

Start	End	Topic	Speakers
16:00	16:05	Introduction and Patient Evaluation	Tufan Tarcan
16:05	16:10	Physiotherapy	Bary Berghmans
16:10	16:20	Common solutions: Re-MUS and Adjustable Slings	Ervin Kocjancic
16:20	16:30	A long-lasting reliable option: Pubovaginal Sling	Alex Digesu
16:30	16:40	AUS and Injectable Bulking Agents	David Castro-Diaz
16:40	16:50	Questions	All
16:50	17:30	Case Discussion	Tufan Tarcan David Castro-Diaz Alex Digesu Ervin Kocjancic

Aims of Workshop

Mid-urethral slings (MUS) are the most widely used surgical treatment options for female stress urinary incontinence (SUI). With widespread use of MUS, recurrent or persistent SUI is becoming an increasingly common condition where its management is challenging. The aims of our workshop are: 1) to elaborate the preoperative and intraoperative causes of MUS failure; 2) to discuss the clinical and urodynamic assessment of patients after MUS failure and; 3) to assess conservative and surgical management options including physiotherapy, re-MUS, adjustable slings, pubovaginal sling, retropubic suspension, artificial urinary sphincter and periurethral bulking agents, in patients with recurrent or persistent SUI after MUS.

Learning Objectives

- 1) To recognise the pre and intraoperative causes of recurrent SUI after MUS surgery.
- 2) To identify patients with recurrent SUI after MUS and assess them with clinical and urodynamic tools for further decision-making.
- 3) To manage recurrent SUI after MUS surgery by utilisation of different conservative and surgical treatment options under the guidance of Evidence Based Medicine.

Target Audience

Urology, Urogynaecology, Physiotherapists

Advanced/Basic

Advanced

Conditions for Learning

This is an interactive course between the audience and speakers including lectures with Q&A and challenging case discussions.

Suggested Learning before Workshop Attendance

1. Heesakkers J, Van der Aa F, Tarcan T: Female stress urinary incontinence. In J. Heesakkers et al. (eds.), Practical Functional Urology. Springer International Publishing Switzerland, 2016. Chapter 5, pp: 89-118.
2. Kocjancic E, Crivellaro S, Ranzoni S, Bonvini D, Grosseti B, Frea B. Adjustable continence therapy for severe intrinsic sphincter deficiency and recurrent female stress urinary incontinence: long-term experience. J Urol. 2010;184(3):1017-21.
3. MacLachlan LS, Rovner ES. Management of failed stress urinary incontinence surgery. Curr Urol Rep. 2014;15(8):429.

Tufan Tarcan

Urologist, Turkey

Introduction and Patient Evaluation

Urinary incontinence (UI) may persist or recur any time following the mid-urethral sling (MUS) surgery. The treatment of UI in this patient group constitutes a real challenge for the physician and it is a devastating problem for the patient. The etiology of UI after MUS may be multifactorial and therefore, the evaluation requires a thorough physical, clinical, radiological and urodynamic re-assessment. However, while doing that, every attempt should be made to reach the preoperative clinical data of the patient basically because of two reasons:

- 1) To re-assess the preoperative decision-making process and the intraoperative surgical reports in order to reveal any possible mistake related to the indication or performance of the previous MUS surgery.
- 2) To compare the preoperative anatomical, clinical and urodynamic features of the patient with her current findings and so, analyze any influence of the MUS or concomitant surgery (e.g. prolapse surgery) on these futures.

Unfortunately, it is not uncommon that a wrong or sub-optimal indication for surgery leads to a poor surgical outcome. Common examples for poor outcomes are patients with intrinsic sphincteric deficiency and/or immobile urethras or mixed UI (predominant urge) or detrusor underactivity. If it is available, re-analyzing the preoperative urodynamic study is certainly helpful. However, a major drawback of today's common practice is that few patients undergo urodynamic studies prior to primary MUS because the majority of patients are somehow being mistakenly labelled as index patients with pure stress UI. Studies have shown that the ratio of index patients with pure stress UI are actually much lower than expected.

Another basic step in the reassessment of a patient with persistent or recurrent UI is diagnosing the type of UI. The differential diagnosis mainly includes stress, urgency, overflow and continuous UI due to a fistula. Symptomatic evaluation should include validated questionnaires and bladder diaries. It is to note that if such a discrimination between different UI types is based only on symptoms it may be misleading. Therefore, a careful physical examination with measurement of postvoiding residual urine and flow rate is certainly mandatory. The physical examination should include assessment of pelvic organ prolapse, urethrovesical angle, urethral mobility, cough-induced stress test and detection of mesh complications. Hematuria and urinary tract infection should be excluded by urine analysis and culture. Trans-labial ultrasound is helpful in the localization of the synthetic mesh where it is not uncommon to detect the mesh under the bladder neck in failed cases. Cystoscopy should be performed in the presence of hematuria and/or pelvic/bladder pain to exclude mesh intrusion to the urinary tract.

