A Novel Approach to Mesh Revision After Sacrocolpopexy

Melissa L. Dawson, DO, MS, Rebecca Rinko, DO, Nima M. Shah, MD, Kristene E. Whitmore, MD
Division of Female Pelvic Medicine and Reconstructive Surgery, Department of Obstetrics and Gynecology, Drexel University College of Medicine, Philadelphia, PA

Pelvic organ prolapse (POP) is the herniation of pelvic organs to or beyond the vaginal walls. POP affects 50% of parous women; of those women, 11% will need surgery based on bothersome symptoms. Transvaginal mesh has been used for vaginal augmentation since the 1990s. Complications from mesh use are now more prominent, and include chronic pelvic pain, dyspareunia, vaginal mesh erosion, and urinary and defecatory dysfunction. Presently, there is no consensus regarding treatment of these complications. Reported herein are two cases of women with defecatory dysfunction and pain after sacrocolpopexy who underwent mesh revision procedures performed with both urogynecologic and colorectal surgery.

[Rev Urol. *2016;18(3):174-177 doi: 10.3909/riu0698*]

KEY WORDS

Vaginal mesh • Mesh erosion • Omental flap mobilization

Pelvic organ prolapse (POP) affects 50% of parous women who have symptoms consistent with voiding dysfunction, incontinence, and discomfort from vaginal bulge.[1] Of those women, 11% will need surgery due to bothersome symptoms. Repair with native tissue has a 30% recurrence rate, especially in the anterior compartment.[2] Transvaginal mesh was introduced in the 1990s and applied in order to reduce the rate of recurrence. Common complications of mesh include chronic pelvic pain, dyspareunia/hisparunia, vaginal mesh erosion, and urinary and defecatory dysfunction. The rate of mesh-related complications after transvaginal mesh implantation for POP is 15% to 25%, and the rate of mesh erosion is up to 10% for both indications of stress urinary incontinence and POP.[2] Lower rates of mesh extrusion after abdominal sacrocolpopexy have been reported—between 0% and 12%,[3-6] depending on graft material, operator technique, and length of follow-up.

In 2008, the US Food and Drug Administration (FDA) issued a warning for vaginal mesh materials primarily indicated for incontinence and POP repair based on the Manufacturer and User Device

Experience (MAUDE) report, which identified more than 1000 serious side effects.[7] In September 2011, the FDA organized a scientific advisory board to perform clinical retrospective studies on mesh products based on an additional 2500 reported complications. The update stated that the complications from mesh use for transvaginal repair of POP are not rare, and listed recommendations, including a thorough discussion with patients before surgery regarding the potential complications of mesh use.[8]

We present two patients with a history of sacrocolpopexy with subsequent defecatory dysfunction and pain. The procedures performed on these patients included both pelvic and abdominal approaches concomitantly performed with colorectal surgery for complete mesh excision. We review the surgical techniques that resulted in a successful treatment of mesh complications.

Case Reports

Case 1

A 62-year-old woman presented with vaginal mesh contracture, defecatory dysfunction, and abdominal pain. The patient underwent a laparoscopic supracervical hysterectomy and sacrocolpopexy 10 months prior to her first office visit. Preoperative magnetic resonance imaging (MRI) demonstrated a rectocele and collection of mesh superior and posterior to the vagina, with significant posterior thickening from the trigone to the bladder dome and left hydroureter. After a thorough history and physical examination were performed, and imaging studies were collected and reviewed, the decision was made to proceed with surgical management. She underwent pelvic excision of the vaginal mesh, anterior colporrhaphy with axis graft and sacrospinous fixation, cystoscopy, and bilateral ureteral stent placement; perineorrhaphy was then performed via colorectal surgery, which further executed laparoscopic lysis of adhesions, rigid proctoscopy, and creation of an omental pedicle graft to the pelvis.

Extensive surgical excision of mesh was performed vaginally and laparoscopically. Laparoscopy demonstrated dense adhesions from the apex of the vagina to the rectum.

