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## **Follow-up of patients after colpectomy or Le Fort colpocleisis**

*Single center experience*

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*Published in:*

European Journal of Obstetrics and Gynecology and Reproductive Biology

*DOI (link to publication from Publisher):*

[10.1016/j.ejogrb.2021.05.018](https://doi.org/10.1016/j.ejogrb.2021.05.018)

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*Publication date:*

2021

*Document Version*

Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

*Citation for published version (APA):*

Ugianskiene, A., & Glavind, K. (2021). Follow-up of patients after colpectomy or Le Fort colpocleisis: Single center experience. *European Journal of Obstetrics and Gynecology and Reproductive Biology*, 262, 142-146. <https://doi.org/10.1016/j.ejogrb.2021.05.018>

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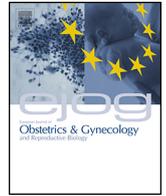
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# European Journal of Obstetrics & Gynecology and Reproductive Biology

journal homepage: [www.elsevier.com/locate/ejogrb](http://www.elsevier.com/locate/ejogrb)

Full length article

## Follow-up of patients after colpectomy or Le Fort colpocleisis: Single center experience



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### ARTICLE INFO

#### Article history:

Received 1 February 2021

Received in revised form 23 March 2021

Accepted 8 May 2021

#### Keywords:

Colpectomy  
Le Fort colpocleisis  
Obliterative procedures  
Recurrence  
Complication  
Satisfaction

### ABSTRACT

**Objective:** As the population ages, obliterative procedures (OP) are expected to become an increasingly important treatment option. The primary aim of this study was to evaluate vaginal and urinary symptoms 3 months after OP and peri- and postoperative complications. The secondary aim was to investigate long-term outcomes, including patient satisfaction, regret rate and the rate of symptomatic recurrent prolapse after OP. Another secondary aim was to evaluate the feasibility of performing OP under local anesthesia (LA) as increasingly more operations are performed under LA.

**Study design:** Retrospective study of 43 women who underwent OP during a 10-year period. Patients completed three prolapse questions from the International Consultation on Incontinence-Vaginal Symptoms (ICIQ-VS) and the International Consultation on Incontinence Questionnaire- Urinary Incontinence Short Form (ICIQ-UI SF) before undergoing surgery, 3 months postoperatively and at long-term follow-up. Records were reviewed for complications, use of anesthetics, recurrences, patient satisfaction and regret.

**Results:** A Le Fort colpocleisis was performed in 31 (72 %) and a colpectomy in 12 (28 %) patients. At 3 months' follow-up, patients had a statistically significant improvement in vaginal symptoms. Twelve patients (46 %) became continent, compared with 14 (54 %) with remaining urinary incontinence (UI). There were no patients with de novo UI 3 months' after surgery. Total complication rate was 4.6% (2/43). A symptomatic recurrent prolapse occurred in 4 patients (9.3 %). The satisfaction rate was 86 %. No patients reported regret choosing to have vaginal closure surgery. Twenty one (49 %) of the procedures were performed under local anesthesia with intravenous sedation.

**Conclusion:** Obliterative procedures are good surgical options for elderly women with a positive impact on vaginal and urinary symptoms, low complication and recurrence rate. Patients report high satisfaction and no regret over loss of sexual ability at longterm follow-up. OP under LA with intravenous sedation is a feasible and safe option.

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### Background

Based on a Danish population- based registry study the lifetime risk of having pelvic organ prolapse (POP) surgery is 18.7 % for an 80-year-old woman and 21.5 % for women aged 85+ years [1].

The surgical management of POP includes reconstructive and obliterative procedures (OP). Reconstructive surgery corrects the prolapsed vagina and aims to restore normal anatomy, while OP (colpectomy and Le Fort colpocleisis) are defined as operations

obliterating the vagina in elderly women who do not have active intercourse or a wish for future intercourse.

Obliterative procedures are highly effective surgical treatments for advanced apical prolapse with success rates between 91 % and 100 % [2] and recurrence rates as low as 4.2 % [3].

