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# Concurrent Pelvic Organ and Rectal Prolapse: A Narrative Review of Surgical Perspectives

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## Rezumat

***Prolaps concomitent al organelor pelvine și rectului: o revizuire narativă a abordărilor chirurgicale***

Prolapsul organelor pelvine (POP) şi prolapsul rectal (RP) coapar frecvent ca manifestări ale unei disfuncții globale a planşeului pelvin. Această revizuire narativă (1 ianuarie 2015 - 1 august 2025) sintetizează managementul chirurgical al bolii concomitente, subliniind cartografierea simptomelor, examinarea standardizată şi fenotiparea ghidată de defecografia prin rezonanță magnetică nucleară dinamică. În seriile retrospective şi studiile prospective de mici dimensiuni, repararea minim invazivă într-o singură sesiune, cel mai adesea sacrocolpopexie (± histeropexie) asociată cu rectopexie ventrală, pare fezabilă la pacienți atent selecționați, cu morbiditate perioperatorie similară procedurilor izolate şi îmbunătățirea considerabilă a simptomelor de protruzie („bulge"), a defecației obstructive şi a calității vieții. Principiile cheie includ planificarea multidisciplinară, disecția ventrală cu prezervarea nervilor, utilizarea unor plase care nu se suprapun, cu peritonealizare completă, şi protocoale de recuperare accelerată; complicațiile legate de plasă după rectopexie sunt rare. În seriile recente, readmiterea la 30 de zile este de aproximativ 2-3%, iar ratele de recurență precoce sunt de aproximativ 10% pentru prolapsul rectal şi de 5-8% pentru prolapsul apical, la aproximativ 1-2 ani; în plus, o meta-analiză a 16.471 de pacienți nu a constatat nicio creştere a complicațiilor pe termen scurt cu repararea concomitentă. Per total, în ciuda rezultatelor încurajatoare, heterogenitatea, eroare de selecție şi perioada limitată de urmărire limitează certitudinea. Pentru rafinarea indicațiilor şi stabilirea eficacității sunt necesare studii de calitate superioară, comparative şi cu urmărire pe termen lung.

**Cuvinte cheie:** rectopexie ventrală cu plasă, rectopexie robotică, rectopexie laparoscopică, sacrocolpopexie, histeropexie, reparație concomitentă, prolaps rectal, prolaps genital

## Abstract

Pelvic organ prolapse (POP) and rectal prolapse (RP) frequently co-occur as manifestations of global pelvic floor dysfunction. This narrative review (January 1, 2015, to August 1, 2025) synthesizes research on the evaluation and surgical management of concurrent disease, emphasizing symptom mapping, standardized examination, and dynamic magnetic resonance defecography (DMRD) - guided phenotyping. Across retrospective series and small prospective studies, single-session, minimally invasive repair - most commonly sacrocolpopexy (± hysteropexy) with ventral rectopexy - appears feasible in well-selected patients, with perioperative morbidity similar to that in isolated procedures and consistent improvements in bulge symptoms, obstructed defecation, and quality of life. Key principles include multidisciplinary planning, nerve-sparing ventral dissection, non-overlapping meshes with complete peritonealization, and enhanced-recovery pathways. Mesh complications after rectopexy are uncommon. Across recent series, 30-day readmission rates are approximately 2-3%, and early recurrence rates are about 10% for rectal prolapse and 5-8% for apical prolapse at roughly 1-2 years; moreover, a meta-analysis of 16,471 patients found no increase in short-term complications with concomitant repair. Overall, despite encouraging outcomes, heterogeneity, selection bias, and limited follow-up constrain certainty. Higher-quality comparative and long-term studies are needed to refine indications and establish long-term effectiveness.

**Keywords:** ventral mesh rectopexy, robotic rectopexy, laparoscopic rectopexy, sacrocolpopexy, hysteropexy, concomitant repair, rectal prolapse, pelvic organ prolapse

## Introduction

Pelvic floor disorders encompass a spectrum of conditions that often coexist and share pathophysiological mechanisms (1). Among them, rectal prolapse (RP) and pelvic organ prolapse (POP) represent two challenging entities that significantly impair quality of life (2,3). Rectal prolapse is defined as a circumferential, full-thickness protrusion of the rectum through the anal canal, frequently associated with obstructed defecation, fecal incontinence, and constipation (4,5). Correspondingly, POP involves the descent of the uterus, vaginal vault, bladder, or posterior vaginal wall (6), and is commonly classified by the Pelvic Organ Prolapse-Quantification (POP-Q) system (7). Both disorders are strongly associated with parity, advancing age, chronic straining, connective tissue weakness, and neuromuscular injury of the levator ani complex (8).