Extensive surgical excision of mesh was performed vaginally and laparoscopically. Laparoscopy demonstrated dense adhesions from the apex of the vagina to the rectum. Once the rectum was unbound from the vagina, a rigid proctoscopy was performed to ensure the rectum was intact. The omentum was then mobilized laparoscopically off the transverse colon and placed between the vagina and rectum at the excisional site. A piece of dermis graft was placed transvaginally to provide apical support via sacrospinous ligament fixation and paravaginal support to the arcus tendineus fasciae pelvis bilaterally. Postoperatively, the patient reports significantly reduced pain and improved defecatory function.

Case 2

A 58-year-old woman presented with significant defecatory dysfunction and pelvic pain. The patient underwent a robotic-assisted laparoscopic supracervical hysterectomy and sacrocolpopexy 3 years prior. Preoperative MRI demonstrated mesh erosion into the rectum and a moderate rectocele. After a thorough history and physical examination were performed, and imaging studies were conducted, the decision was made to proceed with surgical management. She underwent cystoscopy, bilateral ureteral stent placement, excision of posterior vaginal mesh, and laparoscopic proctectomy with coloanal anastomosis and loop ileostomy performed by colorectal surgery. Transvaginally, the mesh was carefully dissected from the vaginal epithelium and rectum. A clear communication was noted between the vagina and the rectum, identifying a mesh perforation. The colorectal surgeon was unable to mobilize the rectum; therefore, a proctectomy and coloanal anastomosis were performed with an ileostomy. An inadvertent cystotomy was also made during colonic lysis of adhesions and repaired laparoscopically without complication. Postoperatively, the patient reports significantly reduced pain and dyspareunia, and improved defecatory function.

Preoperative MRI demonstrated mesh erosion into the rectum and a moderate rectocele.

Discussion

We present two cases of mesh complications surgically revised with vaginal and laparoscopic dissection and removal of mesh by a colorectal surgeon. Both patients presented with pain and defecatory dysfunction caused by mesh placement, which was relieved with complete mesh explantation. Although the patients had different procedures performed by colorectal surgeons, the procedures resulted in complete removal of mesh and good outcomes, including reduced pain and defecatory dysfunction.

There are different management strategies for mesh complication,

the most conservative of which include antibiotics and local estrogen application. Newer studies show an advantage of the timely mesh revision surgery to relieve symptoms.[2] Abbott and colleagues[9] showed that 60% of conservatively treated patients required surgical intervention and 60% of the total cohort were operated on at least twice. Mesh extrusion into the vagina or other organs, such as the bladder or rectum, dyspareunia/hispareunia, chronic pelvic pain, and urinary or defecatory dysfunction usually require surgical revision.[2] Some studies show that patients with persistent or new-onset vaginal bleeding and dyspareunia after mesh placement should be considered high risk for mesh complications; proposal of frequent follow-up visits and early excision may yield better outcomes.[10]

Mesh extrusion into the vagina or other organs, such as the bladder or rectum, dyspareunia/hispareunia, chronic pelvic pain, and urinary or defecatory dysfunction usually require surgical revision.

A comprehensive history and physical examination, and localization of symptoms by cystoscopy, vaginal examination, imaging, urodynamics, defecogram, and proctogram, are included in the preoperative management.[2] Determination of pain localization by trigger points and pain mapping can be helpful for planning the site and extent of mesh excision.[11,12] Even after mesh is completely explanted, pain due to inflammation from foreign body reaction may persist.[11]

Even after mesh is completely explanted, pain due to inflammation from foreign body reaction may persist.

There are different approaches to mesh revision surgery reported in the literature, including transvaginal, laparoscopic, endoscopic, and abdominal approaches. Different transvaginal mesh revision techniques are described, including mesh incision, sling release, and partial or complete excision of mesh performed to treat various complications. Although not standardized, many have proposed intraoperative management of vaginal mesh exposures. Constantini and colleagues[12] proposed a double-layer vaginal closure after mesh excision, antibiotic flush, no stitching of the full thickness of the vaginal wall, atraumatic preparation, use of nonwoven, nonabsorbable suture and polypropylene meshes, avoidance of concomitant hysterectomy, and long-term follow-up after revision.

In our second case, the patient had complete excision of mesh and an omental flap mobilized and draped over the surgical site to promote healing. This procedure is not well described in the literature and may be of benefit for future mesh revision surgery. Colorectal surgery demonstrates the use for omental mobilization and flaps for a variety of indications. The omentum has the potential for neovascular proliferation and provides a thick barrier to promote healing.[13]

The omentum has the potential for neovascular proliferation and provides a thick barrier to promote healing.

