Risk Factors of Surgical Failure following Transvaginal Mesh Repair using MIPS device #25495

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Hypothesis / aims of study

The advantages for using transvaginal mesh (TVM) in the pelvic organ prolapse surgery shorten the operation time and have better anatomical correction. However, prolapse recurrence with surgical failure was found in certain patients who undergone transvaginal mesh with Minimal Invasive Solution (MIPS) (Neomedic International,Terrassa, Spain) mesh for the treatment of female pelvic organ prolapse (POP). Our aim is to identify the risk factors associated with pelvic organ prolapse (POP) recurrence after transvaginal mesh (TVM) repair using Minimal Invasive Solution (MIPS) .

Study design, materials and methods

This was a retrospective study with two hundred and eighteen women with symptomatic POP stage II to IV were scheduled for TVM. All subjects underwent , multichannel urodynamic studies , 1 -hour pad test ,urinalyses and pelvic examination using the POP quantification (POP-Q) staging system before and after surgery.

Results and interpretation

Seven (3.2%) of 218 women reported POP recurrence after follow-up time of 12-46 months. We performed a univariate analysis of patients' characteristics to identify the predictors of surgical failure after TVM. There was no difference between two groups as to body mass index, POP stage, mesh type, and preoperative urinary symptoms (P>0.05). However, we found the functional urethral length < 20 mm (P=0.011),International Consultation on Incontinence Questionnaire(ICI-Q)scores >= 7 (P=0.012), and the surgical experience less than 60 cases (P=0.018) were 3 significant predictors of surgical failure. Multivariate logistic regression showed the similar results.

Severe pelvic organ prolapse accompanies stress urinary incontinence more frequently. The severity of anterior vaginal wall prolapse was correlated with urethral function as observed by urodynamic investigations. In women with POP, other intrinsic urethral factors may be more important for a coexistent Stress Urinary Incontinence (SUI) than the stage of the vaginal descent. Urethral funneling has been shown to be anatomically associated with shortened urethras as well as with urinary incontinence in up to 97%. Patients with stress urinary incontinence have been reported to show a decrease in the MUCP which leads to a decrease in functional urethral length. During the learning curve, incorrect anchorage delivers an inadequate pelvic support, leading to the higher rate of POP recurrence.

Results and interpretation

Table 1. Demographic characteristics of women (n=218) with pelvic organ prolapse following transvaginal mesh repair.

	N=218
age	68.91±8.49
Parity	2.99±1.14
BMI	24.37±3.63
HT	39(17.89)
Menopause	101(46.33)
H/T	110(50.46)
DM	52(23.85)
Hysterectomy	12(5.5)
Previous POP surgery	5(2.29)
SUI surgery	3(1.38)
Follow-up (months)	12-46 months

Data are given as mean ± standard deviation or n (%).
BMI, body mass index; HT, hormone therapy; H/T, hypertension; DM, Diabetes Mellitus; POP, pelvic organ prolapse; SUI, stress urinary incontinence.

Table 3. Analysis of clinical features in the success and the failure groups.

