382

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A COMPARISON OF ONE-YEAR OUTCOMES OF TWO SINGLE INCISION VAGINAL MESH PROCEDURES FOR PROLAPSE REPAIR

Hypothesis / aims of study
Use of vaginal meshes for treatment of pelvic organ prolapse (POP) remains controversial. In recent years, there is a trend toward reduce the volume/weight of meshes and single incision surgery. Two methods of single incision mesh involved either lateral/apical anchoring (Elevate™, lightweight mesh) or non-anchoring (Prosima™) had been launched. The aim of this study was to assess safety and efficacy after the above two procedures.

Study design, materials and methods
A cohort study was conducted at a tertiary referral center between Aug 2010 and Feb 2014. Patients who underwent transvaginal pelvic reconstruction surgery using single incision vaginal mesh were recruited. A detailed comparison of one-year outcomes, including anatomic outcome and surgical complications was made. Data were analysed with univariate methods or multivariate logistic regression analysis accordingly.

Results
One hundred and forty-two patients (51 in Elevate™ group and 91 in Prosima™ group) were recruited and analyzed. Demographic data and surgical result were presented in **Table 1.** Most of these parameters were similar between groups. Mesh erosion rate was lower but not statistically significant in Elevate™ group (5.9% vs. 12.8% in Elevate™ and Prosima™ group, respectively, P=0.379). Other complications were rare and comparable between groups. Objective anatomic success (POP stage $\leqq$ 1) rate was higher in Elevate™ group at one year follow-up, although not statistically significant (86% and 78.2% after Elevate™ and Prosima™ repair, respectively, P=0.264). Value of post-operation Ba point was significantly greater in Prosima™ repair group (-2.59cm vs -1.18cm in Elevate™ and Prosima™ group, respectively, p=0.004). Subgroup analysis about anatomical success/failure was made in **Table 2**. Those in the anatomical failure group had a greater value of pre-operative a point (3.38cm in failure group while 2.26cm in success group, p=0.032).

Interpretation of results
The Elevate™ prolapse repair system had a better 1-year anatomical cure rate of the anterior compartment than Prosima™, which might reflect mesh anchoring prevents anterior vaginal wall descent. Operative and postoperative experiences were similar between groups; however, lightweight mesh seems to have less mesh exposure according to this study.

Concluding message
Single-incision vaginal mesh surgery for treatment of POP seems to be safe and efficient, but have limitations when used to manage severe anterior vaginal wall prolapse. Non-anchoring vaginal mesh may be less powerful for anterior compartment support. Besides, lightweight mesh is important when considering reduce mesh erosion rate.

Table 1. Preoperative characteristics and surgical results of patients who underwent pelvic reconstructive surgery using Prosima(N=91) or Elevate(N=51).

	Prosima (N=91)		Elevate (N=51)		
Patient characteristics	Value	Range	Value	Range	P value
Mean age (year)	60.4 ± 7.9	(38-78)	65.1 ± 7.1	(49~79)	0.001*
Mean body mass index (kg/m^2)	25.4 ± 3.0	(20.0-32.0)	24.8 ± 3.3	(16.9~33.1)	0.334*
Mean hospital stay (days)	5.3 ± 0.9	(4-9)	5.4 ± 2.2	(4~17)	0.477*
Mean Foley drainage (days)	3.3 ± 0.8	(3-8)	3.9 ± 2.3	(3~11)	0.342*
Mean operating time (minutes)	135 ± 24.9	(90-190)	166.2 ± 28.0	(120~210)	<0.001*
Mean estimated blood loss (ml)	162 ± 121.5	(50-800)	141.2 ± 80.1	(50~500)	0.347*
% concomitant hysterectomy	40%	(30/75)	47.5%	(19/40)	0.581#
% De novo stress incontinence	14.5%	(9/62)	5.9%	(3/51)	0.537#
% De novo urgency incontinence	7.06%	(6/85)	13.7%	(7/51)	0.224#
% Vaginal mesh extrusion	12.8%	(11/91)	5.9%	(3/51)	0.379#
Surgical effectiveness at 1 year follow-up					
Success(≦ stage I)	78.2%	(68/87)	86%	(43/50)	0.264#
Ba (cm)	-1.18 ± 1.05		-2.59 ± 0.93		0.044*
C (cm)	-7.17 ± 1.09		-6.65 ± 2.08		0.180*
Bp (cm)	-2.95 ± 1.34		-3 ± 0		0.290*

Table 2. Patient characteristics about surgical failure (post-op POP stage≧2) or success using single incision vaginal mesh at 1 year follow-up.

	Failure group(N=26)		Success group (N=116)		
Patient characteristics	Value	Range	Value	Rage	P value
Mean age (year)	62.9 ± 9.8	(48-78)	62.0 ± 7.7	(38~79)	0.924*
Median parity	3	(1-7)	3	(1~6)	0.589*
Mean body mass index (kg/m^2)	25.1 ± 3.0	(18.9-31.5)	25.2 ± 3.2	(16.9~33.1)	0.722*
% Prior hysterectomy	15.4%	(4/26)	16.4%	(19/116)	1.000#
% Prior prolapse repair	23.1%	(6/26)	7.8%	(9/116)	0.078#
% Concomitant hysterectomy	40%	(6)	47.5%	(42)	0.180#
% De novo stress incontinence	7.7%	(2/)	8.6%	(10/)	1.000#
% De novo urgency incontinence	3.8%	(1/)	10.3%	(12/)	0.264#
% Vaginal mesh extrusion	11.5%	(3/26)	9.5%	(11/116)	1.000#
Pre-op POPQ parameters					
Ba (cm)	3.4 ± 1.9	(0~+7)	2.6 ± 1.9	(-2~+8)	0.032*
C (cm)	0.9 ± 3.7	(-4~+8)	1.0 ± 2.9	(-6~+8)	0.832*
Bp (cm)	-0.1 ± 2.2	(-3~+7)	0.0 ± 2.1	(-3~+8)	0.617*

*: Mann-Whitney test; #: Fisher's exact test.

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