

A Customized Surgical Approach to Address Symptomatic Pelvic Organ Prolapse: A Case Report

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Abstract

Background: Pelvic organ prolapse (POP) can substantially impair quality of life and may require individualized surgical management based on anatomy, symptoms, and patient preference.

Case Presentation: A 58-year-old postmenopausal nulligravid woman presented with recurrent symptomatic uterovaginal prolapse after prior sacrospinous hysteropexy. Her presentation was complicated by a fibroid uterus, marked cervical elongation, and a severe introital stricture causing dyspareunia. She desired uterine preservation and declined allogeneic blood transfusion. Imaging demonstrated multiple uterine fibroids, including a large pedunculated posterior fibroid.

Interventions: A single-stage, customized procedure was performed consisting of perineoplasty, vaginal partial trachelectomy with modified Sturmdorf sutures, robotic-assisted laparoscopic myomectomy, and robotic sacrohysteropexy with mesh fixation to the anterior longitudinal ligament.

Results: The procedure was completed without intraoperative complications. Estimated blood loss was 20 mL. At 2 weeks and 3 months postoperatively, the patient reported high satisfaction, improved introital comfort, and resolution of prolapse symptoms. POP-Q point C improved from +2.5 to -9.

Conclusion: In selected patients with complex recurrent POP and coexisting pelvic pathology, a tailored combined vaginal and minimally invasive abdominal approach may safely achieve anatomic restoration while respecting patient goals.

Keywords: Pelvic Organ Prolapse; Sacrohysteropexy; Uterine Preservation; Cervical Elongation; Myomectomy; Perineoplasty

Introduction

Pelvic organ prolapse (POP) is a common condition that may significantly affect quality of life, body image, sexual function, and daily activity. Contemporary prolapse surgery increasingly emphasizes individualized treatment and patient-centered outcomes rather than a uniform anatomic approach [1]. This is particularly relevant in recurrent prolapse and a patient with a prior surgery, altered anatomy, cervical elongation, introital narrowing, and coexisting uterine pathology may limit standard options. This report demonstrates a complex case of recurrent uterovaginal prolapse in a patient with severe introital stricture, marked cervical elongation, and a large symptomatic pedunculated fibroid, managed successfully with a customized single-stage vaginal and robotic-assisted reconstructive approach.

Case Presentation

A 58-year-old gravida 0 postmenopausal woman was referred for recurrent symptomatic incomplete uterovaginal prolapse less than 10 months after undergoing vaginal prolapse repair with sacrospinous hysteropexy at an outside institution. She reported bothersome vaginal bulge symptoms and severe postoperative vaginal tightness associated with dyspareunia. Her body mass index was 36.32 kg/m². Pelvic examination demonstrated postmenopausal atrophic changes, a markedly narrowed vaginal introitus measuring approximately 1.5 cm in height and 1 cm in width, and a hypertrophic elongated cervix measuring 6.5 cm. A posterior uterine mass was palpable. Pre-operative Pelvic Organ Prolapse Quantification (POP-Q) coordinates were as follows:

- Aa: -2 | Ba: -2 | C: +2.5
- GH: 1.5 | PB: 4 | TVL: 7
- Ap: -3 | Bp: -3 | D: -5.

Preoperative evaluation included cystometrogram with prolapse reduction, which demonstrated a bladder capacity of 350 mL without occult stress urinary incontinence or detrusor overactivity. Transvaginal ultrasound and pelvic MRI demonstrated a 7.1-cm uterus with multiple small intramural fibroids and a 7 × 5 cm pedunculated posterior wall fibroid. Cervical cancer screening was negative for intraepithelial lesion or malignancy, and high-risk HPV testing was negative. The patient declined pessary management and hysterectomy and strongly desired preservation of the uterus and adnexa. She also requested surgical widening of the vaginal opening to address dyspareunia. Because she declined allogeneic blood products, two units of autologous blood were banked preoperatively. The patient was extensively counseled regarding the increased risk of prolapse recurrence given a large fibroid uterus, the risks of mesh-related complications (erosion, infection, bowel obstruction, or chronic sciatica), and the long-term requirement for ongoing cervical cancer surveillance. Small intramural fibroids were planned to be left in situ. Informed consent was obtained for a multi-stage single procedure.