About 21-34% of women with rectal prolapse also demonstrate pelvic organ prolapse, supporting the concept of global pelvic floor dysfunction (9). Such patients often present with a mixture of anorectal, urinary, and vaginal symptoms that cannot be fully addressed by isolated, single-compartment surgery (2,9,10). This has led to the growing adoption of concomitant, single-session, minimally invasive repair, most commonly ventral mesh rectopexy (VMR) for rectal prolapse with sacrocolpopexy (SCP) or sacrohysteropexy (SHP) for apical prolapse, with multiple series and reviews reporting its feasibility, safety, and symptom improvement (3,11-13). In frail or older patients, perineal approaches may be combined with vaginal native tissue repair (14).

While concomitant repair offers theoretical advantages, including a single round of anesthesia, a single admission with a shorter overall recovery time, the integrated restoration of pelvic mechanics, and a potential reduction in posterior compartment recurrence, published series and reviews also note longer operative times, technical complexity, and mesh-related risks when multiple implants are placed in the deep pelvis (12,15,16). Nevertheless, reports from specialized centers increasingly indicate that combined procedures are feasible and can yield favorable anatomical outcomes (11,12).

We aim to provide a clinically oriented narrative review of the literature on concurrent POP and RP, focusing on diagnostic workup, indications for combined versus staged repair, technical considerations for SCP and ventral rectopexy (VR), perioperative care, outcomes, and complication management.

## Materials and Methods

A narrative review of the literature on combined sacrocolpopexy and ventral rectopexy (SCP-VR) and related approaches for multicompartment prolapse was conducted. Sources included PubMed, Scopus, and Web of Science Core Collection. The search covered the period from January 1, 2015, to August 1, 2025, focused on

English language publications on adult humans, and used combinations of the following keywords: "pelvic organ prolapse," "rectal prolapse," "sacrocolpopexy," "sacrohysteropexy," "rectopexy," "ventral rectopexy," "concomitant," "combined," "synchronous," "single-stage," "same session," "defecography," "magnetic resonance defecography," "laparoscopic," and "robotic". We screened 294 records; after removing duplicates and title/abstract screening, 29 full-text articles were assessed, and 9 studies were included. Clinical studies and reviews reporting on concomitant SCP-VR were prioritized. Reference lists from the final selection of publications and relevant guidelines were also screened to identify additional records. Pediatric series and reports focused exclusively on transvaginal mesh were excluded unless essential for context. Given heterogeneity of the articles, we did not perform a meta-analysis. This report follows good-practice guidance for narrative reviews.

## Results and Discussion

### *Epidemiology and Burden*

POP and RP disproportionately affect older, multiparous populations and are frequently underreported (17). Symptom clusters span bulge sensation, obstructed defecation, fecal incontinence, urinary urgency or stress incontinence, and sexual dysfunction (18). Beyond symptom burden, POP and RP drive substantial resource utilization through repeated clinical visits, imaging, and operative care (19). Concomitant disease amplifies impairment in quality of life and increases the risk that single-compartment surgery leaves residual symptoms (9). Health systems should anticipate rising demand as populations age and as survivorship increases following pelvic surgery (20).

### *Pathophysiology and Shared Mechanisms*

Global pelvic floor dysfunction is a unifying concept for POP and RP, whereby connective tissue laxity, levator ani muscle injury or denervation, and chronic increases in intra-abdominal pressure lead to multi-compartment descent (8). In POP, apical loss of support drives secondary anterior/posterior wall defects (21); in RP, ventral tethering and restoration of the rectovaginal septum are central to functional repair (22). Shared contributors include parity and delivery trauma, aging-related collagen changes, chronic straining, and prior pelvic operations (23-25). Phenotypic overlap explains why isolated repairs may incompletely relieve symptoms (11,26).

