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The presacral-uterosacral hysteropexy - a novel native tissue repair for pelvic organ prolapse

Xiaojuan Wang, Jie Zhang, Keqin Hua, Yisong Chen

Department of Obstetrics and Gynaecology, Hospital of Fudan University, Shanghai, People's Republic of China

ABSTRACT

Background: Uterine-preserving procedures for pelvic organ prolapse (POP) are favoured and are becoming increasingly popular. Transvaginal natural orifice transluminal endoscopic surgery (vNOTES) presacral-uterosacral hysteropexy is a novel native tissue repair for POP.

Objectives: This study aimed to evaluate the safety of this uterine-preserving procedure and its midterm efficacy in treating POP.

Methods: Between December 2020 and December 2022, patients with symptomatic POP who underwent vNOTES presacral-uterosacral hysteropexy at a tertiary teaching hospital were retrospectively analysed. The patient characteristics, follow-up outcomes, and complications were recorded and analysed.

Main Outcomes Measures: We investigated anatomical success, subjective improvement, perioperative parameters, and operative complications.

Results: Fifty-eight patients (median age 41 years) completed a mean 24.4-month (± 6.8) follow-up. There were two women (3.4%) who experienced recurrence. There was a significant improvement in POP-Q scores in all compartments at the last follow-up compared to the baseline (P<0.001). 94.8% of patients were satisfied with their operations. The urinary and prolapse symptoms improved significantly (P<0.001), and sexual function was significantly improved (P<0.001). There were no intraoperative complications, and one patient experienced fever and delayed haemorrhage after surgery.

Conclusions: vNOTES presacral-uterosacral hysteropexy may be a safe and feasible technique for women with POP who desire to preserve their uterus. This procedure demonstrates promising medium-term anatomical and subjective outcomes in treating POP.

What is New? This is a new mesh-free surgical procedure that combines the benefits of laparoscopic sacrohysteropexy and vNOTES uterosacral ligament hysteropexy to treat women with POP who desire uterine preservation, aiming to gain long-term anatomical success and minor complications.

Keywords: Native tissue repair, transvaginal natural orifice transluminal endoscopic surgery, pelvic organ prolapse, presacral-uterosacral hysteropexy, uterine preservation

Introduction

Pelvic organ prolapse (POP) is a common and benign condition. It causes distressing symptoms such as vaginal bulging, pressure, voiding and defecatory dysfunction, or sexual dysfunction, which might adversely affect the quality of life (QoL) in women.[1] Even though surgical treatment for POP includes concomitant hysterectomy, traditionally, there is a

Corresponding Author: Keqin Hua, MD, Department of Obstetrics and Gynaecology, Hospital of Fudan University, Shanghai, People's Republic of China
E-mail: professorhuao9@163.com **ORCID ID:** orcid.org/0000-0001-5359-8841

Corresponding Author: Yisong Chen, MD, Department of Obstetrics and Gynaecology, Hospital of Fudan University, Shanghai, People's Republic of China
E-mail: cys373900207@163.com **ORCID ID:** orcid.org/0000-0002-2639-8753
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growing patient preference for uterine preservation.[2-5] The reasons why women with POP prefer to preserve their uterus include fewer surgical risks, a sense of femininity, sexual function, and maintenance of fertility.[4,6]

The uterine-preserving procedures are reported for apical prolapse, either through a vaginal or abdominal approach, with the use of mesh or not.[7-13] Despite efficacy, prosthetic surgery procedures have been proven to be accompanied by specific complications, including mesh exposure, dyspareunia, vaginal bleeding, and others, and the treatment for these complications can be challenging.[14,15] In pregnancy, it has been reported that there is higher risk of placenta previa, as well as the need for incision change during caesarean section, and incidence of pain syndromes in pregnant women after sacral mesh hysteropexy.[16,17] Therefore, there is an increasing interest in reconstructive native-tissue procedures for POP.

