

Perineal hernia – different surgical approaches and treatment techniques. A case report

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Abstract

This is a case report of a 69-year-old woman who presented major perineal hernia in the scar after a surgical resection of rectal cancer (adenocarcinoma) and hysterectomy. She was repaired by an open repair using a partially absorbable anti-adhesive intraperitoneal implant which was styled to the size and contours of the minor pelvis. Symptomatic perineal herniation after surgical resections is a rare phenomenon so only several different surgical approaches and techniques of the repair have been described. This report presents an overview of different surgery techniques which depend on the size of the perineal ring as well as on whether plastic reconstruction of the fascia is needed or not. The analysis leads to the conclusion that all cases require tailored approaches and surgeons need to be prepared for conversion to a different technique even in the course of the surgery.

Key words: secondary perineal hernia, laparoscopy, abdominoperineal approach, mesh.

Introduction

Colorectal cancer is the most common type of malignant neoplasm of the digestive tract and is a serious and growing problem all over the world [1]. The usual treatment involves surgical resection, which may be completed with pre- or post-radiochemotherapy. One of the main methods of this treatment is abdominoperineal excision. The choice of the Miles procedure relating to colorectal cancer is based on its classification stage and its location more than 8 cm from the anal verge [2]. One of the least common documented complications of this major pelvic surgery is perineal hernia. Recent studies have noted that post-operative perineal herniation rates following rectal procedures are about 0.62% [3]. In typical cases the perineal hernia protrudes through the muscles and the fascia of the pelvic floor and it usually appears in the form of an asymptomatic, easily reducible perineal bulge. Different methods of

pelvic floor repair have been described, among them such various approaches as abdominal, perineal, combined abdominoperineal or laparoscopic ones in association with the use of autologous tissues or prosthetic meshes to repair the defect, but none of the procedures has been standardized.

Case report

A 69-year-old woman was admitted to the surgical ward due to major perineal hernia in the scar after a surgical resection of rectal cancer (adenocarcinoma). The Miles procedure was performed with curative intent 20 years earlier. About 15 years ago the patient underwent a radical hysterectomy through the perineal approach, probably because of cancer, but the past medical history was unremarkable. A minor perineal hernia in the wound occurred immediately after the surgical treatment and it enlarged with time, reaching a diameter of over

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10 cm with the sac larger than 15 cm. For the preceding 2-3 years the hernia had been symptomatic, causing bowel obstruction which required hospitalization. A bulging sensation in the perineal area and great discomfort while walking as well as the discomfort of painful sensations were also reported by the patient.

Surgery was planned primarily with the laparoscopic transabdominal approach which had to be converted to the open technique because of massive adhesions in the whole abdominal cavity. Via the perineal approach the hernial sac was excised to define the anatomical boundaries of the defects. The hernia sac was carefully traced and dissected both laterally and posteriorly. Then it was opened to relocate the bowel content to the abdominal cavity after extended adhesiolysis. The bowel was carefully examined and then relocated into the pelvic and abdominal cavity. The hernial orifice was extended anteriorly to the urinary conduct and its sphincter, laterally to the ilium, posteriorly to the sacral and coccygeal bones.

A partially absorbable anti-adhesive intraperitoneal implant (Proceed, Ethicon Inc. Hamburg, Germany) 25 × 25 cm was styled to the size and contours of the minor pelvis (Figure 1). The mesh was satisfactorily placed intraperitoneally and fixed bilaterally with single sutures of nonabsorbable material (Polypropylene 0), both to Cooper's ligaments below the urinary bladder and to the coccygeal bone (also bilaterally). Two suction drains were placed superficially to the mesh. The peritoneum was reconstructed with continuous suture. To complete the procedure, the muscles and skin of the pelvic floor were closed (Figures 2-4).



Figure 1. The composite mesh arranged in the concave form

The procedure was performed with minimal blood loss, so no additional transfusion was necessary. Antibiotic prophylaxis was administered for the next 3 days (cephazoline 3 × 1.0/day). The drains were removed on the fourth day after the surgery (drainage less than 50 ml/day). The patient was discharged on day nine following the intervention with her wounds intact. The follow-up visits after 3 and 6 months from the intervention confirmed full healing of the wound. No symptoms of postoperative infection or recurrence were present at the time. Also there was no incidence of bowel obstruction or urinary incontinence following the procedure.

