Two case reports of perineal hernia after laparoscopic abdominoperineal resection with a proposed modification to the operative technique

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ABSTRACT
Perineal hernia is a rare complication following laparoscopic abdominoperineal resection (APR) for rectal cancer. We present two case reports of perineal hernia following laparoscopic APR and discuss their management. We suggest that they developed because the pelvic peritoneum was left open during laparoscopic APR and propose that closure of the pelvic peritoneum should be routine in this operation.

KEYWORDS
Perineal hernia – Laparoscopic abdominoperineal resection

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Perineal hernia is the protrusion of abdominal contents through a defect in the pelvic floor into the perineum. During abdominoperineal resection (APR) the pelvic floor is breached and failure to close the pelvic peritoneum can leave a defect, through which the small bowel can herniate.

Several case reports describe perineal hernias following laparoscopic APR.1-4 Through these reported cases some common risk factors can be identified. The majority are women and preoperative radiotherapy has usually been performed. Postoperative perineal wound infection is an added risk. The majority of cases present within one year postoperatively and may or may not be symptomatic. For those who are symptomatic, perineal swelling and pain are the usual complaints. For these patients, surgical repair can be offered. Repair techniques vary and have been performed via an open transperineal or transabdominal approach, or via a laparoscopic approach.2,3

We present the cases of two patients who developed a perineal hernia after laparoscopic APR and subsequently underwent successful open mesh repair. We discuss whether laparoscopic APR carries a greater risk of postoperative perineal hernia versus open surgery and whether closure of the pelvic floor at the time of primary surgery should be routine in order to prevent this complication.

Case 1
A 65-year-old woman underwent standard (not extralevator) laparoscopic assisted APR in March 2012. The perineum was closed with interrupted size 1 Vicryl® sutures (Ethicon, Somerville, NJ, US) to muscle and interrupted 2/0 Vicryl® sutures to skin. The skin sutures were removed ten days after the operation. She developed a perineal hernia three months following surgery after an uneventful initial postoperative recovery. She presented with a perineal lump that was painful on standing up for long periods and made walking uncomfortable.

The patient had a past history of a total abdominal hysterectomy, a Dukes’ A rectal adenocarcinoma, hypertension and a previous laparoscopic cholecystectomy. She had not required any adjuvant or neoadjuvant chemoradi- therapy for the rectal carcinoma.

An open repair was undertaken via a midline incision using a composite mesh. At the time of the operation, small bowel loops were found in the perineal hernia. Adhesions between these loops were divided and the small bowel was returned to the abdominal cavity. The pelvic floor was closed with a 20cm × 20cm composite mesh (Parietex™ optimised composite mesh; Covidien, Dublin, Ireland). This was secured to the sacral promontory posteriorly using ProTack™ staples (Covidien). The mesh was secured to the vaginal vault anteriorly and the pelvic peritoneum laterally with Prolene® sutures (Ethicon) (Fig 1). The patient has since made a good postoperative recovery.

Case 2
The second case we report is a 65-year-old man who underwent standard laparoscopic assisted APR for a Dukes’ A adenocarcinoma of the rectum in January 2011.
perineum was closed with interrupted size 1 Vicryl® sutures to muscle and interrupted 2/0 Vicryl® sutures to skin. The skin sutures were removed ten days after the operation. He had preoperative long-course neoadjuvant chemoradiotherapy and postoperative chemotherapy.

Follow-up computed tomography 13 months following APR showed small bowel in the pelvis with a hernia in the perineal region. At review in clinic in April 2012, a 10cm diameter perineal hernia was found. It affected the patient’s walking and the overlying skin had become erythematous.

The perineal hernia was repaired by laparotomy in June 2012. Friable, adherent small bowel loops were freed from the pelvis. A 20cm × 15cm composite mesh was inserted as an overlay on to the pelvic peritoneum with a 10mm overlap to the defect. The mesh was secured to the pelvic brim using a continuous non-absorbable suture with ProTack™ staples to the sacrum. An omental pedicle was fashioned and placed in the pelvis, covering the mesh. The patient’s immediate postoperative recovery was uneventful and he was discharged home after six days.

Discussion

The senior author (SHP) has been performing open APR for over 20 years and has always closed the pelvic peritoneum to prevent small bowel loops entering the presacral space. None of these patients have developed a perineal hernia.

Since adopting the laparoscopic approach for APR in the last 4 years, 2 out of 12 cases have developed a perineal hernia. Unlike open APR, closure of the pelvic peritoneum has not been performed during laparoscopic APR. This is because the pneumoperitoneum is lost in laparoscopic APR as soon as the rectum is removed, and this is a convenient point in the operation to construct the colostomy and close the perineum, leaving the pelvic peritoneum unsutured. Although this allows small bowel loops to enter the presacral space, previous studies have shown no short-term complications from this manoeuvre.5

Conclusions

Our experience suggests that leaving the pelvic peritoneum open during laparoscopic APR predisposes to subsequent perineal hernia formation. We therefore propose a modification to the operative technique for laparoscopic APR. After the rectum has been removed in laparoscopic APR, we advise that the perineal incision should be closed, the pneumoperitoneum re-established and the pelvic peritoneum closed with a running suture before the colostomy is constructed. If the pelvic peritoneum cannot be closed without undue tension, a composite–mesh (Parietex™ optimised composite mesh) can be used to help close the defect. We believe this modification of the technique will prevent perineal hernia formation in patients undergoing laparoscopic APR.

References

1. Akatsu T, Murai S, Kamiya S et al. Perineal hernia as a rare complication after laparoscopic abdominoperineal resection: report of a case. Surg Today 2009; 39: 340–343.
2. Ryan S, Kavanagh DO, Neary PC. Laparoscopic repair of postoperative perineal hernia. Case Rep Med 2010; 126483.
3. Dulucq JL, Wintringer P, Mahajna A. Laparoscopic repair of postoperative perineal hernia. Surg Endosc 2006; 20: 414–418.
4. Veenhof AA, van der Peet DL, Cuesta MA. Perineal hernia after laparoscopic abdominoperineal resection for rectal cancer: report of two cases. Dis Colon Rectum 2007; 50: 1,271–1,274.
5. Robles Campos R, Garcia Ayllon J, Parrila Paricio P et al. Management of the perineal wound following abdominoperineal resection: prospective study of three methods. Br J Surg 1992; 79: 29–31.