Major complication rate is about 4% and is often related to a concomitant hysterectomy or other concomitant procedures. Minor complications are inconsistently reported but probably occur in up to 15 % of women [2].

However, overall patient satisfaction with these OP is greater than 90 % [4–7].

As the population ages, this procedure is expected to become an increasingly important treatment option.

The primary aim of this study was to evaluate vaginal and urinary symptoms 3 months after OP and peri- and postoperative complications. The secondary aim was to investigate long-term

**Abbreviations:** OP, obliterative procedures; ICIQ-VS, International Consultation on Incontinence-Vaginal Symptoms; ICIQ-UI SF, International Consultation on Incontinence Questionnaire - Urinary Incontinence Short Form; LA, local anesthesia.

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<https://doi.org/10.1016/j.ejogrb.2021.05.018>

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outcomes, including patient satisfaction, regret rate and the rate of symptomatic recurrent prolapse after vaginal OP. Another secondary aim was to evaluate the feasibility of performing OP under local anesthesia (LA) as increasingly more operations are performed under LA.

## Material and methods

This prospective follow-up observational study included all women who underwent a colpectomy or a Le Fort colpocleisis in our department during a 10-year period between January 2008 and January 2018. A total of 43 patients were identified. All medical case records and data from the national Danish Urogynecological Database [8] were reviewed. All patients completed three modified prolapse questions from the International Consultation on Incontinence-Vaginal Symptoms (ICIQ-VS) [9] and the International Consultation on Incontinence – Urinary Incontinence Short Form (ICIQ-UI SF) [10,11] before surgery and 3 months postoperatively. The three modified questions from ICIQ-VS used in our evaluation of symptomatic bulge sensation were: 1: “Do you feel a lump or bulge come out of your vagina or can you feel a lump in or outside of your vagina?” (ever (0), occasionally (1), sometimes (2), most of the time (3) or all of the time (4)) and 2: “How much does this bother you?” not at all (0), a little (1), some (2), very much (3) and 3: “How much does this affect your daily life?” (0–10). A score was constructed with 0 in an asymptomatic patient and a score of 17 in a patient with maximum bother. ICIQ-UI-SF was used to evaluate the severity of urinary incontinence and its impact on health-related quality of life. The short form contains three scored items and an un-scored self-diagnostic item. A total score for the three scored items is calculated by adding them up. A score of 0 indicates a totally continent patient. Maximum score for worst incontinence is 21. The un-scored self-diagnostic item is used to classify the type of incontinence: stress, urge, mixed or undefined incontinence. Undefined UI is described as “leaks when you have finished urinating and are dressed” and “leaks for no obvious reasons”. The Danish version of the ICIQ-UI SF has been translated from English but has not been validated.

Demographic data included age, body mass index (BMI), number of births, previous caesarean sections and previous prolapse and incontinence operations. Preoperative evaluation included physical examination including POPQ.

During colpectomy, most of the vaginal epithelium is dissected off the underlying fibromuscular layers from within the hymenal ring posteriorly and to the urethrovesical junction anteriorly, and a series of purse-string sutures are placed [12]. Performing LeFort colpocleisis, rectangular portions of the anterior and posterior vaginal walls are demarcated within the same margins posteriorly and anteriorly, and the vaginal epithelium is dissected off the underlying fibromuscular layers with a sharp dissection. Multiple layers of sutures are placed plicating the posterior to the anterior fibromuscular layer of the vaginal walls, leaving a lateral tunnel on each side [12]. Concomitant perineorrhaphy is not a standard practice in our department.

The mode of anesthesia was dependent on the patient's condition and preferences.

Postoperative clinical follow-up at three months was performed for all patients.

In June 2020, all patients who were still alive received the same questionnaires in order to collect data for a long-term follow-up. If the patients didn't respond to the first letter, a second attempt was performed in August 2020. Moreover, patients were questioned about whether they felt “cured”, “greatly improved”, “somewhat improved”, “not improved”, or “worsened” regarding their surgical operation. The women were also asked whether they regretted

choosing vaginal closure surgery for prolapse. No clinical follow-up was performed.

