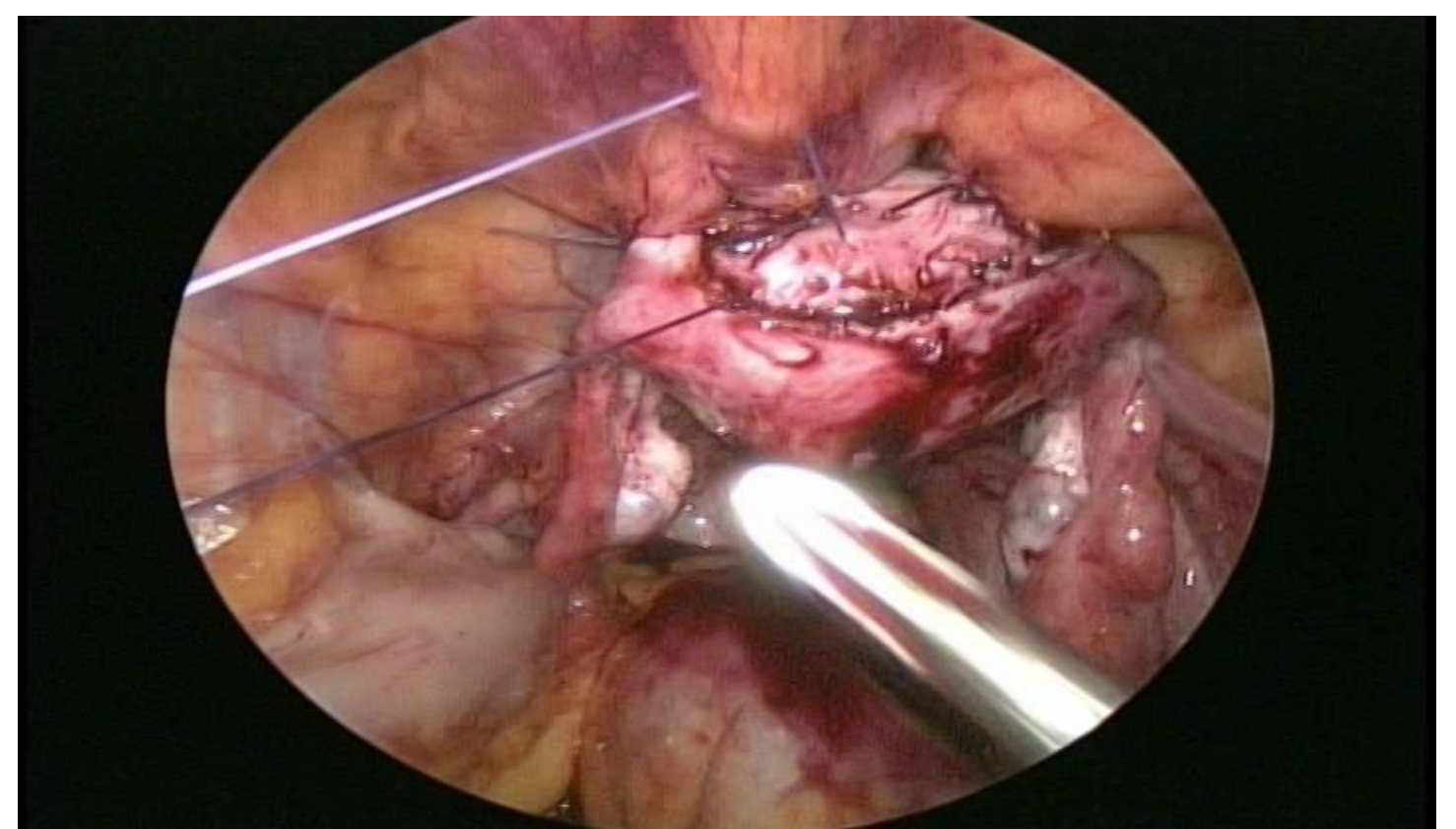


Figure 2

## Conclusions

Mesh-free laparoscopic orientated hysteropexy with absorbable sutures (LOHAS) is an easy, safe, and feasible method that offers benefits of time-saving and lesser postoperative dyspareunia for women with apical (uterovaginal) pelvic organ prolapse. It can be considered as an alternative in performing hysteropexy surgeries.

## References

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2. Chen KH, Chen LR, Seow KM. Ovarian suspension with adjustable sutures: An easy and helpful technique for facilitating laparoendoscopic single site gynecologic surgery. *Journal of Minimally Invasive Gynecology*. 2015;22:767-775.
3. Chen KH, Seow KM, Chen LR. Uterine suspension with adjustable sutures for difficult laparoscopic myomectomy. *Journal of Minimally Invasive Gynecology*. 2017;24:264-271.