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Robotic Ventral Rectopexy and Sacrocolpopexy with Biologic Mesh in an 88-Year-Old Woman with Crohn's Disease: A Case Report

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Case Report

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Abstract

Background:

There is a paucity of data on the surgical management of multicompartment prolapse in elderly patients with a history of inflammatory bowel disease. Biologic grafts represent an interesting modality to augment these repairs by providing structural support, but mitigating the inherent risks associated with synthetic meshes in these high-risk populations.

Case presentation:

An 88-year-old white female presented with full thickness rectal prolapse. This was initially managed with robotic-assisted laparoscopic suture rectopexy; however, the patient subsequently developed an isolated anterior rectal wall prolapse secondary to a large enterocele on physical exam and imaging approximately a year later. She was also noted to have post-hysterectomy vaginal vault prolapse. Given her complex surgical history, comorbid conditions and history of Crohn's Disease, she subsequently underwent a robotic-assisted sacrocolporectopexy with a biologic graft, as well as posterior colporrhaphy/perineorrhaphy. Follow up at 6 weeks revealed excellent symptom resolution and anatomic findings.

Conclusion:

Robotic sacrocolporectopexy with biologic graft insertion is a feasible way to treat multi-compartment pelvic organ and rectal prolapse in older, medically complex patients who are at increased risk of synthetic mesh complications.

Background

Recurrent rectal prolapse following abdominal rectopexy presents a significant reconstructive challenge, particularly in elderly patients with multicompartment pelvic organ prolapse, and medical comorbidities. Concomitant pelvic organ prolapse (POP), or descent of the anterior, posterior, and/or apical walls of the vagina, may be under-recognized in patients who present initially for colorectal evaluation. POP can lead to clinically significant symptoms such as pelvic pressure, a bulge sensation, sexual dysfunction, urinary incontinence or voiding dysfunction, and defecatory dysfunction[10]. This condition affects approximately 3% of women based on symptoms, but up to 50% when identified via examination[3,4].

POP can be treated conservatively with a vaginal pessary, pelvic floor physical therapy or expectant management, but surgical intervention can be indicated for patients with significant symptoms. The surgical approach for managing POP is selected based on a variety of factors including compartments involved, POP stage, surgical history, medical comorbidities, and patient symptoms.

Sacrocolpopexy is often cited as a more durable option for POP repair, given the utilization of synthetic mesh to augment the procedure. This may be the preferred approach in multiple complex cases, such as

post-hysterectomy prolapse, recurrent prolapse, shortened vaginal length, or other risk factors significantly increasing the risk of recurrence[7–9]. It is performed by dissecting the avascular vesicovaginal and rectovaginal planes, and attaching synthetic, typically polypropylene, mesh to the apex, as well as the anterior and posterior vaginal walls. This mesh is then secured to the anterior longitudinal ligament overlying the sacral promontory[11].

Rectal prolapse, while distinct from POP, frequently co-occurs in approximately 30% of women[12]. Defecography (fluoroscopic or MRI) can be used selectively to confirm internal prolapse and identify coexisting pelvic floor defects[13]. While POP symptoms can be managed with non-surgical interventions, rectal prolapse cannot be resolved without surgery[13, 14]. As such, isolated rectal prolapse is typically managed with minimally invasive rectopexy, in which the rectum is attached to the sacral promontory with either suture or a synthetic mesh. This operation is associated with lower rates of recurrence than perineal procedures, which are often favored in elderly, medically complex patients[15, 23]. When multicompartment prolapse is present, it is increasingly common for patients to undergo combined rectopexy and sacrocolpopexy (sacrocolporectopexy). This can be a particularly useful approach when also needing to obliterate the rectovaginal septum in patients with enterocele. These combined procedures are not associated with increased morbidity or recurrence compared to rectopexy alone[16].

