

Modified LeFort colpocleisis: clinical outcome and patient satisfaction

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Abstract

Objectives The purpose of this study was to determine the anatomical and functional outcomes, as well as patients' satisfaction and morbidity associated with modified LeFort colpocleisis.

Study design Between 7/2007 and 6/2011 58 patients underwent a modified LeFort colpocleisis. Thirty-eight were available for follow-up visit. Records were reviewed for patients' characteristics, operative data and incidence of complications. The follow-up visit comprised a medical history and a gynecological examination. A visual-analog-scale to assess patients' quality of life after surgery was used. The patients were asked: "Would you again choose to have this surgery performed?" and "Do you regret choosing to have a vaginal closure procedure?" Statistical analysis was performed using R version 2.12.1, R Foundation for Statistical Computing, Vienna, Austria.

Results There were no treatment failures within a mean follow-up of 14 months (range 3–41 months). 89 % of patients reported an improved quality of life postoperatively. No complications occurred intraoperatively and none of the patients regretted the loss of sexual function. All patients stated that they would choose to have the colpocleisis procedure again. Postoperatively 8 urinary tract infections, 2 hematomas and 1 pyometra occurred. Two patients complained about stress urinary incontinence and another one about an overactive bladder.

Conclusion The study highlights an additional safe and effective option for an individualized treatment of pelvic organ prolapse.

Keywords Modified LeFort colpocleisis · Pelvic floor reconstructive surgery · Pelvic organ prolapse

Introduction

Colpocleisis is recognized as a highly successful surgical procedure for pelvic organ prolapse in elderly patients who no longer desire preservation of coital function. A literature review reported a success rate for the LeFort colpocleisis between 75 and 100 % with follow-up intervals ranging from 3 months to 30 years [1].

In our clinical practice we faced the question of what to do if a LeFort colpocleisis had failed and a recurrent vaginal eversion occurred. Using a modified re-colpocleisis technique we successfully treated a recurrent POPQ Stage IV posthysterectomy vaginal prolapse in an 89-year-old woman after several prolapse surgeries including a colpocleisis as published previously [2].

The purpose of this study was to determine the anatomical and functional outcome, report patients' satisfaction and describe the morbidity associated with the modified LeFort colpocleisis technique performed in a specific group of patients who did not have had a colpocleisis procedure performed previously.

Materials and methods

Between 7/2007 and 6/2011 58 consecutive patients underwent a modified LeFort colpocleisis procedure. All

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patients were sexually inactive, frail or disabled with multiple severe co-morbidities and suffering from pelvic organ prolapse stage II or higher. In one patient the surgery was performed for the treatment of high-grade vaginal intraepithelial neoplasia.

The technique used was LeFort colpocleisis we had modified as published previously [2]. The modification consists of the removal of the majority of the vaginal epithelium up to the hymenal ring posteriorly and to at least 2.0 cm of the external urethral meatus anteriorly not leaving some portion of the vaginal epithelium in place for providing drainage tracts for cervical or other upper genital discharge. After de-epithelialization of all four vaginal quadrants non-resorbable sutures were used for colpocleisis (Ethibond 2-0; Johnson & Johnson, Norderstedt, Germany). The non-resorbable sutures did not come into contact with the tissue outside the vaginal wound, as resorbable material had been used for the concurrent levator myorrhaphy and perineorrhaphy (Figs. 1, 2) (Vivryl 0; Johnson & Johnson, Norderstedt, Germany). Thus, may be reduced the risk of infection and healing problems [2]. The question of removal or preserving the uterus was discussed carefully. In order to reduce morbidity the uterus had been preserved in one case to keep the procedure as minimally as possible. In 55 % ($n = 21$) a vaginal hysterectomy was performed just before the surgical steps of colpocleisis were made. Sixteen women (42 %) have had a hysterectomy previously.

All patients underwent a vaginal ultrasound scan as well as a scan of the kidneys prior to surgery.

The medical records of the patients who underwent modified LeFort colpocleisis between July 2007 and June 2011 were reviewed for patients' characteristics, operative data and incidence and types of complications. All patients were contacted by an investigator not involved in the surgery and invited for a follow-up visit at our department.

