ventral hernia repair. The purported benefits of robot-assisted surgery include high definition three-dimensional visualization, improved surgeon ergonomics, and 6-degrees of freedom with range of motion. The cited potential drawbacks include increased expense and longer operative/anesthesia times, but these have not been definitively proven. We therefore seek to compare operative details and patient outcome data among patients undergoing open, laparoscopic, robot-assisted ventral hernia repairs.

METHODS: Institutional Review Board approval was obtained (Study Number: 16-00011). A retrospective study was performed of all patients who underwent elective open, laparoscopic, and robot-assisted ventral hernia repair at a single institution in 2015. Procedure-related details such as anesthesia and operative times, length of stay, use of mesh, primary closure of the fascia, and postoperative complications were compared between groups. Those patients undergoing emergent procedures or a separate procedure simultaneous with ventral hernia repair were excluded.

RESULTS: 160 patients were included in the study. Mean age was 56.7 years. Mean BMI was 30.1 kg/m². 138 patients (81%) had a history of previous intra-abdominal surgery. Hernia was recurrent in 32 (20%) of the cohort. Twenty seven patients (16.9%) underwent laparoscopic hernia repair, 110 (68.7%) underwent open repair, and 23 (14.4%) patients underwent robot-assisted repair. Robot-assisted repairs were associated with significantly increased anesthesia and operative times (p<0.0001). There was no significant difference in length of hospital stay, complications (which included seromas, hematomas, abscesses, pneumonia, dehiscence, small bowel obstruction, and mesh infections), or hernia recurrence between robot-assisted procedures and laparoscopic or open repairs.

CONCLUSION: These preliminary data suggest that although robot-assisted ventral hernia repairs are associated with increased anesthesia and operative times, the outcomes with regard to length of hospital stay, safety profile, and risk of recurrence are comparable to those of more traditional hernia repair methods. Therefore application of robotic technology to ventral hernia repair is both safe and feasible, although larger, prospective, multi-center studies are necessary before definitive conclusions regarding this novel application are drawn.

“Please Turn Over (PTO) Perforator Flap”: A New Technique to Reconstruct Perineal Defects Following Extralevator Abdominoperineal Excision (ELAPE)

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INTRODUCTION: Locally advanced low rectal cancer is now increasingly treated with an extralevator abdominoperineal excision (ELAPE) as ELAPE has been deemed to provide superior oncological clearance than traditional abdominoperineal excision (APE). However, the extended perineal dissection performed in ELAPE creates a perineal wound that is more demanding in terms of reconstruction. This is because a larger perineal cavity and potential dead space is created and less gluteal skin is excised when compared to standard APE. These two characteristics along with the neo-adjuvant chemo-radiation effects on wound healing have been associated with increased perineal wound morbidity, making uneventful perineal reconstruction post-ELAPE challenging to plastic surgeons whose assistance is sought in 67% of ELAPE cases.

We present a new technique for perineal reconstruction post-ELAPE, using a perforator, islanded, turn over, de-epithelialized local flap (PTO – Perineal Turn Over perforator flap).

METHODS: The PTO flap is raised based on perforators from internal pudendal artery. In the current literature perineal perforator based flaps have been described for vulva reconstruction but not for perineal reconstruction after ELAPE. The concept of the flap is based on two components: a) the thick gluteal dermis acts as an autologous dermal vascularised substitute for the excised pelvic floor muscles providing a tension free repair that prevents perineal hernia formation b) the gluteal subcutaneous fat obliterates the dead space reducing fluid collections and preventing infections.
This was a retrospective review of patients undergoing reconstruction with the PTO flap following ELAPE. Data included patients’ demographics, neo-adjuvant chemo-radiotherapy, histopathology, duration of surgery, follow-up period and complications.

**RESULTS:** Fourteen patients were identified. Median operating time for the PTO flap was 49 min. There were no cases of flap loss, donor site morbidity or major wound complications. Superficial skin dehiscence and perineal hernia formation were reported in 2 patients respectively. None of the patients developed chronic perineal pain. All patients reported excellent satisfaction with the aesthetic outcome.

**CONCLUSION:** The PTO flap is a reliable option for perineal reconstruction after ELAPE that provides many advantages over other reconstructive techniques including primary closure, myocutaneous flaps, and biologic meshes.

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Flap Reconstruction of Rectovaginal and Rectourethral Fistulas: A 20-Year Experience at Mayo Clinic

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**INTRODUCTION:** Rectovaginal and rectourethral fistulas can occur secondary to obstetric complications, cancer and radiation, inflammatory bowel disease, and previous surgery. They are highly distressing to the patient and are often refractory to treatment. Flap reconstruction places vascularized tissue between the apertures, creating separation and aiding in healing. This is particularly useful for complex cases refractory to standard techniques. The purpose of this study was to investigate the outcomes of flap reconstruction of rectovaginal and rectourethral fistulas in the setting of complicating comorbidities at all three Mayo Clinic sites over a 20-year period.

**METHODS:** All patients at all Mayo Clinic hospitals who underwent flap reconstruction of a rectovaginal or rectourethral fistula between January 1995 and December 2014 were identified. Patient demographics, surgical indications, and comorbidities were collected. Operative and postoperative data were also collected, including flap type, length of hospital stay, 30-day complications, recurrences, and follow-up time. Operative success was defined as definitive treatment of the fistula without recurrence within 6 months.

**RESULTS:** There were 59 patients who underwent 66 reconstructions. The 30-day postoperative complication rate was 59.1% across all patients, primarily consisting of infection (13) and dehiscence (11), with 1 partial flap loss and no mortality. The 6-month success rate was 51.5% across all patients. Patients with fistula secondary to obstetric complications had significantly lower success rates (11.1%, p=0.031). Flap success rate for obstetric patients was significantly lower than for patients undergoing flap reconstruction secondary to cancer treatment (p=0.045), but not for bowel disease (p=0.051). There were no other statistically significant differences in outcomes by etiology, history of radiation, flap type, gender, or history of prior repair attempt.

**CONCLUSION:** Flap reconstruction remains a valuable treatment option for complex or refractory rectovaginal, rectourethral, and other GI-to-genitourinary or complex genitourinary-perineal fistulas. Many different flaps, including low-morbidity options such as gracilis and Martius-type flaps, can successfully be used as first-line reconstructive options. Despite an initial success rate of 50%, nearly all cases were able to be repaired after a single additional reconstructive procedure. Patients with GI-to-vaginal fistulas due to obstetric complications had significantly lower success rates, suggesting that these patients may require more aggressive flap options.