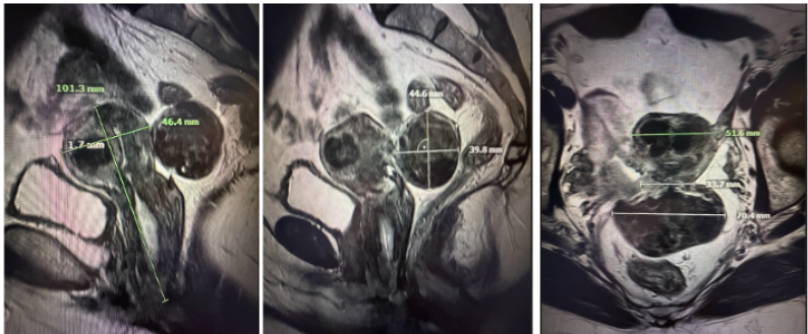


Figure 1: Pelvic MRI demonstrating an enlarged fibroid uterus with a pedunculated posterior fibroid and marked cervical elongation. MRI of pelvis shows a 10 cm uterus with Approximately 4 uterine fibroids were noted, with a 7 cm x 4.5 cm x 4 cm pedunculated fibroid on the posterior uterine body. In addition, the cervix was markedly elongated.

Surgical technique

A single-stage customized procedure was performed under general anesthesia.

Perineoplasty

Examination under anesthesia confirmed a restrictive posterior vestibular bridge. The posterior fourchette was incised vertically and closed transversely using interrupted absorbable sutures, thereby widening the introitus to accommodate 2 to 3 fingers. See figure 2 for the preoperative presentation and figure 3 for the steps of perineoplasty to address the stricture.

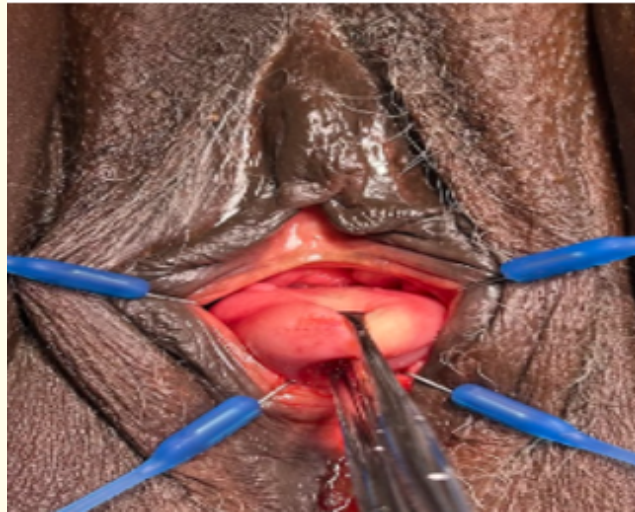


Figure 2: Preoperative examination showing severe introital narrowing and elongated cervix.

Pelvic examination under standard conditions demonstrated age-appropriate atrophic changes and a severely constricted vaginal introitus measuring only 1.5 cm in height and 1 cm in width. A marked hypertrophic, elongated cervix measuring 6.5 cm was noted, along with a palpable posterior uterine mass.

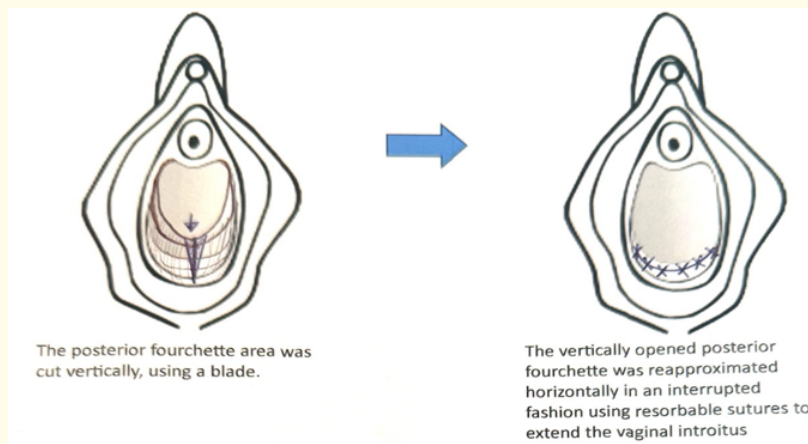


Figure 3: Perineoplasty performed to correct introital stricture.