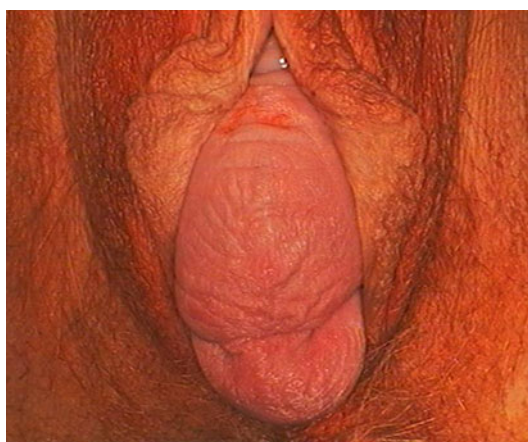


Fig. 1 Pelvic organ prolapse after hysterectomy in an 87-year-old woman

Thirty-eight patients out of 58 were available for the follow-up visit (66 %). The study visit comprised a gynecological examination with measurement of total vaginal length (tvL), perineal body (pb) and genital hiatus (gh) according to the Pelvic Organ Prolapse-Quantification System of the International Continence Society (ICS POP-Q system) [3]. At the same visit the residual urine was measured by ultrasound scan after micturition. A visual-analog-scale (VAS) to assess patients' quality of life postoperatively ranging from 1 (much better) to 5 (much worse) was used. Furthermore, the patients were asked to answer the following questions: "Would you again choose to have this surgery performed? If not, why?" and "Do you regret choosing to have a vaginal closure procedure? If yes, why?" In addition, we recorded any other urogynecological operation performed in the meantime. The follow-up visit was performed by an investigator not involved in the surgery.

Objective success was defined as the absence of prolapse of the anterior or posterior wall or vaginal apex to the hymen. Subjective cure was defined as a response of "much better" or "somewhat better" when the patients were asked if their quality of life had changed in comparison to before the prolapse surgery.

Institutional Review Board approval (143/2011BO2) was obtained. All patients gave their informed consent for study participation.

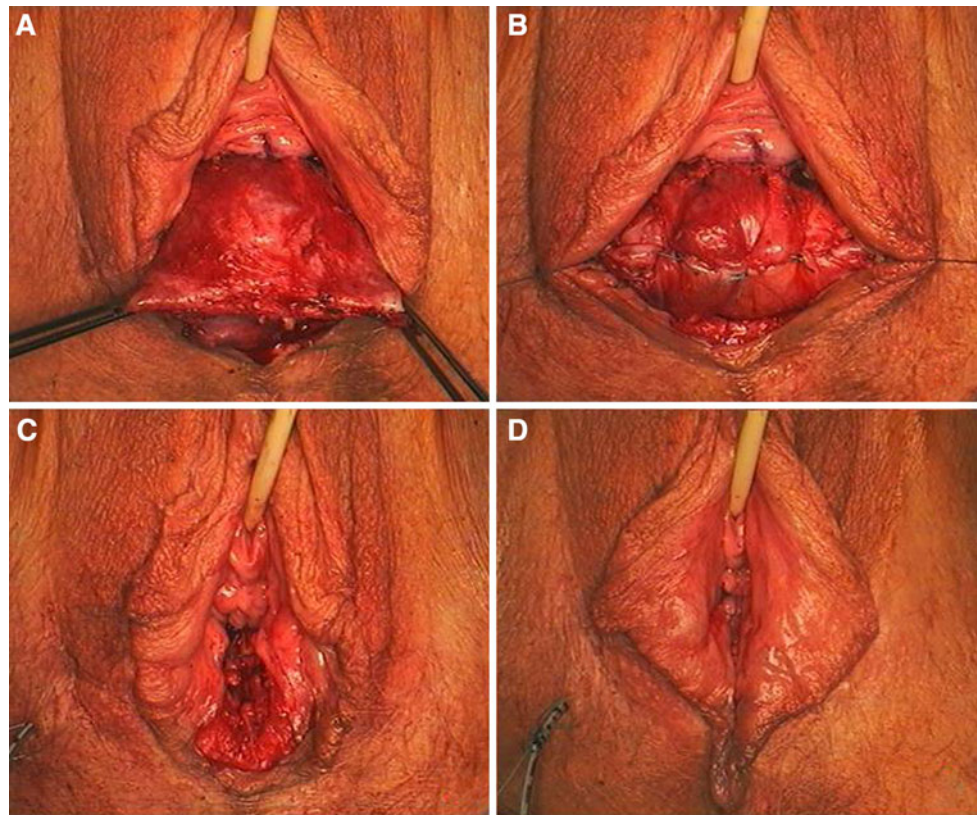
Statistical analysis was performed using R version 2.12.1, R Foundation for Statistical Computing, Vienna, Austria. Numbers and percentages, means and standard deviations or medians and ranges were presented.

