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Ramart P[1], Ackerman A[1], Cohen S[1], Kang D[1], Choi J[1], Kim J[1], Raz S[1]
***1.*** *UCLA*

# URINARY INCONTINENCE AFTER SUBURETHRAL MESH REMOVAL REQUIRING ANTI-INCONTINENCE PROCEDURE

Hypothesis / aims of study

Excision or removal of synthetic suburethral sling would be the proper treatment options for all mesh complications but recurrent stress urinary incontinence (SUI) is the problem that most patients concern. Therefore, we would like to demonstrate urinary incontinence that required anti-incontinence procedure within 1 year of follow up in the specific group.

Study design, materials and methods

After approved by institute review board, we conducted retrospective cohort study of 278 cases who had complications from only one implanted synthetic suburethral sling without any implanted meshes for pelvic organ prolapse or other anti-incontinence procedures at the time of implant. All cases of either retropubic vaginal mesh (RVM) or transobturator mesh (TOM) complications were performed transvaginal mesh removal between January 2000 and December 2013. All cases were no history of pelvic radiation and prior vaginal mesh revision or excision. Preoperative diagnosed SUI or fistula were excluded as well as anti-incontinence procedure performed during mesh removal was also excluded. At the follow up, the patients who had severe SUI or continuous incontinence were examined and investigated. If cystoscopy and videourodynamic confirmed no fistula, anti-incontinence procedure would be proceeded after well healing. In cases of mild to moderate SUI or mix urinary incontinence that SUI predominance, conservative treatment was considered as the first line. If failed, patient concerned or desired to receive surgical treatment, we would perform cystoscopy and videourodynamic study and then proceed anti-incontinence procedures. We collected only patients who visited or phoned within 1 year after mesh removal because urinary incontinence may cause from other reasons. The primary outcome of our study, urinary incontinence which required an anti-incontinence procedure was considered as a significant outcome.

Results

A total 278 cases, there had 117 cases met the criteria and were divided into 2 groups. RVM group had 70 cases and TOM group had 47 cases. Mean age of RVM was 57.3 ± 11.1 (range 31 - 81) and TOM 54.9 ± 10.1 (range 32 – 78) years. BMI of RVM was 28.2 ± 5.2 (range 18.7 – 40.8) kg/m$^2$ and TOM was 28.7 ± 5.9 (range 20.3 – 43.4) kg/m$^2$. Menopausal status in RVM and TOM group was 81.4% and 76.6%, respectively. All demographic data were comparable in both group ($p > 0.05$). All cases had more than 1 presenting symptoms and signs. Urinary tract symptoms including storage symptoms, urgency incontinence, voiding symptoms and UTI showed no significant difference. In RVM group presented with urinary retention more than TOM group, 18.6% VS 8.5% but no statically significance. ($p > 0.05$) For gynecologic symptoms, dyspaneuria were comparable and also penile pain during intercourse more likely to be higher in TOM group. In terms of pelvic pain, no statically significant difference demonstrated between both groups. RVM group had suprapubic pain higher than TOM group but no statically significance. TOM group complained groin and leg pain more than RVM group significantly. Both groups had vaginal mesh exposure 30.0% and 31.9%, respectively. Time from implant to removal in RVM group was comparable to TOM group, 58.8 ± 51.1 and 45.6 ± 28.7 months, respectively. ($p > 0.05$) For perioperative information, all parameters including operative time and EBL were comparable in both groups.( RVM group 219.7 ± 150.2 vs TOM group 203.4 ± 152.1, $p > 0.05$) Concurrent procedures focusing on cystocele and lower tract repair were no statistically significance. RVM and TOM groups were performed entire mesh removal 51.4% and 51.1%, respectively. ($p > 0.05$) The most important reason for performing complete mesh removal in 60 cases of both group was pain (80%). Besides urinary tract injury, postoperative complications were found in 5 cases including abscess formation at gluteal area, atrial fibrillation, hematoma at groin, incisional hernia and vaginal bleeding requiring re-vaginal packing. Within 1 year of follow up, 38.6% of RVM and 34.0% of TOM group had urinary incontinence requiring anti-incontinence procedure. Both groups did not show statistically significant difference. ($p > 0.05$) Forty – three cases, RVM 27 cases and TOM 16 cases, were performed anti-incontinence procedures including autologous fascia sling 18 cases, four corners suspension 8 cases, retropubic needle suspension 7 cases, distal urethral polypropylene sling 6 cases, spiral sling 2 cases and more than one procedure 2 cases.