Even though both vaginal procedures have similar anatomical success and great patient satisfaction,[18] there was a higher rate of ureteric kinking in the uterosacral ligament hysteropexy (USHP) cohort than that in sacrospinous hysteropexy (SSHP) (P=0.023), and total cases of nerve injuries were in the SSHP cohort.[19] It's reported that dyspareunia was more frequently reported after vaginal SSHP compared to laparoscopic sacrohysteropexy (LSHP).[9] The weaknesses of USHP include the risk of ureteric injury and a higher apical failure rate compared to uterosacral suspension with hysterectomy.[20,21]

Transvaginal natural orifice transluminal endoscopic surgery (vNOTES) USHP could clarify the path of the ureter and reduce the risk of ureteric injury, which could also prevent abdominal wound infections, incisional pain, and provide a better cosmetic outcome.[22] There is a case report about vNOTES retroperitoneal promontory fixation in conjunction with the uterus-preserving Manchester procedure;[23] it is believed this procedure is feasible. Compared to the high cure rates (92%) of LSHP,[13] the failure incidence of USHP was as high as 25%.[24] Herein, we have developed a mesh-free surgical procedure that combines the benefits of LSHP and vNOTES USHP to perform vNOTES presacral-uterosacral hysteropexy for treating women with POP who desire uterine preservation. Our study aimed to evaluate the safety and midterm efficacy of this uterine-preserving procedure.

Methods

Patients

We reviewed the medical records of women with symptomatic POP who underwent vNOTES presacral-uterosacral hysteropexy with anterior/posterior colporrhaphy or without it between December 2020 and December 2022 at a tertiary teaching hospital. Patient information was recorded and updated during follow-up visits. This retrospective study was approved by the Ethics Committee of Obstetrics and Gynaecology Hospital of Fudan University (2019-32) on Mar 29th 2019. All patients provided written and oral informed consent for this surgical procedure and for using their data for research purposes.

Demographic information, perioperative parameters, and complications – including low urinary tract infection, pelvic pain, stitch exposure, vaginal bleeding, de novo urinary incontinence, were recorded. Physical examination with POP quantification (POP-Q) scores was conducted at baseline, six months, and annually after the procedure. The QoL questionnaires were used to assess patients' functional outcomes, including the Pelvic Floor Distress Inventory-20 (PFDI-20) questionnaire,[25] the validation of the Chinese version of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12) questionnaire,[26] and the Patient Global Impression of Improvement (PGI-I) questionnaire[27] were used to assess patients' functional outcomes. Telephone interviews were used to gather information on patients' prolapse-related symptoms and questionnaire scores for those unable to come for a visit.

Surgical failure (defined as occurring within six months after the operation) or recurrence was considered present if any of the following criteria: POP-Q point C descended with the Valsalva manoeuvre more than one-third of the total vaginal length, or POP-Q points Aa, Ba, Ap, or Bp with the Valsalva manoeuvre were beyond the hymen.[28]

Surgical Procedure

All patients underwent vNOTES presacral-uterosacral hysteropexy performed by two surgeons (Y.C. and X.W.) under general anaesthesia. Patients were placed in the dorsal lithotomy position, and a catheter was inserted for continuous urinary drainage.

In the first vaginal step, after injecting a water cushion, a 2.5 cm posterior colpotomy was performed, and the posterior cul-de-sac was opened. The transvaginal single-port platform

was established, and a pneumoperitoneum was created.

In the second endoscopic step, after identifying the right ureter and promontory, the right pelvic peritoneum below the promontory was incised. The presacral space was dissected to expose the anterior longitudinal ligament (ALL) (Figure 1). A 0-0 non-absorbable stitch (Ethicon, Somerville, NJ) was secured to the ALL by a horoscope stitch. The end of the stitch was passed through to the right pelvic peritoneum at the ischial spine level, which was initially incised. Subsequently, three consecutive stitches were placed in the uterosacral ligament pedicles (Figure 2). The stitches were slightly pulled to confirm correct placement and ensure the right ureter was not being kinked. Next, the left ureter and uterosacral ligament were identified during single-port laparoscopy. Using three stitches, a 0-0 non-absorbable stitch was placed in the middle of the uterosacral ligament at the ischial spine level. Bilateral stitches were also slightly pulled to confirm correct placement and ensure that the ureters were not kinked. Before removing the single-port platform, adequate irrigation hydration of the pelvis is necessary to reduce the risk of adhesions forming.