## Statistical analysis

Descriptive statistics were used to describe the study population

The Ethics Committee, Region Nordjylland, Denmark approved the study. The study was registered at The Health Department, Region Nordjylland (no. 2019–142).

## Results

A total of 43 patients underwent an obliterative procedure during the study period. A Le Fort colpocleisis was performed in 31 (72 %) and a colpectomy in 12 (28 %) patients. One patient (2,3%) underwent concomitant perineorrhaphy. No other concomitant procedures were performed.

Demographic data of the study population are shown in Table 1.

All patients attended a 3 months follow-up. At 3 months follow-up, patients had a statistically significant improvement in vaginal symptoms with a preoperative mean ICIQ-VS score of 13.3 declining to 0.72.

Postoperative changes in urinary incontinence are shown in Fig. 1. There were no patients with de novo UI 3 months after surgery. A total of 13 patients (93 %) who remained incontinent after prolapse surgery according to the ICIQ-UI SF showed improvement in UI and in only one patient urinary incontinence symptoms deteriorated. Mean ICIQ-UI-SF score before surgery was 10,7, which declined to 2,7 postoperatively.

Twenty one (49 %) of the procedures were performed under local anesthesia with intravenous sedation, 12 (28 %) under general anesthesia and 10 (23 %) under spinal anesthesia.

Of the 43 patients, 25 (58 %) were done as day cases.

Only one patient had a perioperative complication, a 3 mm's small bladder perforation. One patient experienced a postoperative complication. She was admitted and reoperated because of a vaginal hematoma one week after primary surgery. Total peri- and postoperative complication rate was 4,6% (2/43).

In four patients (9,3%) a symptomatic recurrent prolapse occurred 3–17 months (median 3 months) after surgery (Table 2). One patient with a recurrent total uterine prolapse at 3 months follow-up, stated a 14 days period of severe cough short time after surgery. She wanted to avoid repeat surgery and was treated successfully with vaginal pessary. Two other patients experienced a recurrence in the anterior compartment. When reviewing their surgery notes, we found that these patients underwent incomplete closure of the vagina leaving total vaginal lengths of 6 cm. These two women underwent site-specific anterior wall repair. The fourth patient experienced a complete breakdown of the

**Table 1**  
Demographics of the study population.

	Study population N = 43
Age, median (range), years	82 (63–96)
Parity, median	3 (0–8)
Body mass index, kg/m <sup>2</sup> : mean (range)	25,1 (17,90–34,50)
Cesarean section: n (%)	0 (0%)
Previous hysterectomy: n (%)	12 (27,9%)
Previous prolapse surgery: n (%)	10 (23,2%)
Previous anti-incontinence surgery: n (%)	0 (0%)
Pessary use: n (%)	27 (62,7%)
Prolapse stage	
III	14 (33 %)
IV	29 (67 %)

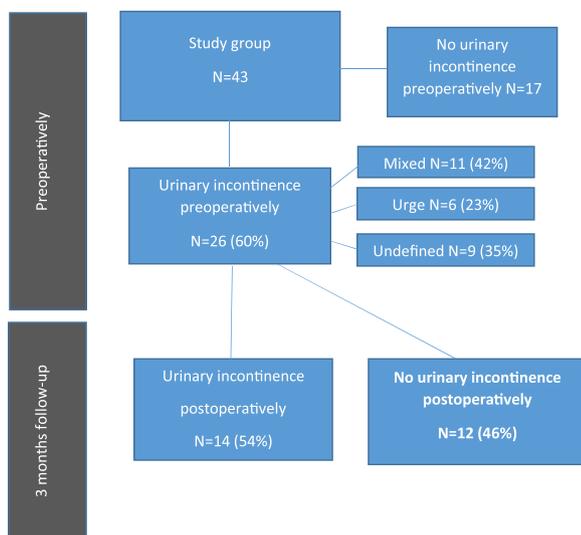


Fig. 1. Changes in urinary incontinence at 3 months follow-up.

colpocleisis requiring a second surgery. She underwent recolpocleisis 23 months after the primary surgery.

