



# Changes in Sexual Function following Uphold™ Lite surgery for the Treatment of Urogenital Prolapse

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## ABSTRACT

**Hypothesis / aims of study:** The aim of our study was to assess the effects of Uphold™ Lite Transvaginal Mesh (TVM) surgery on sexual function for the treatment of Urogenital Prolapse.

**Materials and Methods:** Two hundred and five women with symptomatic POP stages II to IV defined by the POP quantification (POP-Q) staging system underwent TVM procedures at our hospitals. Thirty women were included because they were sexually active and had complete follow-up. Preoperative and postoperative assessments included pelvic examination using the POP-Q system and a personal interview to evaluate sexual symptoms with the short forms of UDI-6 and IIQ-7, and the FSFI.

**Result:** There was a significant improvement at points Aa, Ba, C, Ap, Bp and total vaginal length ( $P < 0.05$ ), and the UDI-6 and IIQ-7 scores showed significant decreases in both groups postoperatively ( $P < 0.01$ ). The scores of all parameters of FSFI except the lubrication domain, improved significantly after Uphold mesh surgery ( $P < 0.05$ ).

**Conclusion:** Uphold mesh surgery creates an effective anatomical restoration of POP, and favorable sexual function.

## METHODS

A prospective cohort study design was conducted in women who underwent Uphold Mesh Surgery for treatment of pelvic organ prolapse (POP).

From September 2015 through August 2017, two hundred and five women with symptomatic POP stages ranging from II to IV defined by the POP quantification (POP-Q) staging system were treated with TVM with Uphold™ Lite mesh at our hospitals performed by two skilled and experienced urogynecologic physicians. Thirty women were included because they were sexually active and had complete follow-up. "Sexually active" was defined as having vaginal intercourse within the 6 months.

Preoperative and postoperative assessments included pelvic examination using the POP-Q system and a personal interview to evaluate their urinary and sexual symptoms by using the short forms of Urogenital Distress Inventory (UDI-6), Incontinence Impact Questionnaire (IIQ-7) and Female Sexual Function Index (FSFI) before and 6 months after operation.

Anatomical restoration was evaluated by pelvic examination based on POP-Q system postoperatively and surgical failure was defined as the most distal portion being POP stage II or greater, regardless of a primary or a new site.

Table 1. Pelvic organ prolapse quantification (POP-Q) values and incontinence-related quality of life before and after surgery. Data are given as median (range) or mean  $\pm$  standard deviation.

| POP (cm)     | Pre-OP          | Post-OP       | P value          |
|--------------|-----------------|---------------|------------------|
| <b>Aa</b>    | 1.0 (-1~3)      | -1.5 (-3~-1)  | <b>&lt;.001*</b> |
| <b>Ba</b>    | 3.0 (0~8)       | -1.5 (-3~-1)  | <b>&lt;.001*</b> |
| <b>C</b>     | 0 (-4~8)        | -8 (-9~-6)    | <b>&lt;.001*</b> |
| <b>Ap</b>    | -2 (-3~3)       | -2 (-3~0)     | <b>&lt;.001*</b> |
| <b>Bp</b>    | 0 (-2~7)        | -2 (-3~0)     | <b>&lt;.001*</b> |
| <b>Tvl</b>   | 9 (8~10)        | 10 (8~11)     | <b>&lt;.001*</b> |
| <b>UDI-6</b> | 22.2 $\pm$ 14.4 | 6.7 $\pm$ 3.3 | <b>&lt;.01**</b> |
| <b>IIQ-7</b> | 13.3 $\pm$ 6.2  | 6.2 $\pm$ 3.0 | <b>&lt;.01**</b> |

Pre-op : preoperative; Post-op : postoperative; Tvl : total vaginal length; UDI-6 : Urogenital Distress Inventory; IIQ-7 : Incontinence Impact Questionnaire.

\* Wilcoxon signed rank test; \*\* Paired t-test.

## RESULTS

As for the POP-Q analysis, there was a significant improvement at points Aa, Ba, C, Ap, Bp and tvl ( $p < 0.001$ ) after operation, and a 96.7 % of success rate for POP correction was noted. With respect to the changes in quality of life (QoL), there were statistically significant improvement in both UDI-6 and IIQ-7 questionnaires.

We assessed Female sexual function with FSFI questionnaire, and the total score and all domains except for lubrication domain showed significant improvement.

### Interpretation of results

Uphold™ Mesh surgery has less influences on sexual function after prolapse repair due to its unique characteristic of single incision mesh which involves anterior and/or apical compartment, causing less vaginal stiffness and scar formation with less condom-like effect.