Results

Of the 58 women treated with the modified LeFort colpocleisis between 7/2007 and 6/2011 at our department, 38 women agreed to study participation and were able to come for a follow-up visit (66 %). Thirty-seven patients had suffered from a pelvic organ prolapse and one patient from high-grade vaginal intraepithelial neoplasia. Of the patients suffering from prolapse, two (5 %) had a POP-Q stage II and 35 (92 %) a POP-Q stage III or stage IV. The median follow-up period was 14 months (ranging 3–41 months). Sixteen women had the follow-up visit within 1 year postoperatively, 12 between 1 and 2 years after surgery and 10 patients more than 2 years postoperatively. The mean age of the patients at the operation was 81.9 (± 6.4) years (range 63.9–95.9) and the mean BMI was 24.5 (± 3.4) kg/m² (range 16.4–31.1). Two patients (5 %) had never been pregnant and 95 % of the patients had given birth to one or more children.

Nineteen women (50 %) had no previous gynecological surgery and 19 patients (50 %) had at least one previous gynecological operation. Twenty patients (53 %) were

Fig. 2 Surgical technique of the modified LeFort colpocleisis: **a** vaginal eversion after the removal of the majority of the vaginal epithelium up to the hymenal ring posteriorly and to at least 2.0 cm of the external urethral meatus anteriorly. **b** The surfaces of the denuded anterior and posterior vaginal prolapse were connected using horizontal rows of interrupted sutures with non-resorbable material. Simultaneously, the denuded vaginal prolapse was repositioned into the pelvis. **c** Concurrent levator myorrhaphy and perineorrhaphy were performed using resorbable sutures. **d** After the surgery the vagina was reduced to a length of 2 cm



treated preoperatively with a pessary for one or more years. Anterior and posterior repair had been performed in 11 subjects (29 %), vaginal hysterectomy in 9 (24 %), abdominal hysterectomy in 7 (18 %), sacrospinous ligament suspension in 4 (11 %), vaginal mesh repair in 2 (5 %) and colposuspension in 1 case (3 %) previously to our colpocleisis procedure. Due to the variability of ability to remember the exact date of previous surgery we cannot provide more information about the time between the first pelvic floor repair and colpocleisis.

All patients with pelvic organ prolapse had suffered from extreme discomfort. Eighteen women had problems to empty the bladder caused by a huge mass protruding through the introitus. After the modified LeFort colpocleisis, normalization of elevated postvoid residual urine occurred in all patients. The indwelling catheter was removed on the second postoperative day and none of the patients had voiding problems.

Simultaneous vaginal hysterectomy was performed in 21 (55 %) of 38 patients and 16 (42 %) had had a hysterectomy previously. In one patient the uterus was preserved at her request. As to complications, all procedures could be performed without the necessity to convert to laparotomy. No bladder or rectal injury occurred; no blood transfusions were necessary. There were 8 urinary tract infections and 2 hematomas. One patient underwent re-intervention for treatment of the hematoma, but blood transfusions were not

necessary. One patient developed a pyometra and hysterectomy was performed per laparotomy 6 month after surgery. Two patients complained about severe stress urinary incontinence and a suburethral sling was placed in both cases 6 weeks after surgery, which resulted in subjective cure. Another patient was treated with a Clostridium Botulinum Toxin Type A injection (Botox[®] 100, Pharm-Allergan GmbH, Pforzheimer Street 160, 76275 Ettlingen, Germany) due to symptoms of an overactive bladder 6 weeks after the modified colpocleisis.

No treatment failures were noted. Objective success, defined as the absence of prolapse to the hymen, was achieved in all cases. The mean postoperative total vaginal length (tvL) was 22 (\pm 9) mm (range 5–45 mm), the perineal body (pb) was 45 (\pm 13) mm (range 20–80 mm) and the genital hiatus (gh) measured 17 (\pm 6) mm (range 5–35 mm) (Fig. 3). The postoperative tvL of 5 mm in two patients at the follow-up visit had been caused by postoperative adhesions.

