

Sacrospinous Fixation in the Management of 1st and 2nd Degree Uterovaginal Prolapse: Outcome and Complications

Kazi Farhana Begum^{1*}, Mehera Parveen², Nigar Sultana³, Hasna Hena Pervin⁴, Humaira Alam⁵

ARTICLE INFO

Received: 9 Mar 2026
Accepted: 12 Mar 2026
Published Online: 18 Mar 2026

DOI: 10.5281/zenodo.19497864

Volume: 9, Number: 2, Page: 71-74

e-ISSN: 2789-5912
ISSN: 2617-0817

*Corresponding author



ABSTRACT

Background: Pelvic organ prolapse is a common gynecological condition that significantly affects quality of life, particularly among multiparous and aging women. Sacrospinous fixation has emerged as an effective vaginal surgical approach for restoring apical support while minimizing operative morbidity. Despite increasing global evidence, data regarding its outcomes in South Asian populations remain limited. **Objective:** This study aimed to evaluate anatomical success, functional improvement and postoperative complications following sacrospinous fixation in women with first- and second-degree uterovaginal prolapse. **Methods & Materials:** A prospective observational study was conducted at the Department of Obstetrics and Gynecology, Bangladesh Medical University, Dhaka, from January to December 2023. A total of 120 patients underwent sacrospinous fixation and were followed for 12 months. Baseline demographic characteristics, perioperative parameters and postoperative outcomes were analyzed using SPSS version 25.0. **Results:** Successful anatomical correction was achieved in 90% of patients, while recurrence occurred in 10%. Subjective symptom improvement was reported by 85% of participants and urinary symptom improvement was noted in 73.3%. The most common complication was transient buttock pain (15%), followed by urinary tract infection (11.7%), with no neurological injury observed. Operative duration was ≤ 60 minutes in most cases and blood loss remained minimal in the majority of patients. **Conclusion:** Sacrospinous fixation demonstrated favorable anatomical and functional outcomes with low complication rates, supporting its role as a safe and effective surgical option for early-stage uterovaginal prolapse.

Keywords: sacrospinous fixation, uterovaginal prolapse, pelvic organ prolapse surgery

1. Associate Professor, Department of Obstetrics and Gynaecology, Bangladesh Medical University, Dhaka, Bangladesh (ORCID: 0009-0001-4516-5592)
2. Associate Professor, Department of Obstetrics and Gynaecology, Bangladesh Medical University, Dhaka, Bangladesh (ORCID: 0009-0002-5696-4370)
3. Associate Professor, Department of Obstetrics and Gynaecology, Bangladesh Medical University, Dhaka, Bangladesh (ORCID: 0009-0003-5076-1529)
4. Associate Professor, Department of Obstetrics and Gynaecology, Bangladesh Medical University, Dhaka, Bangladesh (ORCID: 0009-0005-2151-3125)
5. Assistant Professor, Department of Reproductive Endocrinology and Infertility, Bangladesh Medical University, Dhaka, Bangladesh (ORCID: 0009-0007-7532-7154)

INTRODUCTION

Pelvic organ prolapse represents a significant gynecological condition affecting women worldwide, particularly those with advancing age and multiparity. It is characterized by the descent of pelvic organs due to weakening of supportive connective tissue and musculature, leading to anatomical and functional impairment^[1,2]. The condition often presents with pelvic pressure, urinary symptoms and sexual dysfunction, substantially affecting quality of life and healthcare utilization^[1]. The pathophysiology of uterovaginal prolapse involves complex interactions between biomechanical support structures, neuromuscular integrity and obstetric risk factors. Alterations in pelvic floor anatomy and connective tissue support have been widely implicated in the development and progression of prolapse^[3]. Epidemiological studies indicate increasing prevalence with ageing populations, highlighting the need for effective and durable surgical management strategies^[2]. Sacrospinous ligament fixation has emerged as an established vaginal surgical technique for apical support restoration. The

procedure offers advantages such as avoidance of abdominal surgery, shorter operative time and preservation of vaginal anatomy^[4]. Over the past decades, advancements in surgical technique and patient selection have expanded its clinical application for various stages of prolapse^[5]. Systematic reviews have demonstrated that sacrospinous fixation provides satisfactory anatomical outcomes and functional improvement, making it a widely accepted option in urogynecologic practice^[6]. Randomized trials comparing sacrospinous hysteropexy with alternative surgical methods suggest comparable efficacy in maintaining apical support while reducing surgical morbidity^[7]. Long-term evaluations also indicate that both sacrospinous fixation and uterosacral ligament suspension achieve favorable outcomes, although differences in recurrence and symptom relief remain subjects of ongoing research^[8]. Clinical guidelines increasingly emphasize individualized surgical approaches tailored to patient characteristics, prolapse stage and surgeon expertise^[9].

