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CLINICAL OUTCOMES AND URODYNAMIC EFFECTS AFTER VAGINAL TAILORED MESH SURGERY FOR PELVIC ORGAN PROLAPSE

Hypothesis / aims of study
We innovated two kinds of vaginal tailored mesh surgeries for correction of pelvic organ prolapse. One anterior vaginal tailored mesh surgery is for simultaneous correction of cystocele and stress urinary incontinence, and another is for enterocele, uterine prolapse, vaginal stump prolapse and rectocele. The aim of this study is to evaluate the clinical outcomes and urodynamic effects of these two novel vaginal tailored mesh surgeries.

Study design, materials and methods
Between November 2011 and November 2013, all women with pelvic organ prolapse underwent either anterior or/and posterior vaginal tailored mesh surgeries were enrolled in this study by reviewing their medical records. The results of urodynamic studies and 20-minutes pad testing between the baseline and at least 3 months after surgeries were compared in those women who underwent anterior vaginal tailored mesh surgery to elucidate the urodynamic effects.

Results
A total of 104 women underwent either anterior or/and posterior vaginal tailored mesh surgeries. Baseline characteristics are tabulated in Table 1. Overall successful rate is 98.1% (102/104). Two patients had recurrence of uterine prolapse, and one needed a Manchester operation. Five women experienced perioperative complications, five experienced postoperative complications. After treatment for these complications, none had long-term sequelae.

Among 91 women who underwent anterior tailored vaginal mesh surgeries, 58 women had both baseline and the follow-up urodynamic studies and pad testing at least 3 months after surgery (Table 2). Significant lower maximum urethral pressure, maximum urethral closure pressure, urethral closure profile area and continence area were noted at the follow-up urodynamic studies. However, follow-up pad weight decreased significantly (Table 2).

Interpretation of results
This study proved that these two novel vaginal tailored mesh surgeries were feasible and safe procedures with a good successful rate and a reasonable complication rate. Besides, we proved this novel anterior vaginal tailored mesh surgeries had the anti-incontinence effect from the decrease of pad weight after surgery. From the findings of lower urethral sphincter function but a decrease in pad weight after surgery, our novel anterior vaginal tailored mesh surgery did provide an anti-incontinence effect, probably related to the novel design of the mesh to support the proximal urethra, that is different to the anti-incontinence effect of midurethral sling procedure.

Concluding message
These two novel vaginal tailored mesh surgeries were feasible and safe procedures. Besides, this novel anterior vaginal tailored mesh surgery did provide an anti-incontinence effect.

Table 1. Baseline characteristics (n=104)

Variables	Values
Age (years)	63.4±10.5
Parity	3.2±1.1
Menopause	90 (87)
Diabetes mellitus	20 (19)
Prior hysterectomy	20 (19)
Prior incontinence surgery	5 (5)
Prior prolapse surgery	13 (13)
Surgeries	
Anterior vaginal mesh surgery only	41 (39)
Anterior and posterior vaginal mesh surgeries	50 (48)
Posterior vaginal mesh surgery only	13 (13)
Concomitant surgeries	
Midurethral sling procedure (all with posterior vaginal mesh surgeries)	6 (6)
Miscellaneous	3 (3)
Operation time (minutes)	92.2±40.7
Blood loss (mL)	122.1±141.7
Follow-up interval (months)	10.2±4.8
Perioperative Complications	
Vaginal hematoma	3 (3)
Voiding difficulty	2 (2)
Postoperative complications	

Mesh erosion	4 (4)
Redundant anterior vaginal tissue need excision	1 (1)
Recurrence	
Uterine prolapse ≥stage2	3 (3)

† Vales are expressed by mean ± standard deviation or n (percentage).

Table 2. Comparisons of baseline urodynamic parameters and the changes from baseline (after surgery) of women underwent anterior vaginal tailored mesh surgery (n=58)

Variable	Baseline	After surgery	P †
Pad weight (g)	**22.9±39.6**	**6.8±20.8**	**<0.001**
Qmax (mL/s)	20.5±10.4	22.0±9.6	0.24
Qavr (mL/s)	8.2±4.0	9.7±8.8	0.30
Voided volume (mL)	302±145	298±111	0.88
PVR (mL)	**51±29**	**35±14**	**<0.001**
Voiding time (s)	43±16	41±18	0.30
First desire (mL)	143±35	148±34	0.40
Normal desire (mL)	200±50	214±38	0.03
Strong desire (mL)	250±58	262±43	0.08
Urgency (mL)	322±76	328±62	0.30
Pdetqmax (cmH2O)	22.1±12.9	24.9±12.6	0.09
VLPP	63.2±20.7	62.8±17.9	0.64
MUP(cmH2O)	**104.7±29.7**	**85.6±22.4**	**<0.001**
MUCP(cmH2O)	**62.4±26.6**	**41.3±20.6**	**<0.001**
FPL (cm)	2.6±0.7	2.5±0.6	0.26
CL (cm)	1.6±0.8	1.4±0.5	0.56
UCPA (cm2H2O)	**86.7±37.9**	**59.0±37.3**	**<0.001**
Continence area (cm2H2O)	**44.0±22.6**	**28.5±16.3**	**<0.001**
PTR (%)	105.3±46.3	95.9±21.2	0.39

† By Wilcoxon sign-rank test.

‡ Vales are expressed by mean ± standard deviation. CL=continence length; FPL=functional profile length; MUCP=maximum urethral closure pressure; MUP=maximum urethral pressure; PTR=pressure transmission ratio; Pdetqmax=Detrusor pressure at maximum flow; PVR=postvoidal residual; Qavr=average flow; Qmax=maximum flow; UCPA=urethral closure pressure area; VLPP=Valsalva leak point pressure.

Disclosures

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