Cystometry with pressure-flow study or a video-urodynamic study may not be necessary prior to conservative management but, they are certainly warranted prior to any secondary surgical or invasive therapeutic intervention for persistent or recurrent stress UI. Stress UI after MUS may not always be associated with urodynamic stress UI. For example, it is possible to detect detrusor overactivity UI, stress-induced detrusor overactivity, detrusor underactivity and even infravesical obstruction in this patient group that will certainly influence the decision for further management.

Bary Berghmans

Physiotherapist, The Netherlands

Physiotherapy

Use of synthetic materials in pelvic floor surgery definitely reduced surgical failures, but at the same time, increased risk of complications (some of which are unique to synthetic materials) compared to traditional surgical repairs. Efficacy of repeat midurethral sling (RMUS) for persistent or recurrent SUI is rather low with 56% being successful following RMUS, and 30% still stress urinary incontinent.

Complications of mid-urethral slings include those of mesh exposure (0.3%), voiding dysfunction (7%) and de novo urgency (25%) so functional problems!!

Physiotherapists use the International Classification of Functions to deal with the consequences of the (R)MUS and urinary incontinence on organ level to restore impairments, on personal level to restore disabilities, and on sociocultural level to boost restriction in participation. Some of these consequences are prone for pelvic physiotherapy, such as constipation, pain during intercourse, incontinence while others such as damage to the bladder, ureters, or the rectum and mesh complications are not. Understanding pathophysiological mechanisms of different types of pelvic floor dysfunctions is key to successful treatment and to reducing condition's significant impact. On the other hand this understanding should help to clarify the biological rationale for (R)MUS failure. While RMUS primarily focuses on anatomical restoration, pelvic physiotherapy aims to restore functionality. In the sparse literature about how to handle adequately (R)MUS failure up to now very little answers can be found. It is urgent time to discuss these high prevalent and for the patients very disappointing failures and its consequences and to seek acceptable and longlasting solutions.

References will be justified in the presentation during the workshop.

Ervin Kocjancic

Urologist, USA

Common solutions: Re-MUS and Adjustable Slings

Stress urinary female incontinence (SUI) is primary due to intrinsic sphincter deficiency (ISD) and urethral hypermobility. Despite a lack of standardized international definition, ISD needs to be clearly diagnosed in order to be correctly treated.

Although, there is no international consensus definition, we can consider that the ISD is a composite concept combining urodynamic data (MUCP < 20 or 30 cmH₂O) and one or more clinical information (no urethral mobility, negative urethral support test, failure of a first surgery, leakage during abdominal straining, high stress incontinence scores). Imaging can provide additional evidence for intrinsic sphincter deficiency diagnosis, but the correlation between imaging and function remains low. ISD should be diagnosed by a composite of Clinical history, urodynamic evaluation, anatomic findings at physical examination and the severity of the incontinence.

For the treatment of ISD and recurrent SUI a retropubic or trans obturator midurethral sling can be performed as a first surgery. In the past there was a misconception that the retropubic option works better for the patients with ISD. However the meta-analysis by Pan-Feng group, show that TVT doesn't offer better results than TOT in recurrent SUI and another RCT showed that TVT and TOT offer similar results in patients with VLPP<60 and also in patients with VLPP>60.

One possible treatment for sever forms of ISD is represented by the Artificial Urinary Sphincter. However, the long-term outcome of AUS in women is associated with a significant complication rate such as: erosion, infection, device malfunctioning, persistence of urinary Incontinence. These are the reasons of a very high re-intervention rate of approximately 50 to 60%. The lower efficacy rate of the traditional MUS and high complication rates of the AUS makes the Adjustable MUS an interesting solution for a difficult problem. Adjustable MUS are slings with mechanical properties that permit their re-tensioning in the immediate post-op (24-48 hrs after surgery). In the presentation the different adjustable solution will be presented, including the success and the complication rates.

Conclusion:

There is no clear definition neither consensus on what ISD is.

Severe forms:

- evaluation is easy and particularly in previous operated patients
- conventional therapies are probably not recommended

Moderate forms:

- cure rates are probably reduced
- validated evaluation and comparative studies are still needed

Mild forms:

- no modification of prognosis and management

Re-do sling:

- may be an option for recurrent SUI after MUT failure but there is no sense to do another MUT if the previous one was properly carried out

Tension:

- treatment of ISD requires more than urethral support

Re-adjustable slings:

- provide better outcome and long-term consistency

Bulking agents

- provide poor and not long-lasting outcome

Artificial sphincter:

- provide good outcome but very high complication rate.