Vaginal partial trachelectomy

Given the marked cervical elongation, a vaginal partial trachelectomy was performed. Modified Sturmdorf sutures were placed anteriorly and posteriorly to secure hemostasis and invert the vaginal mucosa over the cervical bed while reducing the risk of postoperative stenosis. This technique inverted the vaginal mucosal flaps cleanly over the raw cervical cone bed. Figure 4 depicts this step of the procedures.

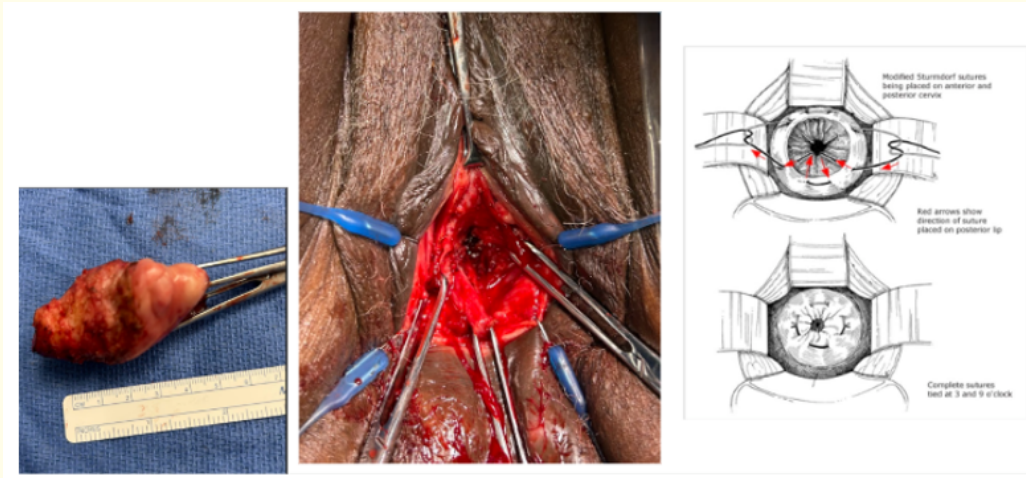


Figure 4: Vaginal partial trachelectomy with modified Sturmdorf sutures.

A localized partial trachelectomy was performed vaginally to reduce total cervical length. To achieve robust hemostasis and avoid postoperative stenosis of the external os, modified Sturmdorf sutures were strategically placed on the anterior and posterior cervical lips.

Laparoscopic survey and robotic-assisted myomectomy

Laparoscopic survey identified a 1.5-cm umbilical hernia, mild small bowel adhesions to the right lateral pelvic wall, and a 7.5 × 4.5 cm pedunculated posterior fibroid occupying the cul-de-sac. The fibroid was excised robotically at its stalk and removed through the umbilical incision. The umbilical hernia was repaired. The smaller intramural fibroids were left in situ. The ovaries and fallopian tubes appeared normal and atrophic and were preserved in accordance with the patient's wishes. Figure 5 shows the laparoscopic finding and the removed posterior fibroid.