Post-operative complications involving the implanted mesh, while rare, include vaginal exposure, erosion of the mesh into nearby organs, visceral injuries, enteroprosthetic fistulas, and intra-abdominal infections. These can occur in up to 1-3.5% of patients who undergo sacrocolpopexy or sacrocolporectopexy[17–19]. The mesh characteristics significantly influence the rate of complications, with lighter weight polypropylene showing superiority to heavier-weight polypropylene in graft-related complications and re-implantation rates[20].

Surgical planning becomes increasingly complex in patients with inflammatory bowel disease (IBD), prior abdominal surgery, and contraindications to synthetic mesh. Biologic options, such as autologous rectus fascia or fascia lata, porcine dermis xenograft, and cadaveric grafts may also be used—however, current literature on their effectiveness compared to synthetic mesh options is limited and conflicting[1,3]. The American College of Obstetricians & Gynecologists (ACOG) notes sacrocolpopexy with a biologic graft could be considered in women who are at increased risk of synthetic mesh-related complications (e.g. chronic steroid use, current smoking)[1]. Patients with IBD are at increased risk for post-op complications after prolapse surgery, including infection[24]. Therefore, biologic grafts could be a better option for patients with IBD (Fig. 1).

In this case report, we discuss a patient who underwent successful combined ventral rectopexy and sacrocolpopexy with biologic mesh insertion as well as posterior repair and perineoplasty for multicompartment prolapse with enterocele with significant risk factors of mesh complications (e.g., ≥ 65 years old, recurrence, Crohn's Disease) and discuss the implications this case may have in the management of other patients with POP who face risks of post-operative mesh complications.

Case Presentation

An 88-year-old G2P2 white female first presented to a colorectal surgery clinic in March of 2023 with two months of worsening rectal prolapse symptoms and rectal bleeding. She had a history notable for Crohn's disease, chronic obstructive pulmonary disease requiring intermittent oxygen supplementation, and prior pulmonary embolism. She complained of numerous loose bowel movements per day. She was not on any medications for her Crohn's disease as she was in endoscopic remission. Her surgical history also included hysterectomy with bilateral salpingo-oophorectomy through a Pfannenstiel incision for heavy menstrual bleeding, and a remote history of open cholecystectomy and open appendectomy. Family history was unremarkable. Commode exam at presentation showed 5 cm full-thickness rectal prolapse. Pelvic Magnetic Resonance Imaging (MRI) with Defecography was consistent with these results. Given these findings and her history of Crohn's Disease, surgical management in the form of a rectopexy was recommended.

She underwent successful robotic rectopexy without complications and endorsed dramatic improvement in symptoms at her 1-month follow-up visit. However, 18 months later, she returned reporting 4 months of symptom recurrence with defecation and walking, as well as increased rectal bleeding and urinary dysfunction. She reported, however, that her symptoms were similar but not the same as before. She denied any other significant health changes or potential precipitating factors.

Commode exam showed reproducible isolated anterior rectal wall prolapse with enterocele. The anus itself was in its normal location, suggesting that there was no full-thickness rectal prolapse. MRI Defecography showed a widened genital hiatus with low-lying anorectal junction at rest, and significant pelvic floor descent with protrusion of the peritoneum and small bowel causing large rectocele and enteroceles in the posterior compartment (Fig. 2). She underwent diagnostic colonoscopy as part of her evaluation, which showed erythematous mucosa in the sigmoid colon, but no other remarkable findings.

Given the involvement of the vaginal vault and the need to obliterate the rectovaginal space due to the large enterocele, she was sent for evaluation with Urogynecology for potential combined surgical management. She reported worsening pelvic pressure, perineal pain, fecal urgency, fecal incontinence, mixed urinary incontinence, and incomplete bladder emptying. Physical examination revealed stage II apical and posterior vaginal prolapse with a large rectocele. Given her prior prolapse repair, extensive posterior compartment defects, and concern regarding synthetic mesh placement in the setting of Crohn's disease, a combined robotic ventral mesh rectopexy with biologic graft augmentation and concomitant native tissue posterior compartment reconstruction was planned.

The decision to use a biologic graft, rather than synthetic mesh, in this patient was informed by concerns about the chronic inflammatory nature of Crohn's, potential long-term steroid use, and theoretical increased risk of mesh-related complications in this patient.