### *Clinical Assessment*

A comprehensive clinical assessment begins with symptom mapping across compartments: constipation patterns (straining, digital assistance, and incomplete evacuation), characteristics of fecal incontinence, urinary urgency/leakage, prolapse/bulge awareness, dyspareunia, and prior obstetric or pelvic operations. Baseline burden should be standardized with validated Patient reported outcome measures (PROMs) - pelvic floor disability index (PFDI-20) and pelvic floor impact questionnaire (PFIQ-7) for pelvic floor impact, the Cleveland Clinic (Wexner) Constipation Score for obstructed defecation, and the Vaizey or Wexner scores for continence (27-30). Examination documents POP-Q staging (supine and, when helpful, standing with strain), perineal descent, external prolapse, and anal resting/squeeze tone, noting paradoxical contraction and posterior compartment defects; findings should be reported using an International Continence Society/International Urogynecological Association (ICS/IUGA) terminology to enable cross-team communication (31,32). Ancillary testing is selective and pursued when results are likely to change management; it includes anorectal physiology with a balloon expulsion test (commonly abnormal if >60 s) for outlet obstruction (33,34); DMRD to delineate rectocele, intussusception, enterocele, and multicompartment descent (35-38); and targeted urologic evaluation (stress testing with prolapse reduction ± urodynamics in complex or discordant cases), consistent with contemporary guidance that routine preoperative urodynamics is not required for straightforward cases (39,40).

### *Imaging and Phenotyping*

When available, DMRD provides radiation-free, multi-compartment visualization under near-physiological conditions, allowing for the quantification of cystocele, apical descent, enterocele, rectocele, intussusception, and external prolapse in a single study (41). Standardized reporting should document the reference planes or lines (e.g., pubococcygeal line and levator hiatus/H-line), organ descent relative to those references, hiatal dimensions/widening, and whether descent is coupled across compartments. These elements were

emphasized in recent consensus statements and technical recommendations (42,43).

Where DMRD is not available, fluoroscopic defecography remains useful for functional assessment of the posterior compartment (applying the As Low as Reasonably Achievable (ALARA) principle); in this regard, several expert templates and guidelines remain in circulation (44,45).

In parallel, 3D endovaginal/transperineal ultrasound can identify levator ani avulsion and related defects, findings that inform counseling, risk stratification, and expectations regarding prolapse surgery (46,47).

### *Surgical Options for Isolated Compartment Diseases*

- Apical Support Procedures (SCP or Sacrohysteropexy (SHP) and Alternatives)
  Abdominal SCP restores apical support using mesh anchored to the anterior longitudinal ligament (48,49). Uterine-sparing sacrohysteropexy (SHP) offers comparable apical correction in selected patients desiring uterine preservation (50). Alternatives such as pectopexy (51) or native-tissue vaginal suspensions (52) may be chosen based on anatomy, comorbidity, and surgeon expertise.
- RP Repairs (VR and Perineal Procedures)
  VR is used to treat full-thickness RP and involves dissecting the ventral rectovaginal plane, suturing a strip or mesh to the anterior rectal wall, fixing it to the sacral promontory, and then peritonealizing, deliberately avoiding posterior/lateral mobilization to protect autonomic nerves and lower the risk of postoperative constipation. Mid-term series and guidelines report low recurrence with VR and meaningful improvements in obstructed defecation and fecal incontinence; importantly, de novo constipation is less common than with posterior/lateral dissection approaches (5,53). Mesh-related problems after VR are uncommon (≈1–2% overall; most mesh-related events in large series comprise erosions) (54).

For frail or high-anesthetic-risk patients, perineal procedures remain valuable: the Delorme (mucosal sleeve resection with muscular plication) and Altemeier (perineal rectosigmoidectomy, often with levatorplasty) procedures offer shorter anesthesia and recovery times but carry higher recurrence rates than abdominal repairs, so trade-offs should be discussed in shared decision-making. Randomized and meta-analytic evidence consistently shows greater recurrence after perineal versus abdominal approaches, although functional outcomes and morbidity must be individualized (55,56).

### *Indications for Concomitant Repair*

Concomitant SCP-VR is reasonable when symptoms and examination demonstrate clinically meaningful defects in both compartments, particularly if DMRD shows multi-compartment descent or intussusception coupled with apical loss of support (11,42,57). Additional indications include the failure of an isolated repair with persisting cross-compartment symptoms and patient preference for a single anesthesia and recovery step when both defects are clearly present (11,57,58). Situations favoring staging or avoidance include prohibitive anesthetic risk, active pelvic infection or contaminated fields, and circumstances in which safe mesh placement or peritonealization is not feasible; these align with guideline-based selection principles and mesh-risk considerations (53,57,59). A practical decision pathway is summarized in *Fig. 1.*