In the third vaginal step, non-absorbable stitches were placed from medial to lateral along the cervical-uterine junction (Figure 3) and the uterosacral and cardinal ligament complexes. The stitches were secured with large bites into the junctional portion of the uterosacral ligament with the pubo-cervical ring (Figure 4). The bilateral stitches were locked in place to shorten the uterosacral ligaments further and reinforce their attachment to the uterus. After all the suspensory stitches were tied, these non-absorbable stitches would be buried retroperitoneally to avoid the risk of bowel adhesion and stitch exposure in the future.

In the final step, the colpotomy incision was closed using absorbable stitches. Cervical amputation was performed or not based on the length of the cervix. If point C-D measurements in the POP-Q examination exceeded 5 cm, cervical amputation was performed. Anterior-colporrhaphy and or posterior-colporrhaphy were performed based on the prolapse stage of the anterior/posterior vaginal wall. The surgical video is seen

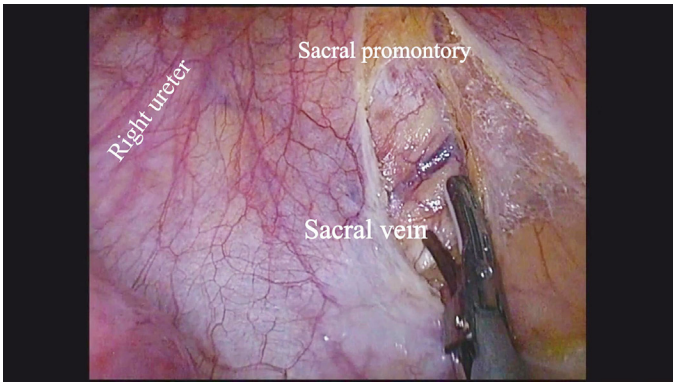

Figure 1. The presacral space was dissected to expose the anterior longitudinal ligament.

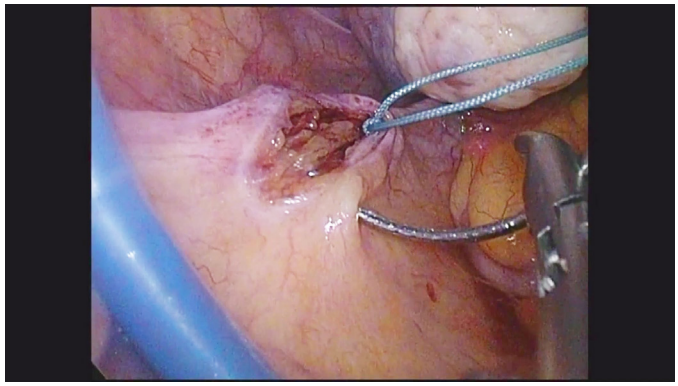

Figure 2. Three consecutive sutures were placed in the uterosacral ligament pedicles.

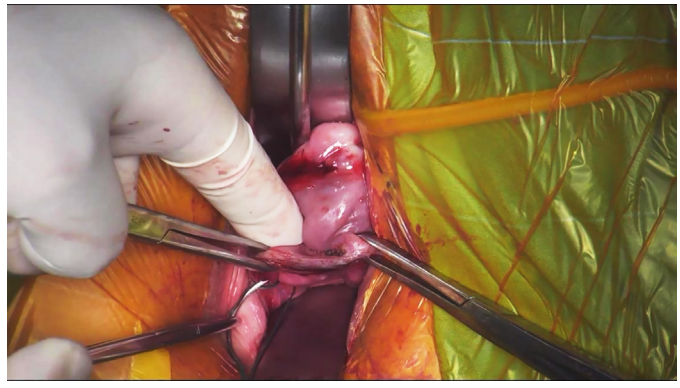

Figure 3. The non-absorbable suture was placed medially to laterally along the cervical-uterine junction.

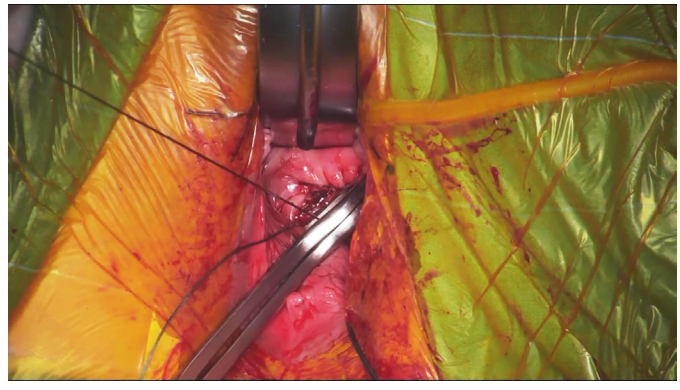

Figure 4. The suture was secured with large bites in the junctional portion of the uterosacral ligament and the pubocervical ring.

in Supplementary Video 1.