It is made up of less dense, monofilament macroporous Polypropylene Mesh that could decrease biomaterial load to avoid mesh-related complications, such as mesh erosion and promote better mesh attachment and wound healing.

The results of our study indicated that the Uphold TVM surgery was effective in anatomical restoration of POP and was favorable for sexual function. This may be due to the evolution of new TVM, such as smaller size, lighter, less dense texture, and single-incision design. No mesh extrusion was found. The other reason for favorable sexual function may be the limited involvement of only the anterior compartment in the new Uphold TVM procedure.

Twelve (40%) women underwent concomitant TVM with mid-urethral sling with not only for anatomical restoration but also vesicourethral function. The significant improvement in UDI-6, IIQ-7, and POP-Q measurements implies that our surgical managements can successfully treat POP and concomitant stress urinary incontinence. Moreover, there is no detrimental effect on sexual function in women treated with Uphold plus sling surgery.

Table 2. Changes in scores of Female Sexual Function Index before and 6 months after surgery. Data are given as mean  $\pm$  standard deviation. N=30

| Domain                | Pre-OP         | Post-OP        | P value             |
|-----------------------|----------------|----------------|---------------------|
| <b>Sexual desire</b>  | 2.4 $\pm$ 0.9  | 2.9 $\pm$ 0.8  | <b>0.009 **</b>     |
| <b>Sexual arousal</b> | 2.8 $\pm$ 0.8  | 3.2 $\pm$ 0.5  | <b>0.011 **</b>     |
| Lubrication           | 3.7 $\pm$ 1.2  | 3.8 $\pm$ 0.8  | 0.50                |
| <b>Orgasm</b>         | 3.8 $\pm$ 1.1  | 4.1 $\pm$ 0.8  | <b>0.034 **</b>     |
| <b>Satisfaction</b>   | 4.0 $\pm$ 1.4  | 4.8 $\pm$ 0.9  | <b>&lt; 0.01 **</b> |
| <b>Dyspareunia</b>    | 4.3 $\pm$ 1.4  | 5.0 $\pm$ 1.0  | <b>&lt; 0.01 **</b> |
| <b>Total scores</b>   | 20.8 $\pm$ 5.3 | 23.7 $\pm$ 3.3 | <b>&lt; 0.01 **</b> |

Pre-op : preoperative; Post-op : postoperative; \*Paired t-test. \*\* Statistical significance.

## CONCLUSIONS

In our study, we found that Uphold mesh surgery can achieve effective anatomical restoration of POP and better sexual function regardless of concomitant sling surgery.

## REFERENCES

- Shatkin-Margolis, A. & Pauls, R. Sexual function after prolapse repair. *Current Opinion in Obstetrics and Gynecology* 29, 343-348 (2017).
- Altman, D. et al. Pelvic organ prolapse repair using the Uphold™ Vaginal Support System: a 1-year multicenter study. *International Urogynecology Journal* 27, 1337-1345 (2016).
- Hoda, M., Wagner, S., Greco, F., Heynemann, H. & Fornara, P. Prospective Follow-up of Female Sexual Function after Vaginal Surgery for Pelvic Organ Prolapse Using Transobturator Mesh Implants. *The Journal of Sexual Medicine* 8, 914-922 (2011).
- Farthmann, J. et al. Improvement of pelvic floor-related quality of life and sexual function after vaginal mesh implantation for cystocele: primary endpoint of a prospective multicentre trial. *Archives of Gynecology and Obstetrics* 294, 115-121 (2016).
- Long, CY. et al. Comparison of the Changes in Sexual Function of Premenopausal and Postmenopausal Women Following Transvaginal Mesh Surgery. *The Journal of Sexual Medicine* 8, 2009-2016 (2011).
- Long, CY. et al. Changes in Female Sexual Function following Anterior with and without Posterior Vaginal Mesh Surgery for the Treatment of Pelvic Organ Prolapse. *The Journal of Sexual Medicine* 9, 2167-2174 (2012).
- Long, CY. et al. Comparison of Clinical Outcomes Using "Elevate Anterior" versus "Perigee" System Devices for the Treatment of Pelvic Organ Prolapse. *BioMed Research International* 2015, 1-7 (2015).
- Ker, CR., Lin, KL., Loo, ZX., Juan, YS. & Long, CY. Comparison of Uphold™ Vaginal Mesh Procedure with Hysterectomy or Uterine Preservation for the Treatment of Pelvic Organ Prolapse. *Scientific Reports* 8, (2018).