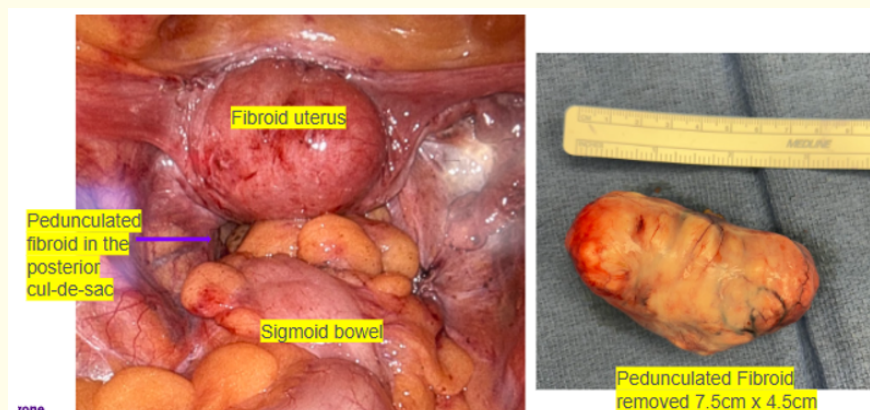


Figure 5: Laparoscopic view of the pedunculated posterior fibroid in the cul-de-sac.

A large, 7.5 cm x 4.5 cm pedunculated fibroid was identified sitting within the posterior cul-de-sac.

Robotic-assisted laparoscopic sacrohysteropexy

A robotic-assisted sacrohysteropexy was then performed for recurrent apical prolapse. A synthetic mesh graft was passed through a broad ligament window. The distal arms of the graft were secured to the anterior and posterior cervix, and the proximal portion was attached to the anterior longitudinal ligament over the sacral promontory in a tension-free manner. Figure 6 depicts the presentation of sacrohysteropexy.

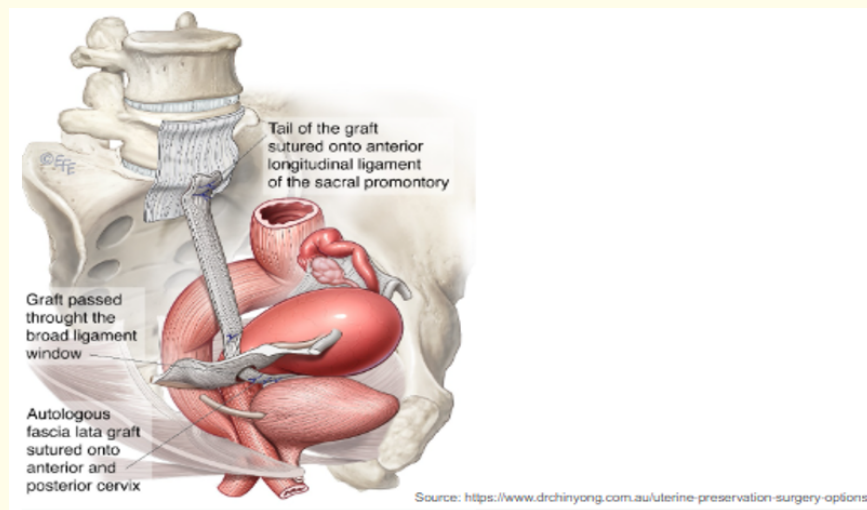


Figure 6: Sacrohysteropexy.

Cystoscopy and final assessment

Intraoperative cystoscopy confirmed intact bladder and urethral mucosa with bilateral ureteral efflux. Total estimated blood loss for the entire procedure was 20 mL, and no transfusion was required. Figure 7 shows the final vaginal presentation after the repairs.

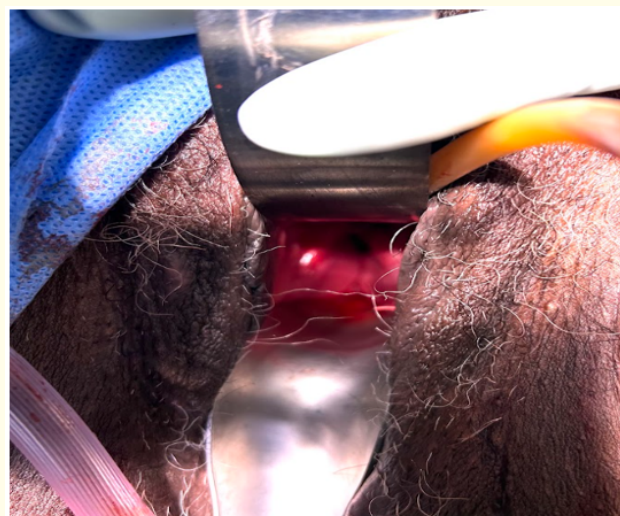


Figure 7: Final postoperative vaginal appearance.