Statistical Analysis

Mean, standard deviation or median, interquartile range, and percentage were used to express descriptive statistics. Depending on normality, the Student's t-test or Wilcoxon rank test was used for continuous measures as appropriate, to compare preoperative POP-Q and QoL scores with those at the latest follow-up. A *P*-value of less than 0.05 was considered statistically significant. Statistical analyses were performed using SPSS software (Version 22.0; IBM Corp, Armonk, NY).

Results

vNOTES presacral-uterosacral hysteropexy was performed on 60 patients between December 2020 and December 2022. Two patients were lost to follow-up; fifty-eight patients were enrolled in this study, with a mean 24.4-month follow-up (± 6.8). Of these patients, most (86.4%, 51 of 58) came to the outpatient for follow-up, and seven were followed up by telephone. The patients' characteristics are shown in Table 1. Three patients (5.2%) converted to caesarean section from vaginal labour because foetal distress was confirmed. Eight patients (13.8 %) had a history of macrosomia, and eight patients (10.5%) had a history of dystocia. Nine patients (15.5%) had previous pelvic/abdominal surgeries. Twelve (20.7%) patients had stress urinary incontinence. Eighteen (31.0%) patients were diagnosed with stage 2, while 39 (67.2%) patients were diagnosed with stage 3.

Table 1. Baseline participant characteristics (n=58).

Characteristic	Value
Age, median (IQR), years	41 (25-63)
BMI, median (IQR), kg/m^2	23.2 (19.5-28.0)
Gravidity, median (IQR)	
Parity, median (IQR)	1 (0-3)
CS, no. (%)	3 (5.2%)
Foetal macrosomia, no. (%)	8 (13.8%)
Dystocia, no. (%)	7 (12.1%)
SUI, no. (%)	12 (20.7%)
Previous pelvic/abdominal surgery, no. (%) Comorbidities, no. (%)	9 (15.5%)
Diabetes mellitus	1 (1.7%)
Hypertension Connective tissue disease	2 (3.4%) 1 (1.7%)
Prolapse beyond the hymen, no. (%)	
Anterior (POP-Q Aa or Ba >0)	35 (60.3%)
Apical (POP-Q C >0)	51 (87.9%)
Posterior (POP-Q Ap or Bp >0)	11 (18.9%)
Overall POP-Q stage, no. (%)	
2	18 (31.0%)
3	39 (67.2%)
4	1 (1.7%)

IQR: Interquartile range, BMI: Body mass index, calculated as weight in kilograms divided by height in meters squared, CS: Caesarean section, SUI: Stress urinary incontinence; POP-Q stage 2: Most distal prolapse is between 1 cm above and 1 cm beyond hymen, Stage 3: Most distal prolapse is prolapsed >1 cm beyond hymen but ≤2 cm lewss than total vaginal length, Stage 4: Total prolapse.

The majority of patients i.e. 94.8% (55 out of 58 patients) were satisfied with this surgical procedure, based on the PGI-I scores (1 ranging from 2). Comparisons of POP-Q and QoL scores in the latest follow-up (at least 15 months after surgery) with baseline are shown in Table 2. There was a significant improvement in POP-Q scores in all compartments in the last follow-up compared to the baseline (P<0.001). Significant improvements were found in the following symptom scores at the last follow-up compared to the baseline: PFDI-20 (43.4 ± 5.3 vs. 36.8 ± 5.5, P<0.001), POP distress inventory (9.8 ± 4.1 vs. 7.2 ± 2.9, P=0.004), Urinary Distress Inventory (6.7 ± 2.3 vs. 4.7 ± 3.9, P<0.001), colorectal anal distress inventory (3.1 ± 1.7 vs. 2.3 ± 1.7, P<0.001), urinary distress inventory (3.1 ± 1.7 vs. 2.3 ± 1.7, P<0.001), and PISQ-12 (30.5 ± 3.3 vs. 27.3 ± 4.3, P<0.001).

