



Perineal Hernia Repair with Mesh and Gluteal Myocutaneous Flap after Abdominoperineal Resection for Rectal Cancer: A Case Report

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Abstract

Perineal hernia, formed by the protrusion of intra-abdominal viscera through a weakened pelvic floor area known albeit rare complication following Abdominoperineal Resection (APR) for rectal cancer. The incidence of perineal hernia is estimated to be up to 7% following APR [1]. The most common symptoms of a perineal hernia include perineal bulging and discomfort with activity secondary to an increase in intra-abdominal pressure. However, the complications include urinary retention/incontinence, bowel obstruction, perineal tissue erosion and trauma to herniated viscera. Most perineal hernias remain asymptomatic. For patients presenting with perineal discomfort and urinary pathology following APR, a careful history and physical examination should be undertaken and treatment offered if one is present. Treatment of perineal hernias is mostly surgical, using a transabdominal, trans-perineal or laparoscopic approach [1-6]. Here, we report a case of a perineal hernia repaired using a transabdominal approach with mesh and a trans-perineal repair using a gluteal myocutaneous flap.

Introduction

A 72-year-old woman with a history of rectal cancer underwent neoadjuvant chemo-radiation followed by laparoscopic APR and adjuvant chemotherapy for a T3N0M0 rectal cancer in 2012. Initial surgery was successful with no known complications. Pathology showed invasive well-differentiated adenocarcinoma with negative margins. The patient underwent a follow-up screening colonoscopy in 2014 that was normal, and her colostomy was also noted to be healthy, with good output and showed no signs of parastomal hernia. Four years later, the patient complained of a large bulge in her perineal incision and discomfort with walking. This became progressively larger over a period of several months that it was as if she carried a baby in her perineum. She was evaluated and an ultrasound was done, which showed multiple loops of small bowel. An abdominopelvic CT scan was obtained to further characterize the bulge and for further evaluation. The CT scan revealed a large perineal hernia containing multiple loops of small bowel. She was then referred to our institution for further evaluation and management. On examination at our facility, the patient was noticed to have a large apparent perineal bulge, as well as some minimal discomfort on palpation. Given her previous surgical history for rectal cancer and her symptomatic presentation, the patient was scheduled for repair of her perineal hernia. Plastic surgery was initially consulted to help with the closure of her gluteal incision following her perineal hernia repair. The pathology was discussed with the patient, and informed consent was obtained for a transabdominal perineal hernia repair with mesh and a trans-perineal wound repair using a gluteal myocutaneous flap.

Operative Technique

The patient was placed in the modified lithotomy position in Yellofin stirrups. She received preoperative Heparin subcutaneously for DVT prophylaxis. The colostomy was closed with 2-0 Silk suture. The abdomen and perianal areas were prepped and draped in standard fashion. A lower midline incision was made and an Alex is wound retractor was placed. Adhesiolysis was then done and the small bowel was freed up from the pelvis and retracted cephalad. The defect in the pelvic floor was then evaluated. There was essentially skin covering the herniated small bowel. Next, a biologic mesh (Strattice™ RTM) was sized and placed to cover the perineal defect. The mesh was secured in place using 0-Prolene sutures in interrupted fashion. Next, attention was turned to the perineal portion of the procedure. The skin overlying the hernia was thinned out and effaced.

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The central portion was resected. Next, gluteal myocutaneous flaps were raised on both sides in a double-house configuration. The flaps were then advanced towards the midline and sutured in place in multiple layers using 2-0 Vicryl sutures. The skin was closed with 4-0 Monocryl subcuticular stitches and Dermabond was applied. The fascia of the abdominal incision was closed in standard fashion as per the surgeon's routine practice. The patient tolerated the procedure well without immediate complications.

Discussion

Until recently, perineal hernias were considered to be a rare complication following abdominoperineal resection [7] with prevalence rates of 0.6% to 7% [8]. Perineal hernias have become a known and recognized complication following APR in low-lying rectal cancers. The increased prevalence of these hernias after surgical resection of rectal cancers has been associated with the widespread endorsement of new surgical techniques including Total Mesorectal Excision (TME) and the more recent Extralevator Abdominoperineal Excision (eLAPE), which has been associated with decreased circumferential resection margin involvement and intra-operative perforation [9]. The excision of the entire pelvic floor muscle complex supporting the distal rectum as is done in eLAPE procedure creates a wider defect in the pelvic floor, leading to an increased incidence of perineal hernias in this group of patients. Recent rates of perineal hernia occurrences following a laparoscopic eLAPE have been reported to be between 26% to 45% [10]. Perineal hernias therefore remain a common problem following surgical treatment of low-lying rectal cancers. The repair of these perineal hernias has been discussed in the literature. Indications for repair include pain, urinary dysfunction, bowel obstruction, strangulation or other patient-specific complaints that cause inability to perform their activities of daily living, resulting in a poor quality of life. Surgical approaches to perineal hernia repair include the laparoscopic, transabdominal, trans-perineal or combined approach with primary repair; mesh (synthetic vs. biologic) repair and the use of myocutaneous flaps. A pooled analysis of perineal hernia repair after abdominoperineal resection found that the use of a mesh confers a lower recurrence rate compared to primary suture repair [11]. However, a recent systematic review of biologic mesh reconstruction following APRs found that although a promising technique, there is not enough evidence to support the use of biologic mesh given the low volume and quality of available data as well as the lack of any comparative studies [12].

The use of primary perineal wound closure as well as myocutaneous flaps has also been reported, especially in patients with a prior history of irradiation to the pelvis. However, a recent systematic review with meta-analysis revealed that primary closure was more than twice as likely to be associated with major and total perineal wound complications compared with flap closure, thereby validating the use of myocutaneous flaps for reducing perineal morbidity following APRs [13]. Most common flaps used after APR include the Rectus Abdominis Muscle (VRAM, TRAM) flap [14,15], gracilis myocutaneous flaps [16,17] with the use of VRAM flaps being more common than gracilis flaps. To our knowledge, this is the 3rd report of perineal hernia repair using a gluteal myocutaneous flap and the first to report the use of a trans-perineal biologic mesh repair with concomitant gluteal myocutaneous flap for reconstruction of perineal defect after APR. The two other reports using a gluteal muscle flap [18,19] were both performed outside of the United States (Sweden and Singapore) and reported successful repair with lower risk of

perineal wound complications, although one study utilized both a gluteal muscle flap as well as a buttock fasciocutaneous rotation flap for reconstruction [18].

The patient presented in this case report tolerated the procedure well. Operative time was about 140 minutes and the patient developed some mild urinary incontinence post-operatively which was managed conservatively. The patient was seen in follow-up in clinic at 2 and again after 3 months. The patient has continued to do well with no evidence of recurrence or other perineal complications.

At most surgery centers, the reconstructive portion of this operation is done by plastic surgeons. It is our belief that myocutaneous flap reconstruction for perineal hernias can be performed by an experienced colorectal surgeon with the appropriate skill and training in reconstruction. For more complicated cases in which the perineal defect may be extremely large or for patients with previous perineal surgery, it may be important to have a plastic surgeon experienced in reconstruction on hand, should complications arise.

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