

Satisfaction and Quality of Life of Elderly Women with Pelvic Organ Prolapse Undergone Colpocleisis

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What's known on the subject? and What does the study add?

Pelvic organ prolapse (POP) is common in elderly women. This condition affects patients' quality of life. The lifetime risk of having POP surgery is 18.7% in an 80-year-old woman and 21.5% in older women. Colpocleisis is an underrated but effective surgical treatment option for POP. POP and urinary incontinence were significantly decreased after colpocleisis surgery. There was a significant relationship between quality of life (social functioning) and the stage of prolapse after surgery. The quality of life of patients in the four investigated dimensions, including physical functioning, role limitations, social functioning, and emotional role limitations, was significantly higher than the mean.

Abstract

Objective: Pelvic organ prolapse (POP) affects the quality of life of elderly women. This study aimed to investigate the satisfaction, recovery, and recurrence of symptoms in patients with POP who underwent colpocleisis.

Materials and Methods: This retrospective cohort study included elderly women (106 cases with an average age of 74.49±6.07) suffering from stage III or higher POP who underwent partial or total colpocleisis. Pre- and post-operative POP-Q, urinary symptoms, and the level of patient satisfaction were the outcome measures.

Results: POP and urinary incontinence significantly decreased after surgery ($p<0.001$). There was a significant relationship between quality of life (social functioning) and the stage of prolapse after operation ($p<0.01$). In addition, the patient's quality of life in the four investigated dimensions, including physical functioning, role limitations, social functioning, and emotional role limitations, was significantly higher than the mean and average ($p<0.01$).

Conclusion: Colpocleisis is a procedure characterized by high subjective and objective success, low regret, and low risk of complications. Therefore, colpocleisis is a minimally invasive and effective treatment method for elderly women. However, further clinical research is needed to evaluate the efficacy of this procedure.

Keywords: Colpocleisis, pelvic organ prolapse, quality of life, patient satisfaction

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Introduction

Pelvic organ prolapse (POP) is a syndrome of pelvic floor and pelvic organ prolapse either alone or in combination, which severely affects the quality of life of patients. POP affects approximately 40% of women worldwide, and this proportion is likely to increase as the population ages (1). Colpocleisis is a surgical procedure used to treat POP, a condition in which pelvic organs such as the uterus, bladder, or rectum protrude into the vaginal wall due to weakened pelvic floor muscles (2,3). There are many risk factors for POP, among which parity, vaginal delivery, aging, and body mass index (BMI) can be mentioned (4). In a systematic review that investigated the risk factors for POP recurrence following colpocleisis, the findings revealed that both the preoperative and postoperative genital hiatus lengths were significantly longer in the recurrence group. Additionally, the postoperative total vaginal length was significantly longer in the recurrence group. Women with previous POP surgery were also more likely to experience recurrence following colpocleisis. However, the patient's age and previous hysterectomy did not affect recurrence rates. These findings emphasize the importance of appropriate patient selection and surgical technique in minimizing the risk of recurrence following colpocleisis (5). The surgical management of POP includes reconstructive and obliterative procedures. Reconstructive surgery corrects the prolapsed vagina and aims to restore normal anatomy, whereas obliterative surgery is defined as an operation to obliterate the vagina in elderly women who do not have sexual activity or who wish to have future intercourse. These procedures include colpectomy and Le Fort colpocleisis (6). For patients with severe POP who cannot be treated with conservative methods and for whom long surgery is not possible because of physical condition, this method is a suitable choice (7). The obliterative technique is an effective alternative for correcting advanced apical prolapse (8). The potential benefits of the obliterative method compared with the reconstructive approach include decreased operation time, blood loss, and recovery time (7). Patient satisfaction and quality of life are crucial aspects of any medical intervention, including colpocleisis. The main purpose of this study was to investigate patient satisfaction, quality of life, symptoms before and after surgery, and postoperative complications in women who underwent colpocleisis.

Materials and Methods

This retrospective cohort study was conducted from 2017 to 2022. In this study, all women with POP grades 3 and 4 were evaluated. The study population included all women aged 60-85 years with a history of POP who underwent colpocleisis surgery at the Taleghani and Al-Zahra Hospitals of Tabriz University of Medical Sciences. At each of these two medical centers,

colpocleisis was performed by a single expert surgical team. The Ethics Committee of Tabriz University of Medical Sciences approved the study (decision no: IR.TBZMED.REC.1400.1018, date: 12.01.2022).