Discussion

Perineal hernia is described as herniations of the pelvic floor that appear para- or retrorectally between the levator ani and the coccygeal muscles [4]. The protrusion contains either bowels and/or omentum. The sac can also contain a number of adhesions resulting from previous surgical interventions. The aim of the surgical treatment is to reduce hernia contents and close the defect to eliminate a possible risk of incarceration, which would result in an obstruction of the intestine (ileus) and/or a circulatory disorder and necrosis of the incarcerated content; this happens rarely but cannot be excluded [5]. Still hernia can cause other symptoms such as discomfort while walking, or a somatic sensation of acute discomfort limiting everyday life activities. Finding the most appropriate approach to and the most effective treatment of perineal hernia can pose a challenge to the surgeon, especially when there are extensive defects in the pelvic floor.



Figure 2. The perineal hernia

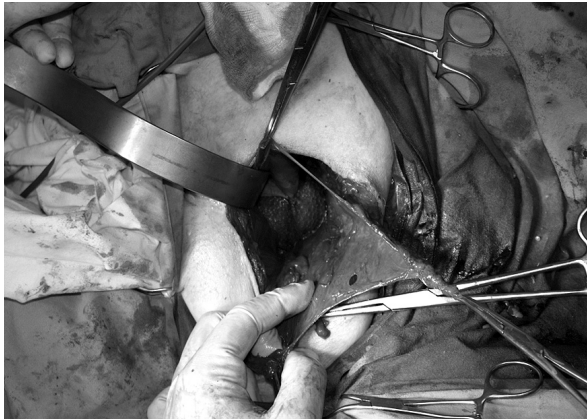


Figure 3. The final repair of the hernia with the composite mesh

Although Skipworth *et al.* claim in their case report that closure of the hernial orifice with mesh via the perineal approach is satisfactory, several different methods of pelvic floor repair have been described [6]. A summary concerning the methods used and outcomes achieved was presented by Dulucq [7]. In four patients the hernia was repaired via the perineal approach and in another four patients via an abdominal incision. In two patients who underwent the abdominal procedure omentoplasty was performed, whereas plication of the pelvic floor musculature (mainly levator ani) was performed in two patients with perineal repairs. Mesh hernioplasty (Polypropylene) was used in the remaining four patients. There were no hernia recurrences with a median follow-up of 36 months. Though there were two complications connected with the perineal approach mentioned in the follow-up, no exact cause of the complications was given.

Another case report presents the use of the perineal approach which facilitated closure of the perineal defect [6]. During the intervention a biological implant (Permacol) was styled to the perineal defect and the residual perineal fascia was closed with interrupted 2-0 absorbable sutures [6]. In another case a giant perineal hernia was repaired using a combined approach of laparoscopic mesh repair and plastic resection of the cutaneous perineal wound [3].

A different case report presents the transabdominal laparoscopic approach using nonabsorbable mesh (4 patients), which is a less popular technique. None of the cases required conversion to laparotomy; in the next three, six and eight months of follow-up no recurrence was noted [9]. Summing up, each of

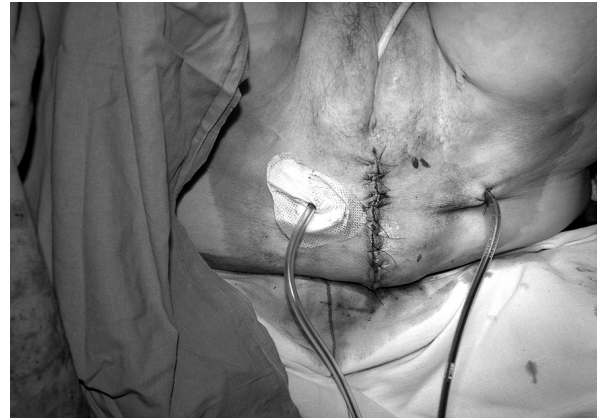


Figure 4. The wound after major surgery with two drains

the above-mentioned techniques has advantages with respect to the cases in which they were performed. It should be remembered that there are no randomized trials concerning the superiority of one of the methods, and the “golden standard” has not been established yet.

A new and increasingly popular alternative to the approaches discussed above is laparoscopic ventral hernia repair, which decreases the recurrence rate and causes fewer complications than open techniques. Dulucq has found that the use of the laparoscopic transabdominal approach offers the advantages of the open transabdominal approach without its limitations [7]). This preserves the pelvic structure from damage and allows for quick recovery. However, adhesions can hinder or make this treatment impossible. That was also the reason for conversion to the open technique in our case.

Despite the application of the laparoscopic technique to start with, we chose to convert to liberate a large amount of bowels located in the hernia sac. On the other hand, an important element of the surgery was plastic reconstruction of the severely damaged perineal fascia, which was possible only via the perineal approach.