Recent investigations have highlighted promising anatomical success rates and patient-reported improvements following sacrospinous fixation, particularly when combined with anterior or posterior repairs^[10]. Contemporary reviews further suggest that refinement of surgical techniques and improved understanding of pelvic floor biomechanics contribute to enhanced functional outcomes and reduced complication rates^[11]. Long-term follow-up studies continue to explore the durability of repair and quality-of-life improvements, underscoring the evolving role of this procedure in modern gynecologic surgery^[12].

Despite extensive international literature, evidence from South Asian populations remains limited. Variations in demographic characteristics, parity patterns and healthcare resources may influence surgical outcomes and complication profiles. Therefore, evaluating the effectiveness and safety of sacrospinous fixation in local clinical settings is essential to guide evidence-based practice.

OBJECTIVES

The present study aims to assess perioperative characteristics, anatomical outcomes, functional improvement and postoperative complications following sacrospinous fixation in women with first- and second-degree uterovaginal prolapse.

METHODS & MATERIALS

This prospective observational study was conducted at the Department of Obstetrics and Gynecology, Bangladesh Medical University (BMU), Dhaka, Bangladesh. The study period extended from January to December 2023. A total of 120 women diagnosed with first- or second-degree uterovaginal prolapse and undergoing sacrospinous fixation were included.

Sample Selection

Inclusion criteria

- Women aged ≥ 30 years with clinically diagnosed first- or second-degree uterovaginal prolapse.
- Patients were planned for sacrospinous fixation as primary surgical management.
- Patients are willing to participate and provide informed written consent.
- Women are available for regular follow-up up to 12 months postoperatively.

Exclusion criteria

- Third- or fourth-degree uterovaginal prolapse.
- Previous pelvic reconstructive surgery or malignancy.
- Severe medical comorbidities contraindicate surgery.
- Active pelvic infection or pregnancy at the time of surgery.

Data Collection Procedure

Eligible patients attending the gynecology outpatient department were evaluated through detailed history, pelvic examination and standardized prolapse assessment. Baseline demographic characteristics, obstetric history, menopausal status and clinical findings were recorded using a structured data collection form. Preoperative investigations included routine hematological tests and ultrasonography when indicated. Surgical procedures were performed by experienced gynecologic surgeons using a standardized sacrospinous fixation technique, with documentation of laterality, operative duration, estimated blood loss and concomitant repairs. Postoperative monitoring included clinical examination and symptom assessment during scheduled follow-ups at 1 month, 6 months and 12 months. Functional outcomes were evaluated through patient-reported symptom improvement and changes in urinary symptoms, as assessed during clinical interviews. Recurrence was defined as the reappearance of uterovaginal prolapse during follow-up clinical

examination and was categorized according to stage and compartment of involvement. Complications were recorded prospectively using predefined criteria to maintain consistency. Informed consent was secured from all participants after explaining the objectives and procedures of the study. Confidentiality of patient information was strictly maintained.

Statistical Analysis

Data were analyzed using SPSS version 25.0. Descriptive statistics included frequencies, percentages and mean distributions to summarize demographic, perioperative and outcome variables. Inferential comparisons were applied where appropriate to assess relationships between clinical characteristics and outcomes. Results were presented in tabular form with categorical variables expressed as proportions.

RESULTS

Table 1 presents the baseline socio-demographic and clinical characteristics of the study population. The largest proportion of patients belonged to the 40–49 year age group (38.3%), followed by 50–59 years (31.7%). Most women had parity of 3–4 (53.3%), while 28.3% had parity ≥ 5 . Second-degree uterovaginal prolapse was more frequent (63.3%) than first-degree prolapse (36.7%). Postmenopausal women constituted 56.7% of participants, whereas 43.3% were premenopausal.

Table I

Baseline Socio-Demographic and Clinical Characteristics ($n = 120$).

Variable	Frequency (n)	Percentage (%)
Age group (years)	30–39	18
	40–49	46
	50–59	38
	≥ 60	18
Parity	≤ 2	22
	3–4	64
	≥ 5	34
Degree of uterovaginal prolapse	1st degree	44
	2nd degree	76
Menopausal status	Premenopausal	52
	Postmenopausal	68

Table II shows perioperative characteristics of sacrospinous fixation. Right-sided fixation was performed in 90.0% of cases, while bilateral fixation was used in 10.0%.

