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Case study

A Novel Technique: Removal of Perigee Total Vaginal Mesh with A Tendon Stripper

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Abstract

Total transvaginal mesh removal is often described along with groin dissections to retrieve obturator mesh arms. Melon, et al. describe the case of a total vaginal removal of mesh using a novel technique and instrument, a tendon stripper, negating the need for groin dissections and associated morbidity. This technique may serve as additional armamentarium for these challenging transobturator mesh removal cases.

Keywords: Complete mesh removal; Mesh arm; Obturator arm; Tendon stripper; Transvaginal mesh removal

Introduction

Current evidence does not support the use of vaginal mesh repair for the primary management of pelvic organ prolapse owing to morbidity [1] and the need for repeat surgery. The Therapeutic Goods Administration (TGA) has also removed general approval for transvaginal mesh in Australia. The complications may include mesh exposure requiring surgery in 9% [2], and in a yet undetermined but significantly smaller number, non-resolving pain which may or may not be attributable to the vaginal mesh repair.

Clinicians are seeing a number of women with complications from vaginal mesh, such as chronic debilitating pelvic pain and dyspareunia. This has coincided with increased public scrutiny towards mesh, media publicity, and litigation.

Chronic pelvic pain is a complex syndrome with many possible aetiologies; if there is a foreign implant, and it is thought to be the cause of the pain, it may require removal in an attempt to manage pain. Conservative measures are recommended in the first instance including multi-disciplinary involvement with physiotherapy, pain specialists, trigger point therapy and multi-modal pain management strategies [3].

When these therapies fail to resolve pain symptoms, surgical removal of the implant is considered. However, it is not clear which patients will benefit from removal and whether to remove only the vaginal component or total removal including groin dissection, which may be associated with its own morbidity. Furthermore, women need to be carefully counselled that total removal of mesh implants is sometimes not possible, that successful pain and dyspareunia outcomes following surgery are not uniform, and of increased rates of recurrent prolapse and incontinence [3].

In the current climate, there is an increasing number of women requesting total transvaginal mesh removal. Most instances of total mesh removal described in the literature necessitate bilateral groin dissections to retrieve the mesh arms, an open procedure with associated morbidity. Transobturator mesh arms can be challenging to excise given the angle of trajectory through the obturator foramen and are often adhered to the posterior aspect of the pubic periosteum and immobile. Melon, et al. describe the case of a woman following Perigee transvaginal mesh (AMS System) implanted in 2011 for primary prolapse at a regional center complicated by pain and dyspareunia who proceeded to a total vaginal mesh excision using a novel technique and instrument, negating the need for bilateral groin dissection.

Case Details

A 43-year-old woman with a history of a Perigee vaginal mesh (AMS System) 5 years' prior for primary prolapse in a regional center was referred to the Pelvic Floor Unit outpatient department. Index surgery notes were unremarkable. Her comorbidities include an elevated BMI of 43, spinal stenosis with lower back pain, hypertension, asthma, and an obstetric history of 3 vaginal

births. She presented to our unit with symptoms of right hip and groin pain which radiated bilaterally down the legs, lower back pain, vaginal pain and dyspareunia. She also had recurrent prolapse symptoms and mixed urinary incontinence.

Physical examination demonstrated a stage 2 cystocele, the cervix in the upper half of the vagina and a well-supported posterior vaginal wall. She was tender to palpation vaginally on both sides but worse on the left, anterolaterally, and over the levator muscles. No mesh exposure was visualised or palpated. MRI of the hip and pelvis and lumbosacral spine showed the spinal stenosis to be stable over the previous 10 years and no other abnormality. Translabial ultrasound was performed by the unit and demonstrated mesh failure with downward movement of the mesh with the cystocele, along with bilateral levator avulsion. An independently ordered pelvic ultrasound by the plastic surgery team was unfortunately incorrectly reported and hence misleading, suggesting that the mesh was located between the posterior vaginal wall and rectum, with single bilateral mesh arms lying 2.5 cm deep to the labia and extending 1.8 cm laterally. No imaging could fully track the extent of the 4 four mesh arms behind the pubic bone.

Multi-disciplinary management included physiotherapy, specialist pain team, urogynecology and plastic surgery. Conservative measures with physiotherapy, localised anaesthetic and steroid injections, and multi-modal pain therapy showed no improvement. Following thorough counselling, the patient opted for total surgical removal of mesh. This was scheduled as a combined urogynecology and plastic surgery case. It was the first Perigee vaginal mesh removed at our center.