Study Population and Sample Size Calculation

In this research, 106 participants were selected based on the size of the original sample using a simple sampling method. Assuming a recurrence probability of 50%, power of 80%, type 1 error of 0.05, and maximum tolerable error of 0.01 and using the formula to determine the prevalence of the sample size, 96 patients were estimated in this study. Assuming a probability of missing 0.1, a sample size of 106 people was considered.

Evaluation of POP Severity

We used the pelvic organ prolapse quantification (POP-Q) system developed in 1996 as the severity criteria to evaluate the severity of apical prolapse (9). In this study, four questionnaires were used: A demographic questionnaire, a World Health Organization standard quality of life questionnaire, a POP-Q, and a urinary symptom questionnaire comprising urinary frequency, nocturnal urination, urinary urgency, and urinary incontinence. The demographic and clinical characteristics questionnaire included questions on age, level of education, employment status, income, parity, number of living children, age at the time of first delivery, and method of delivery. The questionnaire of the POP-Q, including standard examination with the POP-Q system, was administered in the lithotomy position, and points were measured using a spatula calibrated in centimeters. In this system, 9 special places were measured, of which 6 points along the length of the vagina were related to the hymen ring. The anatomical location of these 6 points should be expressed in centimeters either proximal to the hymen (negative numbers) or distal to the hymen (positive numbers), with the hymen having a score of 0. The three other measurements in the pelvic organ prolapse examination include the genital hiatus, perineal body, and total vaginal length. All measurements except for the total vaginal length were performed in the state of maximum thrusting (10). The Short Form 36 Health Survey Questionnaire (SF-36) is a self-administered questionnaire containing 36 items. It measures health on eight multi-item dimensions, covering functional status, well-being, and overall health evaluation (11,12). For regular postoperative follow-up, patients were referred for outpatient visits or follow-up via telephone.

Statistical Analysis

All data were analyzed using SPSS 22 statistical software, and the values are presented as means \pm standard deviation (SD), medians, or percentages, depending on the variable. A linear regression test (single variable and multivariable) was used to control for confounding variables. The independent t-test

was used to compare the data before and after surgery. In all stages of the study, $\alpha=0.05$ and a confidence interval of 95% were considered. A p-value of less than 0.05 was considered statistically significant.

Results

All patients were categorized as stage III or IV according to the definition of the POP-Q system. The median age of the patients was 74.49 (60-85) years. There was no significant correlation between the BMI of patients and the stage of POP before surgery ($p>0.01$). The baseline characteristics of the participants are presented in Table 1.

The most common comorbidity was hypertension (71.02%), and 30.8% of patients had two or more comorbidities. The most frequent pregnancies were 7-8 pregnancies, which were observed in 18.6% and 20.9% of the women studied. The results showed that 26.7% of the patients experienced 6 natural vaginal delivery, whereas 77.9% had no experience of cesarean section. The status of pregnancy, childbirth, and abortion in the women studied are presented in Table 2. The results showed that 14% of the women studied had undergone previous prolapse surgery, whereas 86% had no history of prolapse surgery. Mean and SD follow-up duration was 36.7 ± 24.18 (range: 12-60) months.

There were no POP cases over stage II on outpatient examination. Thus, anatomical recurrence was not observed in our study. The evaluation of the quality of life of the patients showed that the average of the different dimensions of the patient's quality of life, based on the SF 36 questionnaire, was significantly higher than the median ($p>0.001$) (Table 3). Comparison of the POP stage before and after surgery was performed using the Wilcoxon signed-rank test. The results obtained from the statistical analysis showed that the degree of prolapse

after surgery was significantly decreased compared to before operation ($Z=-8.244$; $p<0.001$). No recurrence was observed during clinical evaluation. The results of prolapse surgery performed in the studied women before and after surgery are presented in Table 4.

In this study, urinary incontinence was significantly decreased after surgery compared with pre-operation ($p<0.001$). Urinary incontinence before surgery was observed in 11 cases (10.37%) patients and in only 5 cases (4.71%). Before the operation, 7 patients had stress urinary incontinence (SUI) and 4 had urgency urinary incontinence; after the operation, 4 patients had SUI and 1 had urinary incontinence due to neurological disease. Two patients with SUI also had stress incontinence before surgery, but this relationship was not significant ($p>0.01$). In total, 4 patients underwent colpocleisis and urinary incontinence surgery at the same time, and none experienced urinary symptom recurrence (Table 5).