MAIN POINTS

- Pelvic organ prolapse (POP) affects 50% of parous women who have symptoms consistent with voiding dysfunction, incontinence, and discomfort from vaginal bulge. Of those women, 11% will need surgery due to bothersome symptoms.
- The rate of mesh-related complications after transvaginal mesh implantation for POP is 15% to 25%, and the rate of mesh erosion reaches 10% for both stress urinary incontinence and POP indications. Abdominal sacrocolpopexy has a lesser rate of mesh extrusion (between 0% and 12%).
- Determination of pain localization by trigger points and pain mapping can be helpful for planning the site and extent of mesh excision. Even when mesh is completely explanted, pain due to inflammation from foreign body reaction may persist.
- Performing an omental flap, mobilizing and draping over the surgical site, may promote healing. This procedure is not well described in the literature for mesh excision and may be of benefit for future mesh revision surgery.

Conclusions

Our two cases demonstrate complete mesh excision, from both vaginal and laparoscopic approaches, with the assistance of colorectal surgery, with good subjective outcomes at follow-up visits. Although not common, omental flap mobilization may encourage better mesh excision site healing and neovascularization to improve outcomes. ■

References

1. Maher C, Feiner B, Baessler K, Schmid C. Surgical management of pelvic organ prolapse in women. *Cochrane Database Syst Rev*. 2013;4:CD004014.
2. Barski D, Deng DY. Management of mesh complications after SUI and POP repair: review and analysis of the current literature. *Biomed Res Int*. 2015;2015:831285.
3. Nygaard IE, McCreery R, Brubaker L, et al; Pelvic Floor Disorders Network. Abdominal sacrocolpopexy: a comprehensive review. *Obstet Gynecol*. 2004;104:805-823.
4. Iglesia CB, Fenner DE, Brubaker L. The use of mesh in gynecologic surgery. *Int Urogynecol J Pelvic Floor Dysfunct*. 1997;8:105-115.
5. Kohli N, Walsh PM, Roat TW, Karram MM. Mesh erosion after abdominal sacrocolpopexy. *Obstet Gynecol*. 1998;92:999-1004.
6. Nygaard I, Brubaker L, Zyczynski HM, et al. Long-term outcomes following abdominal sacrocolpopexy for pelvic organ prolapse. *JAMA*. 2013;309:2016-2024.
7. UPDATE on Serious Complications Associated with Transvaginal Placement of Surgical Mesh for Pelvic Organ Prolapse: FDA Safety Communication. US Food and Drug Administration website. http://www.fda.gov/medicaldevices/safety/alertsandnotices/ucm262435.htm. Issued July 13, 2011. Accessed September 15, 2016.
8. Murphy M, Holzberg A, van Raalte H, et al; Pelvic Surgeons Network. Time to rethink: an evidence-based response from pelvic surgeons to the FDA Safety Communication: "UPDATE on Serious Complications Associated with Transvaginal Placement of Surgical Mesh for Pelvic Organ Prolapse". *Int Urogynecol J*. 2012;23:5-9.
9. Abbott S, Unger CA, Evans JM, et al. Evaluation and management of complications from synthetic mesh after pelvic reconstructive surgery: a multicenter study. *Am J Obstet Gynecol*. 2014;210:163.e1-163.e8.
10. Lo TS, Tan YL, Cortes EF, et al. Clinical outcomes of mesh exposure/extrusion: presentation, timing and management. *Aust N Z J Obstet Gynaecol*. 2015;55:284-290.
11. Kobashi K. Management of erosion of graft materials in pelvic floor reconstruction. *ScientificWorldJournal*. 2009;9:32-36.
12. Costantini E, Zucchi A, Lazzeri M, et al. Managing mesh erosion after abdominal pelvic organ prolapse repair: ten years' experience in a single center. *Urol Int*. 2011;86:419-423.
13. Russ JE, Smoron GL, Gagnon JD. Omental transposition flap in colorectal carcinoma: adjunctive use in prevention and treatment of radiation complications. *Int J Radiat Oncol Biol Phys*. 1984;10:55-62.