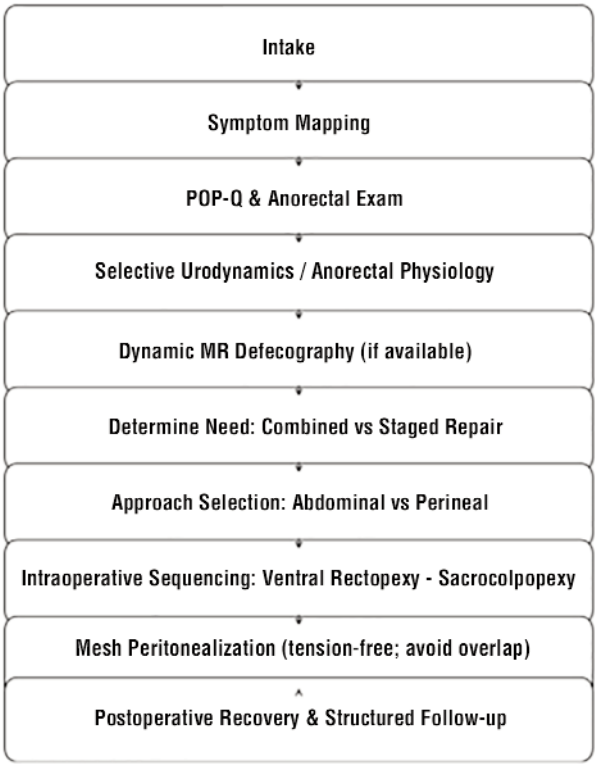


**Figure 1.** Intake to treatment pathway for concurrent POP and RP

### *Perioperative Planning and Sequencing*

A multidisciplinary plan establishes patient positioning, shared port placement, and the operative sequence. Many teams perform VR first, followed by SCP, to preserve exposure and avoid graft interference (11). Overlapping meshes should be avoided, keeping a ~2-3 cm separation between rectal and vaginal mesh attachment sites, and all implants should be peritonealized to limit bowel contact. Tension-free fixation at the sacral promontory should be documented, with clear identification of the right ureter (11,53,57,60). Concomitant procedures (e.g., anti-incontinence surgery and posterior colporrhaphy) are individualized to symptoms and anatomy (11,53). Enhanced-recovery elements (early diet, opioid-sparing multimodal analgesia, early mobilization, and no routine drains) facilitate faster recovery and shorter length of stay (61).

### *Outcomes of Concomitant SCP-VR*

Concomitant SCP–VR appears feasible in well-selected patients with multicompartment prolapse, with perioperative morbidity comparable to that in single-compartment operations and consistent improvements in bulge symptoms, obstructed defecation, and quality of life (11,13). De novo constipation is relatively uncommon with nerve-sparing ventral techniques that avoid lateral/posterior mobilization (62). Mesh-related adverse events after ventral rectopexy are infrequent (≈1-2%) in recent series and reviews (54).

Heterogeneity in case-mix, technique, and outcome measures limits pooling across studies (11). Recent studies from the last 5 years are summarized in *Table 1.*

### *Complications and Their Management*

- Baseline surgical risks: Bleeding, infection, and

**Table 1.** Outcomes of contemporary studies on concomitant treatment of pelvic organ prolapse and rectal prolapse

| Study | Design & Population | N | Procedure/Comparator | Key Outcomes | Follow-up |
|---|---|---|---|---|---|
| Devane LA et al. (13) | Single-center retrospective series of combined robotic ventral mesh rectopexy (VMR) + sacrocolpopexy (SCP)/sacrohysteropexy (2018–2021). | 321 | Combined robotic VMR + apical fixation (no comparator). | LOS 1.6 days; 30-day readmission 2.5% (8/321); reoperation 1.2% (4/321); no mortality; mean operative time 266 min. | 30-day morbidity; institutional series. |
| Ross JH et al. (63) | Retrospective cohort + postoperative survey of patients undergoing combined robotic ventral rectopexy (VR) + SCP. | 107 | Combined robotic VMR + SCP (no comparator). | RP/intussusception recurrence 10.4%; objective POP recurrence 7.5%; PFDI-20 mean 95.7; PISQ-12 mean 32.8; PGI-I median 2. | Median 18 months (IQR 8.8–51.8). |
| Lua-Mailland LL et al. (64) | Retrospective cohort of minimally invasive SCP from 2017–2022; comparison of SCP+RP vs SCP only. | 549 | SCP + RP (n=144) vs SCP only (n=405). | 6-week unplanned healthcare encounters (HRU) similar: 34.0% vs 33.1% (p=0.84); concomitant mid-urethral sling doubled HRU risk. | 6-week HRU until routine post-op visit. |
| Wallace SL et al. (65) | Multicenter matched retrospective cohort at five academic hospitals. | 408 | POP+RP combined (n=204) vs POP only (n=204). | < 30-day complications similar: 27.5% vs 26.0% (NS); fewer UTIs/less retention but more wounds/abscesses in the combined group; subsequent POP surgery: 5.9% vs 7.4% (NS). | <30-day complications; subsequent POP surgeries reported. |
| Bordeianou L et al. (66) | Retrospective analysis of a prospective multicenter registry of abdominal rectopexy. | 198 | Rectopexy with (70%) vs. without middle compartment suspension (culdoplasty/colpopexy). | Middle compartment suspension associated with lower early RP recurrence in multivariable analysis. | Short-term recurrence (duration not specified in abstract). |
| Campagna G et al. (12) | Single-center series of women with multicompartment POP and obstructed defecation. | 98 | Laparoscopic SCP + VMR (no comparator). | No intra- or postoperative morbidity reported; 78.8% had PGI-I <3; all POP-Q - stage 1 at follow-up; improved FSDS, PISQ-12, Wexner. | 1 and 12 months. |
| Wallace SL et al. (67) | Single-institution retrospective cohort (2008–2019). | 63 | Combined RP + POP surgery; minimally invasive surgery vs. laparotomy subgroup. | <30-day complications 18.3% overall; none after MIS abdominal approach vs. 37.5% after laparotomy; subsequent reoperation: RP 14%, POP 4.8%. | Reoperation reported; median not stated. |