The patient underwent the above operation successfully in October 2025. Intraoperative findings included a substantial enterocele space and an intact rectopexy posteriorly (Fig. 3 and Fig. 4a). During

the vaginal portion of the procedure, stage 2 vaginal vault prolapse (posterior predominant with significant enterocele) was seen. Upon completion of the procedure, excellent anterior, apical, and posterior support were noted (Fig. 4b). Rectal exam with intraoperative Valsalva was negative at the conclusion of the operation.

This patient's post-operative course was uncomplicated, and she was discharged on post-operative day 5. At her 6-week post-operative visit, she reported that she was doing well. She denied any of the rectal symptoms or pain she had prior to her surgery. She had no issues with bowel movements and had been able to return to all of her activities of daily life. She reported mild urinary urgency, which had been present for the past 2–3 weeks and accompanied by mild leakage, and it was subsequently treated with Vibegron.

Discussion

This case represents a unique clinical scenario that combines several high-risk factors not previously described in the medical literature (e.g., advanced patient age, Crohn's disease, and multicompartment POP). While recent studies suggest that robotic-assisted sacrocolporectopexy is safe and effective elderly patients ≥ 65 years old[21,22] and the ACOG considers biologic grafts as a reasonable alternative to synthetic mesh in patients with increased risk of complications, the specific combination of Crohn's disease with pelvic reconstructive surgery with mesh remains poorly characterized. To our knowledge, this is the first report of a successful combined robotic ventral mesh rectopexy and sacrocolpopexy with biologic graft insertion obliterating the rectovaginal space, posterior repair, and perineorrhaphy in a patient with this confluence of risk factors. It is clinically significant as it could represent a novel method for treating other medically complex patients, particularly given aging populations, increasing medical complexity of patients, and the high prevalence of co-existent POP and rectal prolapse in elderly patients.

Important limitations of this case include the need for long-term outcome data, insufficient comparative information regarding synthetic mesh outcomes in similar patients, and inability to generalize from a single case.

In conclusion, this case has significant implications regarding surgical decision-making in elderly patients with inflammatory bowel disease requiring pelvic reconstructive surgery, as it underscores the need for individualized surgical planning that balances the risk of prolapse recurrence against potentially dire mesh complications. Further emphasized in this patient's care is the importance of a multidisciplinary approach to comprehensive care. It demonstrates feasibility of a minimally invasive approach, while also highlighting the need for individualized risk-benefit assessment regarding the type of graft, biologic or synthetic, utilized. In medically complex elderly patients, operative planning must balance durability of repair with minimization of operative time, mesh-related complications, and postoperative morbidity. Biologic graft augmentation may represent a reasonable compromise in carefully selected patients with inflammatory bowel disease or elevated risk of impaired wound healing.

Further research is urgently needed to establish evidence-based guidelines for graft selection and surgical approaches in the growing population of elderly patients with complex medical comorbidities requiring pelvic reconstructive surgery.

Abbreviations

Abbreviation	Full Description
POP	Pelvic Organ Prolapse
IBD	Inflammatory Bowel Disease
ACOG	American College of Obstetricians & Gynecologists
MRI	Magnetic Resonance Imaging

Declarations

Ethics Approval and Consent to Participate

Not applicable.

Consent for Publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor in Chief of this Journal.

Competing Interests

LH is a researcher with Axena Health and a consultant for Boston Scientific. The other authors declare that they have no further disclosures.

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Author Contribution

J.B. performed literature review and drafted the manuscript. M. H. performed literature review, drafted the manuscript and prepared figures 1-4. M.D. contributed to clinical management of the patient, interpretation of the case and revision of manuscript. E.H., L.H., and L.C. served as primary surgeons in the is case, contributed to clinical management of the patient, interpretation of the case, and revisions of this manuscript. All authors read and approved the final manuscript.

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Availability of Data and Materials

Not applicable.

