Peripartum Perineal Hernia: A Case Report and a Review of the Literature

Katherine N. Hines, MD, Gopal H. Badlani, MD, and Catherine A. Matthews, MD

Objectives: This article reviews the literature for the management and repair of perineal hernias and presents a previously undescribed case of perineal bladder herniation after intrapartum pubic symphysis rupture.

Methods: A review of the literature was completed through the PubMed database using the search terms "bladder," "canal of Nuck," "labial hernia," "gynecology," "hernia," "obstetrics," "perineal hernia," "postpartum," "pubic diastasis," "pubic symphysis," "vaginal delivery," "symphyseal rupture," and "symphyseal separation." The electronic medical record for the patient was reviewed and used with the consent of the patient.

Results: There were no reports of peripartum perineal hernias in the English language literature on human subjects. Literature review with the previously mentioned search terms demonstrated that there is not a standardized approach to repair given the rarity of these defects. There are data to support the use of mesh as opposed to primary repair but no data to support abdominal versus perineal versus combined approach. We describe a successful repair of a complicated peripartum perineal hernia using a combined abdominal-perineal approach with mesh.

Conclusions: Obstetric trauma is a previously unreported cause of perineal hernias. Perineal hernias are rare conditions that must be considered in any patient who presents with a bulging perineal mass. Puerperal pubic symphysis rupture can lead to a large bladder hernia. Our combined abdominal-perineal approach of repair resulted in minimal perioperative morbidity and short-term resolution of the hernia.

Key Words: perineal hernia, postpartum, pubic diastasis, pubic symphysis, symphyseal rupture

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Perineal hernias are a rare cause of a perineal mass. A perineal hernia is defined as "the protrusion into the perineum of an organ (either intraperitoneal or extraperitoneal) or intraperitoneal tissue through a defect of the pelvic diaphragm."[1] Pelvic floor surgeons and gynecologists require awareness of this unusual condition as a potential differential diagnosis for an atypical perineal or labial mass. A comprehensive differential diagnosis would also include conditions such as cyst of the canal of Nuck, Bartholin's duct cyst, internal hernia through the round ligament, and hernias of the obturator and sciatic canals.

Perineal hernias are categorized as primary or secondary based on any antecedent history of abdominal or pelvic surgery. Primary acquired perineal hernias are relatively rare with approximately 100 reported in the medical literature.[1] These hernias occur later in life and are more common in women and those with increased intra-abdominal pressure.[2] Primary perineal hernias have also been described after traumatic fracture of the pelvis sustained during motor vehicle accidents and other trauma.[3–6] A primary postpartum perineal hernia related to acute obstetric injury has not been reported in the English language medical literature (PubMed search terms including combinations of the following: "bladder," "canal of Nuck," "labial hernia," "gynecology," "hernia," "obstetrics," "perineal hernia," "postpartum," "pubic diastasis," "pubic symphysis," "vaginal delivery," "symphyseal rupture," and "symphyseal separation").

A perineal hernia presents as a soft, reducible perineal bulge with symptoms of pelvic pressure. Symptoms are often worse with standing and can have associated dysfunctional urination and defecation. There is rarely strangulation of abdominal contents or obstruction due to a wide hernia neck, although case reports have been described.[2,7] Surgical intervention is required for correction of these defects. Various surgical approaches from an abdominal, pelvic, or combined approach have been reported with and without the use of mesh.[4,8–12]

We will present the case of an acquired anterior perineal hernia of the bladder after a peripartum pubic symphysis rupture. Pubic symphyseal separation or pubic diastasis related to vaginal delivery occurs after approximately 1 in 500 deliveries. In the immediate postpartum period, pubic diastasis is most often treated conservatively; however, in cases of severe disability after delivery or prolonged physical impairment, orthopedic surgical intervention is indicated.[13] There has not been a case report of a peripartum perineal hernia after pubic symphyseal separation. Information contained within this report may assist pelvic floor surgeons in the evaluation and management of a rare complication of traumatic vaginal birth.