Subjective cure, defined as the response “much better” or “somewhat better” when asked if quality of life had changed in comparison to before the prolapse surgery, was achieved in 94 % of the patients operated with the modified LeFort colpocleisis. Thirty-four of 38 patients (89 %) reported their quality of life as much better and two (5 %) somewhat better after the prolapse surgery. Two women (5 %) reported that their quality of life was neither better

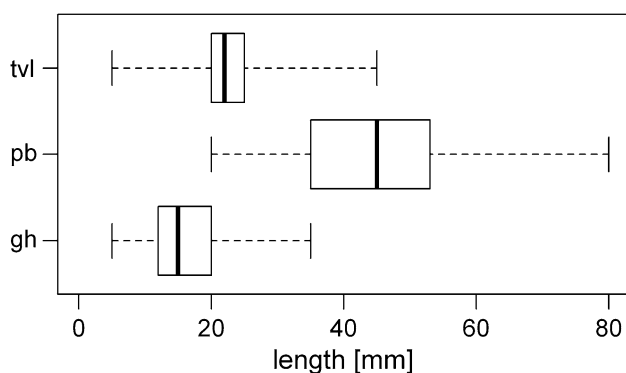


Fig. 3 Postoperative total vaginal length (*tv*), perineal body (*pb*) and genital hiatus (*gh*) at the follow-up visit 14 months (range 3–41 months) after modified LeFort colpocleisis

nor worse after the vaginal surgery. All patients stated that they would choose to have the colpocleisis procedure again. None of the patients regretted the operation.

Discussion

There is paucity of evidence about the management of recurrent prolapse after prior colpocleisis. The optimal surgical approach for treatment in these cases is unknown. In a case series of failures of LeFort colpocleisis, Adair et al. [4] described the “repeat LeFort” as a possible treatment. In a case of pyometra associated with recurrent prolapse, the patient was treated with abdominal hysterectomy, upper vaginectomy and vaginal colectomy [5]. In their case report, Hoskey et al. [6] described a case of recurrent prolapse after LeFort colpocleisis treated by a modified repeat colpocleisis and repeat perineorrhaphy. A modified LeFort colpocleisis technique for the treatment of LeFort colpocleisis failure, resulting in anatomical success 5 years postoperatively, has been previously published by the authors of this study [2]. The purpose of the present study was to determine the anatomical and functional outcome, to report changes in patients’ condition after operation and to describe the morbidity associated with the modified LeFort colpocleisis technique performed during the study period. We could show that modified LeFort colpocleisis results in overall anatomical success, improved quality of life and low rates of surgical complications.

Our modification of the surgical technique is an attempt to minimize the risk of prolapse recurrence by including the total vaginal surface area in the colpocleisis without leaving some portion of the vaginal epithelium in place for providing drainage tracts laterally. Our technique does not allow access to the cervix and uterus vaginally postoperatively in case of uterine preservation. However, one patient developed a pyometra and hysterectomy was performed per laparotomy 6 months after surgery. To avoid the risk of

a pyometra, hysterectomy may be recommended simultaneously with colpocleisis.

All patients operated on in our study were sexually inactive, frail or disabled with multiple co-morbidities complaining about a symptomatic primary or recurrent pelvic organ prolapse with the exception of one patient having the surgery for high-grade vaginal intraepithelial neoplasia. Urinary incontinence was not a reason for treatment in any of the subjects. Many elderly patients with advanced prolapse have impaired urethral function manifested as intrinsic sphincteric deficiency, as well as decreased detrusor function with resultant urinary retention and voiding dysfunction [7]. In addition, patients with advanced prolapse may have stress incontinence that manifests only after prolapse repair, defined as “occult” stress incontinence [8]. In our study only two patients needed subsequent surgical treatment for stress urinary incontinence and a third treatment for overactive bladder.

One limitation of the study is the fact that the authors did not use validated condition-specific questionnaires. However, most patients, being elderly, would not have been able to fill in the questionnaires in a non-biased manner due to cognitive deficiencies. This is why a prospective design of this study would have resulted in non-reproducible data.

As the female population ages, pelvic organ prolapse at an advanced age is a condition that will become more prevalent. As women live longer and seek improvement in their quality of life, procedures with durable results and limited morbidity will increasingly be in demand. In planning treatment strategy, the surgeon needs to consider coexisting medical conditions, functional status and sexual activity of the patient. Our modified LeFort colpocleisis offers an additional option of treatment for pelvic organ prolapse and shows that the surgical approach can be individualized for every patient.

Conflict of interest The authors have no conflict of interest. The study was not sponsored. Authors have had full control of all primary data and they agree to allow the Journal to review their data if requested.

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