Perineal herniation of an ileal neobladder following radical cystectomy and consecutive rectal resection for recurrent bladder carcinoma

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ABSTRACT

Secondary perineal herniation of intraperitoneal contents represents a rare complication following procedures such as abdominoperineal rectal resection or cystectomy. We present a case of a perineal hernia formation with prolapse of an ileum neobladder following radical cystectomy and rectal resection for recurrent bladder cancer. Following consecutive resections in the anterior and posterior compartment of the lesser pelvis, the patient developed problems emptying his neobladder. Clinical examination and computed tomography revealed perineal herniation of his neobladder through the pelvic floor. Through a perineal approach, the hernial sac could be repositioned, and via a combination of absorbable and non-absorbable synthetic mesh grafts, the pelvic floor was stabilised. Follow-up review at one year after hernia fixation showed no signs of recurrence and no symptoms.

In cases of extensive surgery in the lesser pelvis with associated weakness of the pelvic compartments, meshes should be considered for closure of the pelvic floor. Development of biological meshes with reduced risk of infection might be an interesting treatment option in these cases.

KEYWORDS

Perineal hernia – Bladder cancer – Rectal resection – Mesh – Colorectal

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Secondary perineal herniation of intraperitoneal contents represents a rare complication following procedures such as abdominoperineal rectal resection (APRR) or cystectomy and occurs in about 0.62–5.5% of cases.^{1,2} Risk factors include insufficient closure of the peritoneum or pelvic floor, extended resections, (neo)adjuvant radio/chemotherapy, smoking, wound infections, obesity, wound dehiscence and female sex.¹ Symptoms may vary from an uncomfortable perineal feeling, to a newly appearing perineal protrusion or pain and they can also include changes in urinary or bowel function. Treatment depends on the symptoms and can range from conservative treatment to perineal, abdominal or abdominoperineal reoperation.^{3,4} We describe the rare case of a 61-year-old man who presented with herniation of an ileal neobladder following extensive surgery for recurrent urinary carcinoma.

Case history

A 61-year-old man underwent combined prostate and bladder resection for bladder cancer in 2009 (pT3b, pN0, M0, L1,

V1, R0, G3). The orthotopic neobladder was reconstructed with an ileum segment and four series of adjuvant chemotherapy were administered. No residual tumour was left and oncological follow-up was uneventful for the next two years.

In 2011 eight additional series of chemotherapy were administered for local recurrence in the lesser pelvis with ventral compression of the rectal wall (Fig 1). After good response, another surgical approach was attempted to remove the remaining tumour (Fig 2). APRR was performed with primary closure of the perineal cavity. The pelvic floor was reconstructed by direct suture of the levator muscles, omentum was used for abdominal closure of the lesser pelvis and a terminal colostomy was performed. The early post-operative course remained uneventful. At eight months following surgery, the patient suffered with problems emptying the neobladder accompanied by perineal pressure and pain. The CT scan showed no signs of local recurrence. However, herniation into the pelvic floor was detected while performing the Valsalva manoeuvre (Fig 3).

Owing to increasing symptoms, the patient underwent surgery with a perineal approach. He was placed in

Figure 1 Magnetic resonance imaging showing local recurrence (*)

Figure 2 CT scan showing residual tumour (+)

Figure 3 CT scan during Valsalva maneuver revealing a perineal herniation through the lower pelvis

lithotomy position and after careful preparation of the muscles, herniation of the neobladder through the pelvic floor was shown. The hernial sac was opened and intrapelvic replacement was accomplished easily without the need for resection of bowel or the ileum conduit. For reconstruction of the pelvic floor, an absorbable mesh (polyglactin, 12cm × 15cm) was used to reposition the neobladder and a synthetic, non-absorbable, sublay mesh (polypropylene) was anchored to the pelvic bones (Fig 4). The patient was discharged seven days after surgery. Since then, he has not suffered from any symptoms, wound healing disorders or herniation and has retained good function of his neobladder.

Discussion

We describe a case of secondary hernia formation with the unique setting of consecutive resections in the anterior and posterior compartment of the pelvic floor. Development of

Figure 4 Surgery for perineal herniation of the neobladder: A perineal approach in the lithotomy position was chosen (A). After opening the pelvic floor, the ileal neobladder was identified in the peritoneal hernial sac (B). The hernia was repositioned (C) and fixed using a synthetic mesh that was sutured to the bony pelvis (D). Primary wound closure was performed using sutures and drains (E).

a secondary perineal hernia is a rare but in some cases significant complication following surgery in the lower pelvis.⁴ It often occurs within the first year after surgery, especially for low rectal neoplasia or following extended surgery.¹

When performing APRR, a fragile zone is created in the lesser pelvis, being exposed to gravity, pressure and tension, which can lead to perineal herniation of intraperitoneal contents. In order to prevent herniation after APRR, omentoplasty can be performed during the resection, with good clinical results.⁵ Tension free primary closure and use of suction drains is considered to be a good technique with acceptable morbidity. If further complications are feared, mesh grafts can be implanted to close the peritoneum and prevent herniation. Alternatively, muscle flaps can also be used. On the other hand, convincing evidence in applying these techniques during the primary operation is sparse. These grafts still have the potential risk of associated morbidity, including infection or necrosis of the flap.

For perineal herniation, surgical treatment is feasible via an open or laparoscopic abdominal approach, or via a perineal approach depending on the size of the hernia.¹ For large defects, a combined procedure can be performed. Nowadays, most secondary perineal hernias are treated by applying synthetic absorbable or non-absorbable meshes.¹ However, mesh use is limited by defect size and possible risk of infection if there are septic complications. Consequently, other methods were developed, including different flap techniques such as the rectus abdominis flap and gluteal flap. A rather novel approach to preventing or treating hernia formation is the use of biological mesh grafts.⁶ Side effects include possible allergic reaction, seroma and increased postoperative pain compared with primary closure without the use of a mesh.⁷ Nevertheless, biological meshes are expected to be a promising treatment option for prevention of perineal herniation, with acceptable morbidity.^{7,8}

In our case, herniation into the lesser pelvis occurred even though omentoplasty was performed during APRR. In the first abdominal operation, we did not use a mesh or muscle flap because of the risks mentioned above. An open approach was selected owing to the surgery performed previously. For hernia repair, the perineal approach was chosen because of the size of the hernia and because of the concern for extensive pelvic adhesions when using an abdominal approach. The implantation of two synthetic meshes using a sublay technique led to a good clinical result without further complications: one absorbable mesh was used to stabilise the peritoneal contents and one non-absorbable mesh to stabilise the pelvic floor. To date, our patient has not suffered from wound healing problems, perineal pain, recurrent herniation or bladder problems.

Conclusions

Patients with a complex medical history, previous herniation, chemotherapy or additional surgery are at risk of developing perineal hernias. In those cases, primary implantation of a mesh during rectal resection should be considered. Possible disadvantages such as the risk of infection might be overcome by development of novel biological meshes. However, further evidence is needed prior to broader application of the technique. In cases of a perineal hernia, mesh implantation via a perineal approach seems to be a safe option with good functional results.

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