



# Perineal hernia repair using permanent suture and mesh: a video case presentation

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## Abstract

**Introduction** Perineal hernias are an uncommon cause of pelvic bulge symptoms in women with no established ideal surgical approach. We present the case of a posterior perineal hernia repaired robotically using permanent sutures and mesh.

**Methods** A 67-year-old woman with a posterior perineal hernia and stage III uterovaginal prolapse presented to our office and underwent minimally invasive robotics-assisted abdominal surgery. Her levator plate defect was closed primarily using permanent sutures and reinforced using polypropylene mesh. A concomitant supracervical hysterectomy and sacrocolpopexy were performed.

**Results** Robotics-assisted transabdominal perineal hernia repair offered excellent intra-operative visualization and complete delineation of the defect.

**Conclusions** Robotics-assisted abdominal primary repair of the perineal hernia and overlying mesh placement offered a safe and effective repair of this rare disorder.

**Keywords** Hernia · Minimally invasive surgery · Perineal hernia · Polypropylene mesh · Transabdominal

## Introduction

A perineal hernia is the abnormal protrusion of an intra-abdominal structure, such as the small bowel or colon, through

a defect in the pelvic floor into the perineal space [1]. The pelvic floor mainly consists of the levator ani muscles, which play a critical role in supporting the pelvic structures, including the bladder, vagina, uterus, and rectum. Levator ani insults that result in a widened urogenital hiatus generally lead to pelvic organ prolapse; however, defects within the muscles may result in a perineal hernia. Insults to the pelvic floor are usually acquired and very rarely congenital [1, 2]. The reported incidence of perineal hernias resulting from surgery is low and ranges from 0.6% in abdominoperineal resection of the anorectum [1, 3] to 3% with pelvic exenteration [1, 4]. The incidence of perineal hernias resulting from childbirth is unknown.

Similar to prolapse, expectant management is the preferred option for asymptomatic women with perineal hernias [2, 5]. However, symptomatic patients may complain of pelvic bulge or pressure, irritation, and urinary or defecatory dysfunction including bowel obstruction [6]. Surgical management should be considered for symptomatic patients and malignancy should be ruled out in those with a prior history. For patients who require surgical management, the ideal approach has not been established with successful abdominal, transperineal, or combined routes reported.

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We present the case of a perineal hernia repaired robotically using a combination of permanent sutures and polypropylene mesh.

## Case report

A 67-year-old para 5 woman presented to our office with worsening bulge symptoms. Her past medical history was remarkable for 4 vaginal deliveries, 1 cesarean delivery, longstanding constipation, and a posterior colporrhaphy 14 years prior to presentation. Prior colonoscopy and sigmoidoscopy were normal.

On physical examination, the patient was noted to have stage III uterovaginal prolapse; however, she complained of a “grapefruit-sized bulge” not consistent with initial examination findings. When asked to localize her bulge, the patient pointed to the area lateral to her perineum. On closer inspection, a large perineal hernia bulging through the left side of her perineum was noted. The hernia measured 8 × 6 cm, was covered by perineal skin, and protruded through a smaller defect in the levator and perineal muscles. Small bowel peristalsis was clearly visible in the perineal hernia sac at the level of the perineal skin. Further workup included pelvic MRI, which confirmed extensive perineal hernia (Fig. 1). A minimally invasive robotics-assisted abdominal approach was chosen for repair. A surgical video of this repair is available online.

Upon entry into the abdominal cavity, a 4-cm left-sided levator defect was noted with a large hernia sac in contact with perineal skin. The small bowel content was easily reduced from the hernia. A robotic supracervical hysterectomy was then performed without complication. Through careful dissection, the hernia sac was released from the underlying dermal tissue. The assistant facilitated the dissection by externally manipulating the skin covering the perineal hernia. Once the dissection was completed, the defect was closed using interrupted permanent polytetrafluoroethylene (ePTFE) USP 0 equivalent sutures reapproximating the medial and lateral edges of the levator ani muscle. Concomitant digital vaginal examination by the assistant confirmed identification and closure of the levator ani muscles and helped to ensure vaginal and rectal integrity. We took thick bites into the edges of the levator muscles, making sure that the sutures did not pull through while closing the muscle defect. Polypropylene type 1 “Y” mesh was then used to further support the pelvic floor defect. This was accomplished by using the distal portion of the posterior arm to cover the perineal defect, and the mesh was then affixed using ePTFE USP 3–0 equivalent sutures. The remaining mesh arm was affixed to the cervix and anterior vagina. The proximal long arm of the mesh was attached to the anterior longitudinal sacral ligament at the level of S1 using ePTFE USP 3–0 equivalent sutures after appropriate tension

was obtained. The mesh was then covered using the peritoneum and 0-Monocryl suture in a running fashion.