Discussion

According to the National Health and Nutrition Examination Survey, approximately 3% of women in the United States have symptoms of vaginal bulging. Colpocleisis is a popular and durable procedure for prolapse or incontinence with success rates of 98-100%. It is ideal for women who are no longer sexually active or who cannot tolerate extensive procedures (13). In a review, the prevalence of POP based on reported symptoms was much lower (3-6%) than that identified by examination (41-50%) (14). POP is a progressive herniation of pelvic organs through the urogenital diaphragm (15). This condition is often

Baseline characteristics	n (%)
Non-smoking	103 (97.1)
Previous hysterectomy	6 (5.66)
Previous prolapse surgery	12 (11.32)
Previous anti-incontinence surgery	4 (3.77)
POP-Q stage	
Stage III	27 (25.47)
Stage IV	59 (55.66)
Marital status	
Married	87 (82.08)
Widowed	19 (17.92)
Divorced/separated/single	0
POP-Q: Pelvic organ prolapse quantification system	

Score	Gravid	Parity	Alive	Abortion	NVD	CS
0	0	0	0	40.7	0	77.9
1	0	0	0	18.6	0	22.1
2	4.7	5.8	9.3	24.4	5.8	-
3	7	8.1	9.3	8.1	11.6	-
4	9.3	20.9	16.3	1.2	19.8	-
5	7	9.3	9.3	0	12.8	-
6	11.6	20.9	24.4	2.3	26.7	-
7	18.6	30.2	26.7	4.7	19.8	-
8	20.9	4.7	4.7	0	3.5	-
9	15.1	0	0	0	0	-
10	0	0	0	0	0	-
11	0	0	0	0	0	-
12	0	0	0	0	0	-
13	5.8	0	0	0	0	-
The data are presented as percentages (%) NVD: Normal vaginal delivery, CS: Caesarean section						

Table 3. Quality of life of patients based on the SF-36 questionnaire

Summary measure	Scale	Means ± SD	p-value
Physical functioning	Physical functioning	24.50±2.25	<0.001
	Role limitations (physical)	29.53±2.36	<0.001
Mental functioning	Social functioning	12.15±1.16	<0.001
	Role limitations (emotional)	21.83±1.77	<0.001

The data are presented as the means ± standard deviation (SD), SF-36: The Short Form 36 Health Survey Questionnaire

Table 4. Stage of pelvic organ prolapse

Pelvic organ prolapse	Pre-operation	Post-operation
0	-	83 (91.6)
I	-	3 (8.4)
II	-	-
III	27 (31.4)	-
IV	59 (68.6)	-

The data are presented as n (%)

Table 5. Urinary incontinence before and after surgery

Time	Stress urinary incontinence	Urgency urinary incontinence	Others	Total
Pre-operation	7 (63.63)	4 (36.36)	-	11
Post-operation	4 (80)	-	1 (20)	5

The data are presented as n (%)

accompanied by symptoms such as urine leakage during coughing or physical activities such as exercise, which are known as SUI (4). Of course, in some women, prolapse prevents urinary incontinence, and SUI may be revealed only after the replacement of prolapsed organs. SUI may also occur after surgical treatment of prolapse (14). Our findings suggest that in the long term, colpocleisis remains a good option for elderly patients with multiple comorbidities and advanced POPs (16,17). This method has been obliterated; as a result, it is more suitable for those who do not like having intercourse in the future (18). In addition, oblitative procedures are appropriate for people who have failed reconstructive methods (19). This approach can be a good option for elderly women with advanced POP because of its simplicity, reported good anatomical outcomes, minimal anesthesia requirements, short operative time, and less blood loss compared with the reconstructive procedure (17,18). In the present study, 106 women with POP who underwent colpocleisis were examined. The results showed that the stage of prolapse after surgery was significantly decreased compared with pre-operation. In our study, none of the patients experienced symptoms of prolapse recurrence, which is a great success for this surgical method. However, in a study by DeLancey and Morley (20), 3% of patients who underwent colpocleisis experienced recurrence of prolapse (20,21). Similarly, Song et al. (22) reported outcomes for patients who underwent LeFort colpocleisis and found no POP recurrences. In similar studies, the success rate of this surgical method, defined as POP-Q stage ≤1 ranged from

62.5 to 100% (23). Eisenberg et al. (24) reported an anatomical success rate of 62.5% (POP-Q ≤1), but the success rate increased to 100% when the definition was extended to POP-Q ≤2. In a study by Ng and Chen (25), 14 patients (87.5%) had successful postoperative results, and 93.8% of the patients were satisfied with the operation. Our anatomical success rate was similar to that of previous studies (16,17,22). It was also observed that the BMI of patients with POP ranged from overweight to obese. This indicates that weight loss can play an important role in preventing pelvic organ prolapse. However, a systematic review by Zenebe et al. (26) did not show a significant effect of BMI on the development of pelvic organ prolapse. However, a recently published systematic review and meta-analysis by Giri et al. (27) obtained similar results to our findings. They reported an association between degrees of obesity and POP. Estimates of the effects of POP in obese women (BMI ≥30 kg/m²) range from negative to a 2.5-fold increase in risk when compared with women of normal weight (28,29).