Procedure

The procedure was coordinated with both the urogynecology and plastic surgery teams. A total excision of vaginal mesh including groin exploration, vaginal repair and cystoscopy was planned. Preoperative antibiotics and intravenous tranexamic acid were administered, general anaesthesia, and the patient prepped and draped in lithotomy position. Single thickened mesh arms were palpable anterolaterally in the vagina on both sides. Hydrodissection of the anterior vaginal wall was followed by dissection of the mesh from the vaginal wall and from the endopelvic fascia overlying the bladder. The mesh appeared folded upon itself forming a 1.5 - 2 cm wide band across distal anterior vagina (Figure 1). All 4 mesh arms were mobilised to the ischiopubic ramus but found to be densely adherent to the bone. The existing medial upper thigh scars (where device trocar exited) was subtle and well healed. Therefore, two exploratory incisions were made in the left groin (groin crease, upper medial thigh) at the probable location of the Perigee device. Muscle sparing dissection to locate the mesh arms lateral to the ischiopubic ramus was unsuccessful despite the short and palpable distance between the location of mesh arm medially and the dissection laterally. At this point, the main difficulty was the dense adherence of the mesh arm to the back of the ischiopubic rami. The plastic surgery team suggested the novel idea of using a tendon stripper (Figure 2). The mesh was divided in the midline and the arms trimmed to fit in the tendon stripper and then all mesh arms were then in succession dissected free from the ischiopubic ramus using a combination of gentle traction on the mesh and a gentle rotating manoeuvre with the tendon stripper (Figure 3). Care was taken to protect the bladder medially. Due to the success of this technique on the left, it was decided to perform this on the right without groin dissection. Presumed complete mesh was reconstructed ex-vivo with fascial tissue visible beyond the mesh arms and the permanent suture visible running through the mesh arm (Figure 4 and 5). The left groin incisions were closed with 4.0 monocryl and 5.0 nylon. An anterior vaginal repair was performed with 2.0 PDS plication with closure of the paravaginal defects created by the dissection and the vaginal epithelium closed after FLOSEAL Hemostatic Matrix (Baxter©). Cystoscopy was performed with no evidence of bladder or urethral injury and bilateral ureteric jets were seen. Total blood loss was 100ml and operative time 3.5 hours. A vaginal pack and indwelling catheter were inserted.

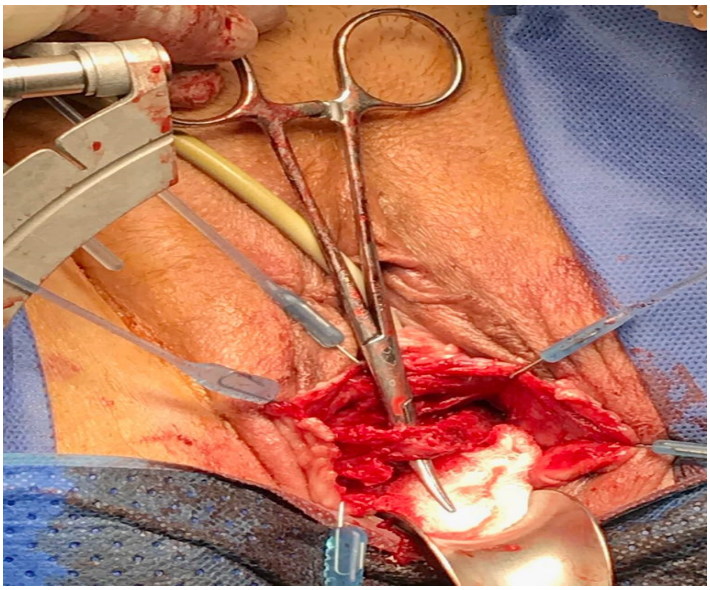

Figure 1: Anterior vaginal dissection with folded mesh exposed.

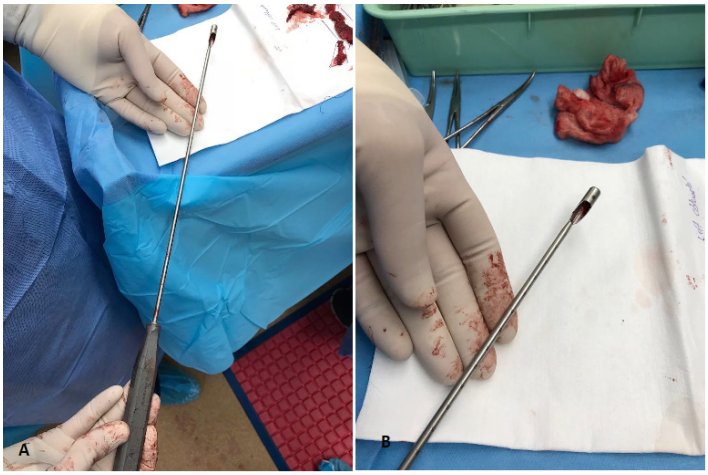

Figure 2: Tendon stripper.