Outcome

The postoperative course was uncomplicated, and the patient was discharged on postoperative day 1. At 2 weeks, healing was satisfactory. The introital stricture had resolved, and the patient denied bleeding, pain, or signs of infection. At 3 months, examination showed a well-healed cervix and excellent support of all vaginal compartments. Postoperative POP-Q values were:

- **Aa:** -3 | **Ba:** -3 | **C:** -9
- **GH:** 3 | **PB:** 4 | **TVL:** 9
- **Ap:** -3 | **Bp:** -3 | **D:** -10

Point C improved from +2.5 to -9. The patient reported high satisfaction with both prolapse correction and introital comfort.

Discussion

Uterine preservation vs. concomitant hysterectomy

The surgical management of POP has evolved significantly, shifting from routine hysterectomy toward patient-centered uterine preservation [1-3]. Historically, total hysterectomy was considered a core component of primary POP surgery to access the cardinal-uterosacral complex for apical suspension [2,3]. However, accumulating high-quality data challenges this paradigm.

A pivotal prospective cohort study published in the *American Journal of Obstetrics and Gynecology* by Brennand, *et al.* [2] compared hysterectomy against native tissue uterine preservation for symptomatic POP. The authors reported that at 1-year follow-up, the anatomic recurrence rate of apical descent was significantly higher in the hysterectomy cohort than in the uterine-preserving group (17.2% vs. 7.5%), translating to a 65% lower relative risk of recurrence for patients who underwent uterine preservation (aRR 0.35); 95% CI, 0.15-0.83). Furthermore, uterine-preserving surgeries demonstrated distinct perioperative advantages, including shorter surgical duration and reduced length of hospitalization [2].

These findings directly align with the perioperative success seen in our patient, who met all functional milestones and was safely discharged on postoperative day 1. While some abdominal approaches traditionally noted lower recurrence rates with hysterectomy, recent data confirm that laparoscopic and robotic sacrohysteropexy provide equivalent or superior apical suspension without the morbidity of organ removal [2,3]. This highlights that uterine preservation is not only an option driven by patient preference but an evidence-based method to optimize structural outcomes and minimize surgical risk [2,3].

Minimally invasive sacrohysteropexy and myomectomy

For patients presenting with both apical prolapse and benign uterine pathologies like leiomyomas, single-stage minimally invasive reconstructions are highly effective [4]. Laparoscopic and robotic sacrohysteropexy yield objective success rates ranging between 80% and 100% across contemporary literature [4,5]. Recent comparative evaluations between traditional laparoscopic suspension and robotic-assisted suspension show that while the robotic approach may have slightly longer operative times, it offers comparable long-term recurrence profiles and superior visualization during complex tissue dissection [4].

The presence of a massive posterior fibroid typically complicates sacrohysteropexy due to structural distortion and the increased weight bearing on the mesh graft. Chang, *et al.* [3] noted that executing a suspension in a heavily fibroid uterus significantly accelerates prolapse recurrence if the tumor burden is left unaddressed. By performing a concurrent robotic-assisted myomectomy to resect the dominant 7.5 cm pedunculated posterior fibroid, we successfully reduced uterine volume and mass. This minimized the stress placed on the anterior longitudinal ligament anchor site.

Combining a myomectomy with a mesh-based suspension carries potential risks of mesh infection or pelvic adhesion formation. However, our case demonstrates that maintaining strict surgical hemostasis—resulting in an estimated blood loss of only 20 mL—substantially mitigates these early postoperative risks.

Management of cervical elongation and introital strictures

Cervical elongation is a well-documented phenotype in advanced or recurrent uterovaginal prolapse, occasionally extending up to 6~8 cm [1]. If left unresected, an elongated cervix acts as a mechanical lever, projecting downward through the vaginal introitus and causing persistent bulge symptoms despite successful apical suspension [1]. While a vaginal Manchester trachelectomy can address this issue, using it as an isolated procedure carries a higher risk of failure when a large fibroid uterus is present [3]. Therefore, integrating a partial trachelectomy with a sacrohysteropexy provides a definitive dual-compartment solution.