		Success (n=211)	Failure (n=7)	P Value	OR
age	<60	26(12.32)	0(0)	1	
	≧60	185(87.68)	7(100)		
Parity	<4	164(77.73)	5(71.43)	0.6559	
	≧4	47(22.27)	2(28.57)		
BMI	<25	130(61.61)	4(57.14)	1	
	≧25	81(38.39)	3(42.86)		
Past history	HT	39(18.48)	0(0.00)	0.3567	
	Menopause	99(46.92)	2(28.57)	0.4545	
	H/T	106(50.24)	4(57.14)	1	
	DM	50(23.70)	2(28.57)	0.6726	
	Hysterectomy	12(5.69)	0(0.00)	1	
	Previous pop	5(2.37)	0(0.00)	1	
	SUI surgery	3(1.42)	0(0.00)	1	
Involved compartment	cystocele	149(70.62)	3(42.86)	0.2027	
	Uterine_prolapse	91(43.13)	2(28.57)	0.7014	
	Vault_prolapse	16(7.58)	2(28.57)	0.1056	
	rectocele	12(5.69)	1(14.29)	0.3538	
	All	45(21.33)	3(42.86)	0.1814	
Concomitant	Cx	28(13.27)	0(0.00)	0.5989	
	VTH	31(14.69)	0(0.00)	0.5969	
	Urinary incontinence	84(39.81)	3(42.86)	1	
Mesh erosion		4(1.90)	0(0.00)	1	
Pre-op symptoms	Frequency	131(62.38)	3(42.86)	0.4319	
	SUI	131(62.09)	5(71.43)	0.7134	
	UI	122(58.10)	6(85.71)	0.2443	
	Incomplete emptying	178(84.76)	6(85.71)	1	
	hesitancy	147(70.00)	5(71.43)	1	
	Nocturia	168(79.62)	7(100.00)	0.3498	
Surgical experience	first 60 case	55(26.07)	5(71.43)	0.0181	7.09(1.34,37.61)
	61-218 case	156(73.93)	2(28.57)		

Table 4. Comparison of preoperative urodynamic and POP-Q parameters in the success and the failure groups.

		Success(n=211)	failure(n=7)	P Value	OR
DO		74(35.07)	3(42.86)	0.6997	
Pad	<6	188(89.1)	6(85.71)	0.5634	
	≧6	23(10.9)	1(14.29)		
Q max (ml/S)	<15	126(59.72)	3(42.86)	0.4473	
	≧15	85(40.28)	4(57.14)		
RU (ml)	<50	82(38.86)	2(28.57)	0.7095	
	≧50	129(61.14)	5(71.43)		
FS (ml)	<100	57(27.01)	4(57.14)	0.0979	
	≧100	154(72.99)	3(42.86)		
MCC (ml)	<300	63(29.86)	2(28.57)	1	
	≧300	148(70.14)	5(71.43)		
Pdet (cmH2O)	<25	145(68.72)	7(100)	0.103	
	≧25	66(31.28)	0(0)		
FUL(mm)	<20	49(23.22)	5(71.43)	0.0111	8.27(1.55,43.94)
	≧20	162(76.78)	2(28.57)		
MUCP (cmH2O)	<40	99(46.92)	2(28.57)	0.4545	
	≧40	112(53.08)	5(71.43)		
OABSS	<6	117(55.45)	4(57.14)	1	
	≧6	94(44.55)	3(42.86)		
UDI-6	<6	119(56.4)	3(42.86)	0.7021	
	≧6	92(43.6)	4(57.14)		
IIQ-7	<6	93(44.08)	4(57.14)	0.7026	
	≧6	118(55.92)	3(42.86)		
ICIQ	<7	135(63.98)	1(14.29)		
	≧7	76(36.02)	6(85.71)	0.0122	10.66(1.26,90.16)
POPDI	<10	99(46.92)	4(57.14)	0.7097	
	≧10	112(53.08)	3(42.86)		
Aa	≦1	97(45.97)	2(28.57)	0.4596	
	>1	114(54.03)	5(71.43)		
Ba	≦1	34(16.11)	1(14.29)	1	
	>1	177(83.89)	6(85.71)		
C	≦1	106(50.24)	3(42.86)	1	
	>1	105(49.76)	4(57.14)		
Ap	≦1	179(84.83)	6(85.71)	1	
	>1	32(15.17)	1(14.29)		
Bp	≦1	137(64.93)	4(57.14)	0.6997	
	>1	74(35.07)	3(42.86)		
TvL	≦8	74(35.07)	4(57.14)	0.2521	
	>8	137(64.93)	3(42.86)		

Conclusions

Functional urethral length < 20 mm, ICI-Q scores >= 7, and lack of surgical experience were 3 signifi cant predictors of failure following TVM using MIPS kit. POP recurrence after mesh repair appears to be unlikely beyond the learning curve. Urethral instability and urethral funneling might be occurred in patient with severe pelvic organ prolapse coexist with SUI due to weakening and fragile support of endopelvic fascia lead to recurrence after TVM.

References

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