Operative duration was ≤ 60 minutes in 60.0% of surgeries. Estimated blood loss remained below 100 mL in 68.3% of patients. Concomitant anterior or posterior

vaginal repair was undertaken in 61.7% of procedures.

Table II

Perioperative Characteristics of Sacrospinous Fixation ($n = 120$).

Variable	Frequency (n)	Percentage (%)
Laterality of fixation	Right-sided	108
	Bilateral	12
Mean operative time	≤ 60 minutes	72
	> 60 minutes	48
Estimated blood loss	< 100 mL	82
	≥ 100 mL	38
Concomitant anterior/posterior repair	Yes	74
	No	46

Table III describes anatomical and functional outcomes at 12-month follow-up. Successful anatomical correction was achieved in 90.0% of cases, with prolapse

recurrence observed in 10.0%. Subjective symptom improvement was reported by 85.0% of women and urinary symptom improvement occurred in 73.3%.

Dyspareunia, either new-onset or persistent, was documented in 11.7% of patients.

Table III
Anatomical and Functional Outcomes at 12-Month Follow-Up (*n* = 120).

Outcome	Frequency (n)	Percentage (%)
Successful anatomical correction	108	90.0
Recurrence of prolapse	12	10.0
Subjective symptom improvement	102	85.0
Improvement in urinary symptoms	88	73.3
Dyspareunia (new-onset or persistent)	14	11.7

Table IV illustrates the pattern of prolapse recurrence observed during the 12-month follow-up period. Among the 12 patients

with recurrence, most presented with stage I prolapse (66.7%). Anterior compartment recurrence was the most common pattern

(58.3%), followed by posterior compartment (25.0%) and apical recurrence (16.7%).

Table IV
Characteristics of Prolapse Recurrence at 12-Month Follow-Up (*n* = 12).

Variable	Frequency (n)	Percentage (%)
Stage of Recurrence	Stage I	8 (66.7)
	Stage II	4 (33.3)
Site of Recurrence	Anterior compartment (cystocele)	7 (58.3)
	Apical compartment	2 (16.7)
	Posterior compartment (rectocele)	3 (25.0)

Table V presents postoperative complications following sacrospinous fixation. Transient buttock pain was the most common complication (15.0%),

followed by urinary tract infection (11.7%). Febrile morbidity occurred in 5.0% and vaginal cuff granulation in 6.7% of cases. Hemorrhage requiring intervention was rare

(3.3%) and no neurological injury was reported.

Table V
Postoperative Complications Following Sacrospinous Fixation (*n* = 120).

Complication	Frequency (n)	Percentage (%)
Buttock pain (transient)	18	15.0
Urinary tract infection	14	11.7
Febrile morbidity	6	5.0
Vaginal cuff granulation	8	6.7
Hemorrhage requiring intervention	4	3.3
Neurological injury	0	0.0

DISCUSSION

The present study evaluated the anatomical success, functional outcomes and postoperative complications of sacrospinous fixation in women with first- and second-degree uterovaginal prolapse. A high anatomical success rate of 90% was observed at 12-month follow-up, with significant improvement in subjective symptoms and urinary complaints. These findings support the growing evidence that sacrospinous fixation provides effective apical support with favorable functional outcomes.

Previous literature highlights sacrospinous fixation as a reliable vaginal approach for apical prolapse correction with acceptable morbidity. Petri and Ashok described the technique as an effective native-tissue repair offering durable anatomical restoration and shorter recovery time compared to abdominal procedures [4]. Similarly, Tseng et al. reported that sacrospinous ligament fixation remains a cornerstone of vaginal prolapse surgery due to consistent success

rates and reduced operative burden [5]. The predominance of right-sided fixation in this study aligns with conventional surgical practice, which aims to minimize rectal injury risk and improve procedural efficiency.

The current findings demonstrating 90% anatomical correction are comparable with outcomes reported by Favre-Inhofer et al., who observed favorable anatomical and functional results following sacrospinous fixation with sustained improvement in pelvic floor symptoms [10]. Comparable recurrence rates have also been described in randomized trials comparing sacrospinous hysteropexy with alternative suspension techniques, indicating non-inferiority of this approach in maintaining vaginal support [7]. Gupta reported similar success in advanced prolapse cases, suggesting that sacrospinous fixation remains effective across varying stages of disease [13].

