

## ANTEGRADE CYSTOSCOPIC REMOVAL OF RETAINED URETHRAL SLING MESH IN THE BLADDER: A NOVEL MINIMALLY INVASIVE METHOD

### Hypothesis / aims of study

Mid-urethral slings can be a very effective treatment for stress incontinence and are a low risk procedure. While recognized bladder penetration happens 0.7 to 24% of the time, the rare complication of unrecognized perforation with intravesical retained mesh can be both uncomfortable for the patient and a nidus for infections and stones. As the sling material is often posterior, near the bladder neck, it is very difficult to remove it using retrograde cystoscopy. We present our novel and minimally invasive method of using antegrade access into the bladder in conjunction with holmium laser to remove the sling material.

### Study design, materials and methods

4 patients at our institution underwent this procedure. The patients were placed in lithotomy position. Antegrade access was then obtained using a Chiou suprapubic access set, 2 cm above the symphysis pubis. Using this access, a 24-french sheath was placed and a 23-french 30 degree rigid cystoscope was used to visualize the mesh. Endoscopic scissors were then used to cut out the majority of visible mesh, followed by use of the holmium laser to vaporize any remaining mesh. This was then followed by cauterization using the Bugbee to allow for re-epithelialization. Following complete removal of the mesh material, the sheath was then removed and the insertion site dressed. The patients were all discharged home the same day.

### Results

4 women with mid-urethral sling mesh that had penetrated the bladder presented, all with symptoms of pain and (lower urinary tract symptoms) LUTS. Mean follow-up was 8.7 months (range 4.9 – 18.6 months). After unsuccessful retrograde removal was attempted in all 4, we were successfully able to perform antegrade mesh removal. Post-operative flexible cystoscopy did not demonstrate any residual mesh in 3 patients, but 1 patient had to undergo a second procedure to remove further residual mesh. On follow-up, 2 of the patients stated that their urination was “much better” compared to prior to surgery and 2 patients stated they were “very much better”. 3 patients reported that pain and LUTS resolved, while 1 patient reported that pain resolved but LUTS were unchanged.

### Interpretation of results

Antegrade cystoscopy is an effective and durable method to remove mesh. Patients tolerate the procedure well and have clear symptomatic improvement. Due to the common location of eroded mesh at the bladder neck, this is an optimal way to remove the mesh when unable to do so retrograde.

### Concluding message

We present a novel and innovative method for removal of mid-urethral sling mesh that had penetrated the bladder. For patients whose mesh is unable to be removed by retrograde cystoscopy, we feel that the above described antegrade approach is the optimal way to remove the mesh completely, in a minimally invasive manner. Further studies with larger patient populations and longer follow-up are needed to further investigate and develop this novel and effective procedure.

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<b><i>What were the subjects in the study?</i></b>	<b>HUMAN</b>
<b><i>Was this study approved by an ethics committee?</i></b>	<b>Yes</b>
<b><i>Specify Name of Ethics Committee</i></b>	<b>Washington University School of Medicine IRB</b>
<b><i>Was the Declaration of Helsinki followed?</i></b>	<b>Yes</b>
<b><i>Was informed consent obtained from the patients?</i></b>	<b>No</b>