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# CHARACTERIZATION OF LOWER URINARY TRACT SYMPTOMS BEFORE AND AFTER MIDURETHRAL SLING REVISION

Hypothesis / aims of study:
The synthetic midurethral sling (MUS) first introduced in 1996 by Ulmsten, has become the gold standard for the treatment of stress urinary incontinence in women. Known complications of MUS placement include: intraoperative bladder perforation, mesh erosion and extrusion, dyspareunia, pelvic pain, fistula formation, urinary tract infection, and obstruction[1]. There is limited data on the best approaches to treat women with these complications and it is unclear whether treatment resolves these symptoms. The primary aim of this study was to determine outcomes for women who underwent surgery for MUS complications.

Study design, materials and methods:
A retrospective cohort study of women who underwent surgical correction for complications of synthetic mesh midurethral slings at a tertiary referral center from January 2010 to December 2013 was performed. A thorough chart view of eligible patients was performed to obtain pertinent clinic-demographic information, operative notes, urodynamic parameters, and baseline symptom specific distress and impact questionnaire data. Eligible women were then sent follow-up questionnaires that assessed: reasons for surgery, presence of dyspareunia and partner discomfort with intercourse using Visual Analog Scales, urinary incontinence symptoms before and after MUS surgery, and other treatments the patient may have had. This patient assessment questionnaire also included the Patient Global Impression of Improvement (PGI-I), Patient Satisfaction Questionnaire (PSQ), Medical, Epidemiological, and Social Aspect of Aging Questionnaire (MESA), Pelvic Floor Impact Questionnaire-7 (PFIQ-7), as well as the Pelvic Organ Prolapse Distress Inventory 6 (POPDI-6), and Urinary Distress Inventory 6 (UDI-6) subscales of the Pelvic Floor Distress Inventory-20 (PFDI-20). Overall descriptive data analysis was performed and analyses were performed comparing outcomes in women who underwent partial versus complete sling removal, sustained vaginal exposure of mesh versus no exposure, and described having pain versus no pain. Two sample t-test, Wilcoxon-Mann-Whitney test, and Chi-square test, as appropriate, were used to assess the differences between two different groups at a statistical significance level of 0.05.

Results:
A total of 143 eligible women were identified and 47.6% (68/143) responded to the questionnaire, 10.5% (15/143) declined participation or were deceased, and 41.9% (60/143) did not respond. The average age was 53.1 ± 11.0, the majority were Caucasian (86%) and overweight (69.5%). Vaginal Erosion was the most common reason for surgery (44.5%, followed by dyspareunia (38.3%), vaginal pain (30.5%), and urinary obstruction (27.3%) (Table). Retropubic MUS comprised of 50.5% of the women having surgery, 46.9% had transobturator MUS, and 7.8% had had a mini-sling. 21.9% had undergone at least one prior surgical procedure on their mesh and 78.1% had had the MUS placed elsewhere. Women who underwent partial excision of the MUS (N=65) versus complete excision (N=63) had higher post void residual volumes (86.7±105.9 vs 43.7±93.1, p=0.037) and more likely to have had surgery for obstruction (35.4% vs 19.1%, p=0.04). Women who had complete excision of MUS were more likely to have pain (57.1% vs 32.3%, p=0.0005) and dyspareunia (50.8% vs 26.2%, p=0.0004). Women who underwent surgery secondary to pain (N=74) versus women who did not describe pain (N=54) were more likely to have had a transobturator MUS (59.5% vs 29.6%, p=0.004) and undergo complete excision of sling (63.5% vs 29.6%, p=0.0002). The presence of vaginal erosion did not increase risk of presenting with pain (p=0.07). After MUS revision, women with pain vs no pain reported no difference in UDI-6 Score (56.8 ± 33.6 vs 56.5 ± 27.7, p=0.96), satisfaction (p=0.72), and global impression of improvement (p=0.31) or follow up questionnaire scores. 76.7% of the pain group reported feeling “much better” or “a little better” regarding their dyspareunia compared to 40.0% of the no pain group (p=0.04). Women who underwent MUS surgery for vaginal exposure (N=64) versus no vaginal exposure (N=64) were more likely to have had a transobturator MUS (62.5% vs 31.3%, p=0.0004) and report higher rates of pain resolution (60.0% vs 29.2%, p=0.02). Women who had surgery for mesh exposure vs no exposure had similar preoperative pain complaints (43.8% vs 45.3%, p=>0.99) and women who had no exposure were more likely to have surgery for urinary obstruction (50.0% vs 4.7%, p=<0.0001). On follow-up, women reported an 83.3% rate of urinary incontinence after MUS revision surgery, 37.9% reported pain resolution and 66.7% were satisfied/somewhat satisfied with their surgery. A total of 35.5% reported having undergone a repeat MUS or other anti-incontinence procedure after their surgery.

Interpretation of results:
Overall the most common reason for MUS revision includes: vaginal erosion, dyspareunia, vaginal pain, and urinary obstruction. MUS revision results in improvement in most lower urinary tract symptoms and the majority of women are satisfied. Transobturator MUS revision comprised the greatest proportion of sling revisions for pain and vaginal exposure.

Concluding message:
Women undergoing MUS surgery for pain and vaginal exposure were more likely to have had a transobturator MUS. Women with urinary obstruction were more likely to only have partial removal of the sling at the time of revision. A high rate of women reported resolution of dyspareunia after sling excision. A significant number of women reported urinary leakage after surgical revision of the MUS.

Table 1: Reason for Surgery

| Reason | N (%) |
|---|---|
| Vaginal Erosion | 57 (44.5) |
| Leg Pain | 1 (0.8) |
| Pelvic Pain | 17 (13.3) |
| Groin Pain | 6 (4.7) |
| Vaginal Pain | 39 (30.5) |
| Dyspareunia | 49 (38.3) |
| Male Dyspareunia | 12 (9.4) |
| Vaginal Discharge | 3 (2.3) |
| Mesh Infection | 1 (0.8) |
| Fistula | 1 (0.8) |
| Recurrent UTIs | 18 (14.1) |
| Painful Voiding | 4 (3.1) |
| Urinary Obstruction | 35 (27.3) |
| Urinary Incontinence | 16 (12.5) |
| Nerve Injury | 0 (0) |
| Vaginal Constriction | 2 (1.6) |
| Other | 4 (3.1) |

References

1. 1. Haylen BT, Freeman RM, Swift SE, Cosson M, Davila GW, Deprest J, Dwyer PL, Fatton B, Kocjancic E, Lee J, Maher C, Petri E, Rizk DE, Sand PK, Schaer GN, Webb R. An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint terminology and classification of the complications related directly to the insertion of prostheses (meshes, implants, tapes) and grafts in female pelvic floor surgery. Neurourol Urodyn. 2011 Jan;30(1):2-12.

Disclosures

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