Functional improvement was evident in 85% of patients, with urinary symptom improvement in over two-thirds of cases.

Harvey et al. emphasized that correction of apical support plays a crucial role in alleviating associated pelvic floor dysfunction symptoms, including urinary disturbances [14]. These observations reinforce the concept that anatomical restoration contributes significantly to functional recovery. Moreover, the relatively low incidence of dyspareunia in this cohort corresponds with previous findings suggesting that vaginal axis preservation during sacrospinous fixation may reduce sexual dysfunction [15].

Perioperative characteristics observed in this study, including operative duration and limited blood loss, are consistent with prior reports highlighting the minimally invasive nature of vaginal sacrospinous fixation. Demirci et al. demonstrated that vaginal procedures are associated with reduced operative morbidity compared to abdominal approaches, supporting the feasibility of this technique in routine clinical practice [16]. The frequent use of concomitant anterior or posterior repair in this cohort reflects the

multifactorial nature of pelvic organ prolapse and aligns with studies recommending comprehensive compartmental correction to enhance surgical outcomes [17].

Postoperative complications were generally mild and transient. Buttock pain was the most commonly reported complication, which is consistent with the anatomical proximity of the pudendal and gluteal nerve structures described in cadaveric studies by Florian-Rodriguez et al. [18]. The absence of neurological injury in this study suggests that careful surgical technique may mitigate serious complications. Similar complication profiles were reported by Dangal et al., who observed low rates of severe adverse events following sacrospinous fixation in prolapse repair [19]. Systematic reviews have also emphasized that sacrospinous fixation maintains an acceptable safety profile with a relatively low incidence of hemorrhage or infection [6].

The recurrence rate of 10% observed in this study corresponds with existing literature identifying parity, tissue quality and pelvic floor dysfunction as potential contributors to prolapse recurrence. Vergeldt et al. highlighted that multiparity and ageing remain significant risk factors influencing long-term outcomes after prolapse surgery [20]. Long-term observational studies further indicate that while sacrospinous fixation demonstrates durable anatomical results, ongoing surveillance remains important to identify recurrence or symptom progression [12].

Overall, the present findings are consistent with global evidence supporting sacrospinous fixation as a safe and effective surgical option for early-stage uterovaginal prolapse. The high rate of symptom improvement combined with manageable complication rates reinforces its clinical applicability, particularly in resource-limited settings where minimally invasive vaginal approaches may offer practical advantages. These results contribute valuable regional data to the existing body of urogynecologic literature and support continued utilization of sacrospinous fixation as a primary surgical strategy for apical prolapse repair.

CONCLUSION

Sacrospinous fixation demonstrated high anatomical success and significant functional improvement in women with first- and second-degree uterovaginal prolapse. The procedure was associated with acceptable operative characteristics and low complication rates. These findings support sacrospinous fixation as a safe, effective and clinically feasible surgical option for early-stage uterovaginal prolapse, particularly within settings where

minimally invasive vaginal approaches are preferred.

ACKNOWLEDGEMENT

I would like to express my sincere gratitude for the support and cooperation provided by the staff, participants and my co-authors/colleagues who contributed to this study.

CONFLICTS OF INTEREST

There are no conflicts of interest.

ETHICAL APPROVAL

The study was approved by the Institutional Review Board of Bangladesh Medical University (BMU).