Dulucq used composite mesh for repair of the defect. In his opinion it has two main advantages: the resorbable hydrophilic film minimizes tissue attachment to the mesh and prevents visceral adhesions, and the non-resorbable polyester provides long-term reinforcement of soft tissues [7]. On the other hand, prosthetic meshes can only be implanted in the absence of pelvic floor infection [6]. In order to avoid concerns regarding excessive immunoreactivity or

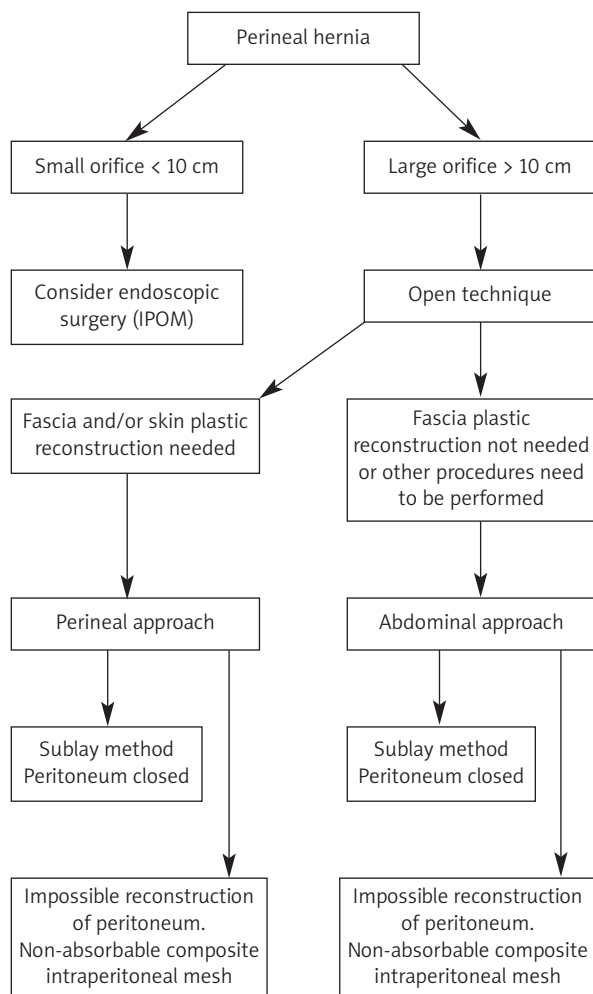


Figure 5. Proposed treatment algorithm

prion transmission, nonhuman biological material which contains porcine collagen can be used. It becomes incorporated by tissue ingrowths and revascularization, which makes it a safe and acceptable alternative to the synthetic mesh method. The proprietary cross-linking process enhances resistance to naturally occurring collagenases.

Every technique requires the use of different meshes. The choice of mesh is also influenced by the size and location of the perineal defect: a minor perineal hernia usually allows for the non-mesh repair method. In giant hernias the mesh repair method and plastic reconstruction of the pelvic floor are necessary. In our case, with a patient having a considerable medical history, it was difficult to reconstruct the peritoneum; that is why the sublay method was rejected. We used composite mesh to avoid adhe-

sions to the bowel and to enhance all fascia layers and the musculature, according to our previous good experiences with this material [10, 11]. The mesh had a special concave shape, tailored to the size of the pelvis, which allows adherence to the pelvic walls, and the intra-abdominal pressure blocks it, preventing recurrence. The pressure also prevents the mesh from shrinking and relocation.

The importance of proper mesh fixation during the first few weeks after the intervention cannot be underestimated, since insufficient fixation can lead to hernia recurrence. Gomez Portila *et al.* have confirmed that proper mesh fixation considerably decreases recurrence when the mesh can be implanted successfully in the absence of pelvic floor infection [3]. Still, there are studies reporting recurrence rates as high as 16% [8]. The review of available literature on the subject so far does not contain any major analysis of recurrence of perineal hernia in patients in whom the abdominal or perineal approach was used.

Plastic reconstruction of the pelvic floor is also crucial because the mesh itself will not hold the tension in this area: by performing body movements, sitting and walking, the patient stretches the pelvic muscles; hence their appropriate reconstruction is crucial.

The above case overview leads to the conclusion that endoscopic surgery of perineal hernia is more effective with small hernia rings and intact musculature of the pelvis minor. In cases with sizeable perineal hernia or major adhesions which obstruct visualization the choice of the open technique seems inevitable. The abdominal approach is recommended when the size of the hernia sac remains less than 10 cm and additional procedures are necessary, because this approach allows for visualization of sufficient clarity. If fascia or skin plastic reconstruction is needed, or if the pelvic floor has to be reconstructed, the perineal approach should be considered. Whether to place the mesh intraperitoneally or suprapitoneally depends on whether it is possible to reconstruct the peritoneum. It seems however that using an intraperitoneal implant reduces both tissue preparation and time of the procedure. As a result of the above, the following algorithm for handling perineal hernia cases has been created – Figure 5.

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