We also conducted further subgroup analysis between women with cervical amputation and those who kept their cervix. Except for point D (-1.9 ±1.1 vs. -3.0 ± 1.4, P=0.0018) in preoperative evaluation, there were no significant differences in POP-Q measures between women with a preserved cervix and those with cervical amputation. During the last follow-up, these two subgroups had no significant differences in POP-Q measures. All values are shown in Table 3.

Surgery-related characteristics are seen in Table 4. Concomitantly, 12 patients (20.7%) received anti-incontinence procedures with mid-urethral slings, two patients (3.4%) underwent cystoscopy, and 27 patients (46.6%) underwent cervical amputation. Twenty-three patients (39.7%) underwent anterior colporrhaphy, and 16 (27.6%) underwent posterior colporrhaphy. No patient experienced intraoperative complications. There was one patient who experienced fever with a temperature >38 °C measured twice in 12 hours and combined with delayed haemorrhage.

Table 2. Preoperative and latest follow-up (at least 15 months) POP-Q and QoL scores change.

Variable	Preoperative (n=58)	The latest follow-up (n=58)	Difference (95% CI) (n=58)	*P*-value
POP-Q				
Aa	0.4 ± 1.0	-2.4 ± 0.8	-2.8 (-3.1 to -2.6)	<0.001
Ba	0.9 ± 1.4	-2.4 ± 0.8	-3.3 (-3.6 to -2.9)	<0.001
C	1.7 ± 1.4	-6.4 ± 1.2	-8.1 (-8.5 to -7.8)	<0.001
D	-2.4 ±1.4	-6.5 ± 0.9	-4.0 (-4.4 to -3.6)	<0.001
Ap	-0.9 ± 1.0	-2.6 ± 0.7	-1.7 (-1.9 to -1.4)	<0.001
Bp	-0.8 ± 1.2	-2.6 ±0.7	-1.8 (-2.1 to -1.6)	<0.001
TVL	7.3 ± 0.6	7.4 ± 0.6	0.1 (0 to 0.1)	0.083
QoL				
PFDI-20	43.4 ± 5.3	36.8 ± 5.5	-6.6 (-8.1 to -5.1)	<0.001
POPDI-6	9.8 ± 4.1	7.2 ± 2.9	-2.6 (-3.9 to -1.2)	0.004
UDI-6	6.8 ± 2.3	4.7 ± 3.9	-2.3 (-3.1 to -1.6)	<0.001
CRADI-8	3.1 ± 1.7	2.3 ± 1.7	-0.9 (-1.2 to -0.6)	<0.001
PISQ-12	30.5 ± 3.3	27.3 ± 4.3	-3.2 (-4.1 to -2.3)	<0.001

P-values representing the difference in score (difference in data pre-operative versus the latest follow-up data after surgeries) are statistically significant (Student's t-test). POP-Q: Pelvic organ prolapse quantification, QoL: Quality of life, TVL: Total vaginal length, PFDI-20: Pelvic Floor Distress Inventory-20, higher scores indicate more symptom distress, POPDI-6: Pelvic Organ Prolapse Distress Inventory-6, UDI-6: Urinary Distress Inventory-6, CRADI-8: Colorectal Anal Distress Inventory-8; PISQ: Pelvic Organ Prolapse Sexual Questionnaire, Mean (standard deviation), Difference score is based on measurements taken pre-operatively and at the latest follow-up (at least 15 months), CI: Confidence interval.

Table 3. Subgroup analysis of POP-Q values in patients with cervical amputation and those with a preserved cervix.

Variable	Non-amputation (n=31)	Cervical amputation (n=27)	*P*-value
POP-Q			
Aa (pre-operation)	0.4 ± 1.0	-0.4± 1.1	0.8142
Aa (Post-operation)	-2.5 ± 0.6	-2.3 ± 1.1	0.5179
C (pre-operation)	1.5 ± 1.3	1.9 ± 1.4	0.2641
C (post-operation)	-6.6 ± 0.8	-6.1 ± 1.5	0.1388
D (pre-operation)	-1.9 ± 1.1	-3.0 ± 1.4	0.0018
D (post-operation)	-6.6 ± 0.8	-6.3 ± 1.0	0.1193

Mean (standard deviation), Difference score is based on measurements taken preoperatively and at the latest follow-up (at least 15 months); *P*-values representing the difference in score (difference in data preoperative versus the latest follow-up data after surgeries) are statistically significant (Student's t-test). POP-Q: Pelvic organ prolapse quantification.

