Comparison of the Partial versus Subtotal Mesh Removal, by the Urogenital Distress, and Sexual Functions

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Bayrak O[1], Tepe N[2], Sen H[1], Ugur G[2], Erturhan S[1], Seckiner I[1]

1) Department of Urology, University of Gaziantep, Gaziantep, Turkey
2) Department of Obstetrics and Gynecology, University of Gaziantep, Gaziantep, Turkey

Purpose

To compare the efficiency of the partial mesh removal (PMR) versus subtotal mesh removal (SMR), on urogenital distress, and sexual functions, in patients experienced vaginal mesh extrusion.

Methods

Between June 2014 and January 2018, 45 patients who experienced vaginal mesh extrusion following MUS surgeries and therefore underwent mesh excision were evaluated retrospectively. The study protocol was approved by the Local Ethics Committee.

PMR was performed by the single surgeon on 19 patients, and SMR by the other single surgeon on 26 patients.

Age and body mass index (BMI) of patients, pregnancy, vaginal delivery, menopause status, whether diabetes mellitus (DM) is present, smoking status, genitourinary system symptoms, post-void residual urine volume (PVR), previous MUS history, and mesh removal time from implantation, were recorded.

Vaginal mesh extrusion was diagnosed with the physical examination.

Patients underwent synthetic graft for pelvic organ prolapse, had pelvic radiation history, suspected of urethra and bladder injury in cystoscopy, were not sexually active, underwent mesh removal previously, and underwent concomitant incontinence surgery following mesh removal, were excluded from the study.

The effectiveness of surgical procedures were compared with the ‘’Urinary Distress Inventory-6 (UDI-6)’’ and the‘‘Female Sexual Function Index (FSFI)’’ forms. Patients filled out UDI-6, and IFSI forms, preoperatively and at the postoperative 6th month.

“SPSS 11 for Windows” statistical package was used in statistical analyses, and the data were expressed as an arithmetic mean and standard deviation. The Chi-Square Test was performed for the calculation of categorical variables, and the Mann Whitney U Test was used to compare the mean values. A 95% confidence interval ($p<0.05$) was considered statistically significant.

Results

Fourteen PMR-patients and 21 SMR-patients who met the study criteria were evaluated for the study.

No difference was detected in terms of age, BMI, pregnancy, vaginal delivery, menopause status, DM, smoking status, genitourinary system symptoms, PVR, previous midurethral surgery, and mesh removal time from implantation, between two groups (p=0.583, p=0.561, p=0.359, p=0.606, p=0.594, p=0.530, p=0.533, p=0.218, p=0.630, p=0.647, p=0.359, respectively).

In PMR-patients, the length of the removed mesh (2.71±0.62 cm vs 7.33±0.85 cm, p=0.001), and the duration of operation (57.28±4.77 minute vs 69.52±6.4, p=0.001) were shorter.

No patients had per-operative or post-operative complications **(Table 1)**.

At the post-operative 6th month, there was a significant improvement in UDI-6 scores and FSFI scores in both PMR, and SMR groups (p=0.001, p=0.001, p=0.001, p=0.001, respectively)**.**

When the two groups were compared in terms of improvement rates, there was no significant difference in UDI-6 scores [(-) 30.21 ± 6.56%, vs (-) 26.33 ± 9.01%, p=0.222].

However, there was a statistically significant improvement in the FSFI scores in the SMR group [(+) 83.71 ± 14.81%, vs (+) 124.42 ± 36.82%, p=001]**.**

Following mesh excision, there was no significant difference in overactive bladder (OAB) symptoms between 2 groups, with a decrease of 75% in the PMR group and 71.42% in the SMR group (p=0.721).

Recurrent SUI was observed in 2 (14.2%) patients in the PMR group, and 4 (19.1%) in the SMR group at the post-operative 6th month, but no significant difference was found between two groups (p=0.544) **(Table 2).**

Table 1: Demographic and operative data.

	PMR (n=14)	SMR (n=21)	p
age (year)	48.28 ± 8.57	49.52 ± 8.25	0.583
body mass index (kg/m^2)	28 ± 2.57	28.42 ± 2.54	0.561
pregnancy (n)	3.07 ± 1.26	3.38 ± 1.07	0.359
vaginal delivery (n)	2.85 ± 0.94	3 ± 1.18	0.606
menopause status (n, %)	3 (21.42%)	4 (19.04%)	0.594
DM (n, %)	2 (14.28%)	2 (9.52%)	0.530
smoking status (n, %)	4 (28.5%)	7 (33.3%)	0.533
genitourinary system symptoms			
OAB symptoms: 11 (31.4%)	4 (28.5%)	7 (33.3%)	
obstructive symptoms: 14 (40%)	7 (50%)	7 (33.7%)	
urinary tract infection: 9 (25.7%)	4 (28.5%)	5 (23.8%)	0.218
pelvic pain: 18 (51.4%)	8 (57.1%)	10 (47.6%)	
disparonia: 23 (65.7%)	9 (64.2%)	14 (66.6%)	
penil pain during intercourse: 7 (20%)	4 (28.5%)	3 (14.2%)	
PVR (ml)	58.07 ± 12.65	56.23 ± 13.22	0.630
previous midurethral surgery (TOT / TVT) (n, %)	13 (92.9%) / 1 (7.14%)	20 (4.8%) / 1 (95.2%)	0.647
mesh removal time from implantation (month)	7 ± 2.68	9.28 ± 4.91	0.359
removed mesh length (cm)	2.71 ± 0.62	7.33 ± 0.85	0.001*
operation time (minute)	57.28 ± 4.77	69.52 ± 6.4	0.001*

n: number of the patients
ml: milliliter
cm: centimeter
DM: diabetes mellitus
OAB: overactive bladder
TOT: transobturator tape
TVT: tension-free vaginal tape
PVR: post-void residual urine
PMR: partial mesh removal
SMR: subtotal mesh removal
kg/m^2: kilogram/square meter
* p values lower than 0.05 were accepted as significant.

Table 2: Comparison of the groups for the changes, at the postoperative 6th month.

	PMR	SMR	p value
UDI-6 scores (%)	(-) 30.21 ± 6.56%	(-) 26.33 ± 9.01%	0.222
IFSF scores (%)	(+) 83.71 ± 14.81%	(+) 124.42 ± 36.82%	0.001*
Improvements on OAB symptoms (%)	(-) 75%	(-) 71.42%	0.721
SUI recurrence (%)	(+) 14.2%	(+) 19.1%	0.544

UDI-6: Urinary Distress Inventory-6
IFSI: Index of Female Sexual Function
PMR: partial mesh removal
SMR: subtotal mesh removal
OAB: overactive bladder
SUI: stress urinary incontinence
*p values lower than 0.05 were accepted as significant.

Conclusions

Vaginal mesh extrusion is an important complication that may occur following mesh-related procedures.
The patient group which has risk factors for mesh extrusion in the pre-operative period may be determined, and patients should be informed about mesh complications.
In addition, in cases where the extruded portion should be removed, patients should be informed that the de novo SUI may develop after excision surgery and that it may require a new surgical procedure.

In cases where extrusion is developed, partial or subtotal/total removal of mesh provides a significant improvement in patients’ complaints of sexual dysfunction related to extrusion.
The rates of improvement in sexual functions is much more pronounced in cases undergone SMR.

Keywords: mesh extrusion, urogenital distress, sexual functions, mesh removal