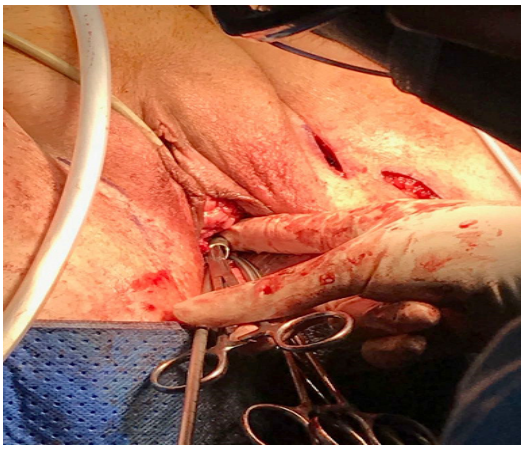

Figure 3: Mesh arm dissected free from left ischiopubic ramus using gentle traction on mesh and gentle rotation movement of tendon stripper.

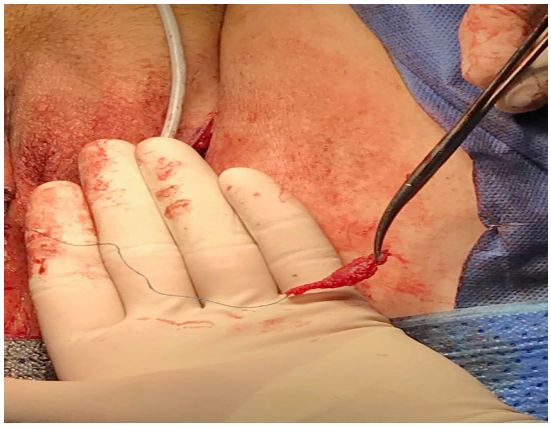

Figure 4: Presumed complete removal of mesh arm with fascial tissue visible beyond and the permanent suture visible running through the mesh arm.

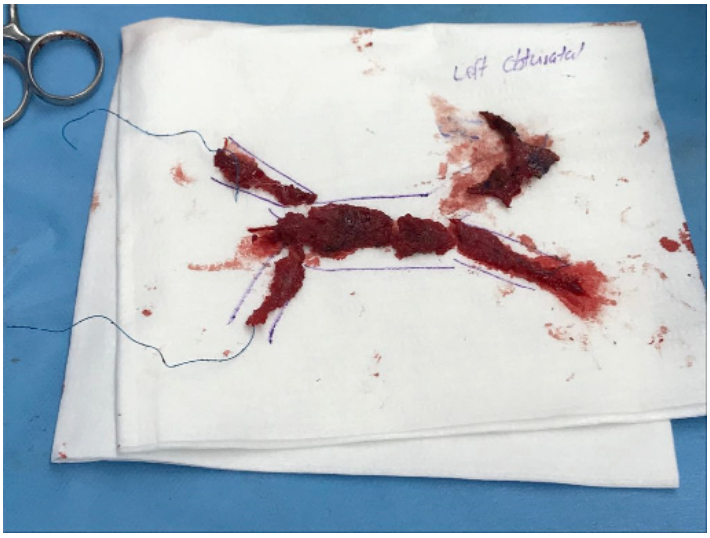

Figure 5: Complete mesh reconstructed ex-vivo.

The vaginal pack was removed post-operative day 1 and the indwelling catheter the following day. The patient unfortunately suffered 3 days of vaginal discomfort and swelling requiring anti-inflammatories and oral analgesia and an uncomplicated urinary tract infection. She was discharged home day 2. At 6-week and 6-month reviews the patient reported complete resolution of her vaginal, pelvic and hip pain.

Discussion

Vaginal mesh related pain and dyspareunia can be debilitating and life changing for affected patients. The management is initially conservative with multi-disciplinary team involvement, physiotherapy, pain specialist and multi-modal pain management. Failing this and as a last resort, surgical removal of the vaginal mesh is possible with thorough pre-operative counselling. Imaging may be helpful but requires clinical correlation for correct interpretation; neither ultrasound or MRI provide comprehensive visualization of transvaginal mesh particularly behind the pubic bone. Post-surgical resolution of symptoms is not uniform.

Melon, et al. describe the case of a total vaginal removal of mesh using a novel technique and instrument, a tendon stripper, negating the need for groin dissections and associated morbidity. In such cases it is assumed that the transobturator component of the mesh has retracted to behind the pubic bone. It was clear from the retrieved device that all of the mesh was able to be removed in this case using this technique. Monash Pelvic Floor unit has to date employed this technique on 3 such cases, this being the first, and in each circumstance completely removing transobturator mesh arms without the need for additional groin dissection. This technique may serve as additional armamentarium for these challenging transobturator mesh removal cases.

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Disclosure of Interests: None

Contribution to Authorship

AR/CHL/JM/FC were all involved in performing the surgery. JM was involved in the project development, contributed to the surgery, manuscript writing and editing. CHL/FC/LO/WC/AR were all involved in the project development, manuscript writing and editing.

Ethics Approval

Written informed consent was obtained from the patient for publication of these images.

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