The mean follow-up duration was 24.4 months (± 6.8), and two cases (3.4%) experienced recurrence. One of them had prolapse at 12 months after surgery and was diagnosed with concomitant anterior vaginal wall and apical prolapse; this patient underwent a hysterectomy and vNOTES sacrocolpopexy later. The other patient was diagnosed with anterior vaginal wall prolapse 18 months after the surgery, and she was placed under observation and received Kegel exercises and pelvic floor muscle training.

Discussion

Main Findings

Due to the risk of complications associated with mesh, native tissue surgery is increasingly playing a significant role in pelvic reconstructive surgery.[20] Herein, we report our experience of performing vNOTES presacral-uterosacral hysteropexy for women with POP who desire to preserve their uterus and present its promising medium-term surgical success and subjective outcomes.

In order to achieve long-term anatomical and functional success without mesh, the permanent stitches were placed in ALL of the presacral and uterosacral ligaments. The remaining stitches were buried retroperitoneally to prevent future erosion or exposure. Until the last follow-up, there was no stitch erosion or exposure.

In our study, not all patients underwent cervical amputation, and whether performing cervical amputation was based on the cervix length. Even though cervical elongation is often presented as cervical bulging beyond

Table 4. Surgery-related parameters of the patients (n=58).

Characteristic	Value
Operation time, median (IQR), minutes	95 (55-170)
Estimated blood loss, median (IQR), millilitres	80 (20-200)
Concomitant surgeries, no. (%)	
Mid-urethral sling	12 (20.7%)
Cystoscopy	2 (3.4%)
vNOTES ovarian cystectomy	5 (8.6%)
vNOTES myomectomy	2 (3.4%)
Cervical amputation	27 (46.5%)
Anterior colporrhaphy	23 (39.7%)
Posterior colporrhaphy	16 (27.6%)
Perineal body repair	2 (3.4%)
Intraoperative complications, no. (%)	0
VAS score after operation: median (IQR)	1 (1-3)
Length of hospital stay: median (IQR)	2.5 (1-4)
Postoperative complications, no. (%)	
Temperature >38 °C measured twice in 12 hours	1 (1.7%)
Delayed haemorrhage	1 (1.7%)

[a]Delayed haemorrhage is defined as that which occurred after leaving the operating room, IQR: Interquartile range, vNOTES: Transvaginal natural orifice transluminal endoscopic surgery, VAS: Visual analogue scale.

the hymen, cervical elongation should be evaluated from various perspectives. It is reported that approximately 40% of women with prolapse have cervical elongation.[29] FIGO working group recommendation published in 2017 showed that the Manchester procedure was mainly obsolete due to post-Manchester cervical incompetence resulting in preterm deliveries and cervical stenosis, and there were better alternatives for women who desire preservation of their fertility.[30] Based on our experience, if point C-D measurements in preoperative POP-Q examination exceeded 5 cm, cervical amputation was performed. Together, this surgical procedure aimed to gain long-term anatomical success and a successful pregnancy and delivery in the future.

It is reported that the pregnancy rate was found to be 17.3% (8 of 46 patients) after abdominal sacrocervicopexy, with pregnancies occurring 23.2 months (18-30) after the operation.[31] However, the average age of their patients was 37.8 year-old, which was younger than our study's (mean age 41 years). In our study, two patients became pregnant 12 months after surgeries, and one of them had a vaginal delivery without any issues or complications. Regarding the delivery mode, we have little experience to recommend, and we should consider prior mode of delivery and the obstetricians' advice. Regarding the pregnancy rate, we will need long-term follow-up. Besides, we should exclude women who have undergone bilateral tubal ligation or are postmenopausal in future cases.