CASE REPORT

The patient is a 38-year-old primiparous woman who had a term vacuum-assisted vaginal delivery at an outside facility on March 2016. Her medical history includes advanced maternal age, hypothyroidism, and exercise-induced asthma; it was specifically negative for obesity or previous trauma to the pelvic ring. Her surgical history includes a loop electrosurgical excision procedure for cervical dysplasia and wisdom tooth extraction; it was negative for any abdominal or perineal procedures that would increase her risk of perineal herniation. Medical records documented a normal 6-hour labor course followed by 3 to 4 hours of maternal pushing efforts before the vacuum-assisted delivery for second-stage arrest. She had no epidural, pudendal, or local anesthesia. During the delivery, the patient recalls feeling a painful "pop" in her pelvis. After delivery, she was diagnosed with a retained placenta and was taken to the operating room for manual extraction of the placenta and repair of an extensive left sidewall laceration. Postpartum, the patient reported inability to adduct her legs, and she was unable to walk for 3 days. There was no x-ray performed, and she was discharged with a walker and physical therapy. At home, the patient continued to have difficulty ambulating and adducting her legs. She also noticed a new mass in her left labia. This mass would slowly expand in the standing position and recede when lying down. She also reported that the mass would enlarge with bladder filling.

From the Department of Urology, Wake Forest Baptist Health Medical Center, Winston Salem, NC.

Correspondence: Katherine N. Hines, MD, Department of Obstetrics and Gynecology, Wake Forest Baptist Health Medical Center, 1 Medical Center Blvd, Winston Salem, NC 27157. E-mail: knhines@wakehealth.edu.

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FIGURE 1. A large symphysis diastasis is noted.

The patient finally sought help from a chiropractor who performed a pelvic x-ray that showed a large separation of her pubic symphysis (Fig. 1). The patient was referred to orthopedic surgery where magnetic resonance imaging (MRI) demonstrated a 5-cm pubic symphysis diastasis with bladder herniation through the diastasis into the left labium (Figs. 2, 3). On November 2016, she underwent an open reduction and internal fixation using a top metal plate and screws through a 5-cm low transverse skin incision. The open reduction and internal fixation greatly improved her mobility and resulted in a short time in which her labial bulge was reduced; however, after a few weeks, the labial bulging symptoms returned. She was evaluated postoperatively by urology for continued left labial bulge along with deviation of her urinary stream to the right. Imaging confirmed a persistent anterior perineal herniation of the bladder. At this point, she presented to the Wake Forest Female Pelvic Medicine and Reconstructive Surgery clinic for surgical correction.

On examination, the patient had a normal-appearing perineum at rest except for a noticeable deviation of her urethral meatus to the right. Her left labium minor demonstrated a chronic tear, and it was separated into 2 distinct segments. She had no evidence of pelvic organ prolapse into the vagina. Upon Valsalva

FIGURE 2. Bladder herniation through the symphysis defect is noted on MRI.

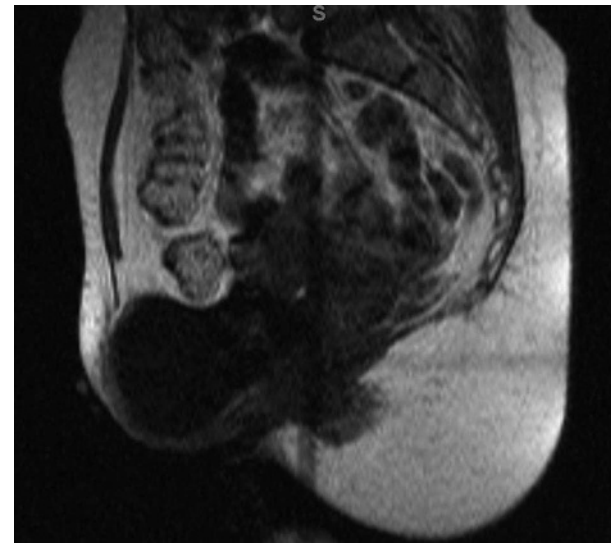

FIGURE 3. Sagittal view of perineal bladder herniation.

maneuver, she then demonstrated a 5 × 4-cm bulging mass into the left labium (Fig. 4). When an examination finger was introduced into the left vaginal fornix and upward pressure was placed on the tissue directly behind the ischiopubic ramus, no further herniation occurred. On the basis of her history and examination, she was diagnosed with probable avulsion of the left puborectalis from the symphysis with a fascial defect in the perineal membrane. The MRI report described "herniation/prolapse of the bladder into the perineum/paravaginal soft tissues." There was no specific commentary on the integrity of the levator ani because the appropriate sections to make this assessment were not performed.