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Figures

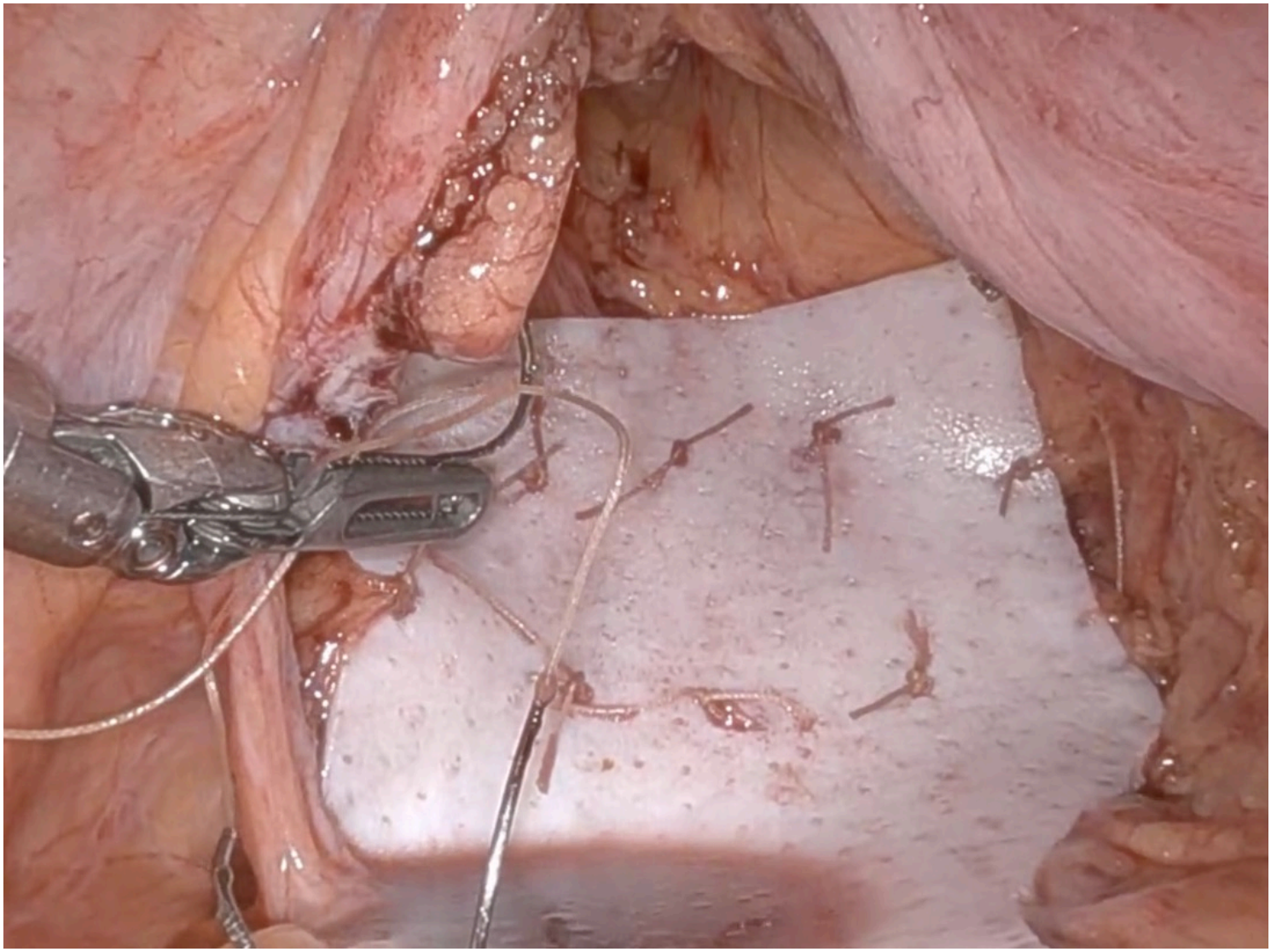


Figure 1

Intraoperative image of robotic assisted ventral rectopexy with biologic graft. This image shows the anterior rectal wall fixation with interrupted absorbable suture.