The LAVA trial reported that LSHP was non-inferior for surgical failure and QoL compared with SSHP at 12 months follow-up.[7] However, stitch placement, even in the correct position as described, does not guarantee safety during SSHP due to variable vascular anatomy.[20] It is reported that the risk of recurrent prolapse of the anterior vaginal wall after SSHP is considered to be related to the change in vaginal axis to a more posterior and horizontal position.[32] Our mesh-free surgical procedure combines the advantages of sacrocolpopexy and uterosacral ligament suspension, hoping to gain the highest surgical success rate and the fewest complications. During our medium-term follow-up (mean 24.4 months, range 15-36 months), only two patients (3.4%) experienced a recurrence. One of these patients was diagnosed with stage 4 before surgery and insisted on preserving the uterus. It is well-known that advanced prolapse poses a risk for recurrence.

Compared to SSHP, USHP could have potential advantages. First, uterosacral ligament identification is more straightforward, decreasing dissection compared to sacrospinous ligament preparation. Besides, one LAVA trial reported that dyspareunia occurred almost three times as often after SSHP than after LSHP,[9] which might be due to vaginal narrowing and scarring as well as damage of the vascularization and innervation of the vaginal wall.[33] However, USHP associated with ureteric kinking should not be ignored. During laparoscopy, the bilateral ureters are easy to discern, allowing for the avoidance of ureteric injury or kinking. Our study had no perioperative complications. One patient experienced fever and delayed vaginal haemorrhage one week after the operation, and later coronavirus disease-2019 testing was positive; there was no active bleeding in vaginal trauma, and the estimated blood loss was 100 mL; after sterilising, a gelatine sponge covered the vaginal wound, anti-inflammatory and tranexamic acid haemostatic treatment was given.

The vNOTES approach has made groundbreaking advances in urogynaecology surgeries in recent years. It's reported that vNOTES can provide a better perspective

on the presacral anatomy in front of the S1 and avoid ureteric injury and abdominal incisions,[34,] which also has a fast recovery and aesthetic advantage. The surgeons can directly visualise the uterosacral ligament without requiring additional retractors or a change in position if they follow the vNOTES approach, which could offer improved ergonomics for more successful and safer suspension procedures.[35] Even though vNOTES might influence adhesion formation in Douglas's pouch, several factors are considered to avoid adhesion. Besides meticulous surgical technique, minimized tissue trauma, reducing infection risk, adequate hydration, and sterile technique are helpful to decrease adhesion formation in the pouch of Douglas.

Strengths and Limitations

Compared to other similar studies published, this study has the following strengths. First, the participants in our study were followed for medium-term follow-up (mean 24.4 months) after their procedures, and this period exceeds the follow up duration of most previous studies on vNOTES hysteropexy. Additionally, our study's sample size was larger than that of other similar studies. Second, validated questionnaires were used for preoperative and postoperative evaluation of each patient. The main shortcomings of our study are the inherent limitations of retrospective studies and the lack of a control group.

Future Directions

A reconstructive native-tissue procedure for uterine preservation is regarded as the safest option in women desiring pregnancy. both USHP and SSHP were considered as first-line options due to the higher level of evidence and lower incidence of adverse obstetrical outcomes.[20] Therefore, a prospective randomised controlled trial should be implemented to further investigate this novel surgical procedure vNOTES presacral-uterosacral hysteropexy without mesh for women with POP who desire to preserve their uterus.

Conclusion

Our pilot experiences suggest that presacral-uterosacral hysteropexy might be a feasible and safe technique for women with POP who desire to preserve their uterus, with promising medium-term anatomical and subjective outcomes.

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Contributors: Surgical and Medical Practices: X.W., C.Y., Concept: C.Y., K.H., Design: C.Y., K.H., Data collection or Processing: X.W., J.Z., Analysis or Interpretation: X.W., J.Z., Literature Search: X.W., J.Z., Writing: X.W.

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Competing interests: The authors declare that they have no competing interests.

Ethical approval: Ethics Committee of Obstetrics and Gynaecology Hospital of Fudan University (2019-32) on Mar 29th 2019.

Informed consent: All patients enrolled in this study provided written and oral informed consent for this surgical procedure and for using their data for research purposes.

Data sharing: The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Transparency: We affirm that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained.

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Supplementary Video 1. https://youtu.be/upzKiHu8uvg