Three surgical approaches were considered: a suprameatal transperineal approach, a retropubic approach, and a combined abdominal-perineal approach. Consideration was made for the potential of adhesions of the bladder to her orthopedic hardware and for postsurgical infection of this hardware. In all cases, mesh repair of the defect was advised.

The patient elected to undergo a combined abdominal-perineal repair with a multidisciplinary surgical team involving female pelvic medicine and reconstructive surgery, urology, and orthopedic surgery. We opined that a combined approach was necessary to affix mesh behind the symphysis and then extend the mesh arms down to anchor low enough on the descending pubic rami to dissipate future pelvic forces. Through her previous

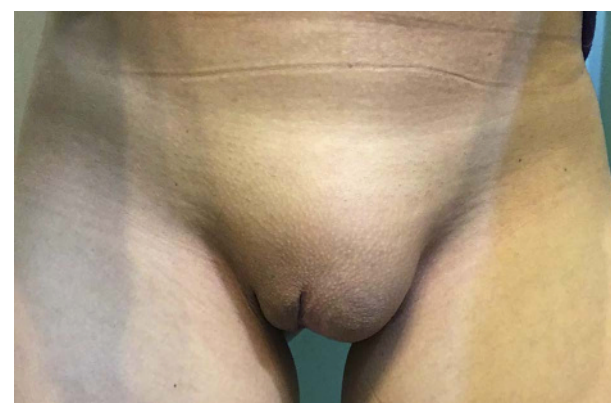

FIGURE 4. A large left labial mass is noted in the standing position.

transverse abdominal incision, the space of Retzius was entered and the bladder was sharply dissected from the overlying pubic bone. The left-sided hernia defect was located with the assistance of the primary surgeon's left hand in the vagina. The superior attachment site of the left puborectalis muscle and endopelvic fascia was avulsed from the inferior aspect of the pubic symphysis, and there was a resulting 1.5 × 1.5-cm defect directly beneath the left side of the symphysis. The perineal membrane was also disrupted because one could fit an index finger through this defect and distend the supra-urethral skin, mimicking exactly what was observed when her bladder herniated through.

Our surgical goal was to cover the hernia defect below the symphysis with a vertically oriented mesh much like a soccer net to restrain the bladder from herniating downward. We did not try to reaffix the avulsed fascia or muscles to the posterior aspect of the bone because she had existing hardware in place. A 6 × 4-cm piece of polypropylene mesh was then cut in the shape of an apron with 2 inferior arms and a semicircle cut for the urethra. The superior part of the mesh was sutured to the posterior aspect of the symphysis, and the arms of the mesh were anchored to the caudal portions of the inferior pubic rami via 2 separate perineal incisions (see Fig. 5). These incisions were approximately 1.5 cm in length and were made only medial to the labia minora and inferolateral to the urethra. To effectively dissipate pelvic forces, we felt it was necessary to symmetrically anchor the mesh arms, and therefore 2 separate transperineal incisions were made. Care was taken to avoid the clitoral neurovascular bundle. The left labial defect was then repaired with excision of the skin between the 2 segments and resuturing the 2 flaps together with fine-gauge suture.

Her postoperative course was uneventful with minimal pain. At 6 months postoperatively, she has no pain, urinary dysfunction, incontinence, or recurrence of her hernia. All physical activities have resumed without incident.