**Table 1.** Cont'd

| Study | Design & Population | N | Procedure/Comparator | Key Outcomes | Follow-up |
|---|---|---|---|---|---|
| Smith PE et al. (68) | NSQIP database study (2006–2015). | 273 | Abdominal combined VR+SCP (n=240) vs. perineal rectopexy + vaginal apical suspension (n=33). | Any perioperative complication 9% overall; no significant difference between perineal vs. abdominal after age adjustment. | 30-day NSQIP outcomes. |
| Hadizadeh A et al. (69) | Seven studies; 16,471 patients (843 concomitant; 7,808 SCP only; 7,820 RP only). | 164,71 | Concomitant SCP+RP vs. SCP only and RP only. | No increase in overall complications vs. SCP only (OR 0.78; 95% CI 0.56–1.09) or RP only (OR 0.79; 0.49–1.25); serious complications not increased. | Short-term complications. |

*N=cases; VMR= ventral mesh rectopexy; SCP= sacrocolpopexy; VR= ventral rectopexy; RP=rectal prolapse; HRU= unplanned healthcare encounters; MIS= minimally invasive surgery; OR=odds ratio; CI=Confidence Interval; NSQIP= National Surgical Quality Improvement Program; LOS= Length of Stay; IQR=Interquartile Range; PSIQ-12=Urinary Incontinence Sexual Questionnaire; PGI-I= Patient Global Impression of Improvement; NS= Not Statistically Significant; FSDS=Female Sexual Distress Scale; UTI=Urinary Tract Infection

venous thromboembolism apply to both SCP and VR; evaluations per standard colorectal or urogynecological protocols are recommended (70).

- Constipation and outlet obstruction (VR): De novo or persistent constipation should prompt a structured workup: examination, laxative optimization, and then cross-sectional imaging (to assess kinking/adhesions) and endoscopy if stricture or erosion is suspected. Avoiding posterior/lateral mobilization reduces de novo constipation; overall mesh-related adverse events after minimally invasive VMR are uncommon (~1–2%, predominantly erosions) (54,59,71).
- Mesh events after SCP: Vaginal mesh exposure /erosion typically presents with spotting, discharge, dyspareunia, or palpable mesh. Speculum examination should be performed; small, asymptomatic, or minimally symptomatic exposures (<0.5 cm) may be managed with topical vaginal estrogen and observation; persistent or deeper involvement generally requires surgical excision (often by a urogyne/ colorectal team) (72-74). Meta-analyses and large series report SCP mesh exposure rates of up to 7% (range varies by technique and follow-up) (74,75).
- Bowel complications: Ileus/adhesive small-bowel obstruction occurs more often after SCP than native-tissue vaginal repair; estimates of ~2-3% are reported in contemporary reviews. Early evaluation with computed tomography is recommended, with management per obstruction protocols, reserving re-operation for refractory cases. Rarely, barbed suture tails or peritoneal closure can entrap bowel; prevention includes trimming/burying ends and peritonealization (74–76).
- Spondylodiscitis and deep infection (SCP): This is a rare occurrence. Presentations include back pain, malaise, or fever weeks to months after promontory fixation. Magnetic resonance imaging is recommended; management involves culture-directed antibiotics ± mesh/suture removal depending on the extent (77).
- VR mesh issues: Mesh erosion or fistula after VR is rare; most mesh events are erosions. Suspected erosion warrants endoscopic confirmation and multidisciplinary planning for partial or complete mesh removal (54).