21 patients had died during long-term follow-up. Mean follow-up time from surgery to death was 53 months (range 3–124).

22 patients (51 %) of 43 patients were still alive in June 2020 and received the same questionnaires in order to collect data for a long-term follow-up. 14 patients completed questionnaires, representing a 64 % response rate.

Average time since surgery to completed questionnaire was 73 months (range 31–134).

Pre- and postoperative data on the ICIQ-VS score showed statistically significant improvement in all 14 patients, with preoperative mean score of 13.4 declining to 0.14 at 3 months follow-up. At long-term follow-up, the mean prolapse score was slightly higher with a mean score of 2.2.

Nine of the 14 (64 %) patients were incontinent before surgery. At 3 months follow-up, 4 became continent, 4 reported improvement in UI and only one reported deterioration in UI. Mean ICIQ-UI SF score before surgery among patients who were alive and answered the questionnaire at long-term follow-up was 8,78, declining to 4,28 at 3 months follow-up. At long-term follow-up the score has slightly increased to 6,14.

Regarding patient satisfaction, 12 patients (86 %) felt “cured”, “greatly improved” and “somewhat improved”, 2 women felt “not improved” at long-term follow-up. Both patients, who stated no improvement at long-term follow-up, had ICIQ-VS scores of 10 and 6 and experienced urge urinary incontinence with ICIQ-UI SF scores of 9 and 11. No patients reported regret choosing to have vaginal closure surgery. None of the 14 women reported any surgery for prolapse or urinary incontinence since their

obliterative surgery. Only one patient reported use of anticholinergic medicine for OAB.

Discussion

In this study, we found an improvement in vaginal and urinary symptoms and no incidents of de novo UI 3 months OP. Recurrence rates were low, and patients had no regret over loss of sexual ability at long-term follow-up. We found a high feasibility of performing OP under local anesthesia.

Our study results showing a significant improvement in vaginal symptoms 3 months after the obliterative procedures are consistent with previous studies [5–7,13–18].

This study found, that 26 (60 %) of 43 patients had concomitant UI. A total of 46 % of patients with preoperative UI became completely dry after obliterative procedures alone, and up to 93 % of women experienced improvement in UI 3 months after surgery. It is somewhat difficult to compare our data to other studies because most of studies described OP with concomitant anti-incontinence procedures. In our opinion, there is no need to perform a concomitant anti-incontinence procedure and it is better to await effects of prolapse surgery alone [19].

In contrast to some previous studies [4,5,20], where de novo UI has been reported in up to 27 % of women undergoing OP, we found no patients who complained of de novo stress UI 3 months after surgery. One possible explanation could be our surgical technique. We remove the anterior vaginal epithelium above the urethro-vesical junction. Thus, we avoid operation in the area under the urethra in order not to compromise the nerves and tissue in this area and in order not to pull the urethra down. This might prevent the occurrence of de novo SUI postoperatively which is in agreement with a colpocleisis review by FitzGerald et al. [2].

Some studies have shown data on anti-incontinence surgery at the time of colpocleisis or colpectomy [4,5,7,13,16,17,20,21]. Winkelman et al. [21] found that women with a concurrent midurethral sling procedure were more likely to have postoperative urinary symptoms. Zebede et al. [4] demonstrated that major complications were unrelated to the colpocleisis procedure itself but were a consequence of concomitant procedures including sling procedures.

In agreement with other studies [4,13,16,18], we found that OP are low-risk procedures. There were no serious peri- and postoperative complications.

A large study performed by Sung et al. [22] showed that elderly women have a higher risk of mortality and morbidity following urogynecologic surgery, regardless of comorbidity status. They found that elderly women 80 years and older who underwent obliterative procedures had a significant lower risk of complication compared with patients who underwent reconstructive procedures for pelvic prolapse (17 % vs 247%). Furthermore, our findings suggest that local anesthesia or regional anesthesia is a feasible option for OP thus reducing the use of general anesthesia which can be harmful for the elderly patients. 72 % of our patients

Table 2 Characteristics of patients with a recurrent prolapse.