DISCUSSION

In this report, we present a rare case of an acquired perineal hernia that occurred as a result of pubic symphysis rupture during traumatic vaginal delivery with avulsion of the puborectalis muscle and endopelvic fascia at the site of the fracture. Previous trauma to the pelvic ring is a known but uncommon risk factor for the development of anterior perineal herniation. There have been 4 case reports describing delayed herniation of the urinary bladder in patients with a history of traumatic pubic diastasis. All cases, however, were men.[3–6]

Different techniques of anterior perineal hernia repair have been described.[4,10–12,14] The surgical approach is not standardized because this is a relatively uncommon problem. Balla et al performed a systematic review of the literature for repair of perineal herniation after abdominoperineal and extralevator abdominoperineal excision. They found no difference in recurrence rates among the different approaches: laparoscopic, perineal, abdominal, or combined. They found that primary closure of the fascial defect has largely been abandoned and replaced with the use of mesh because of high failure rates. They did not find that the type of mesh (composite vs biologic) changed the rate of recurrence, although the numbers included are small and there are no randomized controlled trials.[10] We elected to use a type 1 polypropylene self-cut mesh to repair the hernia defect given the patient's young age, vigorous physical activity, and extensive pelvic trauma during childbirth.

The differential diagnosis for a bulge in the perineum includes, most commonly, pelvic organ prolapse: cystocele, enterocele, rectocele, and vaginal vault prolapse. Far less common causes of a perineal bulge include tumor, hernia of the canal of Nuck, obturator canal, and sciatic canal.[8,15] Key factors in delineating the type of perineal bulge are a thorough history and physical examination, with use of pelvic floor imaging when appropriate. A history of pelvic trauma, abdominoperineal resection for colorectal cancer, multiple surgeries for pelvic organ prolapse, or pelvic exenteration for gynecologic malignancy makes a perineal hernia more likely. Magnetic resonance imaging and pelvic floor ultrasound are 2 diagnostic modalities that can provide information about the origin of prolapsed viscera and associated levator ani defects.

In conclusion, perineal hernias are rare conditions that must be considered in any patient who presents with a bulging perineal mass. We have now identified intrapartum pubic symphysis rupture as a risk factor for this diagnosis. Our combined abdominal-perineal approach with the use of a mesh graft attached to the

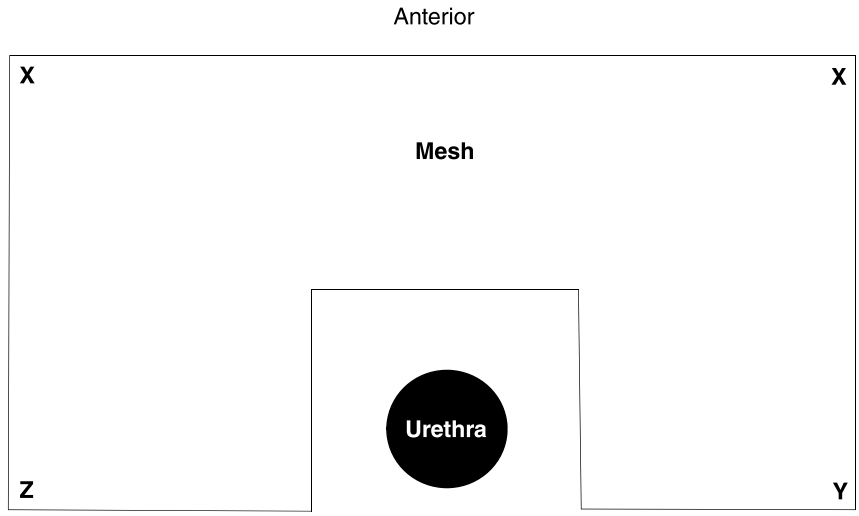

FIGURE 5. X: where mesh was sutured to the posterior aspect of the symphysis through the Pfannenstiel incision; Y: where mesh was sutured to the left inferior pubic ramus through the left perineal incision; Z: where mesh was sutured to the right inferior pubic ramus through the right perineal incision.

posterior symphysis and descending pubic rami resulted in short-term anatomic cure and minimal perioperative morbidity. Longitudinal follow-up is planned. We believe that this case report contributes to the literature in its description of a previously unreported clinical scenario and of a novel surgical approach to address perineal hernias.

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