### *Evidence Synthesis*

Across studies from January 1, 2015, to August 1, 2025, including retrospective series, small prospective cohorts, and one randomized technique trial, concomitant SCP–VR in women with multicompartment prolapse demonstrates perioperative morbidity comparable to that in isolated SCP or VR and consistent improvement in bulge symptoms, obstructed defecation, and patient-reported quality of life. De novo constipation appears uncommon when nerve-sparing ventral techniques avoid lateral/posterior mobilization, and mesh-related adverse events after ventral rectopexy are infrequent (~1–2% in recent series). Heterogeneity in case-mix, technique, and outcome definitions limits formal pooling, but the direction of effect across reports favors single-session repair in appropriately selected patients treated by multidisciplinary teams (12,13,63–69,74,78).

### *Strengths of this Review*

This review offers a clinically focused synthesis of concomitant sacrocolpopexy-ventral rectopexy,

uses standardized terminology and PROMs, summarizes contemporary series in a compact evidence table, and distills practical decision points for combined versus staged reparir.

### *Limitations of the Evidence Base*

The literature on concomitant SCP-VR is dominated by retrospective case series with selection biases, variable definitions of success, and heterogeneous PROMs. Comparative effectiveness data are sparse, and follow-up often shortens the window for detecting late mesh-related events or recurrence. These constraints inform the cautious tone of this review and underscore the need for standardized reporting.

### *Gaps and Future Directions*

Priorities include prospective registries using core outcome sets; randomized or well-matched comparative studies of concomitant versus staged repair; long-term functional outcomes, including sexual health; imaging–symptom correlation to refine indications; and pragmatic trials of enhanced recovery after surgery elements, tailored to pelvic floor surgery. Consensus on definitions for anatomic success and patient-centered endpoints will also accelerate synthesis and guideline development.

### *Clinical Bottom Line*

- When to combine: Clear apical support loss with posterior compartment defects/internal intussusception on examination or dynamic MR defecography; cross-compartment symptoms; patient preference for a single anesthesia (12,64,65).
- When to stage/avoid: Contaminated field or high mesh-risk context, inability to fully peritonealize, prohibitive anesthetic risk, or unclear symptom drivers (12,13).
- Sequence tips: VR then SCP/SHP; avoid overlapping mesh paths; fully peritonealize; preserve autonomic nerves (12,13).
- Expected outcomes: Perioperative morbidity comparable to that in isolated procedures; ≈2-3% 30-day readmission rate in contemporary series; functional gains in bulge/obstructed defecation; de novo constipation uncommon with nerve-sparing ventral technique (12,13, 63,69).
- Caveat for counseling: Evidence is largely retrospective with heterogeneous follow-up - discuss durability and mesh-specific risks (65,69).

## Conclusions

Concomitant SCP–VR aligns surgical correction with the multi-compartment nature of advanced pelvic floor failure. When performed by coordinated teams with standardized assessment, imaging, and follow-up, combined repair can yield meaningful improvements in function with acceptable risk. Methodologically stronger studies and shared outcome frameworks are needed to refine indications and benchmark long-term durability.

Future work should prioritize core-outcome registries and randomized comparisons of concomitant versus staged repair, with long-term functional outcomes, imaging-symptom phenotyping, and consensus definitions of anatomic success and patient-centered endpoints.

### *Authors' Contributions*

Conceptualization, C.M., M.B.; Methodology, C.M., M.B., C.L.N.; Validation, V.O.B., M.B., D.C.M., C.C.D.; Investigation, V.O.B., C.C.D., M.B.; Resources, C.M., C.V.M.; Data curation, M.B., C.L.N.; Writing—original draft preparation, M.B., C.L.N.; Writing—review and editing, C.M.; Visualization, C.L.N., V.O.B.; Supervision, C.M., C.V.M.; Project administration, C.M.; Funding acquisition, C.V.M. All authors have read and agreed to the published version of the manuscript.

### *Conflicts of Interest*

The authors declare no conflicts of interest.

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### *Ethical Statement*

This review synthesizes previously published literature and involved no human participants, identifiable data, or animals.

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