	1	2	3	4
Age at the time of OP, years	77	78	85	72
BMI, kg/m <sup>2</sup>	23,20	19,60	22,00	30,50
Number of births	3	1	5	3
Previous hysterectomy	No	Yes	Yes	No
Previous POP surgery	No	Yes	Yes	No
Previous UI surgery	No	No	No	No
Prolapse stage before OP	3	3	3	4
Time to recurrence	3 months	3 months	3 months	17 months
Treatment of recurrence	Pessary	Anterior repair	Anterior repair	Re-colpocleisis

underwent surgery under local anesthesia with intravenous sedation or regional anesthesia. This information can be useful for the counseling and information of women who are planning to undergo prolapse surgery.

Regarding a concomitant hysterectomy at the time of colpopoiesis, several studies showed that a concomitant hysterectomy is associated with longer operative times and higher blood loss [15,23,24].

These findings highlight the fact that concomitant procedures at the time of obliterative surgery carry their own risks and complications. In our practice we do not perform concomitant hysterectomy with obliterative procedures. We strongly support the opinion that a concomitant hysterectomy should be reserved to women with uterine pathology [13,23,25]. That is why, it is important to rule out the possible uterine pathology before surgery by doing an ultrasound of the uterus and taking an endometrial biopsy if needed.

At long-term follow-up, no patients expressed regret over loss of coital ability. This is in accordance with many other studies [13,16,17,22,26]. In contrast, among the 62 women in Von Pechmann's et al. [15] study, regret over loss of coital ability occurred in 129% of patients. Among the 8 patients who expressed regret, there was variability on the degree of regret and the authors believe that this is a possible explanation for their higher regret rate.

Our study revealed that, at long-term follow-up, 86 % of patients were satisfied with the treatment and no women had worsening of prolapse symptoms after surgery. Lower rates of satisfaction of 78 % were found also in a study by Winkelmann et al. [22]. The authors believed that it could be due to the relatively high prevalence of postoperative bowel and bladder symptoms at long-term follow-up. They highlighted the need to counsel patients about the long-term outcomes and importance to contact doctor not only for recurrence of vaginal symptoms, but perhaps more importantly with other bothersome pelvic floor symptoms.

According to a review of the literature, a recurrence rate after OP is about 4,2% [3]. The reasons for recurrent prolapse are associated with a faulty surgical technique or primary infection. The study of Krissi et al. [13] showed that longer postoperative vaginal length and wider genital hiatus were associated with prolapse recurrence. Symptomatic recurrence, in our study, occurred in 4 (9,3%) patients, median 3 months after surgery. Two patients, who experienced a recurrence, had incomplete closure of vagina during the primary surgery which could probably lead to the recurrence of prolapse in the anterior compartment. None of those patients were treated with concomitant perineorrhaphy.

The strength of our study is that the same questionnaire was used both pre- and postoperatively and at long-term follow-up, giving more exact information about changes in vaginal and UI symptoms. All the data were entered into the database when events took place. Obliterative surgery is not a commonly performed procedure for prolapse in women, which is why it was not possible to include more patients in this single-center study. Lastly, 36 % of our patients were excluded from our long-term follow-up because of their missing respond to the questionnaire. Long-term follow-up in the elderly is always challenging mainly because of issues with dementia and other medical comorbidities.

In conclusion, a majority of patients had a significant improvement in vaginal symptoms 3 months after surgery. Almost half of the patients with UI before OP became completely dry after prolapse surgery alone. Complication and recurrence rates were low. Patients had a high satisfaction rate and no regret over loss of sexual ability at long-term follow-up. Obliterative procedures

under LA with intravenous sedation is a feasible and safe option. However, additional studies are required to validate our results.

### CRedit authorship contribution statement

**A Ugianskiene:** Project development, data collection, data analysis, manuscript writing. **K Glavind:** Project development.

### Declaration of Competing Interest

The authors report no declarations of interest.

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