Alex Digesu

Urogynecologist, UK

A long-lasting reliable option: Pubovaginal Sling

The pubovaginal slings (PVS) were reserved for recurrent stress urinary incontinence (SUI) due to intrinsic sphincter deficiency because of the technical difficulty involved and the special surgical skills required for performing the procedure. More recently, the operation has been successfully used for primary SUI, as continence rates were better with greater patient satisfaction despite the higher incidence of postoperative voiding dysfunction compared with Burch colposuspension. This finding is supported by results of a recent meta-analysis of 15,855 patients showing that both synthetic and PVS had similar objective cure rates that were superior to Burch colposuspension. During increased abdominal pressure with coughing the rectus muscle contracts, pulls the sling slightly forward (anteriorly), with rotation of the bladder base posteriorly and inferiorly thus causing compression and kinking of the bladder outlet and preventing incontinence. Understanding this selective dynamic continence mechanism is essential to the pelvic surgeon to avoid excessive tightening of the sling, which will lead to voiding dysfunction.

The pros and cons of PVS, including additional incision to harvest the fascia and more storage symptoms than with mesh slings, should be addressed.

Patients with persistent or recurrent SUI following placement of a prior sling represent a complex patient population. Treatment choice is often dependent on a multitude of factors including surgeon preference and training, patient preference, coexisting urologic problems, anatomic features, and other comorbidities related to the patient. For primary SUI, mid-urethral slings (MUS) are currently considered first line surgical treatment with cure rates as high as 84% at 5 years of follow-up. However, there remains limited data further examining and verifying the utility of MUS used in secondary repair for patients who have failed a prior MUS procedure.

Secondary repair with a retropubic sling is a durable and effective procedure with an objective cure rate of 61-74% without significant differences in outcomes noted between retropubic MUS and PVS. Conversely, the incidence of storage LUTS is significantly higher in PVS compared to MUS. The reported urinary retention rates following secondary repair is 6–13.8% and de novo urgency rate 6–30%. In conclusion there is still no consensus on the management of persistent or recurrent SUI after a failed synthetic MUS. Usually after a mesh complication or sling failure many women and surgeons prefer to avoid a repeat mesh procedure and may choose an autologous PVS as a salvage operation for recurrent SUI after a failed MUS in view of the reported good and durable long-term results.

The autologous PVS remains a valuable surgical option for both primary and recurrent SUI in women, showing high cure rates and minimal side effects. The operation restores continence through a dynamic hammock mechanism that works mainly during increased intra-abdominal pressure, with minimal effect on resting bladder-outlet resistance. With the recent decline in the use of synthetic MUS, the demand for PVS is expected to increase in urogynecological practice, and this requires specific training in procedural surgical skills during fellowship programs.

David Castro-Diaz

Urologist, Spain

AUS and Injectable Bulking Agents

Periurethral or transurethral injection of urethral bulking agents are a feasible option for the management of female stress urinary incontinence (SUI) after a failed midurethral sling. Because its efficacy is rather limited and there are more effective alternative surgical options, bulking agents are best reserved for patients who do not wish major invasive therapy and who are aware that efficacy and duration are inferior to surgery. Many injectable materials have been used although no one has been demonstrated to be better than another. The procedure can be carried out as an office-based procedure and local anesthesia that can be offered to patients with significant ISD (intrinsic sphincter dysfunction) who are not surgical candidates due to co-morbidities or who are not interested in further surgeries. The reported subjective cure rate is lower than 40%. Although many patients express improvement after the procedure, efficacy is not long lasting and multiple reinjections are likely to be needed. Complications include injection of the material in the unintended place, unwanted tissue reaction, de novo retention, exposure and erosion of the implant, pain, urgency urinary tract infection, granuloma and periurethral abscess.

The artificial urinary sphincter (AUS) is an alternative to slings or bulking agents in the management of SUI after a failed mid-urethral sling if ISD is present and is the main reason for SUI. The AUS enhances higher intraurethral pressures by increasing pressure circumferentially around the urethra, lessening the transmission of intraabdominal pressures. Therefore, the AUS may benefit women with urethral weakness and good anterior vaginal wall who have sphincter dysfunction. The AUS provides uniform circumferential compression of the bladder neck, without changing its position. The AUS is indicated for incontinent women with proven ISD and, can be particularly useful in those patients who have undergone previous unsuccessful anti-incontinence procedures. The AUS should be contraindicated after pelvic radiotherapy.

The AUS may be placed either with a transvaginal or trans-abdominal approach. The transvaginal approach affords direct visualization of the difficult dissection of the urethra-vaginal plane, and the option of a supra-meatal incision to allow in the anterior dissection of the urethra. The retropubic approach is recommended over the vaginal approach because of a lower infection rate. Advantages of the transabdominal approach include lack of a vaginal incision and improved exposure of the endopelvic fascia and anterior bladder neck dissection. Additionally, transabdominal exposure allows the opportunity to perform a deliberate cystotomy to assist in a particularly difficult dissection. The endoscopic implantation of the AUS is feasible providing similar outcome in the hands of surgeons who are very experienced in laparoscopy or robotics. Regardless of operative approach, emphasis should be placed on meticulous surgical approach as intraoperative complication places the patient at risk for post-operative problems such as infection and erosion with eventual device explantation. The AUS compares well to the success of more traditional procedures for urinary incontinence (>85%). The data suggests that placement of the AUS is a safe and effective treatment option for the carefully selected patient with ISD.