To achieve secure closure of the raw cervical cone bed during the trachelectomy, the utilization of specialized suturing is critical. According to Cao Y, *et al.* [6] traditional cold knife conizations or trachelectomies are prone to postoperative hemorrhage or delayed cervical stenosis. The implementation of modified Sturmdorf sutures—which place hemostatic ties at the anterior, posterior, or lateral aspects of the cervix—effectively inverts the vaginal mucosal flaps over the raw surface (See figure 8). This protects the newly formed external os and reduces the risk of postoperative bleeding. This technical step was especially critical for this patient, who strictly refused allogeneic blood products due to personal preferences.

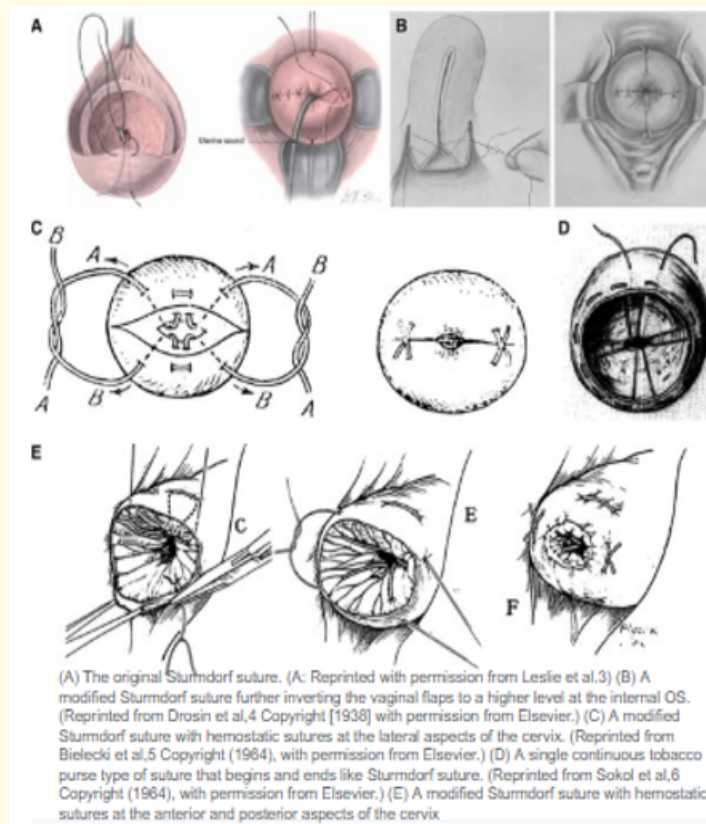


Figure 8: Modified Sturmdorf sutures used to invert cervical mucosa over the raw surface.

Source: https://www.ajog.org/cms/10.1016/j.ajog.2024.07.047/asset/ac5c1555-ce67-4dca-960a-658a5017e108/main.assets/gr2_lrg.jpg.

Finally, the patient’s concurrent complaint of dyspareunia highlights a common complication of pelvic floor surgery: iatrogenic over-repair. Over-tightening of the posterior vestibular bridge or perineum during initial native tissue repairs can result in restrictive introital strictures. Reversing this rigidity via a perpendicular-plane perineoplasty re-established a patent introitus accommodating 2 to 3 fingers, directly matching subjective success with objective anatomical correction.

Conclusion

This case demonstrates that a tailored, single-stage reconstructive strategy can successfully address recurrent uterovaginal prolapse, cervical elongation, introital stricture, and symptomatic fibroid burden while respecting patient priorities, including uterine preservation and blood product refusal. In carefully selected patients, combined vaginal and robotic-assisted techniques may offer safe and effective management of complex pelvic floor pathology.

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Conflicts of Interest

The author declares no conflicts of interest or relevant financial disclosures.

Ethical Approval

In accordance with institutional guidelines, Institutional Review Board approval was not required for this publication because the report is strictly descriptive and contains no personal or patient-identifying data.

Patient Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying intraoperative images.

Data Availability

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

Author Contributions

WC contributed to the conception and design of the work, the acquisition and interpretation of data, and drafted the manuscript.

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