Interpretation of results

Two early studies reported 36 – 38% of recurrent SUI after performing mesh removal. They included complications of suburethral sling and POP mesh and performed mesh removal in various technique and some cases underwent more than 1 time which might affect to the exact SUI outcome. (1, 2) Study of voiding dysfunction after removed 19 cases of eroded synthetic midurethral slings found 8 of 19 cases (42%) had recurrent SUI but 6 of 8 cases had preoperative SUI. (3) Our study demonstrated 38.6% in RVM and 34.0% in TOM group were diagnosed urinary incontinence requiring anti-incontinence procedures as well as no statistically significant difference was showed between both groups. From multicenter, randomized equivalence trial comparing outcomes with retropubic and transobturator midurethral slings at 12 months demonstrated voiding dysfunction requiring surgical intervention in retropubic midurethral sling was higher than transobturator midurethral sling significantly.(4) Similar to our result, RVM group was more likely to present with urinary retention than TOM group but did not show statistically significant difference.(18.6% vs 8.5%, $p = 0.130$) The meta-analysis study comparing retropubic and transobturator midurethral sling indicated de novo storage symptoms was more favor in transobturator than retropubic sling. (5) From our study demonstrated 75.7% of RVM and 68.1% of TOM group presented with storage symptoms and did not show statistically significant difference. In our study, TOM group presented with groin and leg pain more than RVM group significantly. (Groin pain: 31.9% vs 12.9%, leg pain: 27.7% vs 5.7%, $p < 0.05$) Similarly, many studies indicated transobturator sling was higher groin pain than retropubic sling, significantly. (6, 7) The limitation of our study is retrospective design and mesh removal was performed by 4 surgeons that may have some little technically difference.

Table : Demonstrate presenting symptoms, intraoperative data and outcome between both groups

| **Parameters** | | **RVM (n = 70)** | **TOM (n = 47)** | **p-value** |
|---|---|---|---|---|
| Presenting symptoms and signs | Storage symptoms | 75.7% | 68.1% | 0.364 |
| | Urgency incontinence | 35.7% | 29.8% | 0.505 |
| | Voiding symptoms | 55.7% | 55.3% | 0.966 |
| | Urinary retention | 18.6% | 8.5% | 0.130 |
| | Urinary tract infection | 37.1% | 38.3% | 0.899 |
| | Dyspaneuria | 44.3% | 48.9% | 0.621 |
| | Penile pain during intercourse | 2.9% | 10.6% | 0.115 |
| | Suprapubic pain | 25.7% | 19.1% | 0.409 |
| | Pelvic pain | 30.0% | 34.0% | 0.645 |
| | Groin pain | 12.9% | 31.9% | 0.012 |
| | Leg pain | 5.7% | 27.7% | 0.001 |
| Mesh exposure | Vagina | 30.0% | 31.9% | 0.901 |
| | Urinary tract | 8.6% | 6.4% | |
| Time implant to removal (months) | | 58.8 ± 51.1 | 45.6 ± 28.7 | 0.945 |
| Operative time (min) | | 86.1 ± 42.7 | 81.8 ± 30.8 | 0.533 |
| EBL (ml) | | 219.7 ± 150.2 | 203.4 ± 152.1 | 0.946 |
| Concurrent procedure | Lower tract repair | 12.9% | 8.5% | 0.463 |
| | Cystocele repair | 14.3% | 12.8% | 0.815 |
| Entire mesh removal | | 51.4% | 51.1% | 0.969 |
| **Outcome** | | | | |
| UI requiring anti-incontinence procedure Within 1 year of follow up | | 38.6% | 34.0% | 0.618 |

Concluding message

From many studies, after performing mesh excision or removal, the majority of symptoms and complications are improved. Consequently, surgeon has to deal with further complications and unexpected outcome as well as a patient suffers from mesh complication and all sequel. From our study, we can make a precise conclusion that within 1 year after suburethral mesh removal, 38.6% of RVM and 34.0% of TOM will have urinary incontinence requiring anti-incontinence procedure

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