In our study, patients generally reported high levels of satisfaction. Fortunately, none of the patients complained about lack of intercourse. However, in the present study, only 5 (4.71%) cases of urinary incontinence were observed after surgery, with 4 cases having SUI and 1 case being due to neurological causes. Two patients had *de novo* SUI, but the difference was not statistically significant. In our patients, the desire for re-operation was not observed, except in two

cases. The request for re-surgery in these two patients was due to SUI, which symptoms did not exist at the time of the last operation. The symptoms of these patients developed after colpocleisis surgery. In total, 4 cases of the patients underwent simultaneous colpocleisis and mid-urethral sling (MUS) surgery, none of whom had urinary symptoms. Our present study showed that urinary incontinence significantly decreased after surgery compared with pre-operation. These results demonstrate the positive effect of colpocleisis in women with POP. Wheeler et al. (30) showed a significant improvement in the quality-of-life questionnaires assessing impact, and lower urinary tract symptoms were decreased after colpocleisis with MUS or other anti-incontinence procedures. The results of Hullfish et al.'s (30) study were also similar. Although colpocleisis is an option for older women who do not have sexual function, there are concerns that this procedure, which significantly changes the female genital anatomy and vaginal function, may negatively impact body image, lead to patient dissatisfaction, and result in regret about treating their prolapse. Colpocleisis is a safe procedure with a high rate of anatomical and subjective success. In conclusion, the present study showed that the levels of satisfaction, quality of life, and the absence of POP symptom recurrence were significantly improved after colpocleisis. Le Fort partial colpocleisis is a procedure in which the uterus is preserved during prolapse repair, involving cervix denudation and vaginal wall suturing. Normal cervical cytology, human papillomavirus testing, and endometrial evaluation are documented before surgery. Total colectomy procedures denude the entire vaginal epithelium, and suburethral plication or midurethral sling is recommended to reduce postoperative SUI and prolapse risk (14).

Study Limitations

A limitation of this study was the lack of a control group or comparison with alternative surgical interventions for POP treatment. Without a comparative analysis, it is challenging to determine whether the observed improvements in POP and urinary incontinence outcomes are specifically attributable to colpocleisis or whether similar results could have been achieved with other surgical approaches. This limitation limits the ability to assess the relative effectiveness and safety of colpocleisis compared with alternative treatments for POP in menopausal women. Reliance on self-reported symptoms to determine the prevalence of POP may underestimate the true prevalence because reported symptoms may not always align with clinical examination findings. The small sample size of women in the present study may limit the generalizability of the findings to a larger population. Moreover, the variability in the definitions of success across studies evaluating colpocleisis outcomes may hinder direct comparisons and interpretations of overall effectiveness.

Conclusion

Our study demonstrated that colpocleisis effectively reduced the degree of prolapse and improved patient quality of life. The absence of anatomical recurrence and the significant decrease in urinary incontinence after surgery highlight the success of the procedure. These findings suggest that colpocleisis interventions were beneficial in addressing both POP and urinary incontinence, leading to positive patient outcomes. However, considering the risk of occult urinary incontinence, MUS or other procedures should be performed simultaneously with colpocleisis.

Ethics

Ethics Committee Approval: The Ethics Committee of Tabriz University of Medical Sciences approved the study (decision no: IR.TBZMED.REC.1400.1018, date: 12.01.2022).

Informed Consent: Retrospective cohort study.

Authorship Contributions

Surgical and Medical Practices: F.R., F.M., L.S., H.S.P., Concept: F.R., F.M., L.S., H.S.P., Design: F.R., F.M., L.S., H.S.P., Data Collection or Processing: F.R., F.M., L.S., H.S.P., Analysis or Interpretation: F.R., F.M., L.S., H.S.P., Literature Search: F.R., F.M., L.S., H.S.P., Writing: F.R., F.M., L.S., H.S.P.

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