REFERENCES

1. Barber MD, Maher C. Epidemiology and outcome assessment of pelvic organ prolapse. *International urogynecology journal*. 2013 Nov;24(11):1783-90.
2. Wu JM, Vaughan CP, Goode PS, Redden DT, Burgio KL, Richter HE, Markland AD. Prevalence and trends of symptomatic pelvic floor disorders in US women. *Obstetrics & Gynecology*. 2014 Jan 1;123(1):141-8.
3. DeLancey JO. What's new in the functional anatomy of pelvic organ prolapse? *Current Opinion in Obstetrics and Gynecology*. 2016 Oct 1;28(5):420-9.
4. Petri E, Ashok K. Sacrospinous vaginal fixation—current status. *Acta Obstetrica et Gynecologica Scandinavica*. 2011 May;90(5):429-36.
5. Tseng LH, Chen I, Chang SD, Lee CL. Modern role of sacrospinous ligament fixation for pelvic organ prolapse surgery—a systemic review. *Taiwanese Journal of Obstetrics and Gynecology*. 2013 Sep 1;52(3):311-7.
6. Maher C, Feiner B, Baessler K, Christmann-Schmid C, Haya N, Marjoribanks J. Transvaginal mesh or grafts compared with native tissue repair for vaginal prolapse. *The Cochrane database of systematic reviews*. 2016 Feb 9;2016(2):CD012079.
7. Detollenaere RJ, den Boon J, Stekelenburg J, IntHout J, Vierhout ME, Kluivers KB, van Eijndhoven HW. Sacrospinous hysteropexy versus vaginal hysterectomy with suspension of the uterosacral ligaments in women with uterine prolapse stage 2 or higher: multicentre randomised non-inferiority trial. *Bmj*. 2015 Jul 23;351.
8. Jelovsek JE, Barber MD, Brubaker L, Norton P, Gantz M, Richter HE, Weidner A, Menefee S, Schaffer J, Pugh N, Meikle S. Effect of uterosacral ligament suspension vs sacrospinous ligament fixation with or without perioperative behavioral therapy for pelvic organ vaginal prolapse on surgical outcomes and prolapse symptoms at 5 years in the OPTIMAL randomized clinical trial. *Jama*. 2018 Apr 17;319(15):1554-65.
9. Larouche M, Belzile E, Geoffrion R. Surgical management of symptomatic

- apical pelvic organ prolapse: a systematic review and meta-analysis. *Obstetrics & Gynecology*. 2021 Jun 1;137(6):1061-73.
10. Favre-Inhofer A, Carbonnel M, Murtada R, Revaux A, Asmar J, Ayoubi JM. Sacrospinous ligament fixation: Medium and long-term anatomical results, functional and quality of life results. *BMC Women's Health*. 2021 Feb 12;21(1):66.
 11. Leron E, Erez O, Shwarzman P, Baessler K. Sacrospinous ligament fixation (SSLF): An old method with new horizons.
 12. Vigna A, Barba M, Frigerio M. Long-term outcomes (10 years) of sacrospinous ligament fixation for pelvic organ prolapse repair. *In Healthcare* 2024 Aug 13 (Vol. 12, No. 16, p. 1611). MDPI.
 13. Gupta P. Transvaginal sacrospinous ligament fixation for pelvic organ prolapse stage III and stage IV uterovaginal and vault prolapse. *Iranian Journal of Medical Sciences*. 2015 Jan;40(1):58.
 14. Harvey MA, Chih HJ, Geoffrion R, Amir B, Bhide A, Miotla P, Rosier PF, Offiah I, Pal M, Alas AN. International Urogynecology Consultation Chapter 1 Committee 5: relationship of pelvic organ prolapses to associated pelvic floor dysfunction symptoms: lower urinary tract, bowel, sexual dysfunction and abdominopelvic pain. *International urogynecology journal*. 2021 Oct;32(10):2575-94.
 15. Volonte S, Barba M, Cola A, Marino G, Frigerio M. Italian validation of the short form of the pelvic organ prolapse/urinary incontinence sexual questionnaire (PISQ-12). *International Urogynecology Journal*. 2022 Nov;33(11):3171-5.
 16. Demirci F, Demirci O, Dolgun ZN, Karakoç B, Demirci E, Somunkiran A, İyibozkurt C, Karaalp E. Perioperative complications in abdominal sacrocolpexy, sacrospinous ligament fixation and prolift procedures. *Balkan medical journal*. 2014 Jun 1;2014(2):158-63.
 17. De Castro EB, Brito LG, Juliato CR. Vaginal hysterectomy with bilateral sacrospinous fixation plus an anterior mesh versus abdominal sacrocervicopexy for the treatment of primary apical prolapse in postmenopausal women: a randomized controlled study. *International urogynecology journal*. 2020 Feb;31(2):365-72.
 18. Florian-Rodriguez ME, Hare A, Chin K, Phelan JN, Ripperda CM, Corton MM. Inferior gluteal and other nerves associated with sacrospinous ligament: a cadaver study. *American journal of obstetrics and gynecology*. 2016 Nov 1;215(5):646-e1.
 19. Dangal G, Poudel R, Shrestha R, Karki A, Pradhan HK, Bhattachan K, Bajracharya N. Outcome of sacrospinous ligament fixation of the vault during repair of pelvic organ prolapse.
 20. Vergeldt TF, Weemhoff M, Int Hout J, Kluivers KB. Risk factors for pelvic organ prolapse and its recurrence: a systematic review. *International urogynecology journal*. 2015 Nov;26(11):1559-73.