The patient had a normal examination and continued to report complete resolution of her bulge symptoms at 14-month and 27-month follow-up visits.

## Discussion

We presented the case of a woman with a perineal hernia successfully treated via a robotic approach using a primary closure and polypropylene mesh to further support the repair. At the time of article submission, she remains symptom-free. The optimal treatment for perineal hernias is controversial. An abdominal approach allowed us to perform concomitant pelvic organ prolapse repair with a hysterectomy and sacrocolpopexy, in addition to her perineal hernia repair. Robotics-assisted laparoscopic surgery provided better visualization into the deep pelvis, even when compared with open surgery, and has the added benefits of a minimally invasive technique. Owing to the large size of her levator defect, we believed that mesh support would offer her the best long-term success rate while simultaneously correcting her pelvic organ prolapse.

Hernia repair techniques can be classified into primary closure, placement of mesh, or repairs with autologous tissue. Several surgical routes have been proposed for perineal hernia repair, including transperineal, laparotomy, laparoscopy, or combined abdomino-perineal approaches [2, 6–8]. Owing to a lack of studies on perineal hernias, treatment is based on case reports and case studies, making the optimal treatment controversial. Within the field of gynecology, experience with mesh is typically limited to pelvic organ prolapse repair; however, much of general surgery experience and literature has found mesh closure of hernias to be the superior method of closure [9]. We sought to reinforce our repair by covering the defect with the posterior arm of the sacrocolpopexy mesh. The posterior arm of the sacrocolpopexy mesh was 11 cm in length, allowing one piece of mesh to correct her pelvic organ prolapse and reduce the risk of recurrence for her perineal hernia. Furthermore, when an increase in intra-abdominal forces occurs, this results in downward pressure toward the pelvis and presses the mesh into the levator, helping to fuse the mesh into the tissues. Conversely, if the repair was performed from a transperineal approach, these downward Valsalva forces may result in pushing the mesh away from the levators, theoretically making failure of the repair more likely.

When presented with rare disorders, the experience of others to assist with guidance of treatment is important. Moroni et al. described a woman with a history of multiple prior pelvic surgeries, including a LeFort colpocleisis, who developed a perineal hernia through her right labia majora, which was successfully repaired via a perineal approach and supported with mesh [2]. A perineal approach was chosen for that patient because of the decreased morbidity for an elderly woman described as being in

frail health. Conversely, another woman with a primary perineal hernia underwent a laparoscopic repair using permanent sutures and reportedly remained recurrence-free at a 40-month follow-up [7]. Important factors to consider when choosing a repair approach include defect size, location, risk of recurrence, and patient's overall health status. The ideal approach is the least invasive with the best long-term outcome and one that is an amenable option for the patient.

Perineal hernias are a rare cause of pelvic bulge symptoms in women. Accurate diagnosis may be elusive, especially with concomitant pathological conditions such as pelvic organ prolapse. In the case of our patient, her subjective description did not match our initial objective findings and if it were not for asking the patient to localize her bulge, the defect might not have been found. Perineal hernias may be mistaken for other diseases of the perineum and adjacent organs, such as lipomas, fibromas, rectoceles, cystoceles or rectal prolapse [10]. It is of paramount importance to maintain a high index of suspicion when the history does not match the physical examination. In the appropriate candidate, a robotics-assisted abdominal approach to perineal hernia repair, including excision of the hernia sac and defect closure using permanent suture and mesh offers patients a safe and effective method for perineal hernia repair. Increased reporting in the gynecology literature may help to guide optimal treatment for practitioners.

### Compliance with ethical standards

**Conflicts of interest** Charbel Salamon, MD is a consultant for Boston Scientific, Intuitive Surgical, and Caldera. Andrea M. Avondstondt, MD and Dima Ezzedine, MD declare that they have no conflicts of interest.

**Ethical concerns** Written informed consent was obtained from the patient for publication of this article, video, and any accompanying images. The Atlantic Health System institutional review board (IRB) deemed this manuscript exempt from IRB review.

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